ASCENT Communication Technology

ACT EC2200 Encoder & Modulator

User Guide

Revision A

ACT EC2200 Series

Encoders & Modulators

ACT Document Number: ACT EC2200 UG Revision A

Copyright © 2015 Ascent Communication Technology Limited.

All rights reserved. Reproduction in any manner whatsoever without the express written permission of Ascent Communication Technology is strictly forbidden.

This document is produced to assist professional and properly trained personnel with installation and maintenance issues for the product. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

For more information, contact ACT: sales@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
A	10/10/2015	Initial Release

Table of Contents

Chapter 1. Product Introduction

1.1 Outline

The EC2200 series HD and SD encoders are multiplexing devices able to provide high quality MPTS outputs for a variety of digital distribution systems.

The HD encoder supports 4 HDMI (or SDI) inputs while the SD encoder has 8 AV (8 CVBS and 8 unbalanced analog stereo audio) input channels. Both encoders also have an ASI input, and after a multiplexing process can simultaneously output ASI and IP signals.

To ensure high picture quality, the HD encoder uses the MPEG-4 AVC/H.264 encoding format while the SD encoder supports the MPEG-2 format. Both encoders use the MPEG-1 Audio Layer

II, LC-AAC, and HE-AAC(V2) / HE-AAC formats for audio encoding. The EC2200 series encoders allow PSI/SI information to be inserted into the MPTS output, and can be managed using a network management system (NMS).

With their high compatibility and cost efficient designs, the EC2200 series encoders are ideal devices for your digital TV broadcasting needs.

1.2 Main Features

- Supports 1 ASI input and 4 HDMI (or SDI) inputs [HD] / 8 AV inputs [SD]
- Supports MPEG-4 AVC/H.264 High Profile Level 4.0 [HD] / MPEG-2 MP@ML [SD]
- Supports MPEG-1 Audio Layer II, LC-AAC, and HE-AAC (V2) / HE-AAC
- Supports 720P, 1080i, 1080P HD video format [HD] / D1, HD1, 2/3D1, 3/4D1 resolutions [SD]
- 0.8 Mbps ~ 19 Mbps (each channel)
- Multiplexer functionality
- Supports both PAL and NTSC formats
- Supports ASI and IP outputs
- Supports PSI/SI editing and insertion
- Operated by keyboard and LCD display
- Devices can be updated through an NMS port

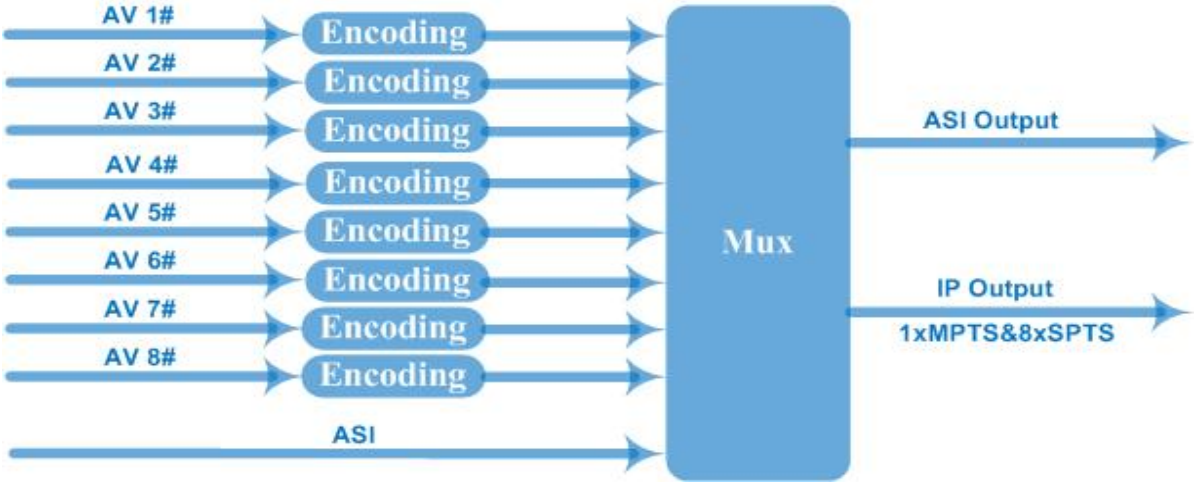
1.3 Specifications

	HD Encoder	SD Encoder
Input	4 × SDI input (EC2200 HD-SDI) 4 × HDMI input (EC2200 HD-HDMI) 1 × ASI input, BNC interface	8 CVBS inputs 8 pairs unbalanced stereo audio inputs

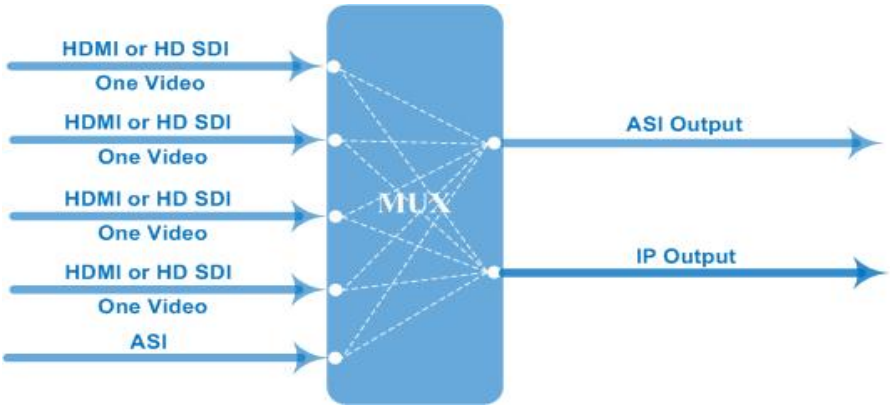
Video	**Resolution**	1920×1080_59.94P, 1920×1080_50P, 1920×1080_59.94i, 1920×1080_50i, 1280×720_59.94p, 1280×720_50p, 720×576_50i, 720×480_59.94i	PAL: 720×576_50i, 704×576_50i, 640×576_50i, 320×288_50i, 176×288_50i, 176×144_50i NTSC: 720×480_60i, 544×480_60i, 352×480_60i 320×240_60i,
	Encoding	MPEG-4 AVC/H.264 High Profile Level 4.0	MPEG-2 MP@ML
	Bit Rate	0.8 Mbps ~ 19 Mbps each channel	0.125 Mbps ~ 19 Mbps each channel
	Rate Control	CBR, VBR	CBR, 4 × SDI input VBR
	GOP Structure	IBBP	IPPPP, IBPBP, IBBPB, IBBBP
	Advanced Pretreatment	Deinterlacing, noise reduction, sharpening	
Audio	**Encoding**	MPEG-1 Audio Layer II, LC-AAC, HE-AAC (V2)	MPEG-1 Audio Layer II, LC-AAC, HE-AAC
	Sampling Rate	48 kHz	32 kHz, 44.1 kHz, 48 kHz
	Bit Rate	64 kb/s ~ 384 kb/s each channel	32 kb/s ~ 384 kb/s each channel
Multiplexing		1 ASI input multiplexed and 4 SPTS encoding channels	1 ASI input multiplexed with 8 local TS channels
Stream Output		2 × ASI output, BNC interface	
		MPTS and 4 SPTS over UDP, 10/100Base-T Ethernet interface,	MPTS over UDP, 10/100Base-T Ethernet interface (UDP
System Functions		LCD / keyboard operated, NMS support Chinese-English control interface Ethernet software upgrades	
Miscellaneous	**Dimensions (W× L× H)**	440 mm × 410 mm × 44.5 mm	482 mm × 455 mm × 44 mm
	Approx. Weight	4 kg	4 kg
	Temperature	0 ~ 45°C (operation), -20 ~ 80°C (Storage)	
	Power	AC 110V ± 10%, 50/60 Hz AC 220V ± 10%, 50/60 Hz	AC 100 V ~ 220 V ± 10%, 50/60 Hz
	Consumption	25 W	17.6 W

1.1 Principle Chart

EC2200 8-in-1 MPEG-2 SD Encoder

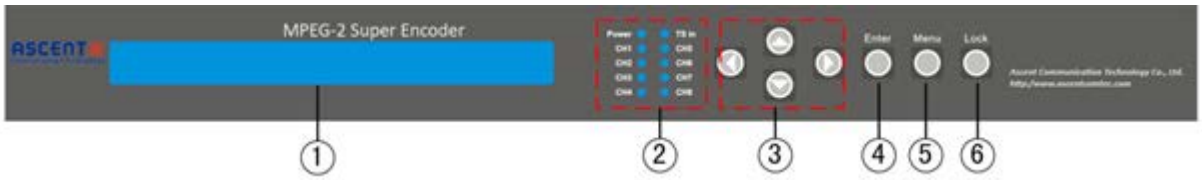


EC2200 4-in-1 MPEG-4 AVC/H.264 HD Encoder



1.2 EC2200 SD Appearance and Illustrations

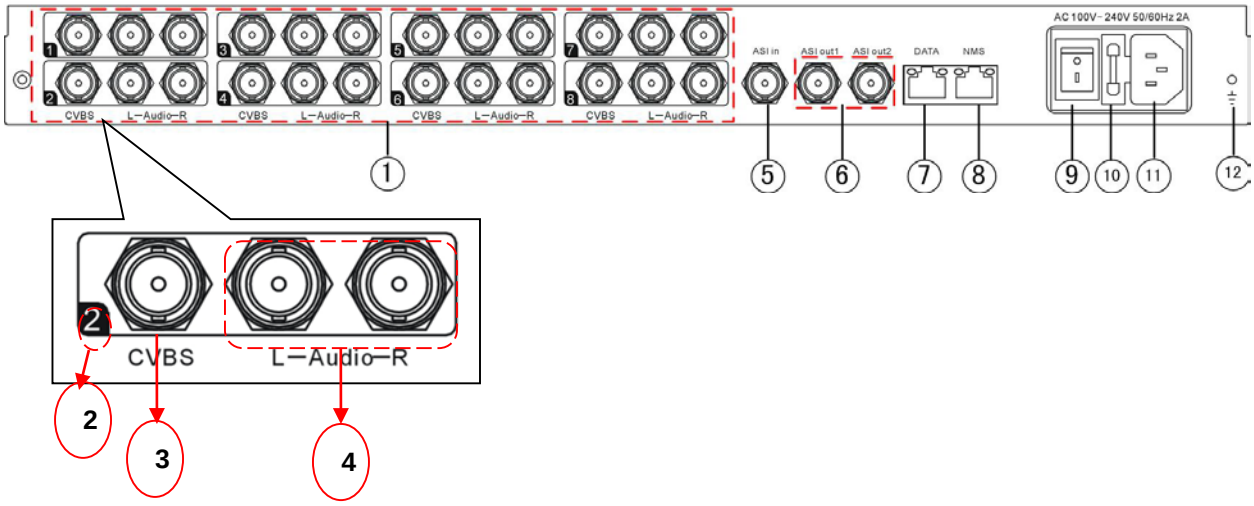
Front Panel Illustration:



Indicated areas: All indicators will light on when the device is in a working state.

1	LCD screen	
2	Indicators	Power indicator
		TS in: input lock indicator
		CH1-CH8: Indicator is on when program has been multiplexed
3	UP/ DOWN/LEFT/RIGHT keys	
4	ENTER key	
5	MENU key	
6	LOCK key	

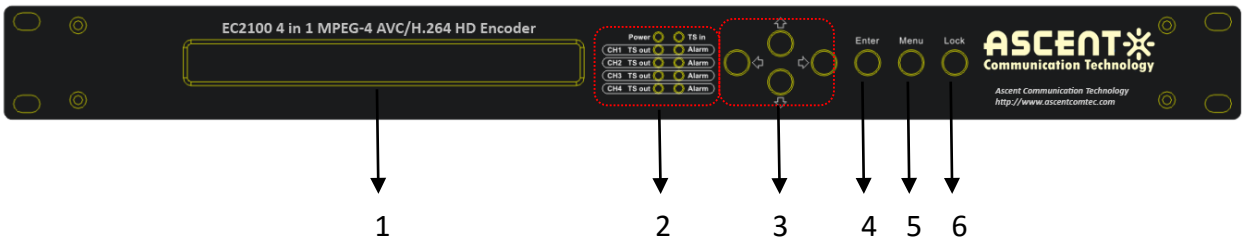
Rear Panel Illustration:



1	8 × CVBS input ports	7	Data port (for IP signal output)
2	CVBS input serial numbers from 1 to 8	8	NMS (network management port)
3	Video input port	9	Power switch
4	Audio input port (Left & Right channels)	10	Fuse
5	ASI input port	11	Power socket
6	2 × ASI output ports	12	Grounding pole

1.3 EC2200 HD Appearance and Illustrations

Front Panel Illustration:



Indicated areas: All indicators will light on when the device is in a working state.

1 LCD Screen

2 Indicators
- Power Indicator
- TS In: Input Lock Indicator
- CH1 TS out – CH4 TS out: device starts to encode and output TS
- CH1 Alarm – CH4 Alarm: device stops encoding or encoding error

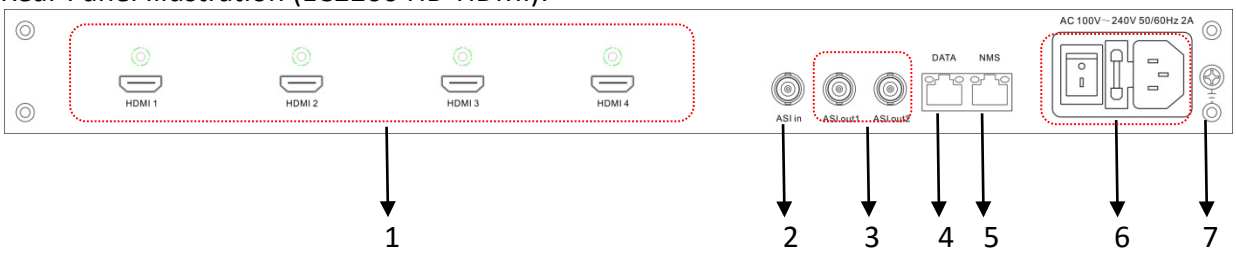
3 UP/ DOWN, LEFT/RIGHT Keys

4 ENTER key

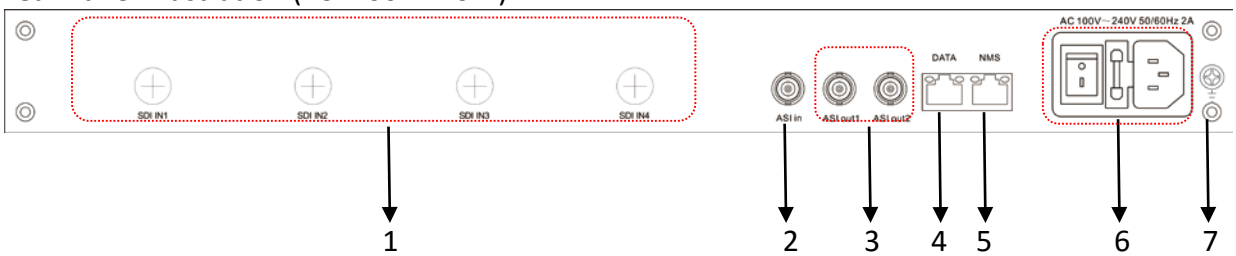
5 Menu Key

6 Lock Key

Rear Panel Illustration (EC2200 HD-HDMI):



Rear Panel Illustration (EC2200 HD-SDI):



1 4 × HDMI Input Ports-- EC2200 HD-HDMI
  4 × SDI Input Ports-- EC2200 HD-SDI

2 ASI Input Port

3 2 × ASI Output Ports

4 Data Port (for IP Signal Output)

5 NMS (Network Management Port)

6 Power Switch and socket

7 Grounding Pole

Chapter 2. EC2200 SD Installation Guide

2.1 Acquisition Check

When users first open the package for the device, they should make sure that everything on the packing list is included:

EC2200 SD

- EC2200 8-in-1 MPEG-2 SD Encoder 1pcs
- User's Manual 1pcs
- Analog Audio/Video Composite Input Cable 8pcs
- ASI Cable 1pcs
- Power Cord 1pcs

EC2200 HD

- EC2200 HD 4-in-1 MPEG-4 AVC/H.264 HD Encoder 1pcs
- User's Manual 1pcs
- HDMI Cable for EC2200 HD-HDMI 4pcs
- SDI Cable for EC2200 HD-SDI 4pcs
- ASI Cable 1pcs
- Power Cord 1pcs

If any item is missing or different from the list above, please contact your local dealer.

2.2 Installation Preparation

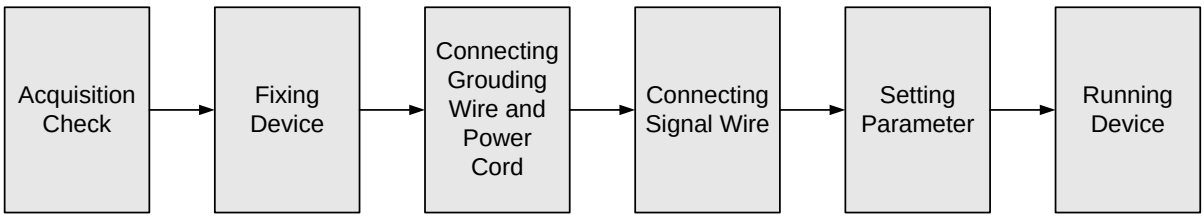
Please follow the below steps when installing this device. The details of installation will be described in this chapter. Users can also refer to the rear panel chart during installation.

The main contents of this chapter include:

- Checking the device for missing or damaged parts

- Preparing the work area for installation
- Installing the encoder
- Connecting signal cables
- Connecting communication ports (if necessary)

2.2.1 Device Installation Flow Chart:



2.2.2 Environment Requirements

Item	Requirement
Machine Hall Space	When installing the machine frame array into a machine hall, the distance between 2 rows of machine frames should be 1.2 ~ 1.5 m and the distance between a machine frame and a wall should be no less than 0.8 m.
Machine Hall Floor	Electric isolation, dust free Volume resistivity of ground anti-static material: 1×10^{7} ~ $1\times10^{10\Omega}$, Grounding current limiting resistance: 1M (Floor bearing should be greater than 450 kg/m^2).
Environment Temperature	5 ~ 40°C (sustainable), 0 ~ 45°C (temporary) Air conditioning is recommended
Relative Temperature	20% ~ 80% sustainable 10% ~ 90% short time
Pressure	86~105Kpa
Door & Window	Install rubber strips to seal door gaps and dual-level window glasses
Wall	Can be covered with wallpaper or not-too-bright paint.
Fire Protection	Fire alarm system and extinguisher
Power	Device power, air conditioning power, and lighting power should all be independent of each other. Device power requires AC power 220V 50 Hz. Please carefully check before running.

2.2.3 Grounding Requirements

- Good grounding designs are the basis of reliability and stability for these devices. Good grounding is also the best guarantee against lightning arresting and interference rejection.
- Coaxial cable outer conductors and isolation layers should maintain proper electrical conducting with the metal housing of the device.

- The grounding conductor should be copper in order to reduce high frequency impedance, and the grounding wire should be as thick and short as possible.
- Users should make sure both ends of the grounding wire are good conductors and rust-resistant.
- Users should not use any other device as part of grounding electric circuit.
- The area of conduction between the grounding wire and device's frame should be no less than 25 mm^2.

2.2.4 Frame Grounding

All machine frames should be connected with protective copper strips. The grounding wire should be as short as possible and avoid circling. The area of conduction between grounding wire and grounding strip should be no less than 25 mm^2.

2.2.5 Device Grounding

Connect the device's grounding rod to the frame's grounding pole with copper wire.

2.3 Wire Connection

The grounding wire conductive screw is located at the right end of the rear panel, and the power switch, fuse, and power supply socket are right next to that. The order is this: the power switch is on the left, the power supply socket is on the right, and the fuse is between them.

- Connecting Power Cord

  Insert one end into the power supply socket, and insert the other end to an AC power source.
- Connecting Grounding Wire

  When the device is independently connected to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than 1Ω.

☞**Caution:**

Before connecting a power cord to the EC2200 SD Encoder, users should set the power switch to "OFF."

2.4 EC2200 SD Installation

2.4.1 EC2200 SD Signal Cable Connection

The signal connections include the input signal cable and the output signal cable. The details are as follows:

Figure 1 Unbalanced audio and CVBS video input cable

Figure 2 ASI output cable

Figure 3 Network cable (CAT5)

2.4.2 Unbalanced Audio and CVBS Video Input Connection

Refer to the connector mark described on the rear panel illustration in section 1.6 to find the CVBS input connection interface, and then connect the analog CVBS video and unbalanced audio cables. One end is connected to the signal source equipment while the other end to the encoder's

CVBS input port. The encoder's Analog Composite Video input port and its connection are illustrated as follows:

2.4.3 ASI output interface connection

User can firstly find the ASI output interface on the device according to the connector mark described on the rear panel illustration, and then connect the ASI cable (in the accessories). One end is connected to the encoder's ASI out connector (ASI1, ASI2) while the other end to the TS stream multiplexer or modulator's ASI input port. The encoder's ASI output interface and its connection are illustrated as follow:

2.4.4 IP Output Interface connection

Users can firstly find the DATA interface on the device according to the connector mark described on the rear panel illustration, and then connect the network (CAT5). One end of the network cable is connected to the encoder's DATA output connector, while the other end to the TS stream multiplexer IP input port or other device which can input IP signal. The encoder's DATA connection is illustrated as follows:

2.4.5 NMS Connection

Users can firstly find the NMS interface on the device according to the connector mark described on the rear panel illustration, and then connect the network (CAT5). One end of the network cable is connected to the encoder's NMS connecter, while the other end to the computer or the PC. The encoder's NMS connection is illustrated as follows:

2.5 EC2200 HD Installation

2.5.1 EC2200 HD Signal Cable Connection

The signal connections include the connection of input signal cable and the connection of output signal cable. The details are as follows:

Figure 4 HDMI input cable (EC2200 HD-HDMI)

Figure 5 SDI input cable (EC2200 HD-SDI)

Figure 6 ASI output cable

Figure 7 Network cable (CAT5)

2.5.2 HDMI or SDI Input Interface Connection

First find the HDMI or SDI interface on the device according to the connector mark described on the rear panel illustration, and then connect the HDMI or SDI cable (in the accessories). One end is connected to the head-end equipment and the other end to the encoder's HDMI or SDI input port. The encoder's HDMI or SDI input port and its connection are illustrated as follows:

2.5.3 ASI output interface connection

User can first find the ASI output interface on the device according to the connector mark described on the rear panel illustration, and then connect the ASI cable (in the accessories). One end is connected to the encoder's ASI out connector (ASI out1, ASI out2) while the other end to the TS stream multiplexer or modulator's ASI input port. The encoder's ASI output interface and its connection are illustrated as follow:

2.5.4 IP Output Interface connection

Users can first find the DATA interface on the device according to the connector mark described on the rear panel illustration, and then connect the network (CAT5). One end of the network cable is connected to the encoder's DATA output connector, while the other end to the TS stream multiplexer IP input port or other device which can input IP signal. The encoder's DATA connection is illustrated as follows:

2.5.5 NMS Connection

Users can first find the NMS interface on the device according to the connector mark described on the rear panel illustration, and then connect the network cable (CAT5). One end of the network

cable is connected to the encoder's NMS connecter, while the other end should be attached to the computer or the PC. The encoder's NMS connection is illustrated as follows:

Chapter 3. EC2200 SD Operation

The EC2200 SD Encoder's front panel is its user operating interface. Before operating, users can decide whether to use the default settings or to customize the input and output parameters settings.

Keyboard Function Description:

ENTER: Activates the parameters which need modifications, or confirms changes after modification.

MENU: Cancels presently entered value, or restores previous settings and returns to the previous menu.

LEFT/RIGHT: Moves the "►" to choose or set the parameters.

UP/DOWN: Modifies selected parameters or page up/down when no parameter is selected.

LOCK: Locks the screen / cancels the lock state. After pressing the lock key, the system will ask users whether or not they want to save present settings. If not, the LCD will display the current configuration state.

At the "Factory Configuration" page, users can press the **ENTER** key to restore the factory default configuration.

3.1 Initializing

After powering on the device, it will take a few seconds to initialize the system, and then the LCD will show the device name and output real-time bit rate in the first row, and the 8 channels' respective hue encoding system (**P**: PAL; **N**: NTSC) and input real-time encoding bit rate in the second row. It shows as below:

```
 8 in 1 Encoder                                  23.485 Mbps
1P 02.94M      2N 02.73M      3P 02.92M      4N 02.90M
```

3.2 General Settings

By pressing the LOCK key, users can enter the main menu and set the input and output parameters in the following editing interfaces, the LCD will display the following pages:

```
►1  Input Setting          2 ASI Setting
 3  Output Setting         4 Network Setting
```

```
►5 Saving Config           6 Loading Config
 7 Version （SNMP）         8 Language
```

The option with "►" is the current selection, users can press the **ENTER** key to enter the specified submenu to modify the device parameter.

3.2.1 Input Setting

Under this menu, users can enter the corresponding encoding channel to set the relevant audio and video input parameters, and select programs to multiplex. The LCD will display 8 submenus from Encoding Channel 1 to Encoding Channel 8. The setting principle is the same for Encoding Channels 1-8, so this manual only takes one channel as an example to explain. After pressing the **ENTER** key, the LCD will display the following pages:

```
►1.1 Encoder 1             1.2 Encoder 2
 1.3 Encoder 3             1.4 Encoder 4
```

►1.5 Encoder 5	1.6 Encoder 6
1.7 Encoder 7	1.8 Encoder 8

After users enter the submenu, the interface will turn into the following pages, and then users can enter the corresponding interface to modify the parameters.

►1.1.1 Video	1.1.2 Audio
1.1.3 System	1.1.4 PG Muxer

3.2.1.1. Video Setting

►1.1.1.1 Input	1.1.1.2 Brightness
1.1.1.3 Contrast	1.1.1.4 Saturation

►1.1.1.5 Hue	1.1.1.6 Aspect Rati
1.1.1.7 Coding Type	1.1.1.8 Resolution

►1.1.1.9 Rate Mode	1.1.1.A Bit Rate
1.1.1.B Max Bit Rate	1.1.1.C Gop Struct

►1.1.1.D Video Sharp	1.1.1.E MP4 Profile

➢ **Input**

This is for users to check the input port type and it is read-only. It will identify the input port type automatically.

1.1.1.1 Input	
	CVBS

At this interface, by pressing **ENTER** again, users can select the input format, which includes 8 options. By pressing 1.1.1.1, the operation interface will display the following page:

NOTE: Below explanations are applied in this entire manual.

1) When user enters 1.1.1.1, the LCD displays only one option which is the device's current option which is marked with a square bracket when user presses **ENTER again** to enter the operation interface.
2) "01/04" in the top-right corner indicates there are 4 pages and the LCD is currently displaying the 1st page.

```
1.1.1.1     Input Format              01/04
      [PAL-B/G/H/I/D]              PAL-60
```

- **Brightness/Contrast/Saturation and Hue Setting**

Users can adjust the relevant parameters of the input video in submenus of Brightness, Contrast, Saturation and Hue. The adjustable range is 0 ~ 255, while the adjustable range of Hue is -128 ~ 127. The figure outside the parentheses is a decimal while the figure inside is hexadecimal.

NOTE: Below explanations are applied in this entire manual.

1) Press ENTER to start editing.
2) Move the underline using the LEFT/RIGHT keys.
3) Modify the value of the underlined character using the UP/DOWN keys.

```
►1.1.1.2  Brightness
    128    (0*80)
```

```
►1.1.1.3    Contrast
    128    (0*80)
```

```
►1.1.1.4  Saturation
    128    (0*80)
```

```
►1.1.1.5  Hue
  ± 000    (0*00)
```

- **Aspect Ratio Setting**

In this interface, users can set the video aspect ratio, which includes 4 options. Pressing 1.1.1.6, the operation interface will display the following page:

```
1.1.1.6    Aspect Ratio                    01/02
           [4:3 MPEG 2]                1:1 MPEG 2
```

- **Coding Type**

This device supports only MPEG-2 encoding and it's read-only in this interface.

```
1.1.1.7 Coding Type                        01/01
        MPEG 2
```

- **Resolution**

Under this interface, users can set the video resolution (Refer to section 1.3 for details). Pressing 1.1.1.8, the operation interface will display the following page:

```
1.1.1.8 Resolution                 01/06
     [720*576_50I]            704*576_50I
```

- **Rate Mode**

User can choose CBR & VBR at this menu. CBR (Constant Bit Rate) means that the bit rate will be a constant value. VBR (Variable Bit Rate) means that the bit rate will always change along with the video scene changing.

```
1.1.1.9 Rate Mode                  01/01
        [CBR]                  VBR
```

- **Bit Rate/Max Bit Rate**

Users can modify the video encoding bit rate and the maximum and minimum bit rate under menus 1.1.1.A-1.1.1.B.

```
1.1.1.A Bit Rate
        002.500 Mbps
```

```
1.1.1.B Max Bit Rate
        003.000 Mbps
```

- **GOP Structure**

GOP: Group of Picture

Users can set the GOP frames in this interface. There are 4 options provided as follows:

```
1.1.1. C GOP Structure                    01/01
 IPPPP      IBPBP      [IBBPB]      IBBBP
```

- **Video Sharp Setting**

Users can set the video sharpness in this interface, and the LCD will display the following page.

There are four options (Sharp, Common, Flat and Close). If users choose the Close option, the Video Sharp function is closed. Users can refer to the following interface for details.

```
1.1.1.D  Video  Sharp                                01/01
  Close          Flat          Common          [Sharp]
```

- **MP4 Profile Setting**

Users can set the MP4 Profile in this interface, and the LCD will display the following page.

There are three options (SP1, SP2 and ASP) to select.

NOTE: This function currently does not work.

```
1.1.1.E MP4 Profile                                01/01
     [SP1]                SP2                   ASP
```

3.2.1.2. Audio Setting

1.1.2.1 Bit Rate	1.1.2.2 Sample
1.1.2.3 Format	1.1.2.4 Gain

- **Audio Bit Rate Setting**

Users can set the input audio bit rate by pressing the **ENTER** key to enter the main editing interface. The options are: 32 kbps, 48 kbps, 56 kbps, 64 kbps, 80 kbps, 96 kbps, 112 kbps, 128 kbps, 160 kbps, 192 kbps, 224 kbps, 256 kbps, 320 kbps, and 384 kbps. After the modification, users can press the **ENTER** key again to take the modification into effect. The LCD will display the following pages:

1.1.2.1 Bit-rate			01/04
32 Kbps	48Kbps	56Kbps	[64Kbps]

- **Audio Sample Rate**

Under this interface, users can set the input audio sample rate. Users can set the relevant audio sample rate by moving the UP/DOWN keys. After setting the sample rate, users can press the **ENTER** key again to take the modification into effect, and the LCD will display the following page:

1.1.2.2 Sample		01/01
[48 KHz]	44.1 KHz	32 KHz

- **Audio Format Setting**

AAC: Advanced Audio Coding
AC3: Audio Coding
Users can set the input audio format in this interface, and the 5 options are MPEG-1 Layer II, PD-CE (AC3-CE), DD-PE (AC3-PE), LC-AAC, and HE-AAC. When users enter the main editing menu, the LCD will display the following page:

1.1.2.3 Format	01/03
[MPEG1-Layer Ⅱ]	PD-CE (AC3-CE)

- **Gain**

Users can modify the Gain value in this interface.

```
1.1.2.4 Gain
16
```

3.2.1.3. System Settings

```
►1.1.3.1 Prog Number        1.1.3.2 Video PID
 1.1.3.3 Audio PID          1.1.3.4 PMT PID
```

```
►1.1.3.5 PCR PID            1.1.3.6 IP Enable
 1.1.3.7 Out Address        1.1.3.8 Out Port
```

```
►1.1.3.9 Null PKT
```

Under this interface, users can set the corresponding system parameters. After the modification, users can press the **ENTER** key to take the modification into effect.

- **Program Number Setting**

Users can set the program number by pressing ENTER to enter this submenu. The LCD will display as below:

```
1.1.3.1 Program Number
        0*0101
```

- **Video/Audio/PMT/PCR PID Settings**

Users can set these parameters by pressing **ENTER** to enter these submenus. The LCD will display the following pages. The maximum PID number cannot exceed 0x1fff.

```
1.1.3.2 Video PID
        0*0102
```

```
1.1.3.3   Audio   PID
        0*0103
```

```
1.1.3.4  PMT  PID
        0*0103
```

```
1.1.3.5  PCR  PID
        0*0101
```

- **IP Enable**

```
1.1.3.6 IP Enable
     YES        [NO]
```

- **Out Address/Out Port Setting**

User can modify the out address and out port in the below interfaces.

```
1.1.3.6 Out Address
224.002.002.002
```

```
1.1.3.8 Out Port
            1002
```

- **Null Packet**

```
1.1.3.9 Null Packet
                YES        [NO]
```

Users can choose YES (filter the null packet) or NO (don't filter null packet).

3.2.1.4. Program Mux Setting

Users can decide whether to open the multiplexing function of the device.

- **Channel Mux**

Under this interface, users can decide whether or not to multiplex the channel encoding stream. **YES** means that the device multiplexes the encoding stream into the MPTS, while **NO** means that the output program is SPTS. The LCD will display the following pages after pressing the **ENTER** key.

```
1.1.4.1  Channel Mux                    01/01
         [ YES]                         NO
```

3.2.2 ASI Settings

Users can check the ASI input program amount in this interface, and the LCD will display the following page. Prog: 006 means the input program is 6 and Out: 003 means 3 of the 6 programs have been multiplexed.

```
► 2.1  Parse  ASI  Prog
```

```
2.1 Parse ASI Prog          Prog: 006 Out: 003
► 001 HK1       √002 HK2X
```

3.2.3 Output Setting

By pressing the **ENTER** key in the main editing interface, use can set the device output parameters. The device will display the following page after users press the **ENTER** key.

```
► 3.1 IP Out Enable  3.2 IP Out Address
3.3 IP Out Port          3.4 Trans Stream ID
```

```
► 3.5 Output Stream 3.6 Output Mode
3.7ASI Output  3.8UTC Time Config
```

```
► 3.9 Null PKT
```

3.2.3.1. IP Out Enable

This is the new function of the super encoder, user can decide whether to open the IP output function by pressing the **ENTER** key in this menu, and the operating interface will show the following page:

```
► 3.1 IP out Enable
      [ YES]                    NO
```

3.2.3.2. IP Out Address

If users enable the IP output function, then users can set the device IP output address in this interface. After users press the **ENTER** key, the operating interface will display the following page:

```
► 3.2  IP  Out  Address
  224.002.002.002
```

3.2.3.3. IP Out Port

In this menu, users can set the encoder IP output port number by press the **ENTER** key to enter the main editing interface.

```
► 3.3  IP  Out  Port
  01001
```

3.2.3.4. Trans Stream ID

Users can set the device TS ID in this interface after pressing the **ENTER** key to enter the main editing page.

```
► 3.4  Trans Stream ID
  00000
```

3.2.3.5. Output Stream

Users can modify the bit rate of output stream in this interface after pressing the **ENTER** key to enter the main editing page.

```
3.5 Output Stream
        040.000 Mbps
```

3.2.3.6. Output Mode

Users can set the output mode in this interface after pressing the **ENTER** key to enter the main editing page.

```
3.6 Output Mode                 01/01
     [1IP]        8IP        9IP
```

3.2.3.7. ASI Output

Users can set the ASI output in this interface under this menu, and there are 9 options: MPTS, Channels 1-8.

```
3.7 ASI Output                  01/03
[MPTS]   Channel 1   Channel 2   Channel 3
```

3.2.3.8. UTC Time

UTC refers to Universal Time Coordinated. User can enter this menu to set the time as needed and it will then generate the TDT table and show in the user's STB.

```
3.8 UTC Time Configuration
     2012-01-29 15:45:03
```

3.2.3.9. Null Packet

```
3.9 Null Packet
                YES      [NO]
```

3.2.4 Network Setting

Users can set the network parameters by pressing the **ENTER** key, and the LCD will display the following interfaces.

```
4.1  IP  Address
    192.168.002.136
```

```
4. 2  Subnet   Mask
      255.255.255.000
```

```
4.3   Gateway
      192.168.002.001
```

```
4.4  Console Address
      192.168.002.211
```

The MAC address is read-only in the keyboard operation interface, so users can just check the physical address under this interface, and the modification must be done in the network updating tools.

```
4.5 MAC Address
    201012345679
```

NOTE: The MAC address is unique, and cannot be modified. When the MAC address is ffffffffffff, users must modify the address through special software, otherwise, the IP output data will be filtered out when the IP stream passes through the router.

3.2.5 Saving Configuration

Users can save modifications by pressing the **ENTER** key, and the following interface will be displayed when users press the **ENTER** key.

```
5    Saving  Config                          01/01
 YES                [NO]
```

3.2.6 Loading Configuration

In this interface, users can select the modified configuration and the factory default configuration. Users can enter the corresponding menu to select the configuration. The LCD will display the following interfaces:

```
►6.1   Load  Saved                    6.2  Load   Default
```

3.2.7 Version

Users can check the device software version and hardware version, and the LCD will display the following interface when users press the **ENTER** key.

```
8 in 1   Encoder
      SW 2.05F  HW 02
```

3.2.8 Language

Users can select the interface language under this submenu:

```
8 Language
          中文 [ENGLISH]
```

Chapter 4. EC2200 HD Operation

The EC2200 HD Encoder's front panel is its user operating interface. Before operating, users can decide if they want to use the default settings or customize the input and output parameter settings. The detail operations go as follows:

Keyboard Function Description:

ENTER: Activating the parameters which need modifications, or confirming the change after modification.

MENU: To cancel presently entered value, resume previous setting and return to previous menu.

LEFT/RIGHT: To move the "►" to choose or set the parameters.

UP/DOWN: To modify activated parameter or page up/down when parameter is inactivated.

LOCK: ToLock the screen / cancel the lock state. After pressing lock key, the system will question the users to save present setting or not. If not, the LCD will display the current configuration state.

At the "Factory Configuration" page, user can press **ENTER** key to restore the factory default configuration.

4.1 Initializing

After powering on the device , it will take a few seconds to initialize the system, and then the LCD will show the device name and output real-time bit rate in the first row, while the 4 channels' respective input video resolution, frame rate and real-time encoding bit rate in the second row in turn. It shows as below:

```
   4 in 1 Encoder                          65.958 Mbps
1 480I 60      08.235M                  2 480I 60  08.241M
```

4.2 General Setting

By pressing the LOCK key, users can enter the main menu and set the input and output parameters in the following editing interfaces, the LCD will display the following pages:

►1 Input Setting	2 ASI Setting
3 Output Setting	4 Network Setting

►5 Saving Config	6 Loading Config
7 Version （SNMP）	8 Language

The option with "►" is the current selection, users can press the **ENTER** key to enter the specified submenu to modify the device parameter.

4.2.1 Input Setting

Under this menu, users can enter the corresponding encoding channel to set the relevant audio and video input parameters, and select programs to multiplex. The LCD will display 4 submenus which from Encoding Channel 1 to Encoding Channel 4. The setting principle is the same for Encoding Channel 1-4, so here this manual just takes one channel as the example to explain. After pressing the **ENTER** key, the LCD will display the following pages:

►1.1 Encoder 1	1.2 Encoder 2
1.3 Encoder 3	1.4 Encoder 4

After users enter the submenu, the interface will turn into the following pages, and then users can enter the corresponding interface to modify the parameters.

►1.1.1 Video	1.1.2 Audio
1.1.3 System	1.1.4 PG Muxer

4.2.1.1. Video Setting

►1.1.1.1 Bitrate	1.1.1.2 BitrateMod
1.1.1.3 Profile	1.1.1.4 Level

- **Bit rate**

By press **ENTER** key, user can modify relevant parameter of encoding rate (adjustable range: 0.8M~19M), the specific steps are displayed as follows:

```
1.1.1.2     Bit rate
     8.000Mbps
```

- **Bit rate Mode**

Users can choose CBR & VBR at this menu. CBR (Constant Bit rate) means that the bit rate will be a constant value. VBR (Variable Bit rate) means that the bit rate will always change along with the video scene changing.

```
1.1.1.2 Bit rateMod                01/01
        [CBR]              VBR
```

- **Profile**

Users can select the configuration of H.264 profile at this menu. The H.264 High Profile code format and Main Profile code format are the available options.

```
1.1.1.3 Profile                    01/01
        [HIGH]             MAIN
```

- **Level**

User can select the H.264 level at this menu. The option with bracket is the current choice.

```
1.1.1.4 Level                      01/03
        [1.2]   1.3    2.0   2.1
```

```
1.1.1.4 Level                      02/03
        [2.2]  3.0  3.1   3.2
```

```
1.1.1.4 Level                      03/03
    [4.0]  4.1  4.2
```

4.2.1.2. Audio Setting

1.1.2.1 Bit Rate	1.1.2.2 Format

- **Audio Bit Rate Setting**

User can set the input audio bit rate by pressing the **ENTER** key to enter the main editing interface. And there are: 64Kbps, 96Kbps, 112Kbps, 128Kbps, 160Kbps, 192Kbps, 224Kbps, 256 Kbps, 320Kbps, and 384Kbps. After the modification, users can press **ENTER** key again to take the modification into effect. The LCD will display the following pages:

```
1.1.2.1  Bit-rate                                  01/03
 64 Kbps      96Kbps       112Kbps       [128Kbps]
```

```
1.1.2.1  Bit-rate                                  02/03
 160 Kbps     192Kbps      224Kbps       [256Kbps]
```

```
1.1.2.1  Bit-rate                                  03/03
 320 Kbps     384Kbps
```

- **Audio Format Setting**

AAC: Advanced Audio Coding

Users can set the input audio format in this interface, and the 3 options are MPEG-1 Layer II, LC-AAC, and HE-AAC. When users enter the main editing menu, the LCD will display the following page:

```
1.1.2.2    Format                                  01/02
 [MPEG1-Layer Ⅱ]                    LC-AAC
```

```
1.1.2.2    Format                                  02/02
 [HE-AAC]
```

4.2.1.3. System Settings

```
►1.1.3.1 Prog Number          1.1.3.2 Video PID
 1.1.3.3 Audio PID            1.1.3.4 PMT PID
```

```
►1.1.3.5 PCR PID              1.1.3.6 IP Enable
 1.1.3.7 Out Address          1.1.3.8 Out Port
```

```
►1.1.3.9 Null PKT
```

Under this interface, users can set the corresponding system parameters, after the modification, users can press **ENTER** key to take the modification into effect.

- **Program Number Setting**

Users can set the program number by pressing ENTER to enter this submenu. The LCD will display as below:

```
1.1.3.1 Program Number
 0x0101
```

- **Video/Audio/PMT/PCR PID Settings**

Users can set these parameters by pressing ENTER to enter these submenus. The LCD will display the following pages, and the maximum PID number cannot exceed 0x1fff.

```
1.1.3.2  Video   PID
         0x0101
```

```
1.1.3.3   Audio   PID
         0x0102
```

```
1.1.3.4  PMT  PID
        0x0100
```

```
1.1.3.5  PCR  PID
        0x0101
```

- **IP Enable**

```
1.1.3.6 IP Enable                    01/01
     YES        [NO]
```

- **Out Address/Out Port Setting**

User can modify the out address and out port in below interfaces.

```
1.1.3.7 Out Address
224.002.002.002
```

```
1.1.3.8 Out Port
            1002
```

- **Null Packet**

```
1.1.3.9 Null Packet                  01/01
                YES        [NO]
```

Users can choose YES (filter the null packet) or NO (don't filter null packet) to decide whether to filter the null packet or not.

4.2.1.4. Program Mux Setting

Users can decide whether to open the multiplexing function of the device.

- **Channel Mux**

Under this interface, users can decide whether to multiplex the channel encoding stream. **YES** means that the device multiplexes the encoding stream into the MPTS, while **NO** means that the output program is SPTS. The LCD will display the following pages after pressing **ENTER** key.

```
1.1.4.1  Channel Mux                    01/01
         [ YES]                         NO
```

4.2.2 ASI Settings

Users can check the ASI input program amount in this interface, and the LCD will display the following page. Prog: 006 means the input program is 6 and Out: 003 means 3 of the 6 programs have been multiplexed.

```
► 2.1  Parse  ASI  Prog
```

```
2.1 Parse ASI Prog          Prog: 006 Out: 003
► 001 HK1       √002 HK2X
```

4.2.3 Output Setting

By pressing the **ENTER** key in the main editing interface, users can set the device output parameter. The device will display the following page after users pressing the **ENTER** key.

```
► 3.1 IP Out Enable 3.2 IP Out Address
3.3 IP Out Port          3.4 Trans Stream ID
```

```
► 3.5 Output Stream3.6ASI Output
3.7UTC Time Config          3.8 Null PKT
```

```
► 3.9 TS Package Num
```

4.2.3.1. IP Out Enable

This is the new function of this encoder, user can decide whether to open the IP output function by press the **ENTER** key in this menu, and the operating interface will show the following page:

```
► 3.1 IP out Enable
        [ YES]                    NO
```

4.2.3.2. IP Out Address

If users enable the IP output function, then users can set the device IP output address in this interface. After users press the **ENTER** key, the operating interface will display the following page:

```
► 3.2  IP  Out  Address
  224.002.002.002
```

4.2.3.3. IP Out Port

In this menu, users can set the encoder IP output port number by press the **ENTER** key to enter the main editing interface.

```
► 3.3  IP  Out  Port
   01001
```

4.2.3.4. Trans Stream ID

Users can set the device TS ID in this interface after pressing the **ENTER** key to enter the main editing page.

```
► 3.4  Trans Stream ID
   00000
```

4.2.3.5. Output Stream

Users can modify the bit rate of output stream in this interface after pressing the **ENTER** key to enter the main editing page.

```
3.5 Output Stream
        040.000 Mbps
```

4.2.3.6. ASI Output

Users can set the ASI output in this interface under this menu, and there are 5 options: MPTS, Channel 1-4.

```
3.6 ASI Output                    01/02
[MPTS]   Channel 1   Channel 2   Channel 3
```

4.2.3.7. UTC Time

UTC refers to Universal Time Coordinated. User can enter this menu to set the time as needed and it will then generate the TDT table and show in the user's STB.

```
3.7 UTC Time Configuration
        2012-01-29 15:45:03
```

4.2.3.8. Null Packet

```
3.8 Null Packet                   01/01
                YES       [NO]
```

4.2.3.9. TS Package Num

User can set the amount of TS packages by entering into below interface.

```
3.9 TS Package Num                01/02
  1      2      3      [4]
```

```
3.9 TS Package Num                02/02
  [5]      6      7
```

4.2.4 Network Setting

Users can set the network parameters by pressing the **ENTER** key, and the LCD will display the following interfaces.

```
4.1  IP  Address
     192.168.002.136
```

```
4. 2  Subnet   Mask
      255.255.255.000
```

```
4.3   Gateway
      192.168.002.001
```

```
4.4  Console Address
      192.168.002.211
```

The MAC address is read-only in the keyboard operation interface, so users can just check the physical address under this interface, and the modification must be done in the network updating tools.

```
4.5 MAC Address
    201012345679
```

NOTE: The MAC address is unique, and cannot be modified. When the MAC address is ffffffffffff, users must modify the address through special software, otherwise, the IP output data will be filter out when the IP stream passes through the router.

4.2.5 Saving Configuration

Users can save the modification by pressing the **ENTER** key, and the following interface will be displayed when user press the **ENTER** key.

```
5    Saving  Config                          01/01
 YES                [NO]
```

4.2.6 Loading Configuration

In this interface, users can select the modified configuration and the factory defaulted configuration. Users can enter the corresponding menu to select the configuration. The LCD will display the following interfaces:

```
►6.1   Load  Saved                    6.2  Load   Default
```

4.2.7 Version

Users can check the device software version and hardware version, and the LCD will display the following interface when users press the **ENTER** key.

```
4 in 1   Encoder
       SW 0.02F  HW 08
```

4.2.8 3.2.8 Language

Users can select the interface language under this submenu:

```
8 Language
          中文 [ENGLISH]
```

Chapter 5. EC2200 SD NMS Operation

Network Management System Profile

The network management system is applied to digital TV equipment operation, control and management and parameters setting, etc. It centralizes digital TV equipment across a network.

5.1 Installation

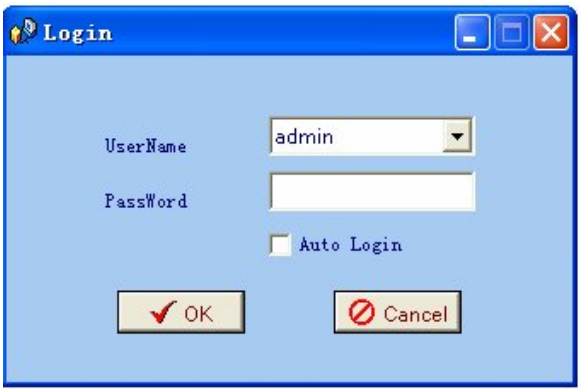
The software doesn't need special installation. Users can just copy "Network Management Software X.XXY.exe" to the specified directory (X.XX is version number, Y represents language. For example: the version number of network management software 4.12E.exe is 4.12 English version) or place different versions of network management software to the same directory. When the network management software is running, it will generate two documents as follows:

- Network management software X.XXY.log (It preserves the log file.)
- Info. Bin (It's the user configuration data.)

5.2 Software Operation

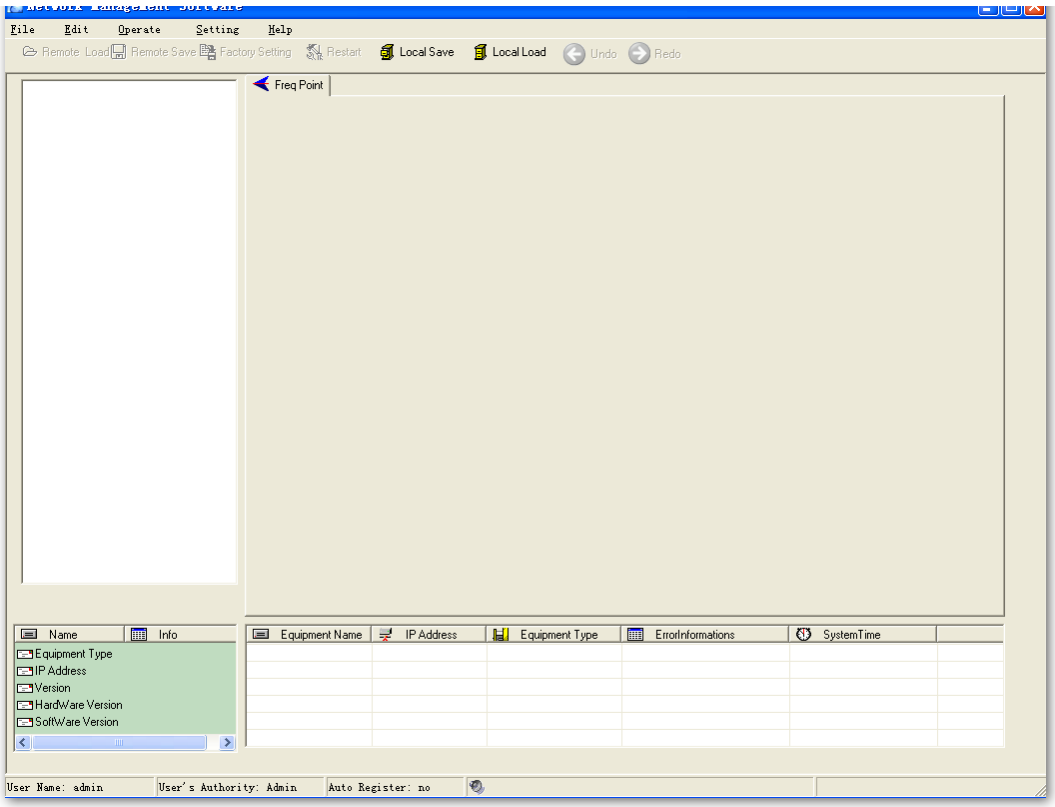
5.2.1 Login Interface

A login interface will pop up when the software is running and gives users a prompts to input a username and password (The default user name is **admin** with no password. Users can add usernames and passwords as needed. Please refer to section 4.4.3 for details). The menu shows as follows:



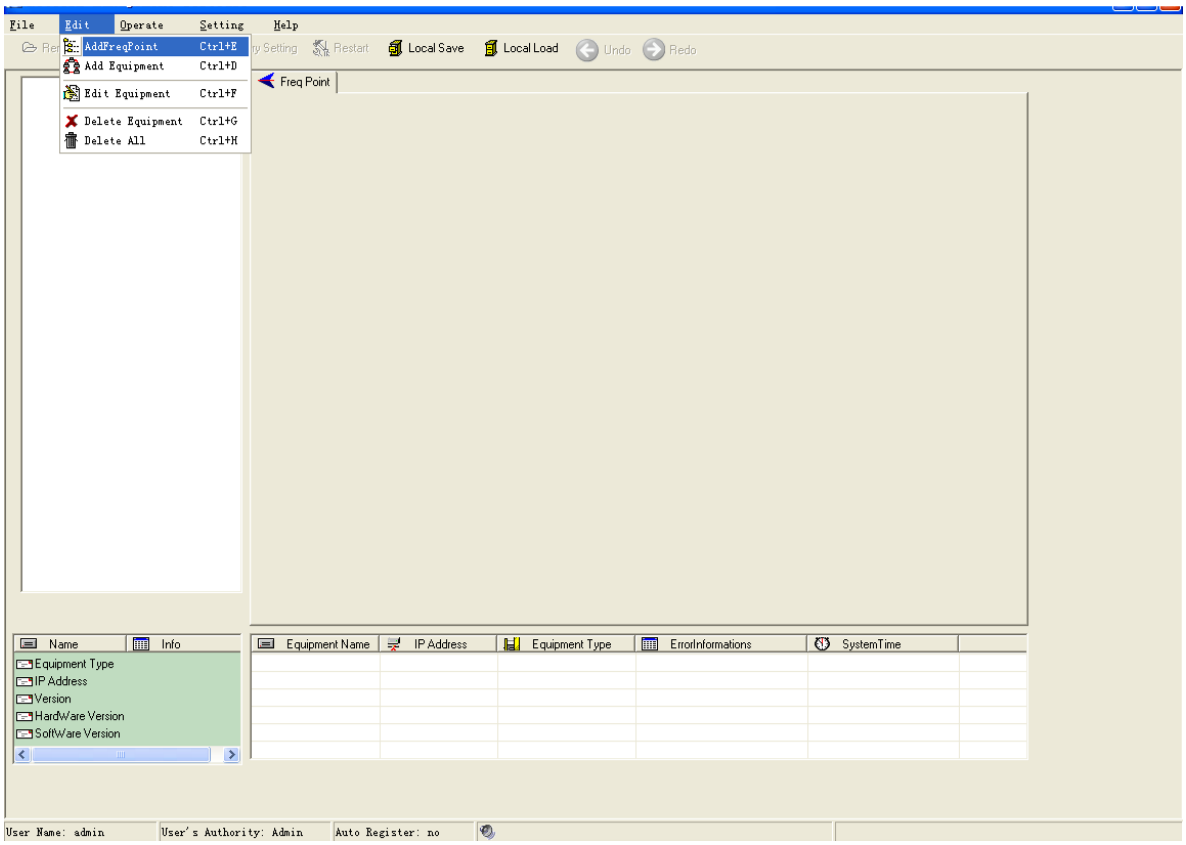
Users can log in to the NMS by pressing the **OK** key after inputting their user name. Upon the input, the software will verify them with a database record automatically and the main interface will appear.

5.2.2 Main Interface



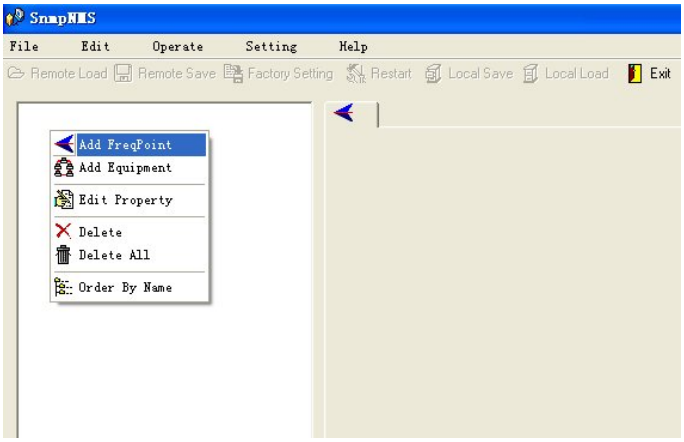
Users can create a device node tree in the left column by adding, modifying and deleting the device node. This software provides a powerful node operation function, and the user can edit various parameters in the device tree for management and classification.

5.2.3 Adding Frequency Point



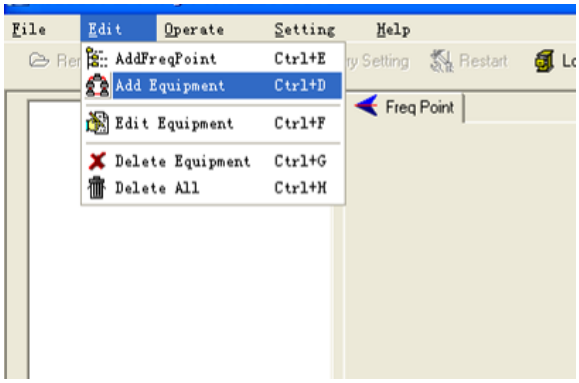
The Add Freq Point dialog box popes up when the user clicks the Add Freq Point item in the Edit pull down menu on the menu row. The device will confirm the given frequency when the user clicks **OK**.

User can also right click to pop up the short-cut menu in the device tree or in the left blank column, and the corresponding dialog box will pop up by choosing **Add Main Freq Point.** The device will confirm the given frequency when user clicks **OK.**

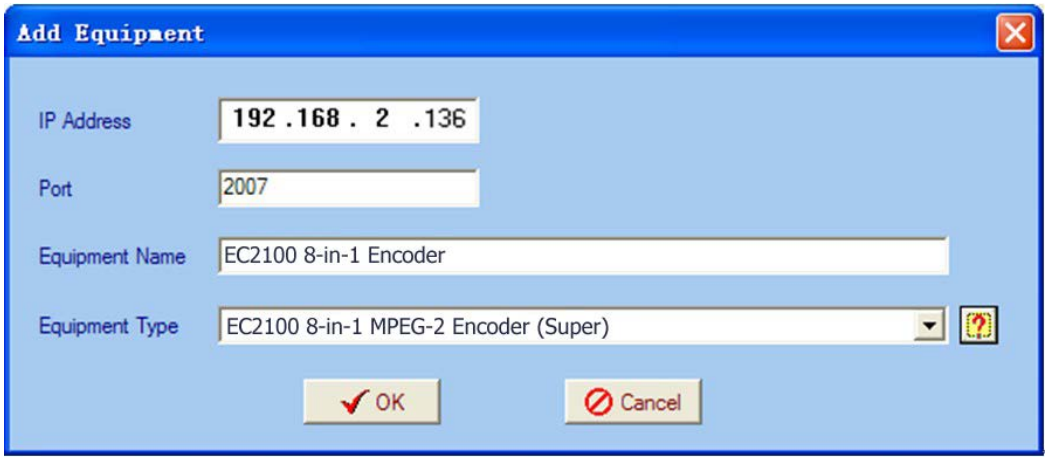


5.2.4 Adding Equipment under Given Frequency Point

Users should choose the frequency point in advance, and then the dialog box of Add Equipment will pop up when user clicks the **Add Equipment** item in the **Edit** pull down menu on the menu row.



5.2.5 Edit Equipment Interface



Users should follow the steps as below:

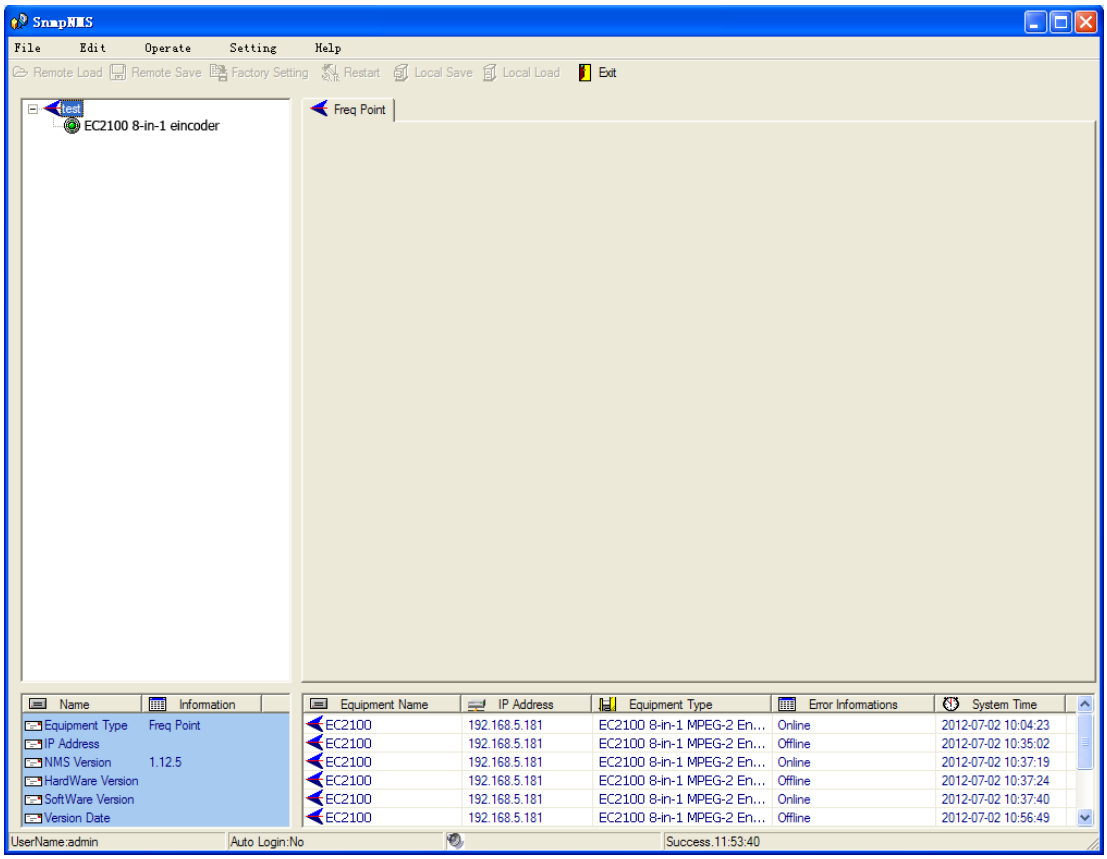
- Input the device IP Address
- Input the port
- Input the Equipment Name
- Choosing the connected equipment type in drop down list of **Equipment Type** by clicking the "▼" Or Click "**?**" to auto search the type of device.

NOTE:

1. The default IP of the EC2200 SD Encoder is 192.168.2.136. You can check its IP address in the front panel of device in case the IP has unexpectedly changed.

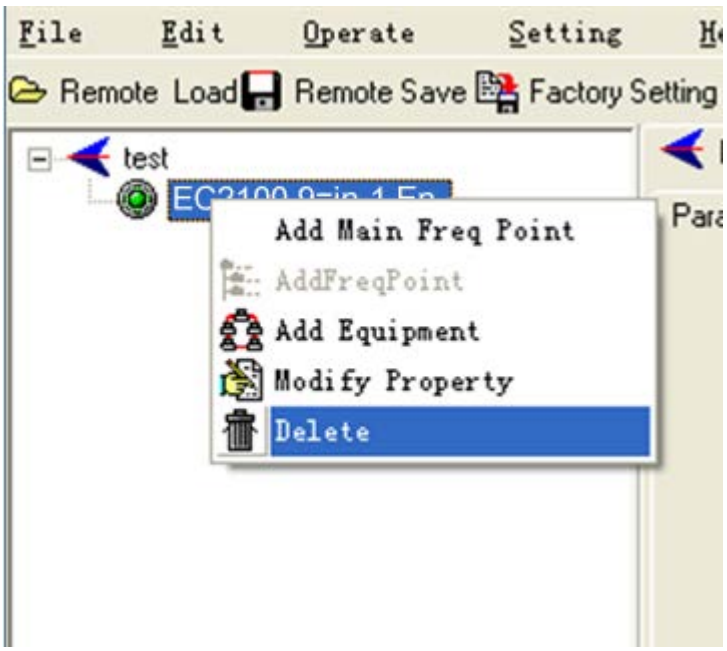
2. The PC IP address and device IP address should be in the same network. For example the Device IP is 192.168.2.136, sub mask is 255.255.255.0. So the PC IP address should be 192.168.2.X (1<X<255), sub mask is 255.255.255.0. User can use ping command to confirm these two are in same network or not.

Click OK, it will appear as below:



5.2.6 Delete Equipment

User can choose the equipment to be deleted in the left column, and then click the “delete” item in the pull down menu which appears by clicking the right mouse key.



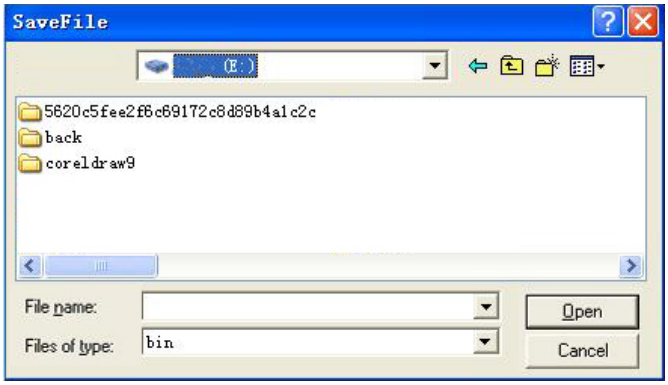
5.2.7 Save Configuration

After finishing all the parameters setting, user can click 

button on the toolbar to save the modifications to the device's flash, while user can also reload the saved parameters from device's flash and refresh the device's parameters setting according to the loaded values by clicking 

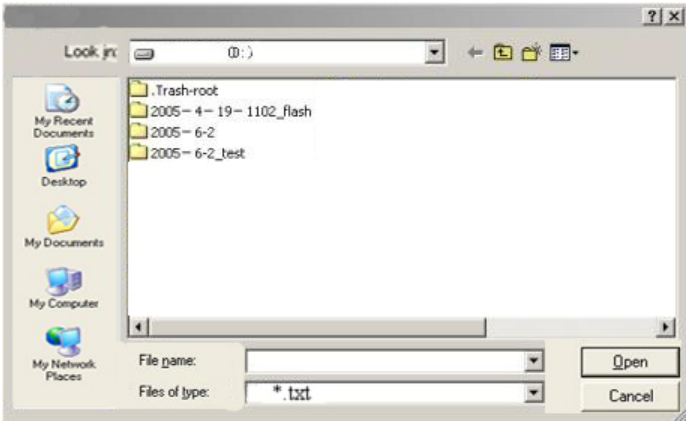
Alternatively, user can also click the 

button on the toolbar to popup the "save file" dialog box, which gives prompts to save all the device's parameters as binary files in the computer's hard disk.



Similarly, user can choose to click the 

button on the toolbar to popup the read file dialog box, to read the stored binary file and set the device's parameters according to the loaded binary files.



5.3 EC2200 SD Encoder Operation

User can choose the EC2200 8-in-1 MPEG-2 encoder in the device tree; the procedure will display the encoder interface in operating area. The interface is mainly composed of encoding video parameters, audio parameters and the encoding system parameters, output parameters and etc.

5.3.1 Parameters Setting

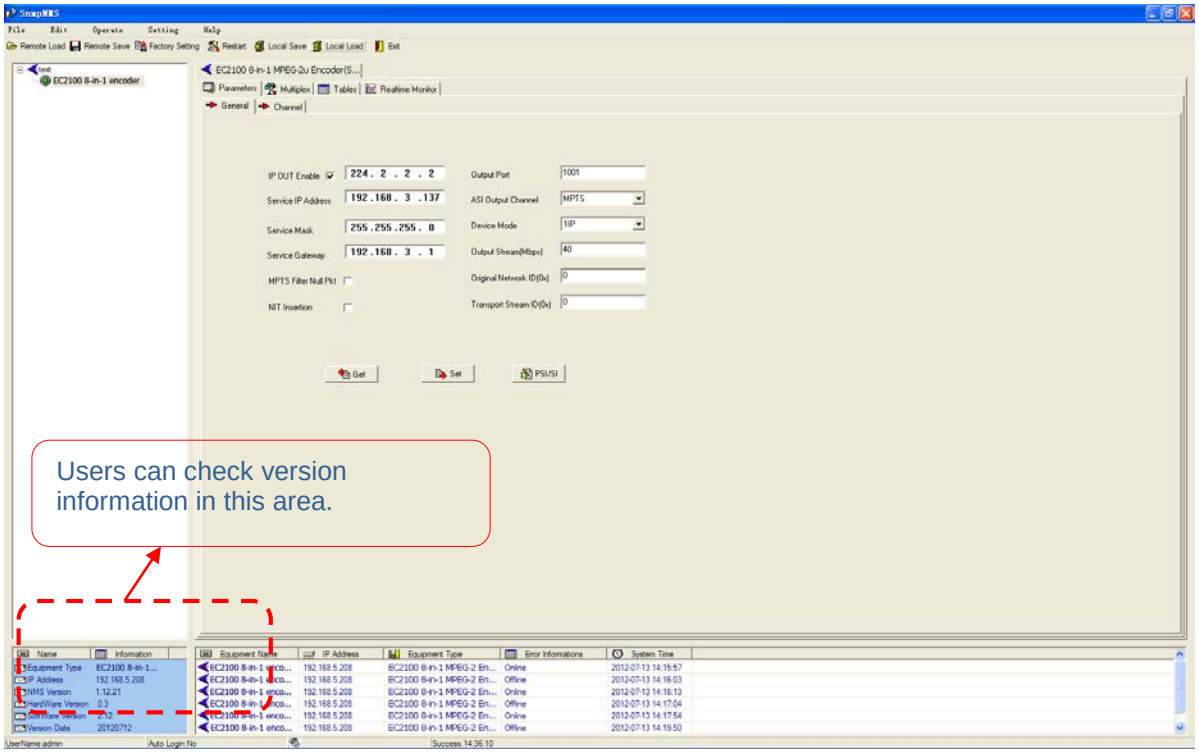
Users can click Equipment Name on the node tree and enter in the Parameter interface by clicking 

and 

or 

to configure the parameters.

5.3.1.1. General Parameters



Set: to make the current parameters, which shows in the NMS software, activate.

Get: to read the current device's activating parameters and show them on NMS software.

- **IP Out Enable**

Check the checkbox with "√", then the IP output is enabled, otherwise it is not. Users can decide whether to open the IP output function or not.Users can modify the IP address here as well.

- **IP Out/Service IP Address**

Users can set the service IP and the TS output address by modifying the value in these two fields.

Pay attention to the 2 situations below:

MPTS: Keep the Service IP Address **different** frem the IP Out Address.

SPTS: Keep the Service IP Address the **same** with the IP Out Address.

- **Original Network ID**

This 16-bit field gives the label identifying the network ID of the originating delivery system. The value ranges from 0 to 0xFFFF.

- **Transport Stream ID**

This is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. The value ranges from 0 to 0xFFFF.

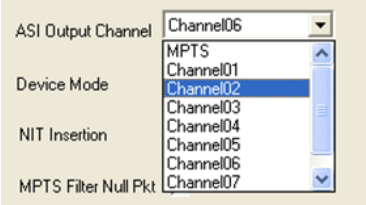
- **Output Stream (Mbps)**

This refers to output bit rate, which includes the effective bit rate of encoding channel 1-8, the effective bit rate from ASI input and the bit rate of stuffed null packets.

- **Output Port**

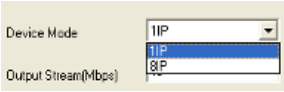
Users can set the output port by modifying the value in this field.

- **ASI Output Channel**



This device supports 1 MPTS (Multiple Programs Transport Stream) and 8 SPTS (Single Programs Transport Stream) output. User can click to triger a pull-down list to select the output type.

- **Device Mode**



User can click to triger a pull-down list to select the device mode.

- **NIT Insertion**

In this field, users can decide whether to effect the NIT insertion function.

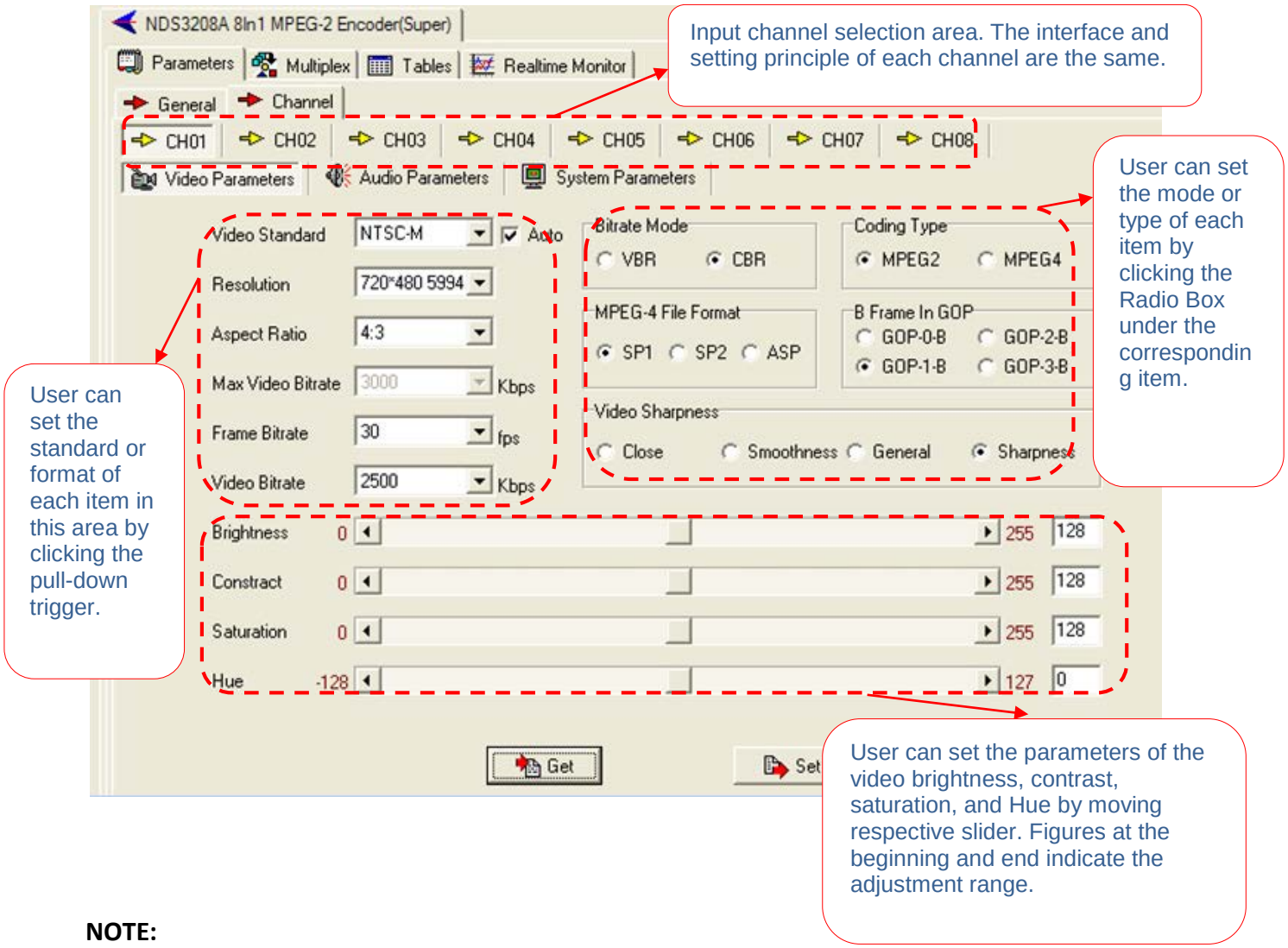
- **MPTS Filter Null Packet**

If this function is effected, then the null packets in IP output stream will be filtered.

- **PSI/SI Editor**

This button will trigger the PSI/SI Editor for some users' advanced usage. For more detail, please refer to the manual of PSI/SI.

5.3.1.2. Video Parameters



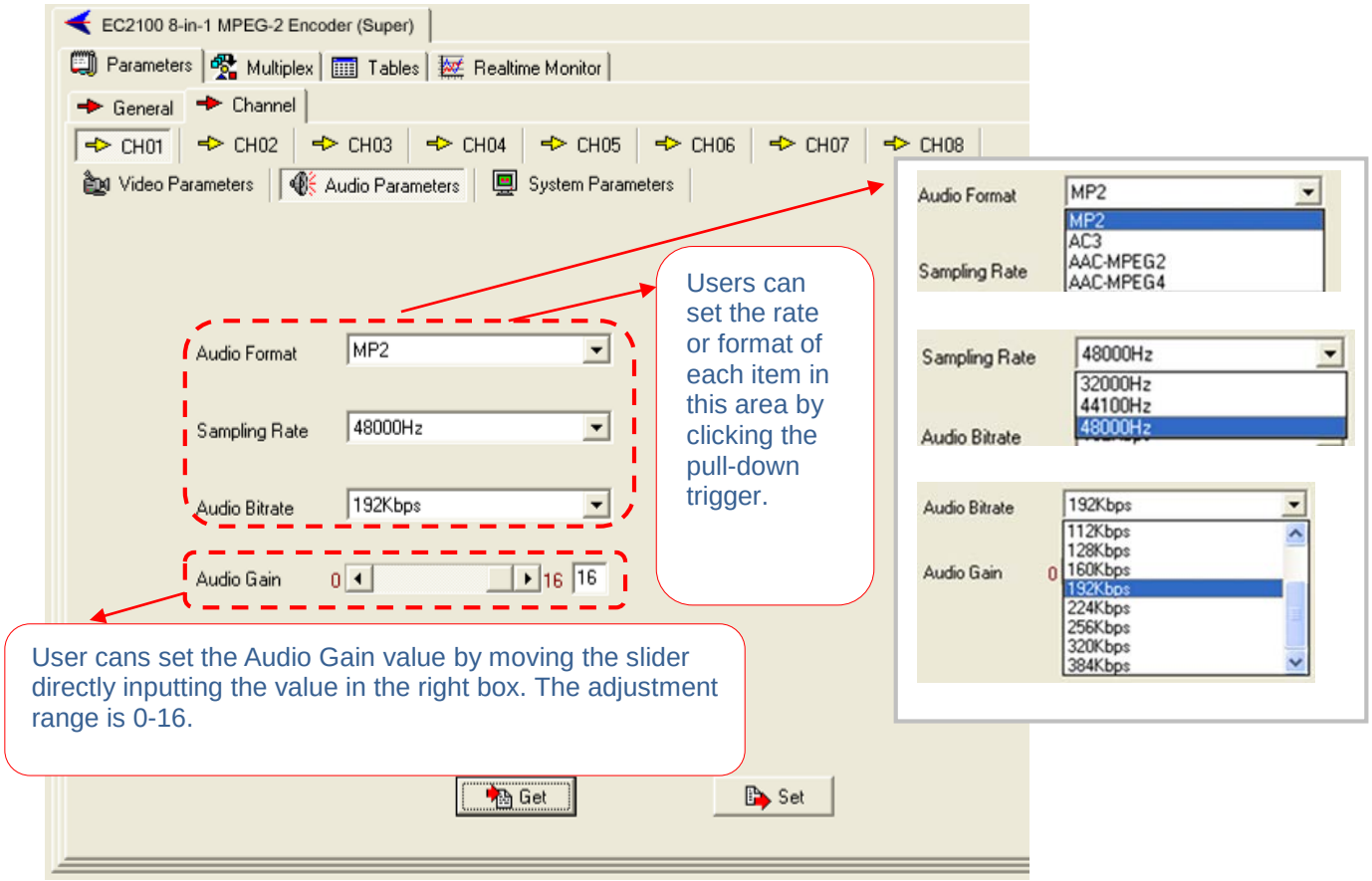
NOTE:

1. Bit Rate Mode & Max Video Bit rate

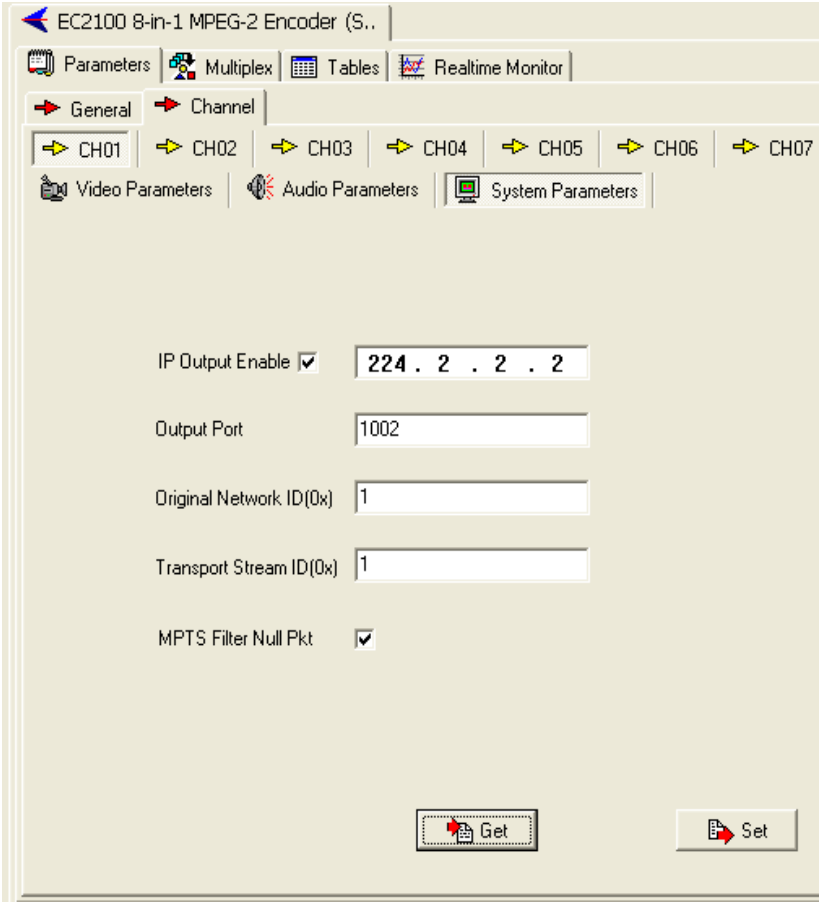
Users can only modify the Max Video Bit Rate when the Bit rate mode is VBR, while CBR mode is selected, Max Video Bit Rate box turns gray and users can just check it.

2. If any parameter is modified, it is supposed to click **Set**  to make the modified parameters activate and click **Get**  to read and effect the current device's activating parameters.

5.3.1.3. Audio Parameters



5.3.1.4. System Parameters



Chapter 6.

- **IP Output Enable**

Check the checkbox with "√", then the IP output is enabled, otherwise it is not. Users can decide whether to open the IP output function or not.Users can modify the IP address here as well.

- **IP Out Address/Output Port**

Users can set the service IP and the TS output address by modifying the value in these two fields.

- **Original Network ID**

This 16-bit field gives the label identifying the network ID of the originating delivery system. The value ranges from 0 to 0xFFFF.

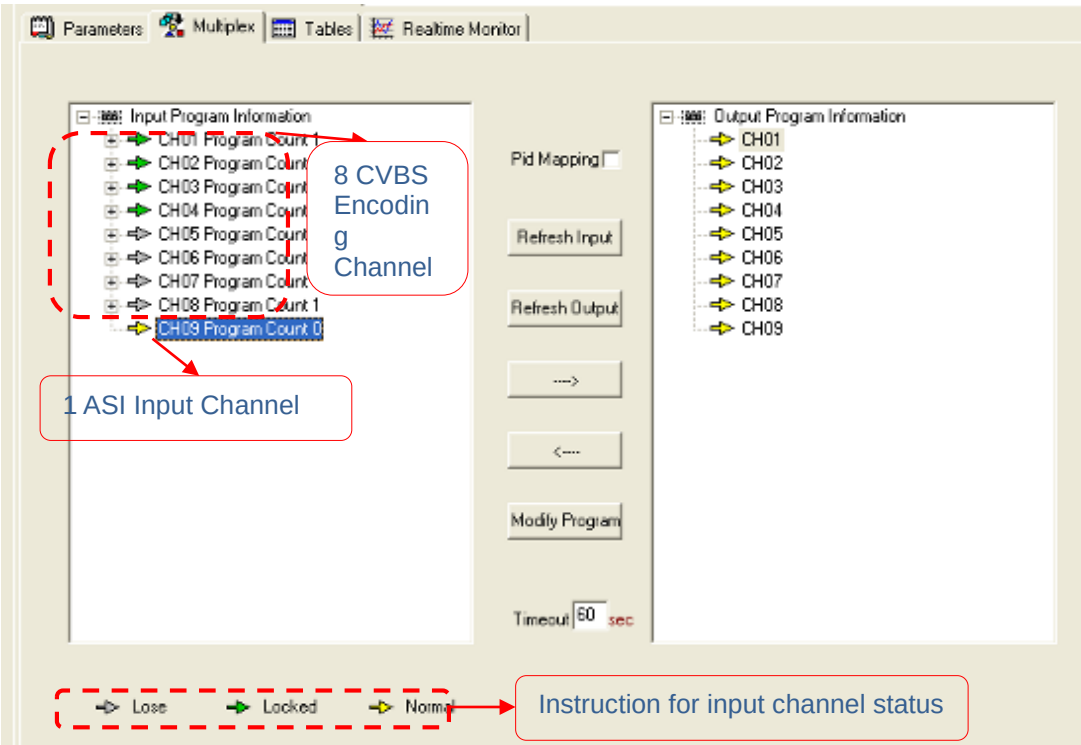
- **Transport Stream ID**

This is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. The value ranges from 0 to 0xFFFF.

➢ **MPTS Filter Null Packet**

If this function is effected, then the null packets in IP output stream will be filtered.

6.1.1 Multiplexing



The programs in the left column represent all input programs and which port they come from, while the programs in the right column represent the output programs and from which port they are from. User can parse the programs of each channel and multiplex those programs to the output. Moreover, user can modify the output programs' Program Name, PMT, PCR, video, audio PID.

Pid Mapping ☐ : Check this box the set the PID Mapping

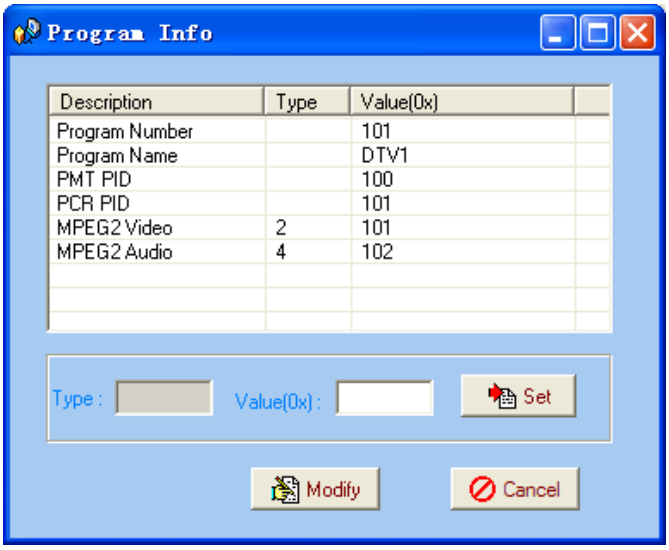
Refresh Input : To refresh the inputting terminal and get the inputting information

Refresh Out : To refresh the outputting terminal and get the outputting information

---> : Multiplex the input programs to the output channels after selecting the target program with ☑ . The system will automatically allot the program to the relevant output channel.

<--- : Cancel the multiplexed programs.

Modify Program : To modify the output programs' Program Name, PMT, PCR, video, or audio PID as needed. To modify program information, user can select the target program in output part first and click this button to pop up a dialog box as below:

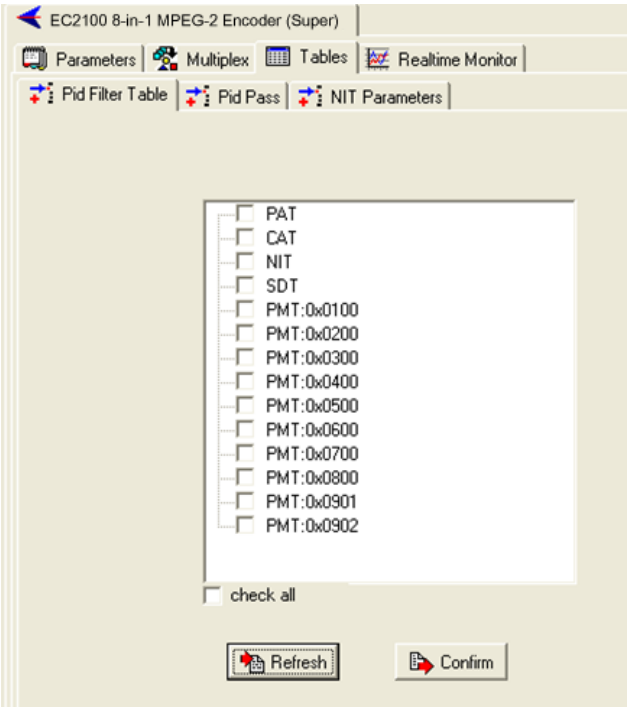


Select the target item and input the new value in the box below, then click Set and Modify to effect the modification.

Timeout 60 sec : The parsing overtime value

6.1.2 Tables

6.1.2.1. PID Filter Table



Users can operate PID filter in this table by checking the check boxes of corresponding items and click CONFIRM to effect.

Refresh: getting PID filter table from the device

Setting: submitting the PID filter table to the device

Check All: selecting all the selections of the list

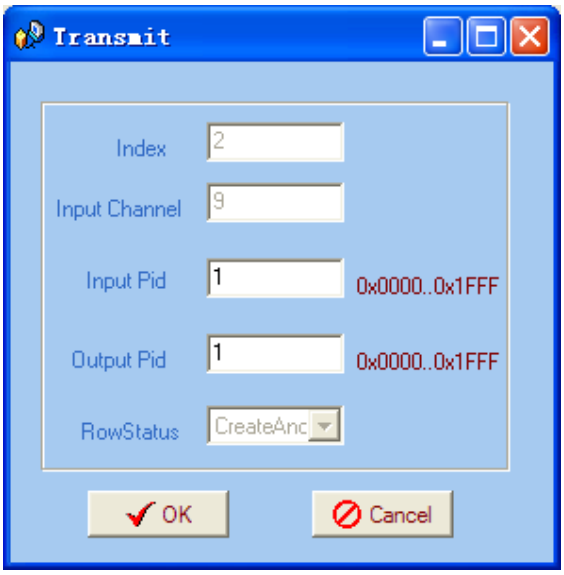
After user selects one PID in the table, then the corresponding output PSI/SI table will not be sent to the output stream.

6.1.2.2. PID Pass

User can decide to bypass the inputting PID as needed in this interface.

In some occasions, there are some PIDs which won't belong to any program, such as EPG, NIT tables, and so on, but user just wants to pass them through the multiplexing module without changing anything. This is the main purpose of this function.

The display will show as below when user clicks "Add" button.



Input PID and Output PID

The Old (Input) PID is the PID number in the TS from given Port. The correspondent New (output) PID number could be same as input PID number while it could be different if a PID remapping is needed.

Modify the data as needed and click OK to confirm. The PID then will be bypassed and listed in the table as below.

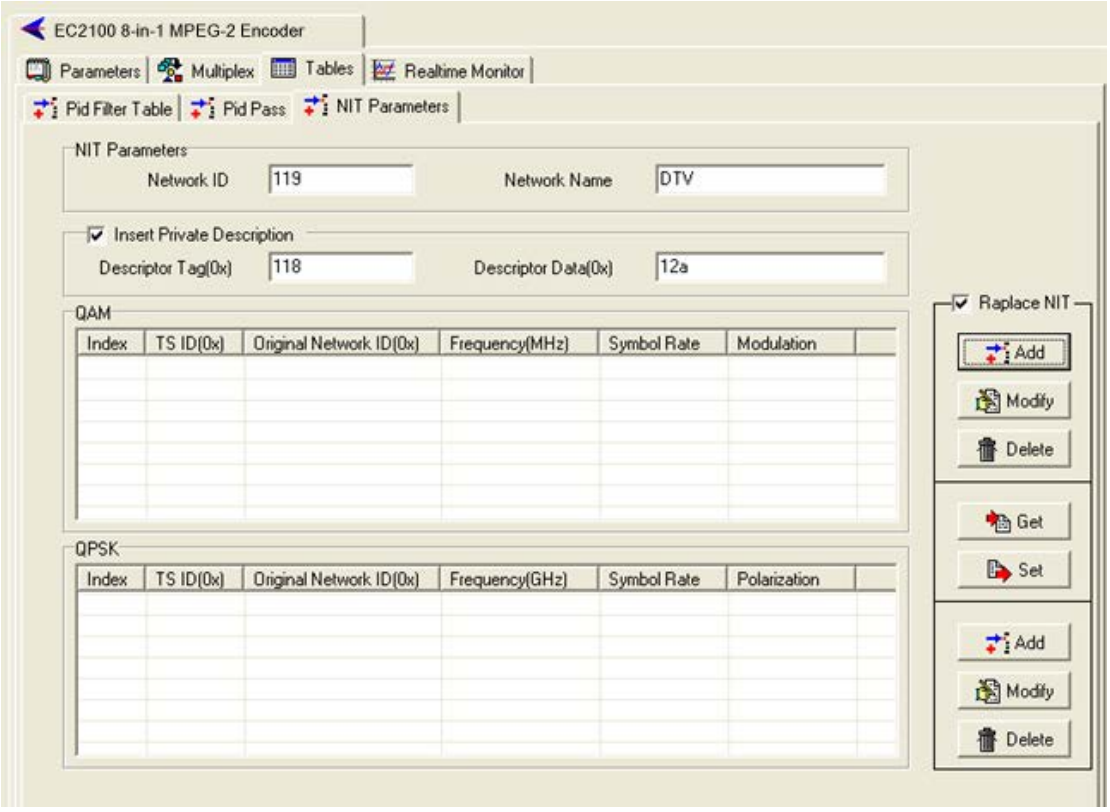
Index	Input Channel	Input PID(0x)	Output PID(0x)
1	9	101	101

User can also modify or delete the added PID through the corresponding buttons at right.

6.1.2.3. NIT Parameters

NIT: Network Information Table.

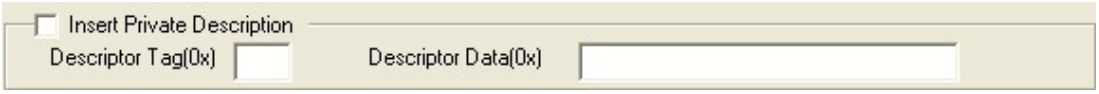
NIT table is a very important table for describing the network and TS. Users can set the parameters of the output NIT table.



Network ID : The parameter describes the output TS's network ID

Network Name : The parameter describes the output TS's network name.

Insertion private description



Insert Private Description : This checkbox will allow user to insert the private descriptor into the output TS. The private descriptor includes two parts. One is descriptor tag, and the other is descriptor information.

Descriptor Tag(0x) : The Descriptor Tag is an 8-bit field which identifies each descriptor.

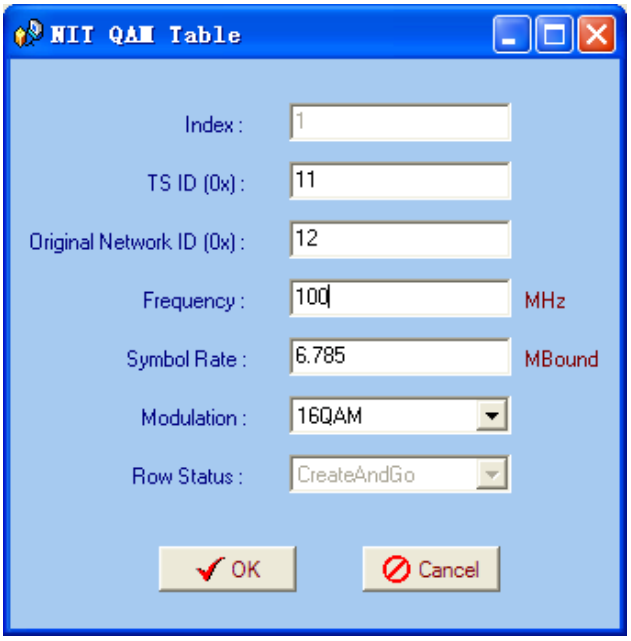
Descriptor Data(0x) : The Descriptor Data is the detailed information of the private description.

Replace NIT Table

After checking the checkbox, the NIT editing menu is active. And also the device will insert the EIT table into the output TS.

Replace NIT : It means to replace the NIT table when users select it, and then users can edit the NIT table and output it.

: Users can add the cable transmission descriptor in this Add button, and it will pop up the following dialogue box, say, the added descriptor is apply for the DVB-C network.



The interface will show as below after the NIT parameters being added：

QAM

Index	TS ID(0x)	Original Network ID(0x)	Frequency(MHz)	Symbol Rate	Modulation
1	11	12	100	6.785	16QAM

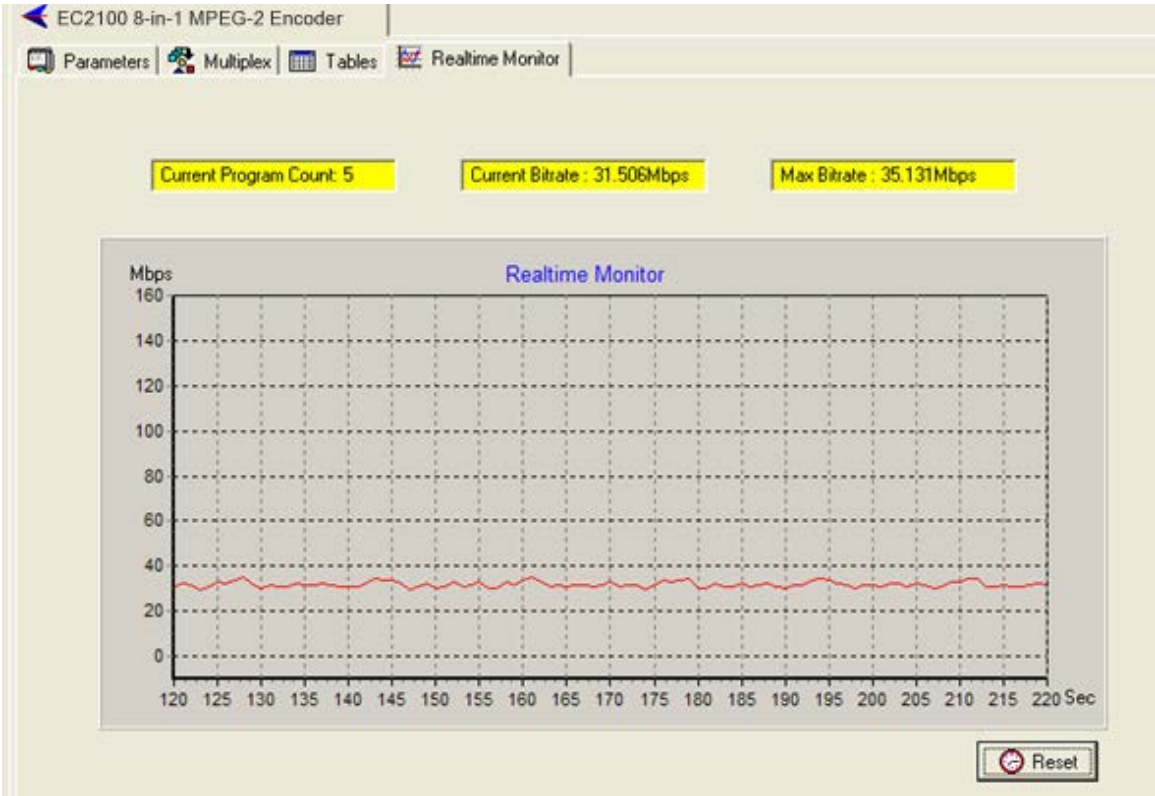
Modify ：The “Modify” button will trigger a modify window and allow user to modify the selected items in the NIT.

Delete ：The “Delete” button will remove the selected items in the NIT.

Set ：The set “Button” will send the NIT to the chosen output Port.

6.1.3 Real-time Monitor

There will be a real-time bit rate chart generating in the monitor for users to check the bit rate information.

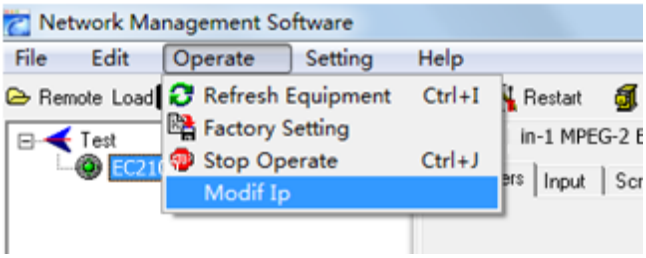


6.2 Other Settings

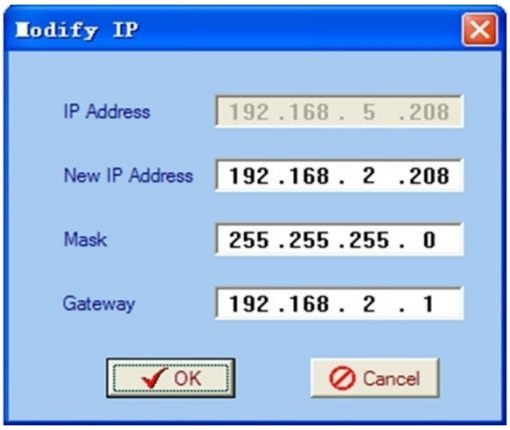
6.2.1 Difference between Set and Remote Save

In many cases during the configuration of parameters in NMS, users save the modified configuration by clicking “Set”, in which way the configuration can only be saved temporarily and will restore the last saved configuration if the device reboots. To save the configuration permanently, it is required to operate through “Remote Save” on the toolbar explained in 4.2.7. This is the difference between “Set” and “Remote Save”.

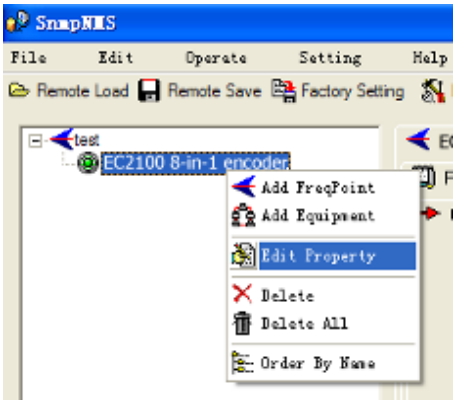
6.2.2 IP Modification



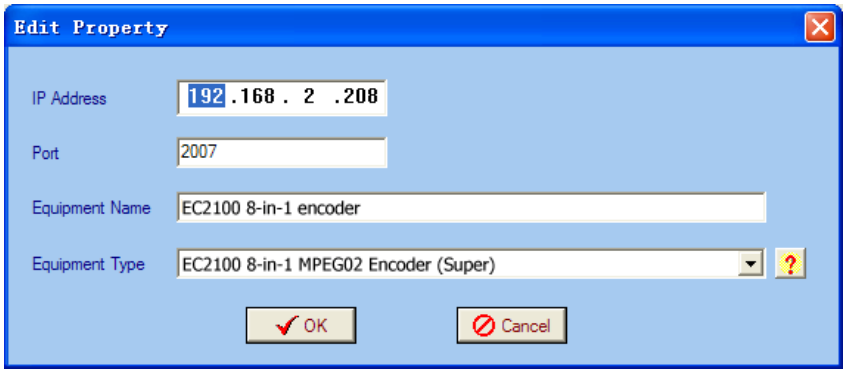
Users can click **Operate** and select **Modify IP** in the drop-down list, and a dialog box presents itself as shown below. Users input the new NMS IP Address for the device and click OK button to confirm.



Users can then note the indicator light turns red, which signifies the equipment has disconnected. Users then can refer to below prompts to edit the property by inputting the new IP to re-connect the equipment.



Input the new IP Address in the box and click OK button, then the device will be connected again.



After finishing all the parameters setting, user should click 

button on the toolbar to save the modifications to the device's flash.

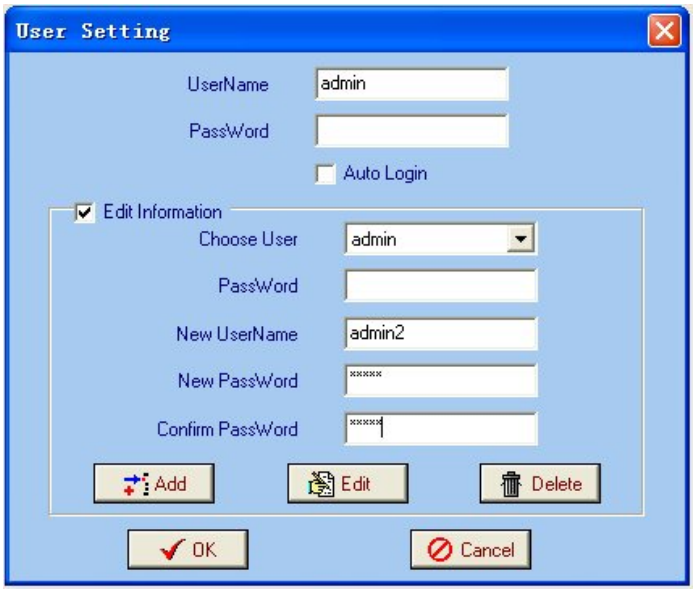
6.2.3 User Add

When logging in, user will note that the default user name is **admin** and no password. User can add users and passwords as needed.

User clicking "Setting" in the menu bar and selecting "User Setting" in the pull-down list, the below dialog box will pop out as shown below. Select the "Edit Information" by marking the check box with "√", user can input the new username and new password as prompts below. It is required to click 

to add the new user and then click 

to save the new setting.



Chapter 7. EC2200 HD SNMP Operation

Network Management System

SNMP Network management system is applied to digital TV equipment operation, control and management and parameters setting, etc. It centralizes digital TV equipment through network.

7.1 Installation

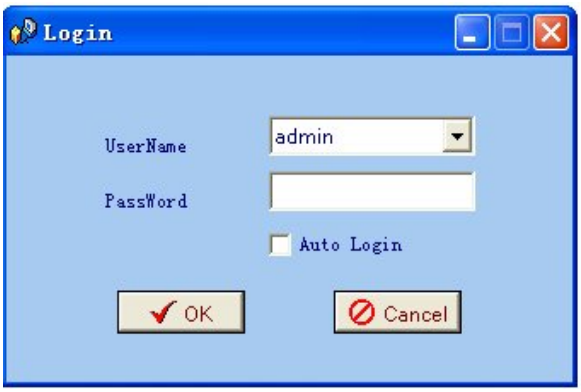
The software doesn't need special installation. User can just open the folder SnmpNMS x.xy.z to find the icon 

and double click it to pop up the login interface.

7.2 Software Operation

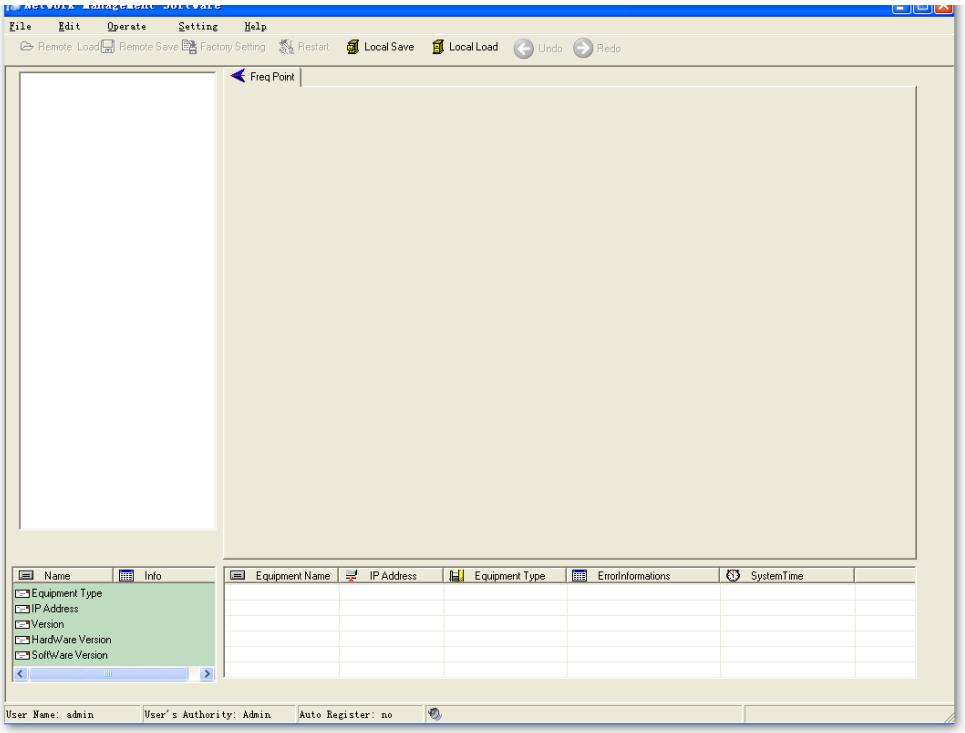
7.2.1 Login Interface

A login interface will pop up firstly when the software is running and give user prompts to input user name and password (The default user name is **admin** and no password. User can add users and passwords as needed. Details please refer to section 4.4.3). The menu shows as follows:



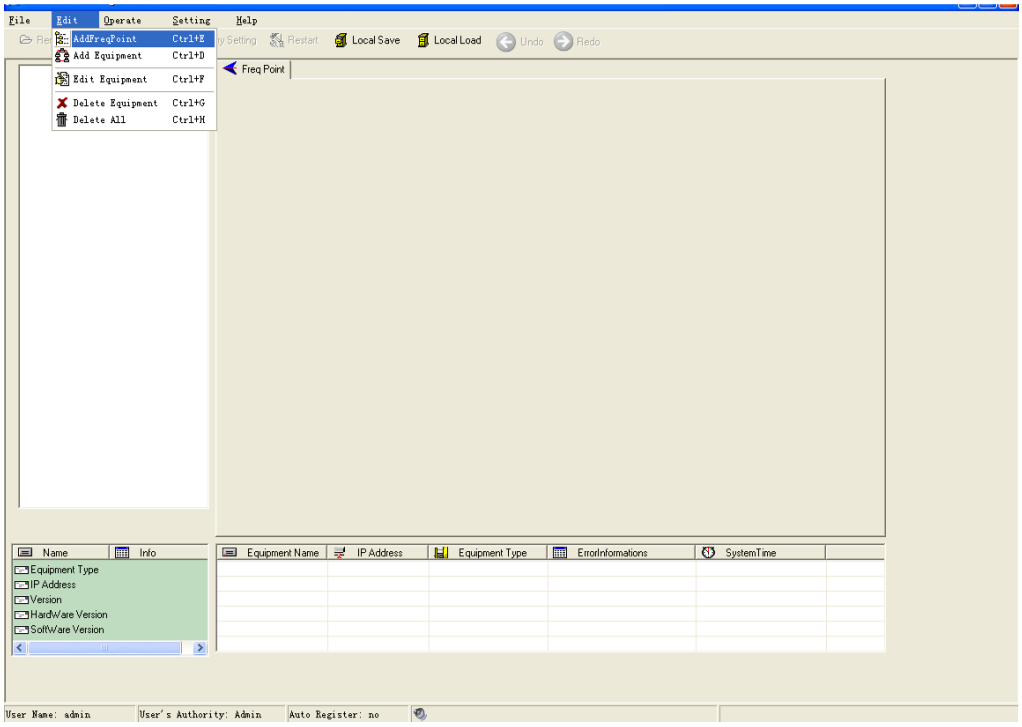
User can login the NMS by pressing **OK** key after inputting user name. Upon the inputs, the software will verify them with database record automatically and the main interface will appear.

7.2.2 Main Interface



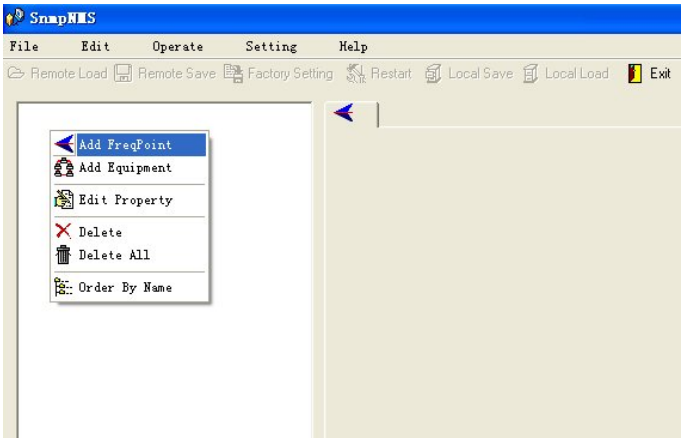
Users can create a device node tree in the left column by adding, modifying and deleting the device node. This software provides a powerful node operation function, and the user can edit various parameters in the device tree for management and classification.

7.2.3 Adding Frequency Point



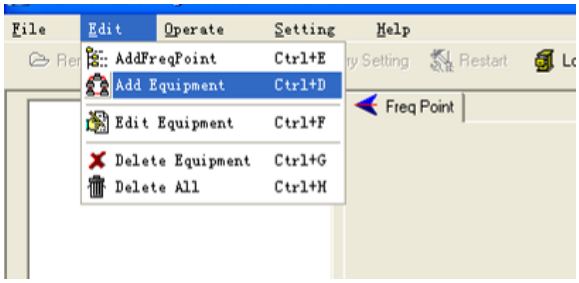
The Add Freq Point dialog box popes up when the user clicks the Add Freq Point item in the Edit pull down menu on the menu row. The device will confirm the given frequency while user clicks **OK**.

User can also click right mouse key to pop up the shortcut menu in the device tree or in the left blank column, then the corresponding dialog box will pop up by choosing **Add Main Freq Point.** The device will confirm the given frequency while user clicks **OK.**

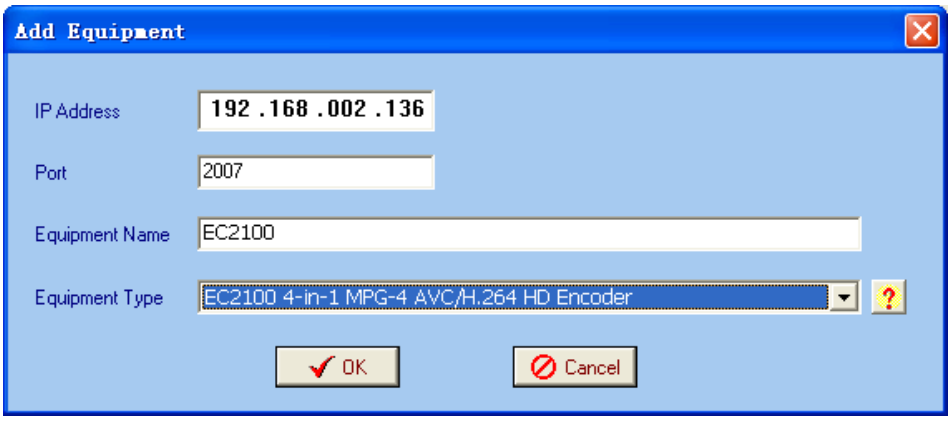


7.2.4 Adding Equipment under Given Frequency Point

User should choose the frequency point in advance, and then the dialog box of Add Equipment will pop up when user clicks “Add Equipment” item in the Edit pull down menu on the menu row.



7.2.5 Edit Equipment Interface



Chapter 8.

User should follow the steps as below:

- Inputting the device IP Address
- Inputting the port

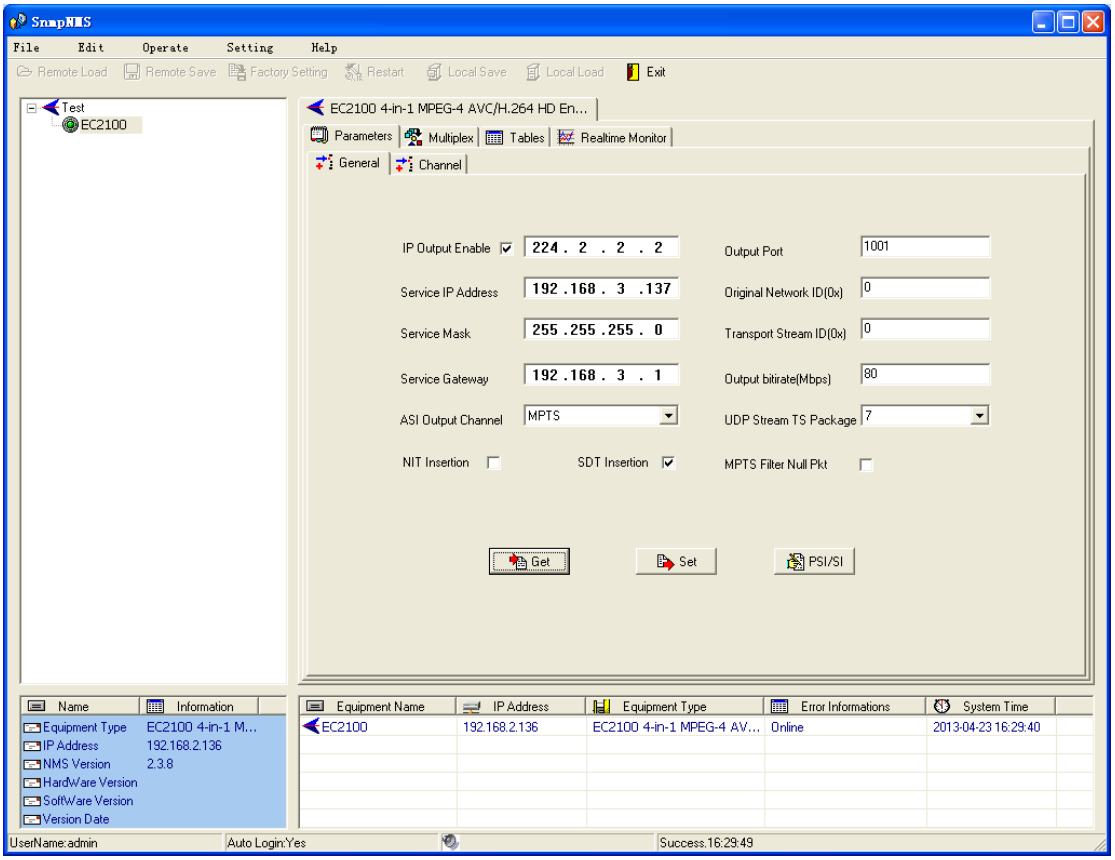
- Inputting the Equipment Name
- Choosing the connected equipment type in drop down list of “Equipment Type” by clicking the “▼” Or Click “?” to auto search the type of device.

NOTE:

2. The default IP of EC2200 HD Encoder is 192.168.002.136, also you can check its IP address in the front panel of device in case the IP changed unexpected.

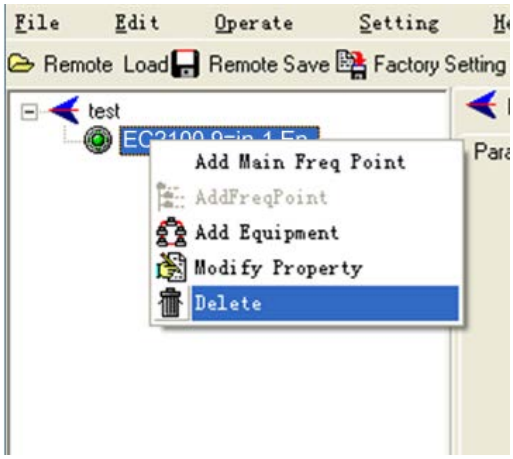
2. The PC IP address and device IP address should be in the same network. For example the Device IP is 192.168.002.136, sub mask is 255.255.255.0. So the PC IP address should be 192.168.002.X (1<X<255), sub mask is 255.255.255.0. User can use ping command to confirm these two are in same network or not.

Click OK, it will appear as below:

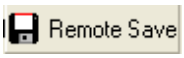


8.1.1 Delete Equipment

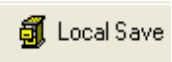
User can choose the equipment to be deleted in the left column, and then click the “delete” item in the pull down menu which appears by clicking the right mouse key.



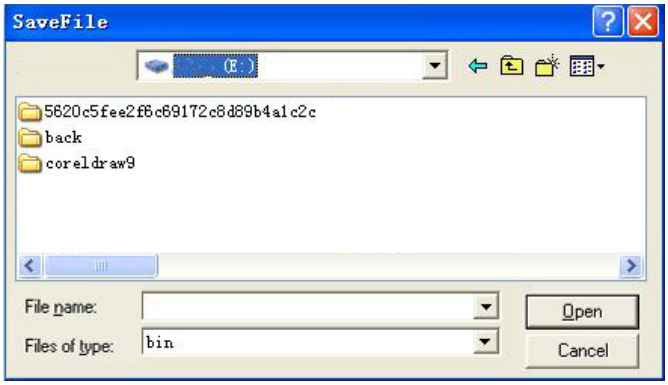
8.1.2 Save Configuration

After finishing all the parameters setting, user can click 

button on the toolbar to save the modifications to the device’s flash, while user can also reload the saved parameters from device’s flash and refresh the device’s parameters setting according to the loaded values by clicking 

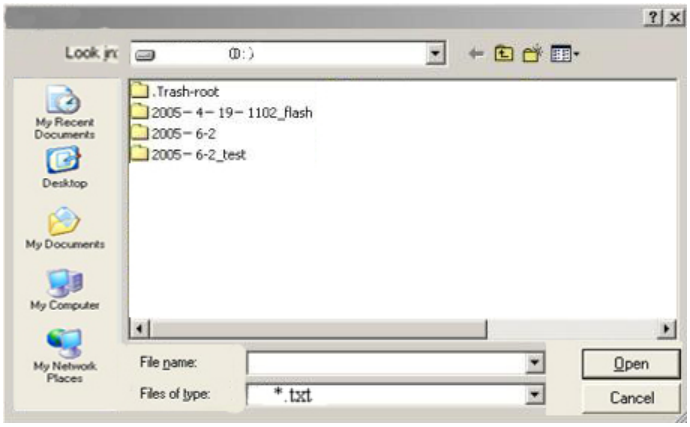
Alternatively, user can also click the 

button on the toolbar to popup the “save file” dialog box, which gives prompts to save all the device’s parameters as binary files in the computer’s hard disk.



Similarly, user can choose to click the 

button on the toolbar to popup the read file dialog box, to read the stored binary file and set the device's parameters according to the loaded binary files.



8.2 EC2200 HD Encoder Operation

User can choose the encoder in the device tree; the procedure will display the encoder interface in operating area. The interface is mainly composed of encoding video parameters, audio parameters and the encoding system parameters, output parameters and etc.

8.2.1 Parameters Setting

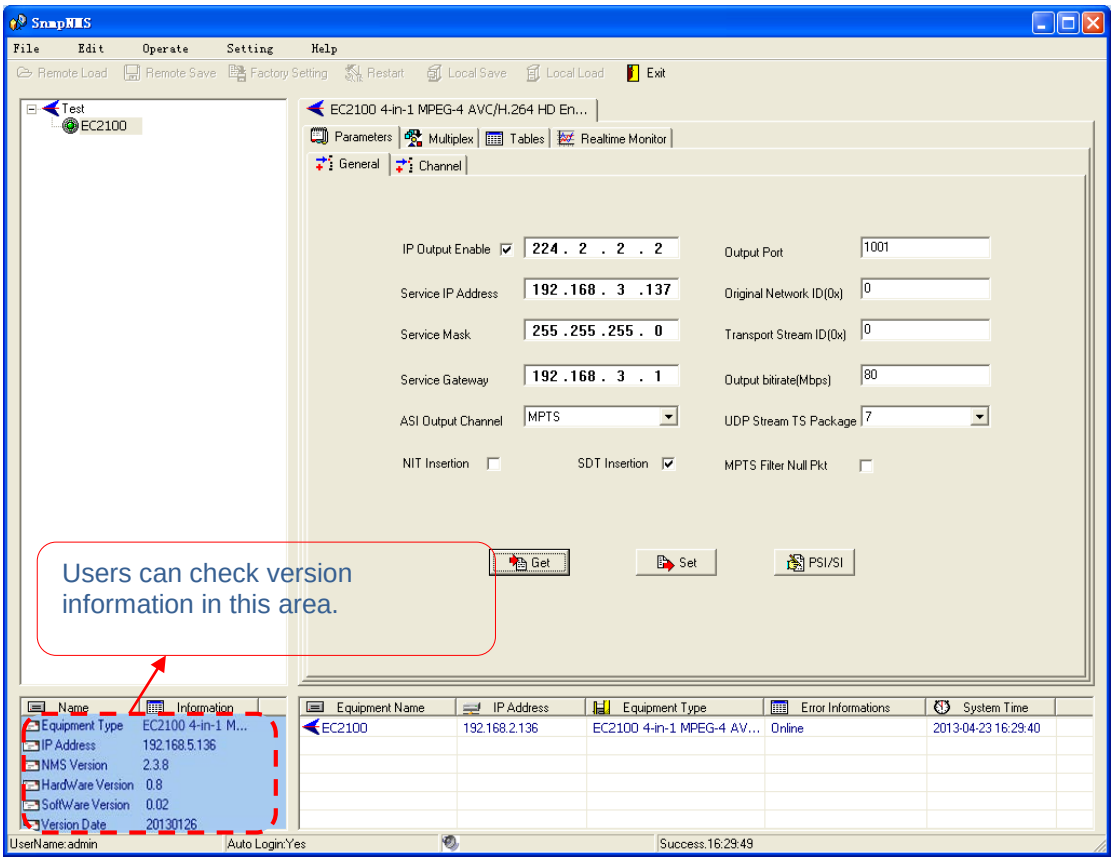
Users can click Equipment Name on the node tree and enter in the Parameter interface by clicking 

and 

or 

to configure the parameters.

8.2.1.1. General Parameters



Set: to make the current parameters shown in the SNMP software activate.

Get: to read the current device's activating parameters and show them on SNMP software.

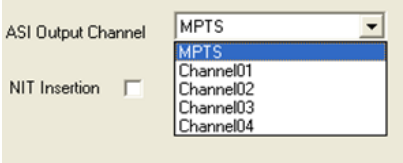
- **IP Out Enable**

Check the checkbox with "√", then the IP output is enabled, otherwise it is not. Users can decide whether to open the IP output function or not.Users can modify the IP address here as well.

- **IP Out Address/Service IP Address/Service Mask/Service Gateway**

Users can set the address by modifying the value in these four fields.

- **ASI Output Channel**



This device supports 1 MPTS (Multiple Programs Transport Stream) and 4 SPTS (Single Programs Transport Stream) output. User can click to triger a pull-down list to select the output type.

- **Output Port**

To set the output port by modifying the value in this field.

- **Original Network ID**

This 16-bit field gives the label identifying the network ID of the originating delivery system. The value ranges from 0 to 0xFFFF.

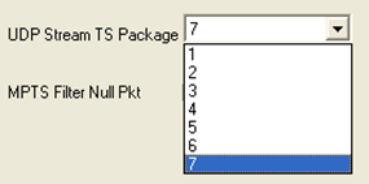
- **Transport Stream ID**

This is a 16-bit field which serves as a label for identification of this TS from any other multiplex within the delivery system. The value ranges from 0 to 0xFFFF.

- **Output Bit Rate (Mbps)**

This includes the effective bit rate of encoding channel 1-8, the effective bit rate from ASI input and the bit rate of stuffed null packets.

- **UDP Stream TS Package**



Users can set the amount of TS packages here.

- **NIT Insertion**

In this field, users can decide whether to effect the NIT (Network Information Table) insertion function.

- **SDT Insertion**

In this field, users can decide whether to effect the SDT insertion function.

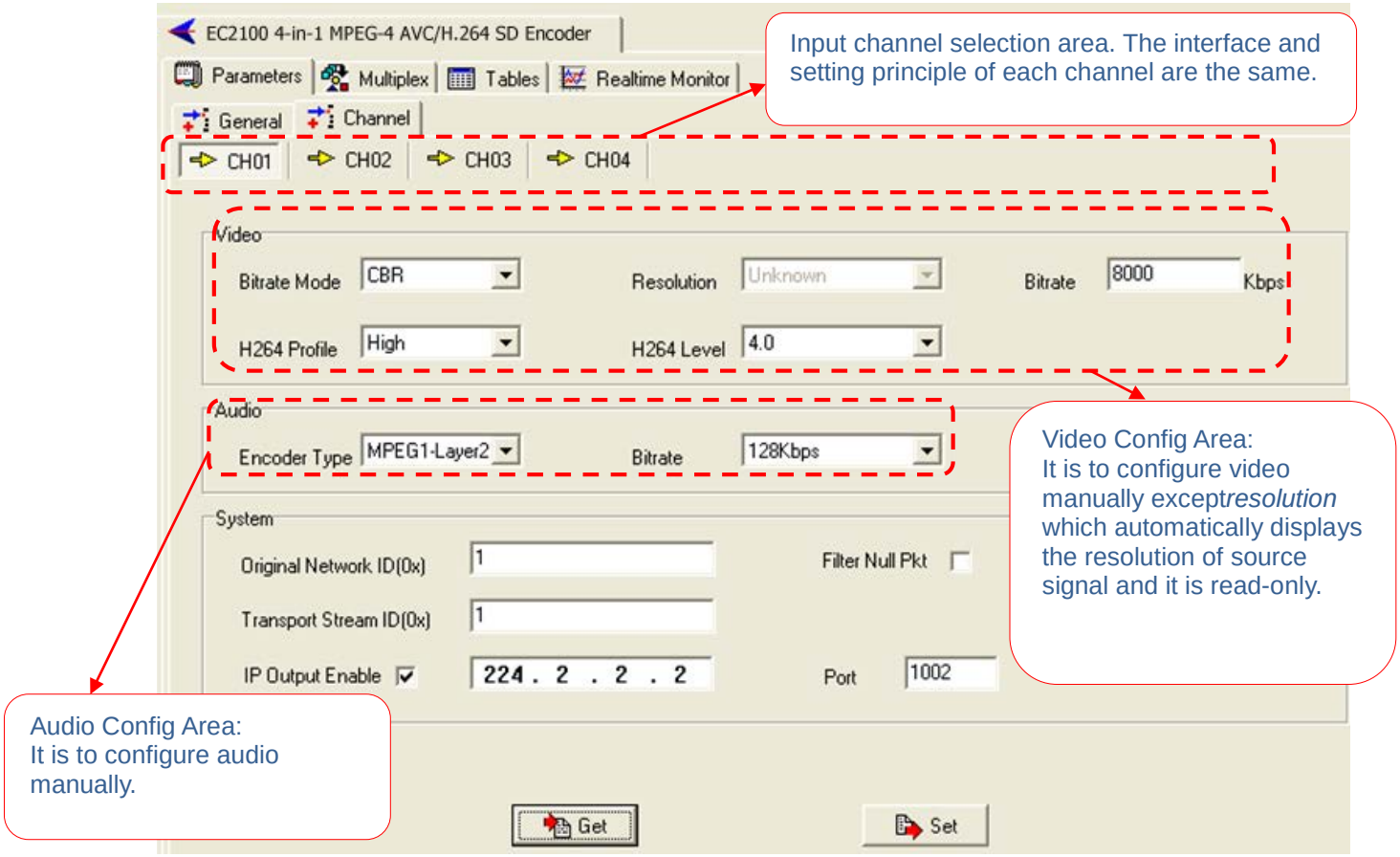
- **MPTS Filter Null Packet**

If this function is effected, then the null packets in IP output stream will be filtered.

- **PSI/SI Editor**

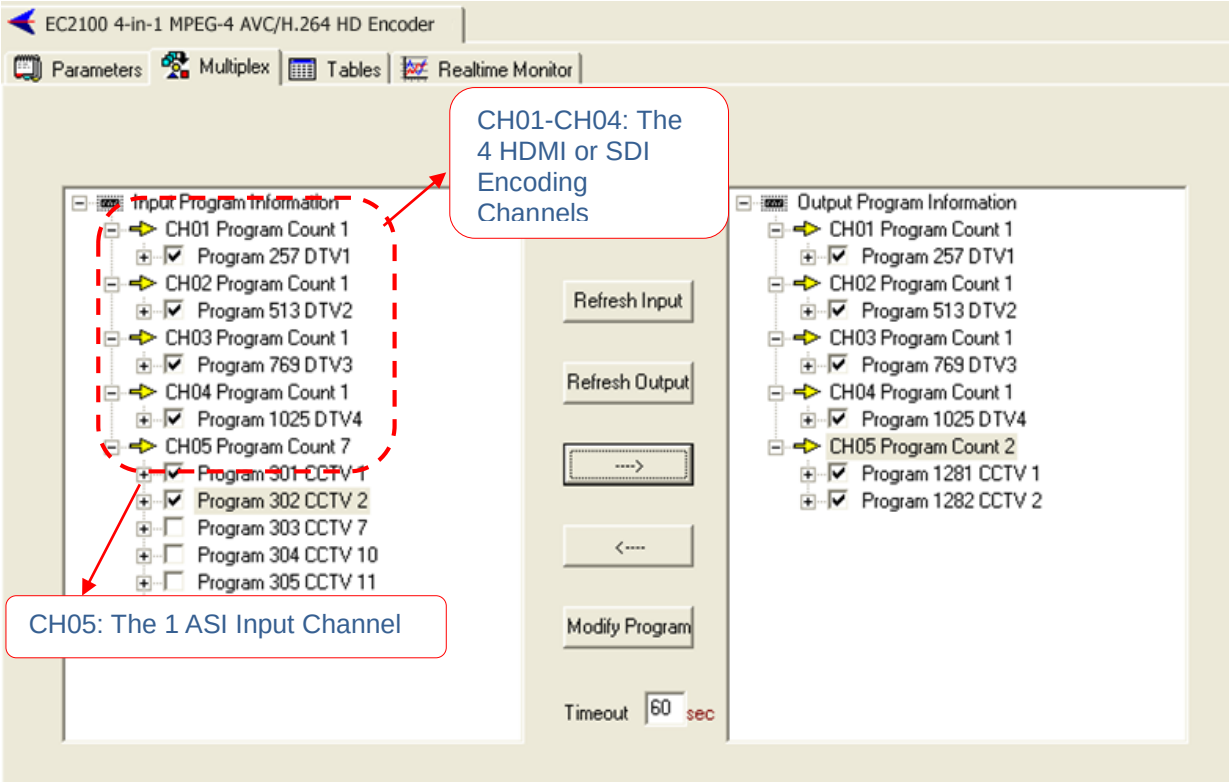
This button will trigger the PSI/SI Editor for some users' advanced usage. For more detail, please refer to the manual of PSI/SI.

8.2.1.2. Video Parameters (Parameters->Channel->CH0X)



If any parameter is modified, it is supposed to click **Set**  to make the modified parameters activate and click **Get**  to read and effect the current device's activating parameters.

8.2.2 Multiplexing



The programs in the left column represent all input programs and which port they come from, while the programs in the right column represent the output programs and from which port they are from. User can parse the programs of each channel and multiplex those programs to the output. Moreover, user can modify the output programs' Program Name, PMT, PCR, video, audio PID.

Pid Mapping ☑ : Check this box the set the PID Mapping

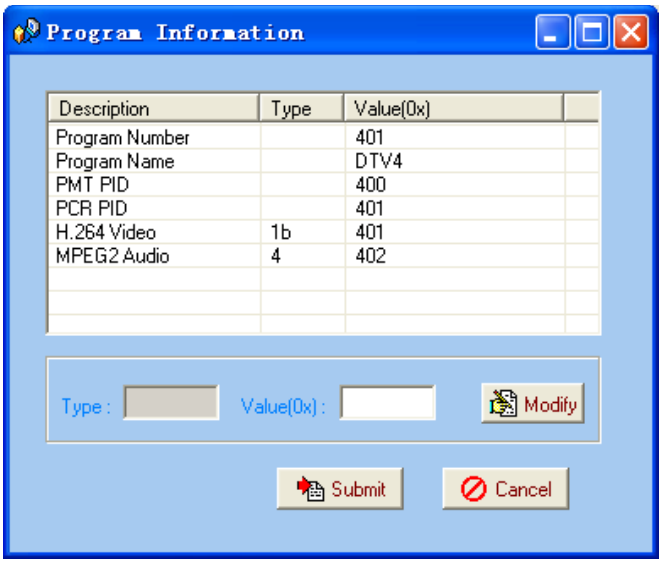
Refresh Input : To refresh the inputting terminal and get the inputting information

Refresh Out : To refresh the outputting terminal and get the outputting information

----> : Multiplex the input programs to the output channels after selecting the target program with ☑ . The system will automatically allot the program to the relevant output channel.

<---- : Cancel the multiplexed programs.

Modify Program : To modify the output programs' Program Name, PMT, PCR, video, or audio PID as needed. To modify program information, user can select the target program in output part first and click this button to pop up a dialog box as below:

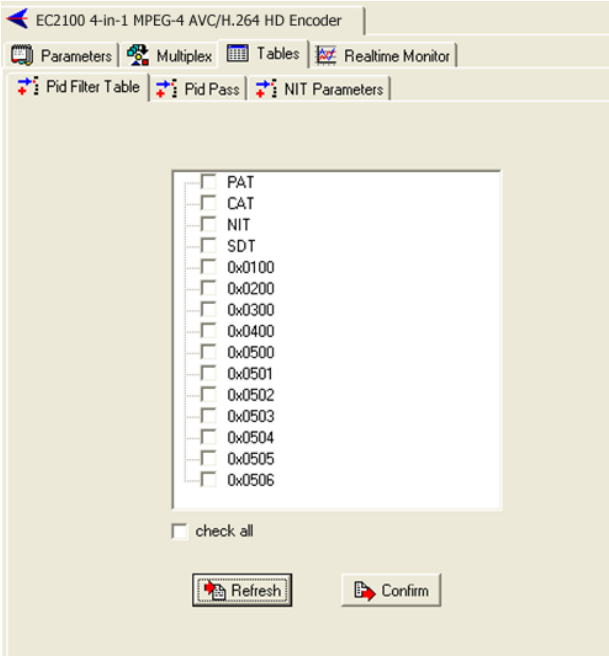


Select the target item and input the new value in the box below, then click Modify and Submit to effect the modification.

Timeout 60 sec : The parsing overtime value

8.2.3 Tables

8.2.3.1. PID Filter Table



Users can operate PID filter in this table by checking the check boxes of corresponding items and click CONFIRM to effect.

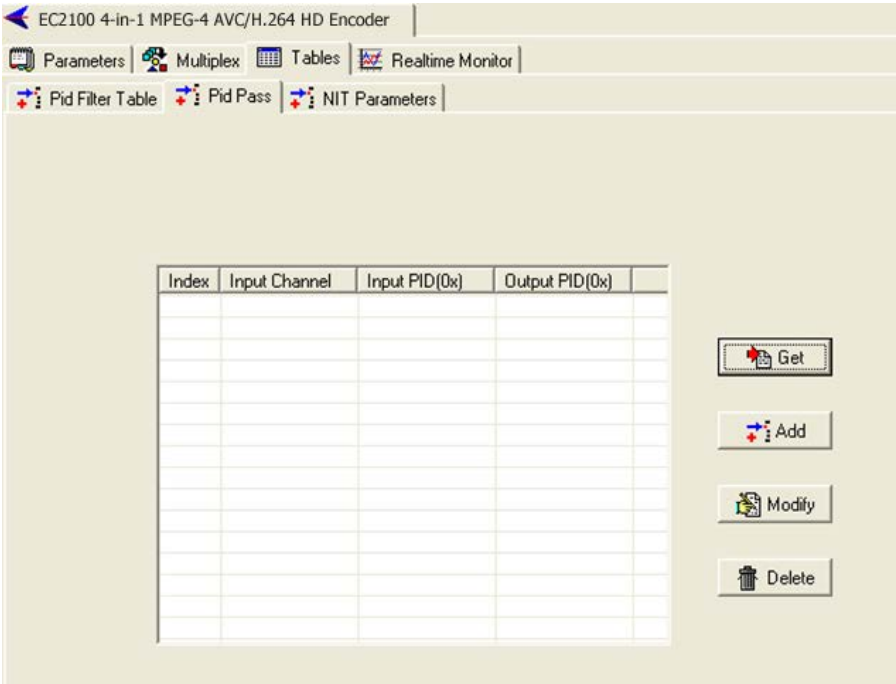
Refresh: getting PID filter table from the device

Confirm: submitting the PID filter table to the device

Check all: selecting all the selections of the list

After user selects one PID in the table, then the corresponding output PSI/SI table will not be sent to the output stream.

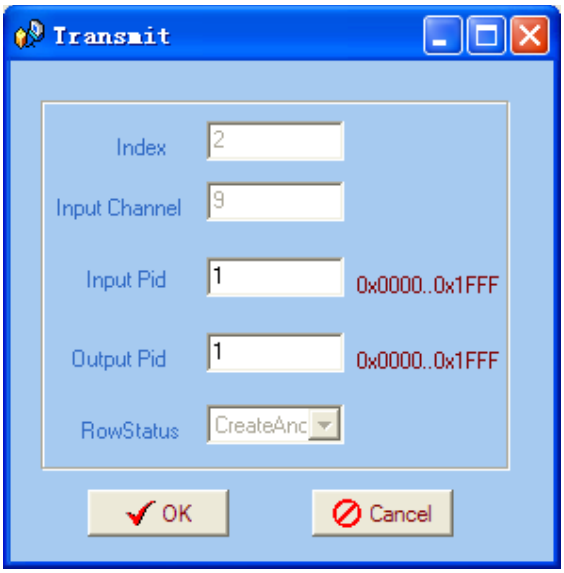
8.2.3.2. PID Pass



User can decide to bypass the inputting PID as needed in this interface.

In some occasions, there are some PIDs which won't belong to any program, such as EPG, NIT tables, and so on, but user just wants to pass them through the multiplexing module without changing anything. This is the main purpose of this function.

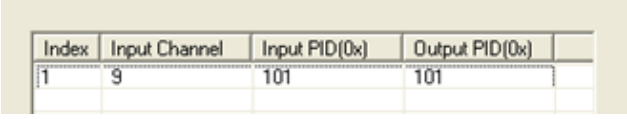
The display will show as below when user clicks "Add" button. 



Input PID and Output PID

The Old (Input) PID is the PID number in the TS from given Port. The correspondent New (output) PID number could be same as input PID number while it could be different if a PID remapping is needed.

Modify the data as needed and click OK to confirm. The PID then will be bypassed and listed in the table as below.



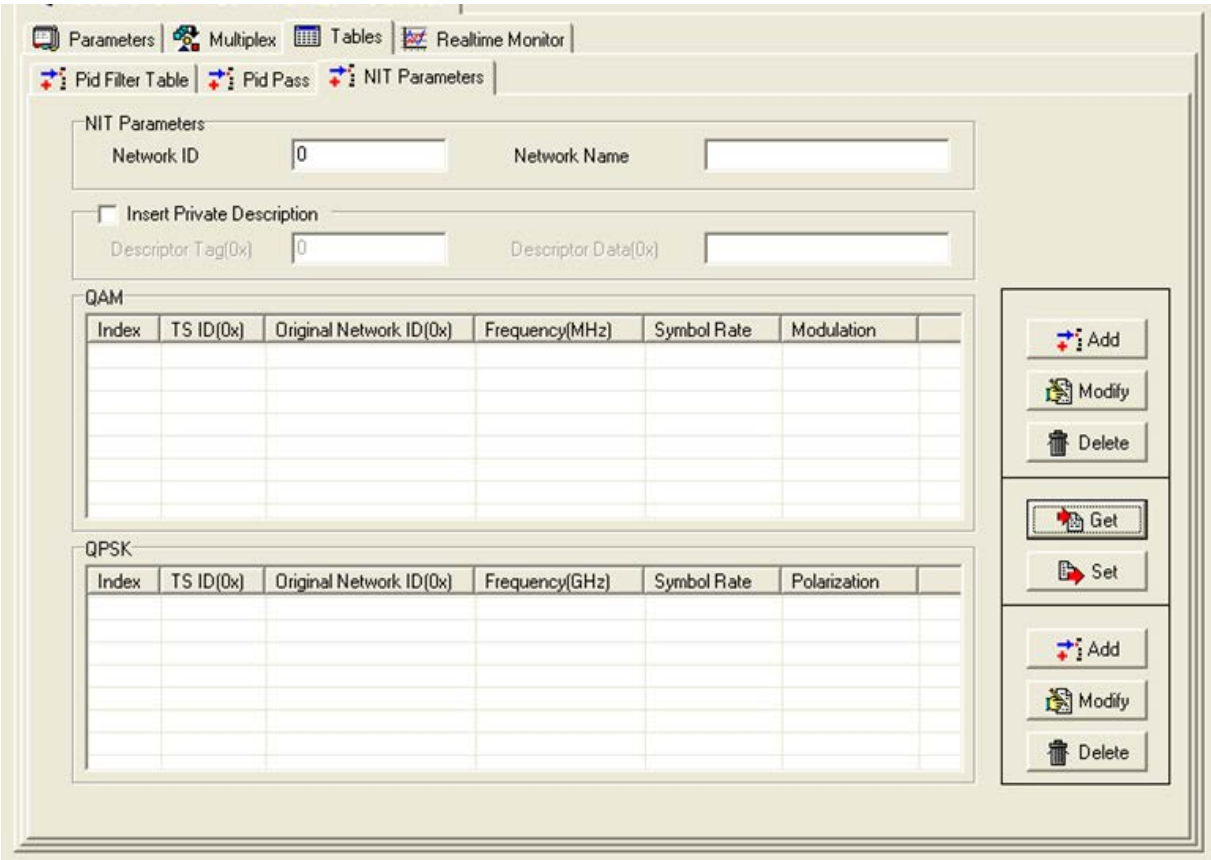
Index	Input Channel	Input PID(0x)	Output PID(0x)
1	9	101	101

User can also modify or delete the added PID through the corresponding buttons at right.

8.2.3.3. NIT Parameters

NIT: Network Information Table.

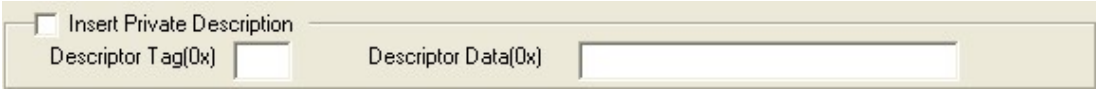
NIT table is a very important table for describing the network and TS. Users can set the parameters of the output NIT table.



Network ID : The parameter describes the output TS's network ID

Network Name : The parameter describes the output TS's network name.

Insertion private description

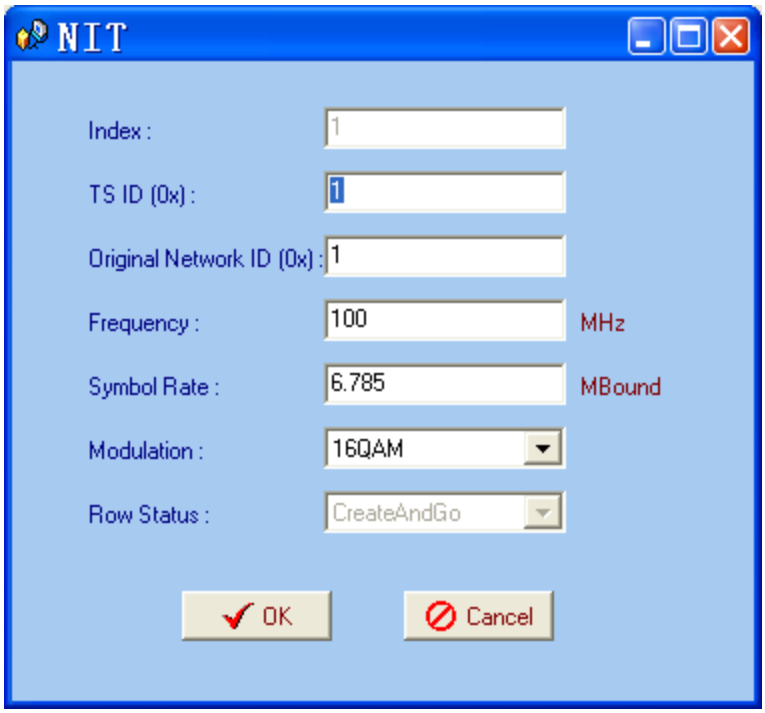


Insert Private Description : This checkbox will allow user to insert the private descriptor into the output TS. The private descriptor includes two parts. One is descriptor tag, and the other is descriptor information.

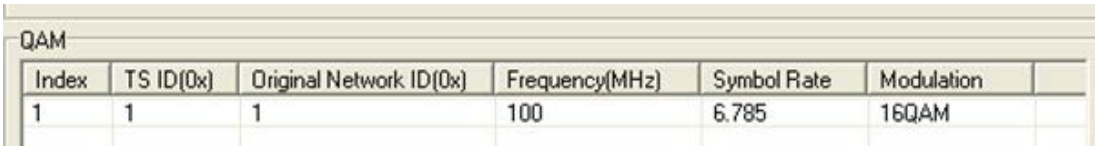
Descriptor Tag(0x) : The Descriptor Tag is an 8-bit field which identifies each descriptor.

Descriptor Data(0x) : The Descriptor Data is the detailed information of the private description.

: Users can add the cable transmission descriptor in this Add button, and it will pop up the following dialogue box, say, the added descriptor is apply for the DVB-C network.



The interface will show as below after the NIT parameters being added：



QAM

Index	TS ID(0x)	Original Network ID(0x)	Frequency(MHz)	Symbol Rate	Modulation
1	1	1	100	6.785	16QAM

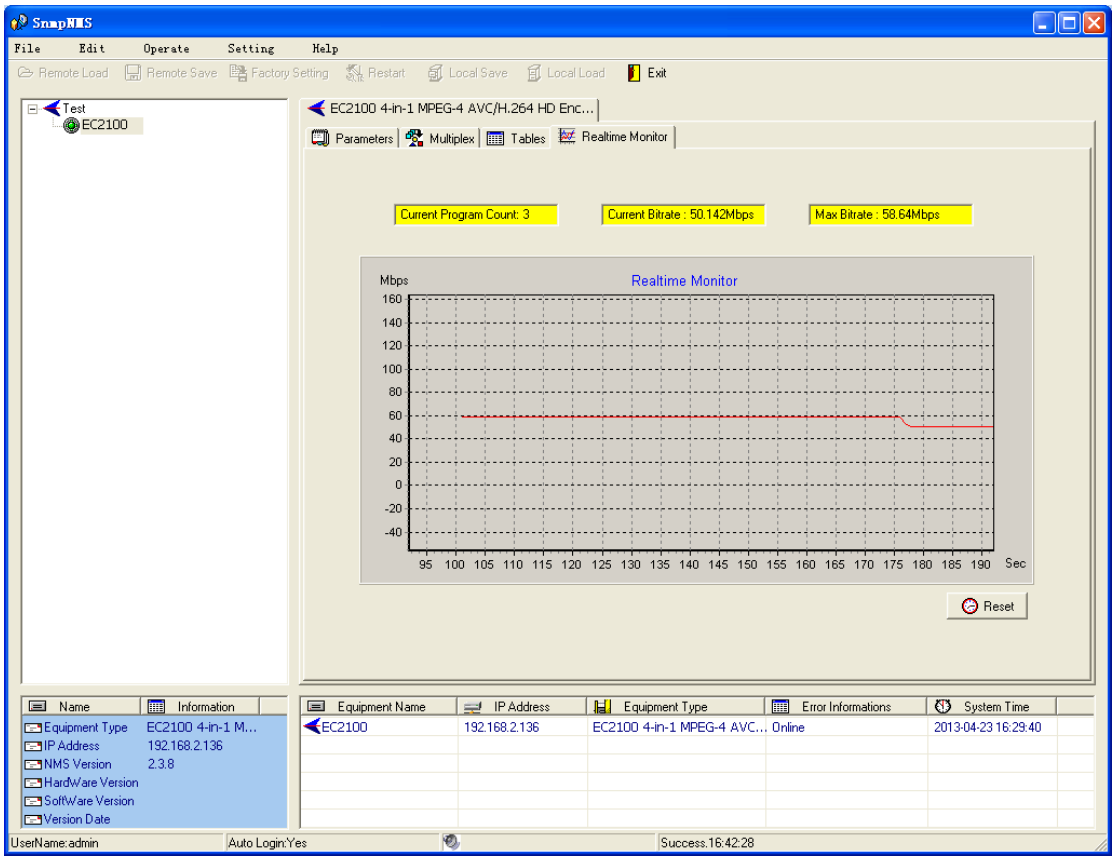
: The “Modify” button will trigger a modify window and allow user to modify the selected items in the NIT.

: The “Delete” button will remove the selected items in the NIT.

: The set “Button” will send the NIT to the chosen output Port.

8.2.4 Real-time Monitor

There will be a real-time bit rate chart generating in the monitor for users to check the bit rate information.

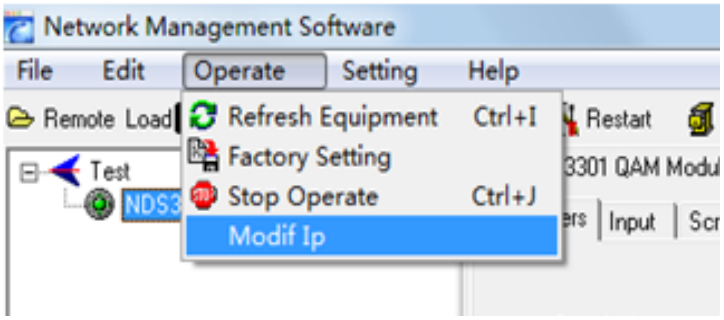


8.3 Other Settings

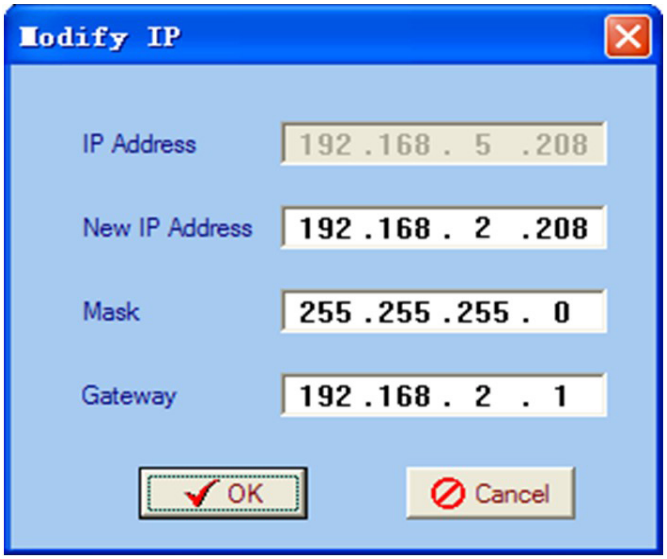
8.3.1 Difference between Set and Remote Save

In many cases during the configuration of parameters in NMS, users save the modified configuration by clicking “Set”, in which way the configuration can only be saved temporarily and will restore the last saved configuration if the device reboots. To save the configuration permanently, it is required to operate through “Remote Save” on the toolbar explained in 4.2.7. This is the difference between “Set” and “Remote Save”.

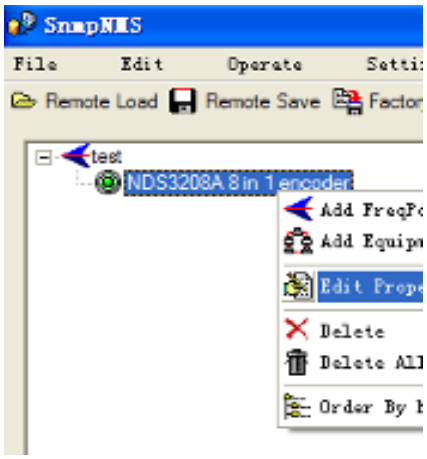
8.3.2 IP Modification



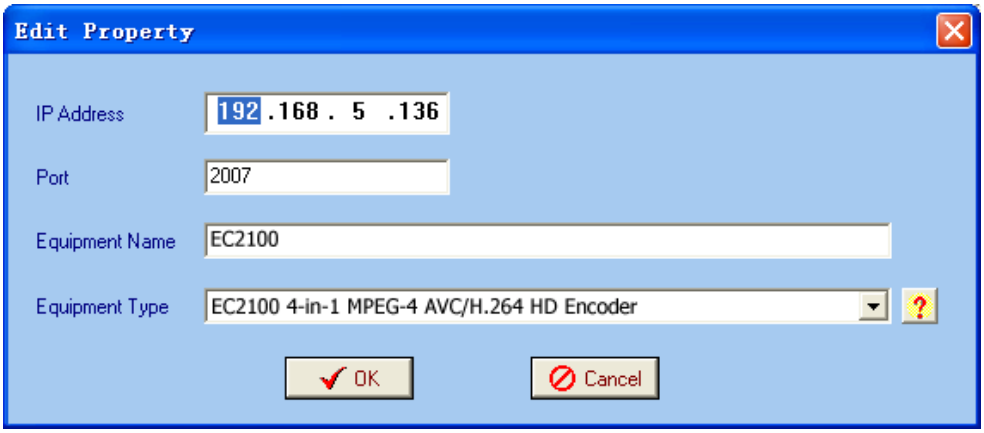
Users can click **Operate** and select **Modify IP** in the drop-down list, and a dialog box presents itself as shown below. Users input the new NMS IP Address for the device and click OK button to confirm.



Users can then note the indicator light turns red, which signifies the equipment has disconnected. Users then can refer to below prompts to edit the property by inputting the new IP to re-connect the equipment.



Input the new IP Address in the box and click OK button, then the device will be connected again.



After finishing all the parameters setting, user should click 

button on the toolbar to save the modifications to the device's flash.

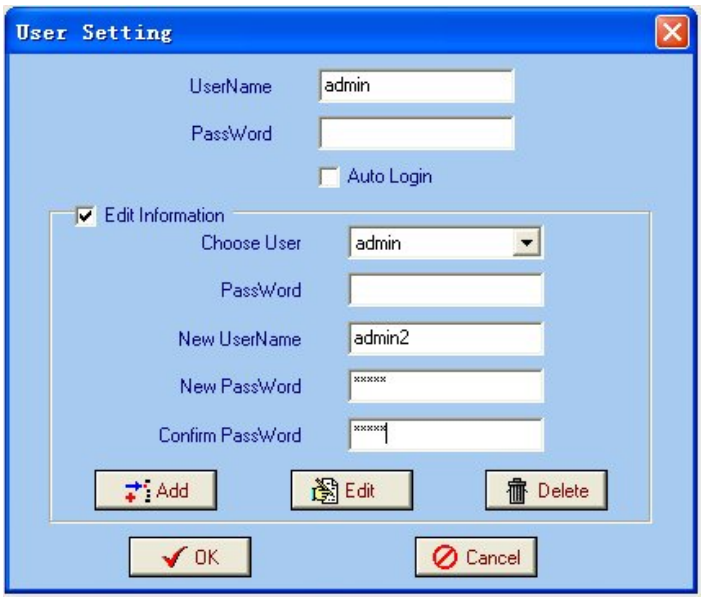
8.3.3 User Add

When logging in, user will note that the default user name is **admin** and no password. User can add users and passwords as needed.

User clicking "Setting" in the menu bar and selecting "User Setting" in the pull-down list, the below dialog box will pop out as shown below. Select the "Edit Information" by marking the check box with "√", user can input the new username and new password as prompts below. It is required to click 

to add the new user and then click 

to save the new setting.


User Setting
UserName
admin
PassWord
Auto Login
Edit Information
Choose User
admin
PassWord
New UserName
admin2
New PassWord
*****
Confirm PassWord
*****
Add
Edit
Delete
OK
Cancel

Chapter 9. Troubleshooting

ASCENT's ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All ASCENT products have been passed the testing and inspection before ship out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by ASCENT. To prevent potential hazard, please strictly follow the operation conditions.

Prevention Measure

- Installing the device at the place in which environment temperature between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant range if it is necessary
- Checking all signal cables have been properly connected
- Frequently switching on/off device is prohibited; the interval between every switching on/off must greater than 10 seconds.

Conditions need to unplug power cord

- Power cord or socket damaged.
- Any liquid flowed into device.
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed

Ordering Information

Model	Description
EC-22-04-HDMI-AC	EC2200 HD H.264 Encoder, 4 HDMI to ASI/IP outputs, AC Power
EC-22-08-AV-AC	EC2200 SD MPEG-II Encoder, 8 AV to ASI/IP outputs, AC Power

Note: Contact ACT for additional product variations on input & output options

Ascent Communication Technology Ltd

AUSTRALIA
961 Mountain Highway, Boronia
Victoria 3155, AUSTRALIA
Phone: +61-488 293 682

CHINA
Unit 1907, 600 Luban Road
200023, Shanghai CHINA
Phone: +86-21-60232616

EUROPE
Pfarrer-Bensheimer-Strasse 7a
55129 Mainz, GERMANY
Phone: +49 (0) 6136 926 3246

HONG KONG SAR
Unit 9, 12th Floor, Wing Tuck Commercial Centre
177 Wing Lok Street, Sheung Wan, HONG KONG
Phone: +852-2851 4722

USA
2710 Thomes Ave, Cheyenne
WY 82001, USA
Phone: +1-203 816 5188

VIETNAM
15 /F TTC Building, Duy Tan Street, Cau Giay Dist.
Hanoi, VIETNAM
Phone: +84 168 481 8348

WEB:www.ascentcomtec.com **EMAIL:**sales@ascentcomtec.com

Specifications and product availability are subject to change without notice.
Copyright © 2015 Ascent Communication Technology Limited. All rights reserved.
Ver. ACT_EC2200_Home_SD_Manual_V1a_Oct_2015