NetUP Streamer HDMI 8x

User manual

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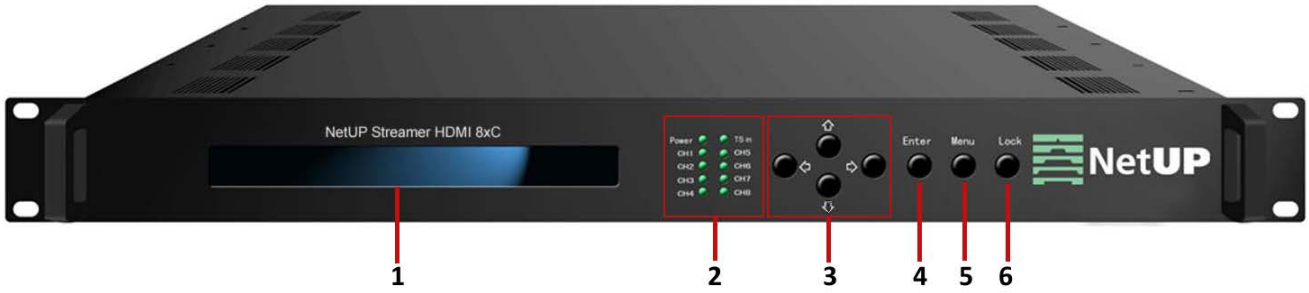
Contents

Chapter 1 Introduction

NetUP Streamer HDMI 8x is an all-in-one device, that integrates encoding, (MPEG-4/AVC H.264) multiplexing and modulation functions in a 1U case. It is capable of converting 8 HDMI signals and 1 ASI input to 2 DVB-T RF outputs in the frequency range of 30~999MHz. It is also equipped with 2 ASI ports and an IP port. The source signal may come from a satellite receiver, closed-circuit television camera, etc. The device's output can be received by DVB-T standard TVs or DVB-T STBs.
This device can be used for advertising or monitoring purposes in public places such as metro, market halls, theatres, hotels, resorts, etc.

Appearance and illustration



Front panel:

1	LCD screen	
2	Indicators	Power
		TS in – the input lock indicator
		CH1-CH8 coding channels
		All indicators will light on when the device is switched on
3	UP/DOWN, LEFT/RIGHT keys	
4	ENTER key	
5	MENU key	
6	LOCK key	

Rear panel:

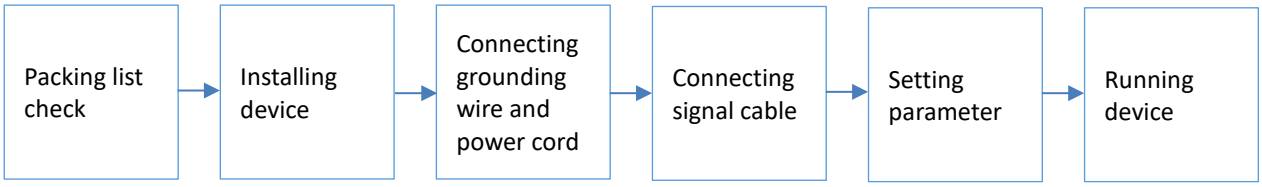
1	HDMI ports
2	RF test port
3	RF output port
4	ASI input port
5	ASI output ports
6	DATA port (for IP signal output)
7	NMS (Network management port)
8	Power switch
9	Fuse
10	Power socket
11	Grounding pole

Specifications

Input	8×HDMI and 1×ASI	
Video	Encoding	MPEG-4 AVC/H.264
	Resolution	1920×1080_60p,1920×1080_50p 1920×1080_60i, 1920×1080_50i 1280×720_60p, 1280×720 _50p 720×576_50i, 720×480_60i
	Bitrate	0.8Mbps~19Mbps (each channel)
	Rate control	VBR/CBR
	GOP Structure	IBBP
	Advanced Pretreatment	Deinterlacing, Noise reduction, Sharpening
Audio	Encoding	MPEG-1 Layer 2, HE-AAC V2, LC- AAC
	Sample rate	48KHz
	Bitrate	64Kbps~384Kbps (each channel)
Multiplexing	1 ASI input multiplexed with local 8 channels of TS	
	PID remapping (automatically or manually)	
	Accurate PCR adjusting	
	Generate PSI/SI table automatically	
Modulator	Standard	EN300744
	FFT mode	2K, 8K
	Bandwidth	6MHz, 7MHz, 8MHz
	Constellation	QPSK, 16QAM, 64QAM
	Guard Interval	1/4, 1/8, 1/16, 1/32
	FEC	1/2, 2/3, 3/4, 5/6, 7/8
	MER	≥42dB
	RF frequency	30~960MHz, 1KHz step
	RF output level	-30~ -10dbm (77~97 dbμV), 0.1db step
	RF out	2×RF DVB-T out
Output	2×ASI to mirror one RF output, BNC interface 8×SPTS over UDP, RTP/RTSP, 1000Base-T Ethernet interface (unicast / multicast)	
System	Control	LCD/keyboard controls, web NMS support
	Update	Ethernet software & hardware upgrade
Other parameters	Dimension (W×L×H)	482mm×328mm×44mm
	Approx. weight	4kg
	Temperature	0~45℃ (work); -20~80℃ (storage)
	Power requirements	AC 100V-220V±10%, 50/60Hz
	Power consumption	25W

Chapter 2 Installation guide

Device's installation flow chart



Before installing and connecting the device, carefully read the environment and grounding requirements, as well as safety instructions for the sake of your safety and for the safety of the device

Packing list check

Check items according to packing list. Normally it should include the following items:

- NetUP Streamer HDMI 8x
- Power Cord
- HDMI cable
- ASI cable

Safety instructions

- Before installing and connecting the device make sure that the device was not damaged during delivery.
- Install the device in an appropriate place. The device is designed to work in a clean and dry room. It must be operated and maintained free of dust.
- Before switching on the device make sure that it is adjusted to the mains voltage you intend to use. Make sure that you keep within the specifications – AC 100V-220V±10%, 50/60Hz.
- Check that all the cables are connected properly. Connect cables only to a device that is turned off.

Environment requirement

Item	Requirement
Room space	When installing a rack in the room, make sure the distance between two rows of racks is 1.2~1.5m and the distance to the wall is at least 0.8m.
Room floor	Electric isolation. Dust free. The volume resistivity of ground anti-static material: 1×107~1×1010 Ω. Grounding current limiting resistance: 1M (Floor bearing should be greater than 450Kg/m^2).
Environment temperature	5~40℃ (sustainable), 0~45℃ (short time). Installing air-conditioning is recommended.
Relative temperature	20%~80% (sustainable); 10%~90% (short time).
Pressure	86~105KPa
Door & window	Install rubber strip for sealing door-gaps and dual level glasses for windows.
Walls	Can be covered with wallpaper or dark paint.
Fire protection	Fire alarm system and extinguisher.
Power	The device requires AC 100V-220V±10%, 50/60Hz. Please carefully check before running.

Grounding requirement

- Connect the ground wire to the grounding hardware on the device. Ground resistance should be no more than 1 Ω

Grounding is essential for device's functionality, surge and electronic interference protection

- Keep proper contact with the metal housing of the device
- Grounding wire must be made out of copper and as thick and short as possible
- Make sure the two ends of grounding wire conduct electricity and are not rusty
- It is prohibited to use any other devices as a part of grounding electric circuit
- All racks should be connected with a protective copper strip. Ground loops should be avoided
- Grounding wire's contact area with the rack should be no less than 25mm^2

Chapter 3 LCD screen feature description

NetUP Streamer HDMI 8x has the LCD screen and keys on its front panel. You can use them to control and configure the device. Here is the description of keys' functions:

MENU	Cancel unsaved changes, resets to previous settings and returns to the previous menu
ENTER	Select a menu item and activates a parameter for modifying, or confirms the changes after modification
LEFT / RIGHT UP / DOWN	Navigate through the menu and choose between the available options
LOCK	Lock or unlock the screen. After pressing the lock key, the system will ask if you want to save the current changes. If you select "No", the LCD will display the current configuration state

Initializing and general settings

After powering on the device, it will take a few seconds to initialize the system, and then the LCD will show the device's name and multiplex bitrate or max modulating bitrate *in the first row*, while channels' respective input video resolution, frame rate and real-time encoding bitrate *in the second row* in turn. It shows as below:

```
Encoder Modulator      12.4/32.5Mbps
1 1080I 50 11.356M     2 1080I 50 11.356M
```

Press **LOCK** to enter the main menu and set the input and output parameters. The LCD will display the following pages:

```
1 System Param
2 Modulator
3 Output Setting
4 Mux Setting
5 Network Setting
6 Config Setting
7 Version
```

*Use **UP / Down** to move through the list. The arrow icon (►) indicates which item has been selected. Press **ENTER** to get to the submenu*

1 System Param

The **System Param** menu contains eight submenus, one for each of the eight encoding channels:

```
1.1 Channel 1
----------
1.8 Channel 8
```

Select a channel and press **ENTER** to get to the submenu:

```
1 Video Param
2 Audio Param
3 Prg info
```

Select an item and press **ENTER** again.

1 Video Param

The **Video Param** menu gives you access to the following settings:

Item	Valid values
1.1 Bitrate (Mbps) 08.000	range from 0.8 to 19 Mbps
1.2 Bitrate Mode [1] CBR	CBR – Constant Bit Rate; VBR – Variable Bit Rate
1.3 Profile [1] HIGH	HIGH or MAIN
1.4 Level [1] 1.2	range from 1.2 to 10

Parameter's current value is displayed under its name

1) *Press **ENTER** to start editing.*
2) *Use **UP / DOWN** to select one of the possible values for the parameter. If you need to enter a numeric value, first use **LEFT / RIGHT** to move the cursor to the desired position, and then set the value using the **UP / DOWN** buttons.*
3) *Press **ENTER** to apply changes or press **MENU** to return to the parameter list.*

2 Audio Param

The **Audio Param** menu gives you access to the following settings:

Item	Valid values
2.1 Audio Bitrate [1] 64 Kbps	range from 64 to 384 Kbps
2.2 Audio Format [1] MPEG1-Layer II	MPEG1 Layer II, LC-AAC and HE-AAC

3 Prg info

The **Prg info** menu gives you access to the following settings:

Item	Valid values
3.1 Program Number 0x0101	integer

2 Modulator

The **Modulator** menu gives you access to the following settings:

Item	Valid values
Bandwidth [1] 6M	6M, 7M and 8M
Constellation [1] QPSK	QPSK, 16QAM or 64QAM
FFT [1] 2K	2K or 8K
Guard Interval [1] 1/4	1/4, 1/8, 1/16, 1/32
Code rate [1] 1/2	1/2, 2/3, 3/4, 5/6, 7/8
RF Frequency 1/2 750.00MHz	range from 30 to 90 MHz with 1K step
RF level -10.0 dbm	range from -30 to -10 dbm (77~97dbµV) with 0.1db step
RF On 1/2 ►Off	Off or On

3 Output Settings

The **Output Settings** menu contains nine submenus, eight items for each of the SPTS outputs and one item for the ASI output:

```
Output 1
----------
Output 8
ASI Output
```

Select one of the SPTS outputs and press **ENTER** to get access to the following settings:

Item	**Valid values**
1 Output Enable [1] OFF	UDP, RTP/RTSP or Off (disable an output).
2 Destination IP Address 224.002.002.002	IP address
3 Destination Port 1002	port
4 Filter Null Packet YES	YES or NO
5 TSID and ONID	TSID (Trans Stream ID); ONID (Original Network ID)

Select the ASI output and press **ENTER** to get access to the following settings:

Item	**Valid values**
1 ASI output [1] RF 1	RF 1 or RF 2

4 MUX Setting

The **MUX Setting** menu contains three submenus:

```
4.1 Encoder Mux
4.2 ASI
4.3 PID Remap
```

Select an item and press **ENTER.**

4.1 Encoder Mux

The **Encoder Mux** menu gives you access to the following settings:

```
RF 1 Program list
RF 2 Program list
```

1) *Press **ENTER** to open a list for editing.*
2) *Use **UP / DOWN** to select program that should be routed to the selected RF.*
3) *Use **LEFT / RIGHT** to select "Add" (add to list) or "Del" (remove from list).*
4) *Press **ENTER** to apply changes or press **MENU** to return to the program list.*

4.2 ASI

The **ASI** menu gives you access to the following settings:

4.2.1 Program List
4.2.2 Parse Prog

4.3 PID Remap

Item	Valid values
PID Remap ►Yes	Yes or No.

5 Network Setting

The **Network Setting** menu contains two submenus:

5.1 NMS Interface
5.2 Data Interface

Select one of these items and press **ENTER.** Both of them give you access to the following settings:

5.1.1 IP Address
192.168.002.136
5.1.2 Subnet Mask
255.255.255.000
5.1.3 Default Gateway
192.168.002.001
5.1.4 MAC Address
201012345679

Use the web interface to modify MAC address

6 Configuration Setting

The **Configuration Setting** menu gives access to following settings:

Save Config
►Yes
Restore Configuration
►Yes
Factory Set
►Yes

Select the Factory Set item and press ENTER to reset to factory settings

7 Version

Use the **Version** menu to check the current firmware versions:

7.1 SW Version
X.XX
7.2 HW Version
X.XX

Chapter 4 WEB NMS Operation

In addition to the buttons on the front panel, you can use the web interface to control NetUP Streamer HDMI 8x.

Login

Connect a personal computer and the device with net cable, and use ping command to confirm they are on the same network segment.

Make sure that the computer's IP address is different from the device's IP address; otherwise, it would cause an IP conflict

The default IP address of NetUP Streamer HDMI 8x is **192.168.0.136**. Thus, set the computer's IP address to 192.168.0.X, where X can be from 0 to 255, except 136. Open a web browser, enter the device's IP address in the browser address bar and press **Enter**. If the network is configured correctly, you will see the login interface (Figure 1).
Enter username and password and click **LOGIN** to enter the web interface. Default username is "admin", default password is "admin".

Figure-1

Status

After login, you will get the **Status** page which displays the current system status (Figure-2).

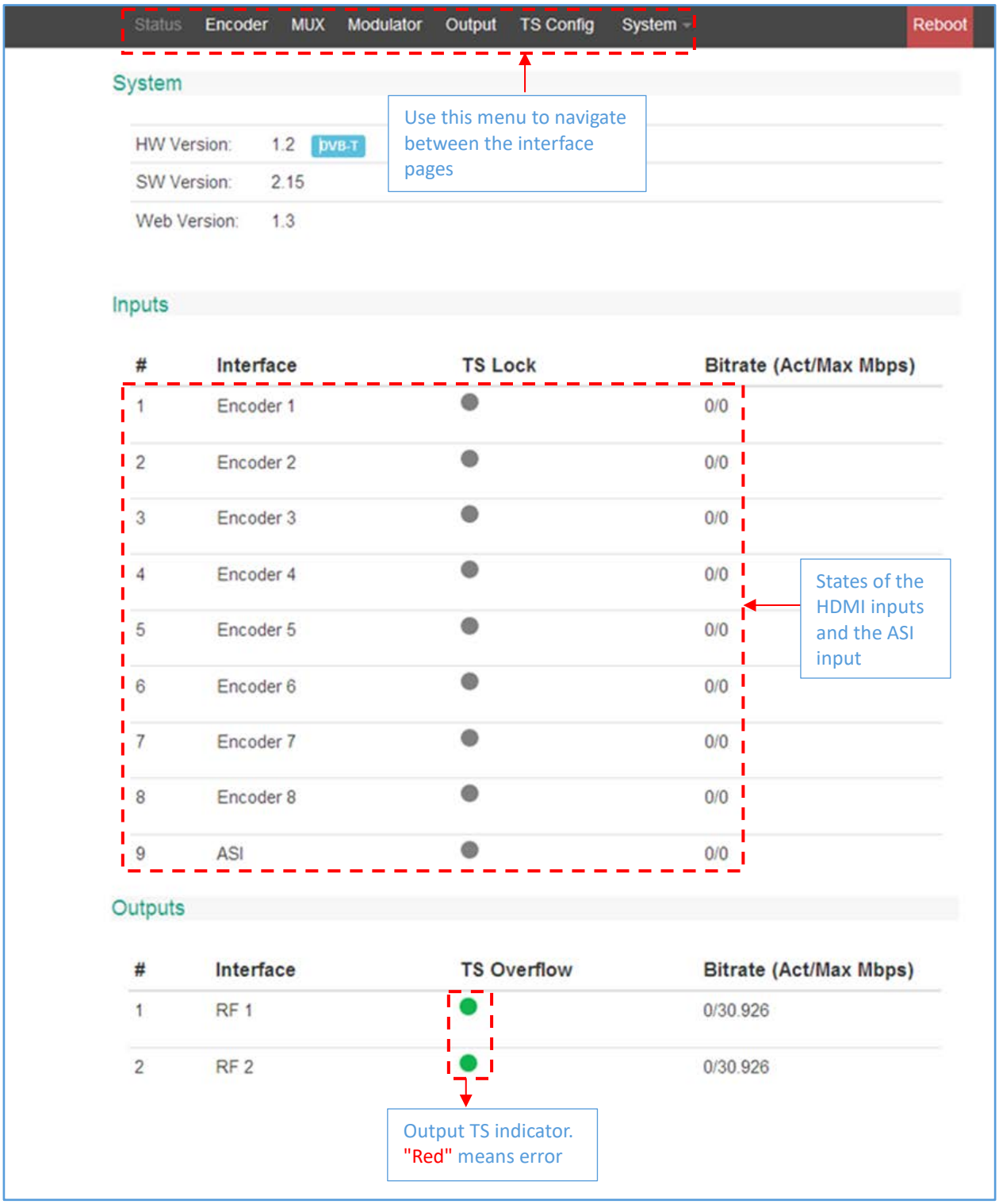


Figure-2

Encoder

Open the **Encoder** page to set coding parameters for each channel (Figure-3).

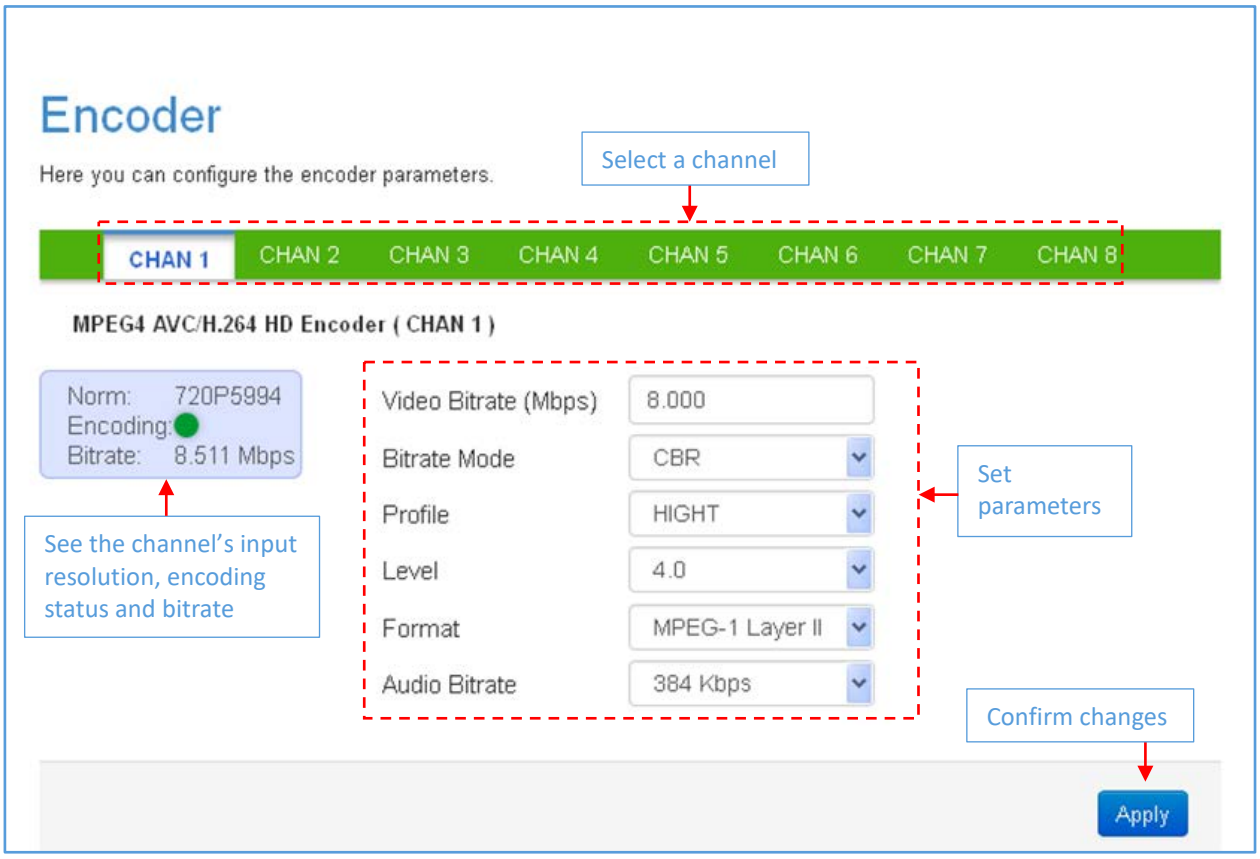


Figure-3

MUX

Open the **MUX** page to set program multiplexing parameters (Figure-4).

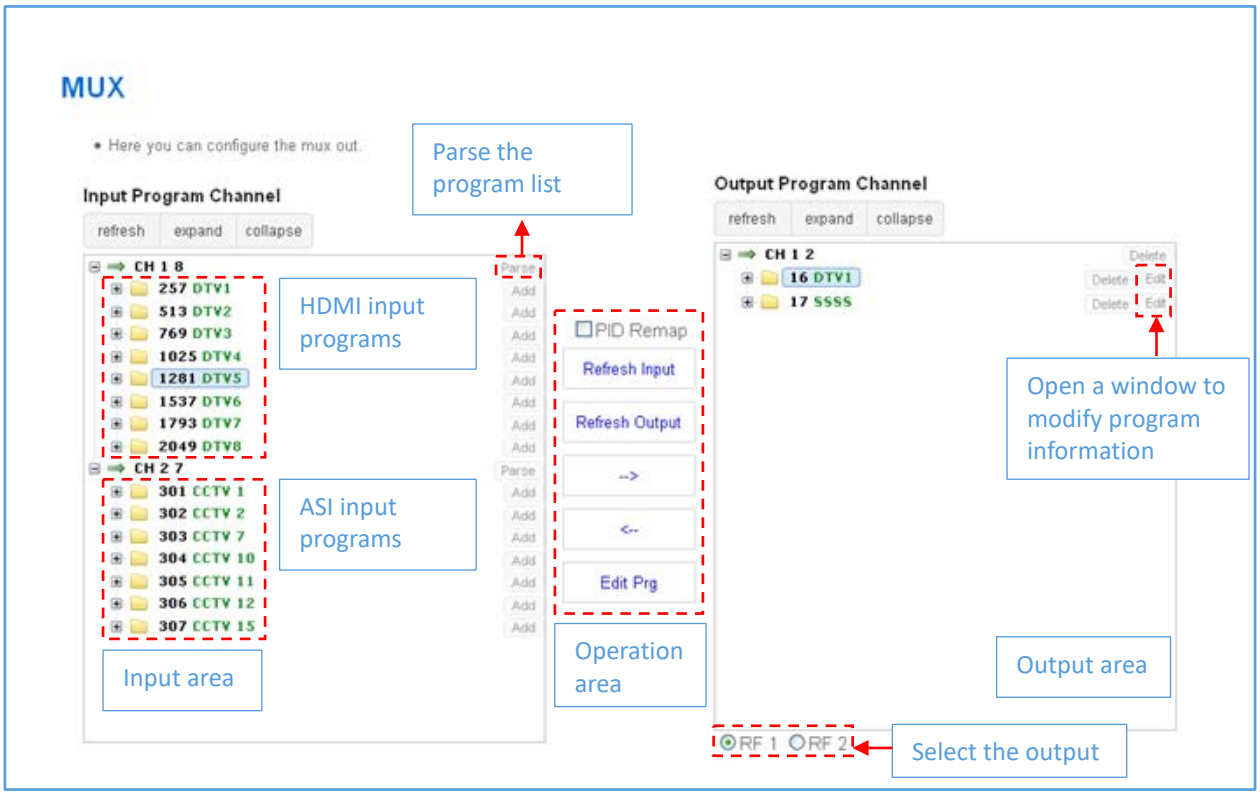


Figure-4

Operation area

refresh expand collapse	update, expand or collapse program lists
PID Remap	enable or disable PID remapping
Refresh Input Refresh Output	refresh an input or an output
--> <--	move programs between the input and the output areas
Edit Prg	modify program information

Program modification window

Select a program and click on **Edit** to modify program information (Figure-5).

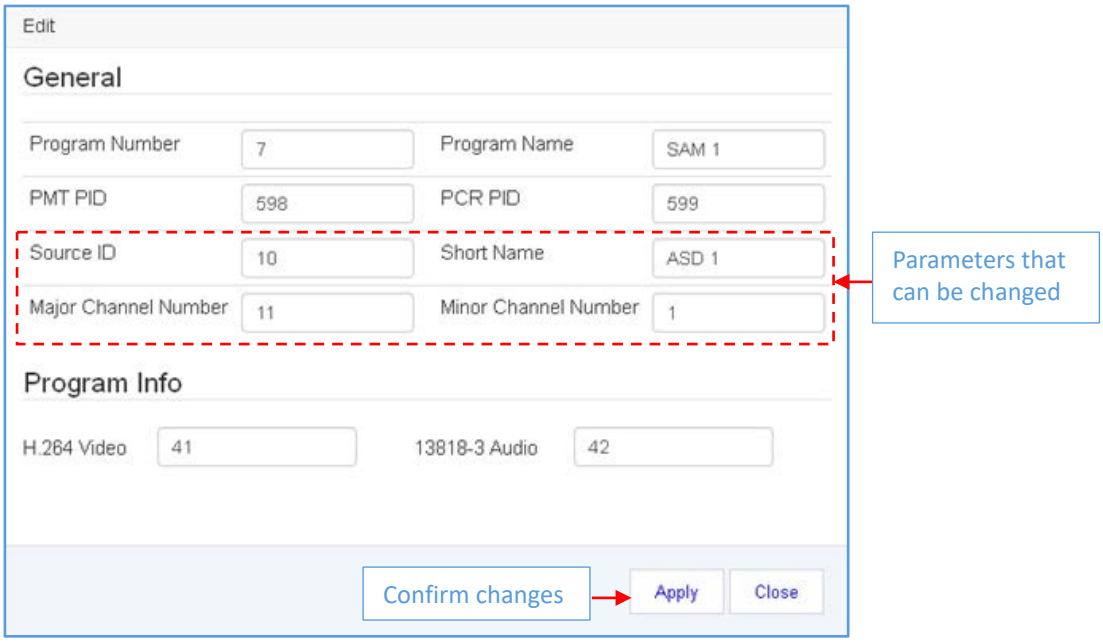


Figure-5

Modulator

Use the **Modulator** page (Figure-6) to configure the following parameters:

Bandwidth	6 MHz, 7 MHz, 8 MHz
Constellation	QPSK, 16QAM, 64QAM
FFT	2K, 8K
Guard Interval	1/4, 1/8, 1/16, 1/32
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
RF1-2 Frequency	30…960 MHz
RF Level	-30,0…-10,0 dbm

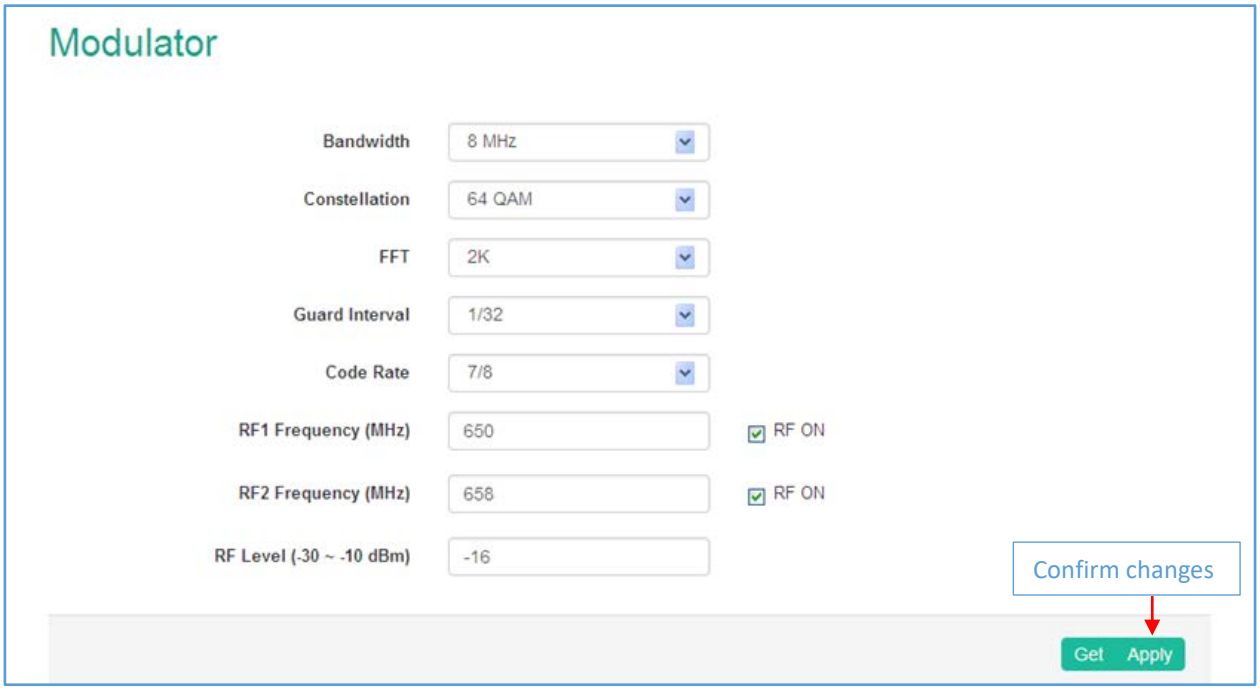


Figure-6

Output

Use the **Output** page to set up outputs. There is a separate tab for each type of signal: **IP Out Settings, DATA IP Settings, ASI Output.**

IP Out Settings

Use the **IP Out Settings** tab to set up SPTS outputs (Figure-7).

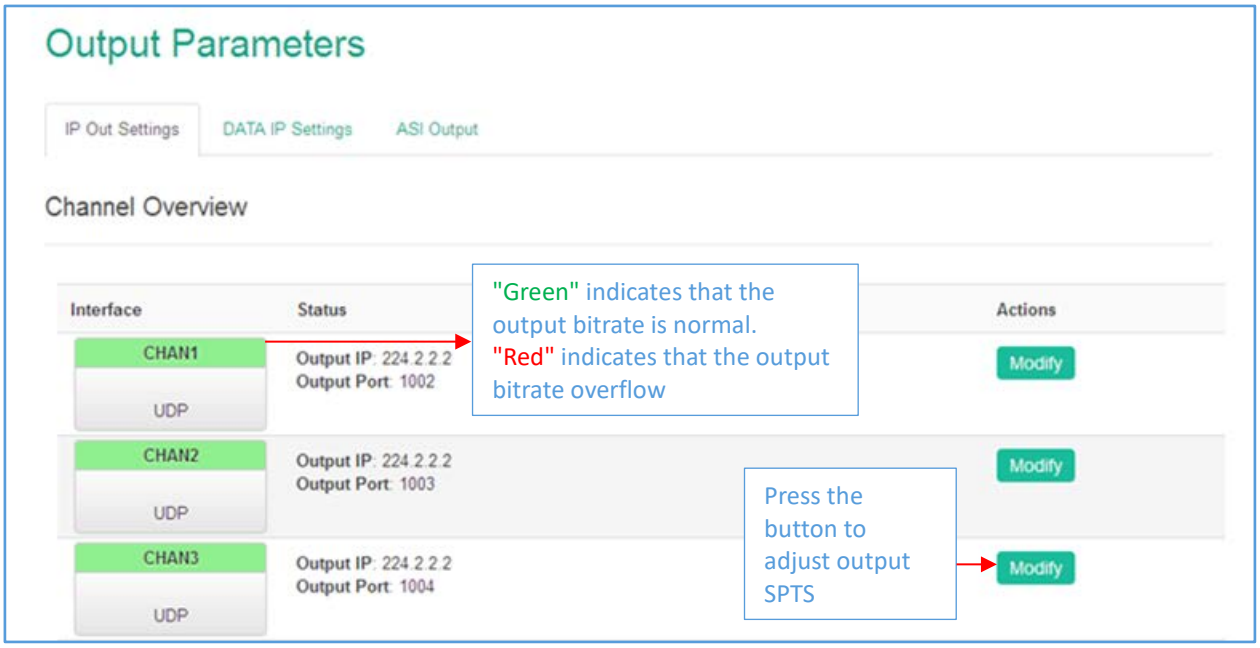
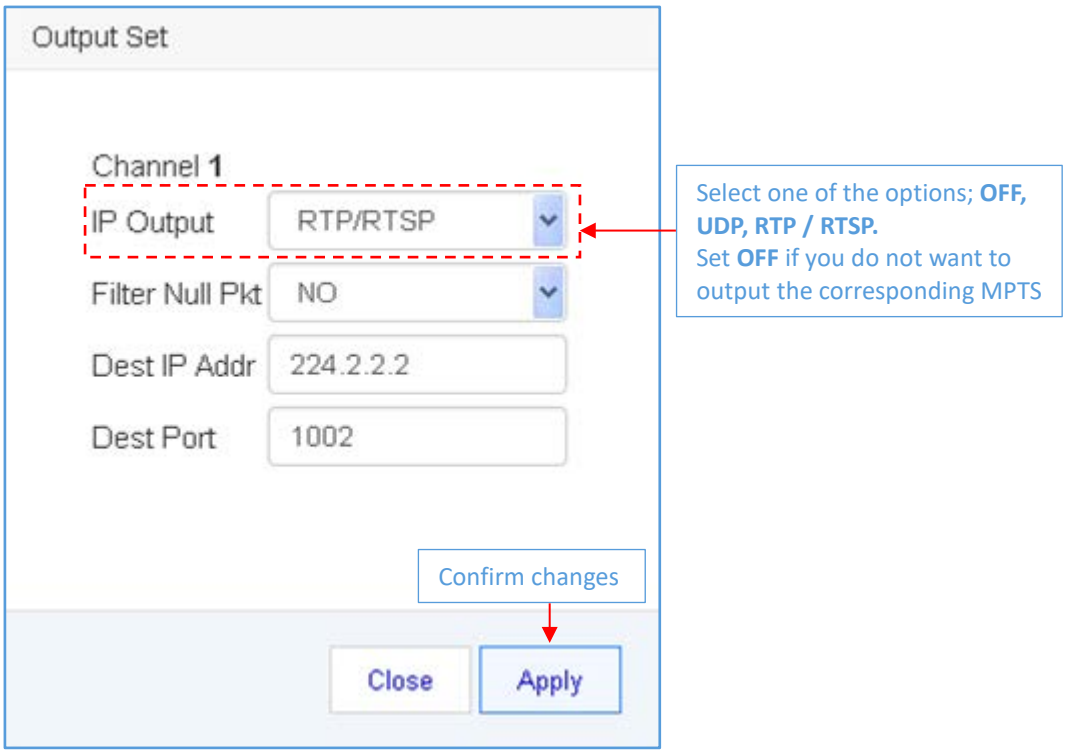


Figure-7

Output Set window:



DATA IP Settings

Use the **DATA IP Settings** tab to set network parameters (Figure-8).

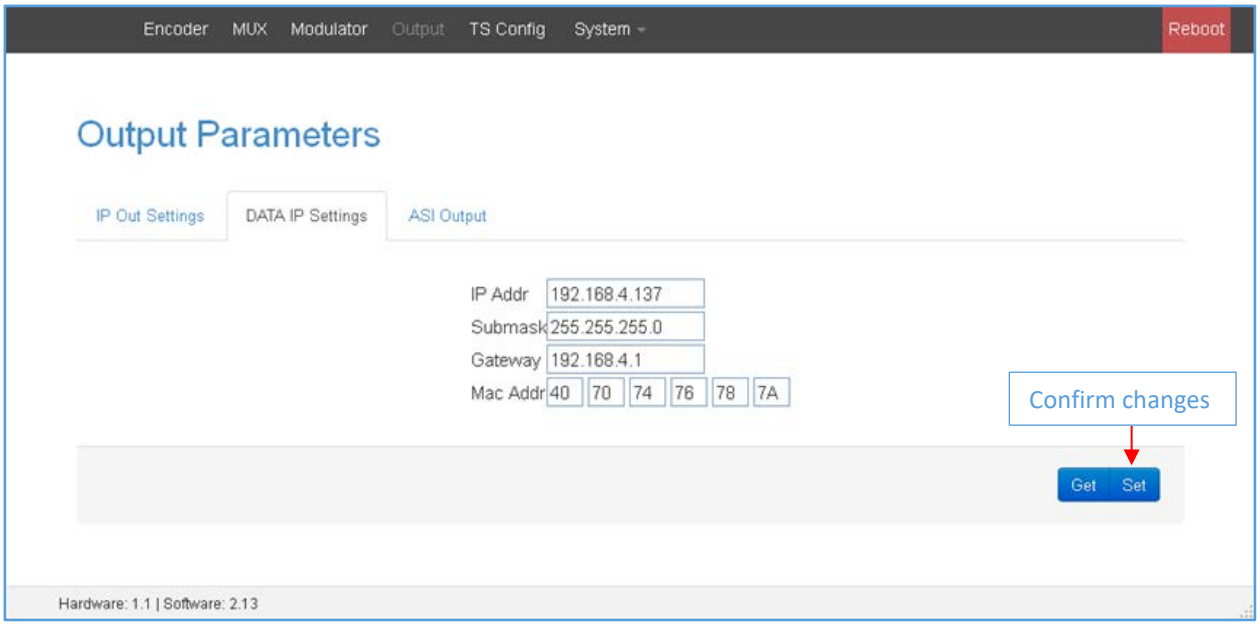


Figure-8

ASI Output

Use the **ASI Output** tab to select TS output from ASI (Figure-9).

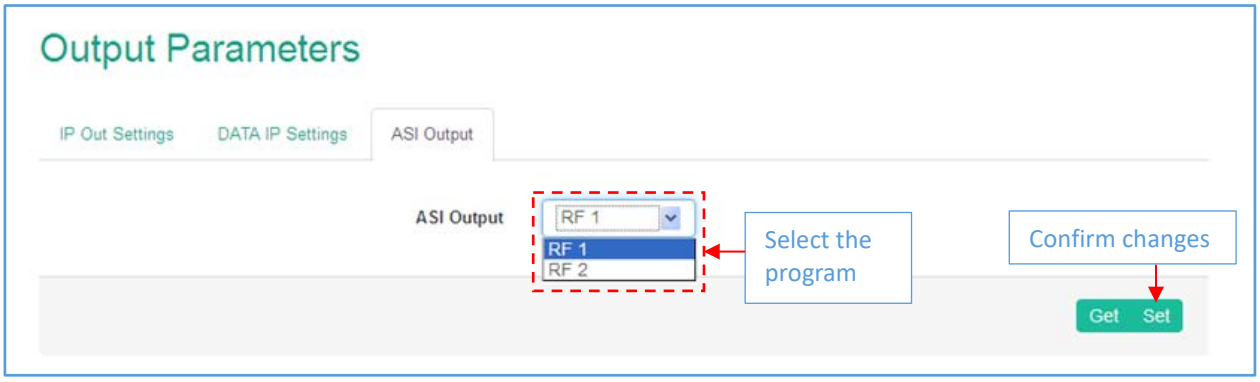


Figure-9

TS Config

Use the **TS Config** page contains the output TS, NIT and VCT settings for each of the output channels (Figure-10).

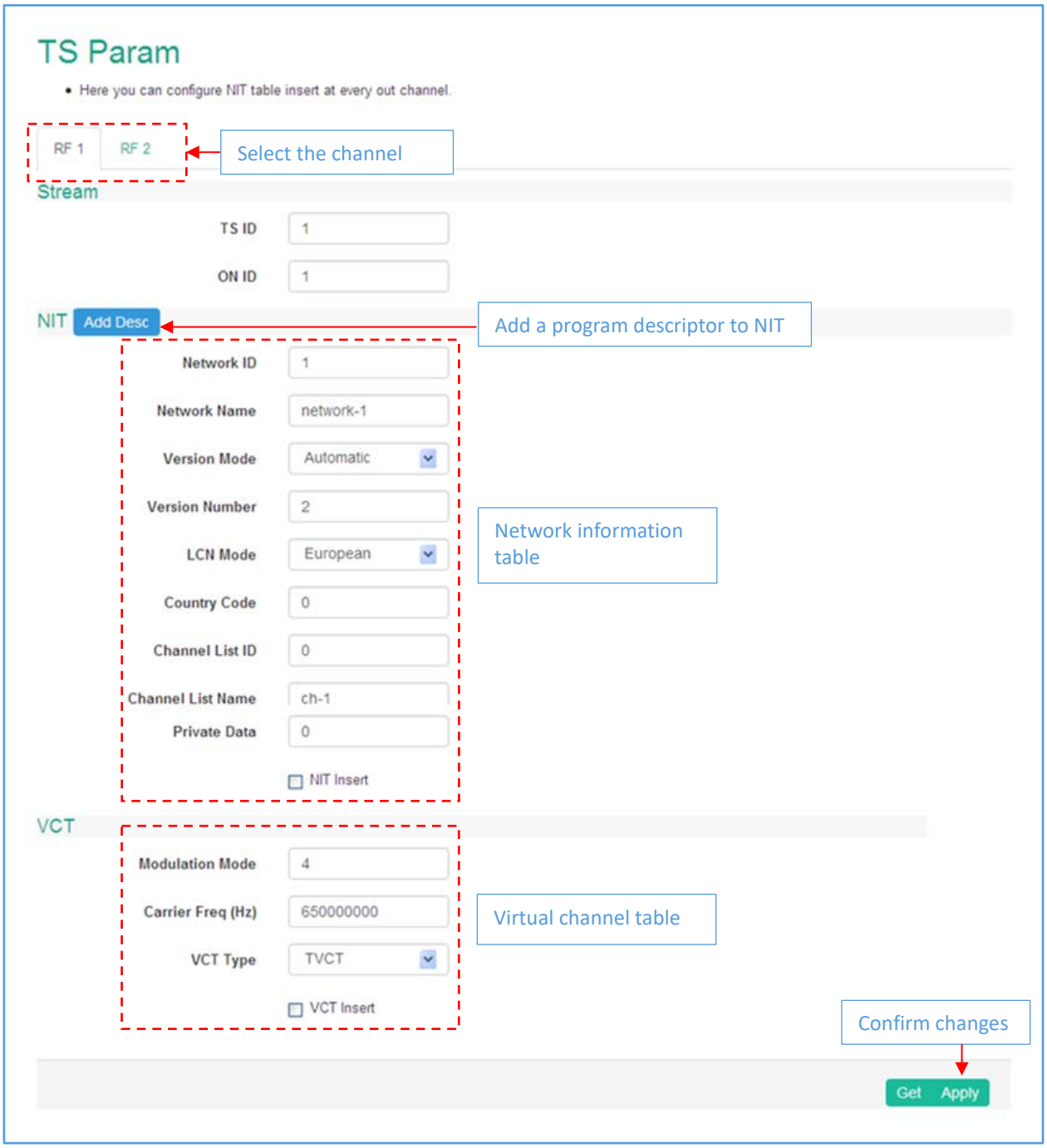
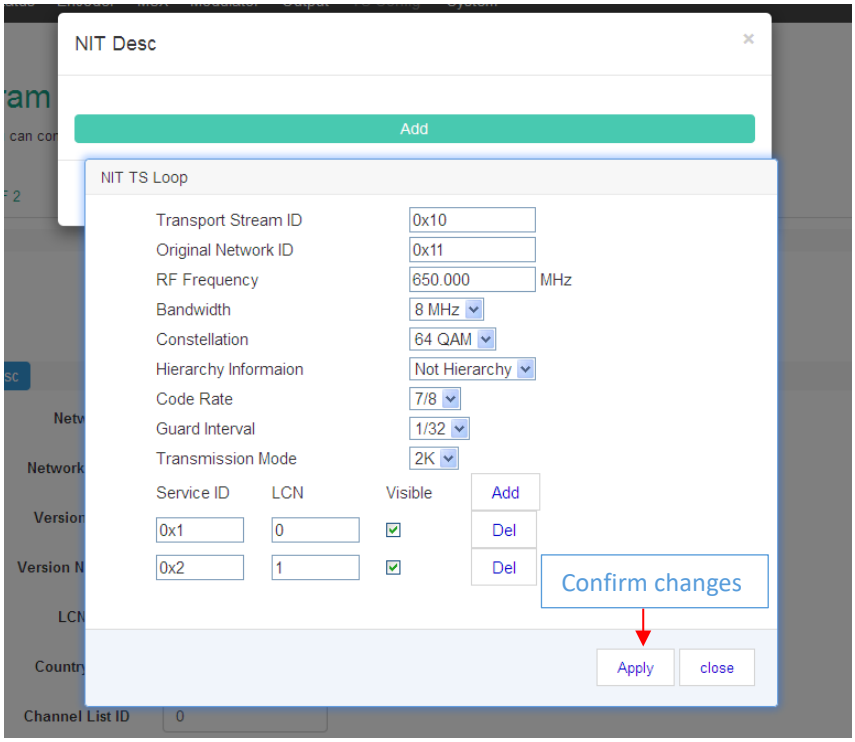


Figure-10

Descriptor settings



System

Use the **System** page to save or restore the system configuration, return to the factory settings and load the configuration file (Figure-11).

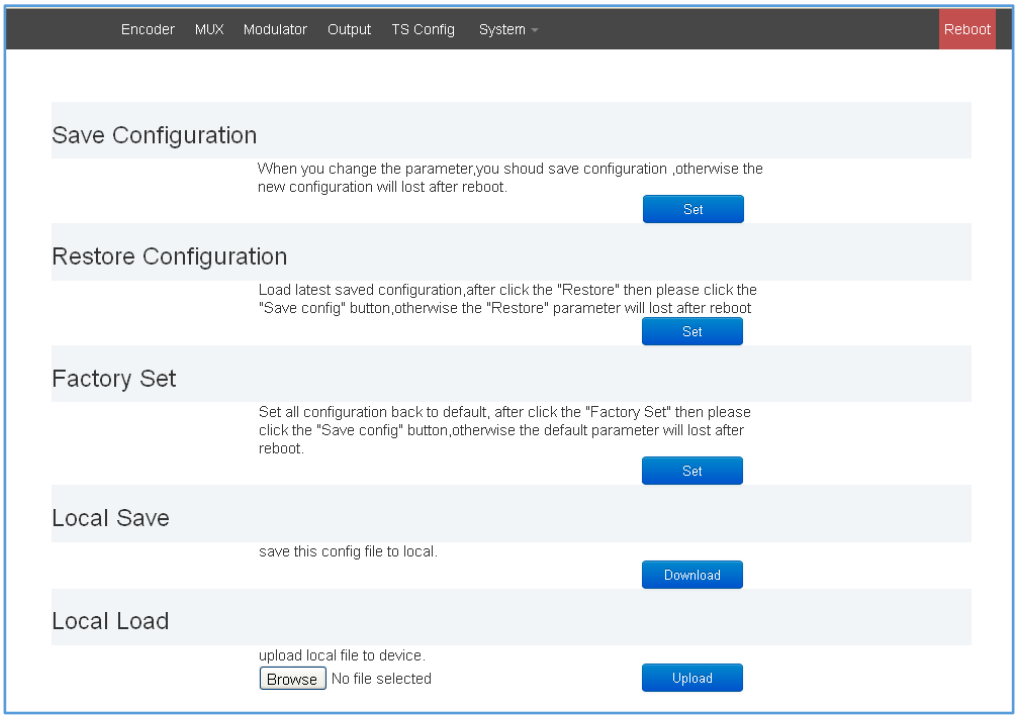


Figure-11

Network

Use the **Network** page to edit networking parameters (Figure-12).

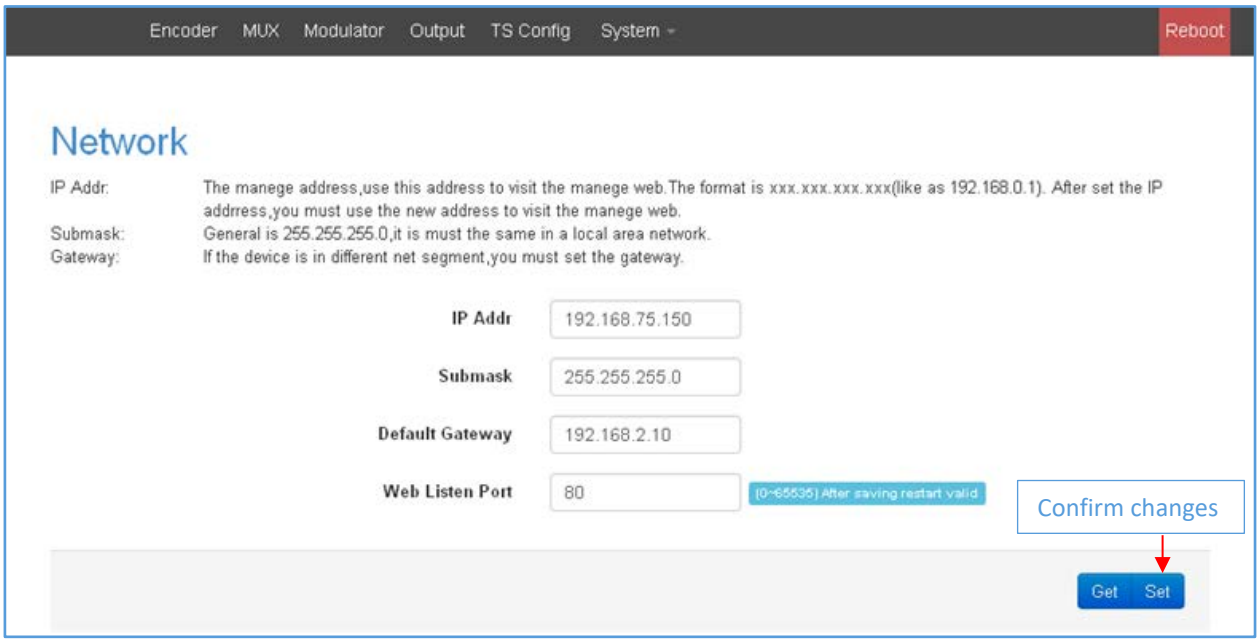


Figure-12

Password

Use the **Password** page to change current password and username (Figure-13).

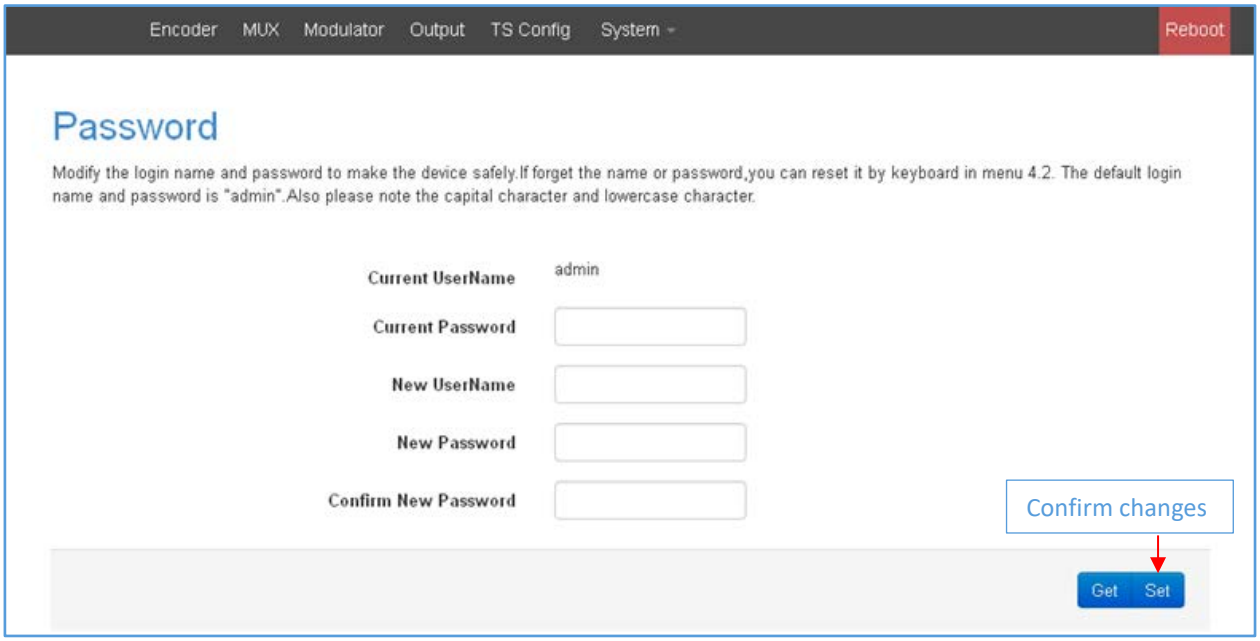


Figure-13

Troubleshooting

Check the following before troubleshooting:

- Whether the server room is well ventilated and hot air from the back panel of the device is effectively removed?
- Does the supply voltage meet the power requirements of the device?
- Is the RF output level vary within the tolerant range?
- Are all cables connected correctly?

Turn off the device and unplug the power cord in the following cases:

- The power cord or socket is damaged.
- A liquid is splashed on the device.
- A short circuit has occurred.
- The device is in damp environment.
- The device suffered from physical damage.
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed.

Frequent on and off switching is prohibited; the interval between switching the device on and off must be more than 10 seconds