DX3504 IP Multiplexer

User's Manual

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DIRECTORY

Chapter 1 Product Outline

1.1 Outline

DX3504 IP Multiplexer is Dexin's latest multiplexing device for digital TV broadcasting head-end system with TS output through 4 bi-direction ASI and 3 bi-direction IP ports. It can multiplex up to 4 ASI and 513 IP input to 5 MPTS, and the amount of ASI output should based on ASI input (ASI port can be used as input or output). DX3504 IP multiplexer has the functions of supporting auto-generation of PSI/SI information, PID re-mapping, service filtering and PCR adjusting. In conclusion, its high integration and cost effective design make this device widely used in the CATV Broadcasting system.

1.2 Features

- **ASI in/out: max 4 ASI input/output thru 4 bi-direction ASI ports (ASI direction can be defined as input or output manually)**
- **IP input: 513 IP in over UDP/RTP (256×2 IP in thru GE1 and GE2, 1 IP in thru Data port)**
- **IP output: 5 IP (MPTS) out over UDP/RTP (4 MPTS out thru GE1 and GE2, 1 MPTS out thru Data port)**
- **Support all input programs output bypass**
- **Support accurate PCR adjusting, PID filtering, re-mapping and PSI/SI rebuilding and editing**
- **Huge buffer memory for saving the overflowing code stream**
- **Web-based NMS management**

1.3 Principle Chart

ASI direction can be defined as input or output manually

Support all input programs output bypass

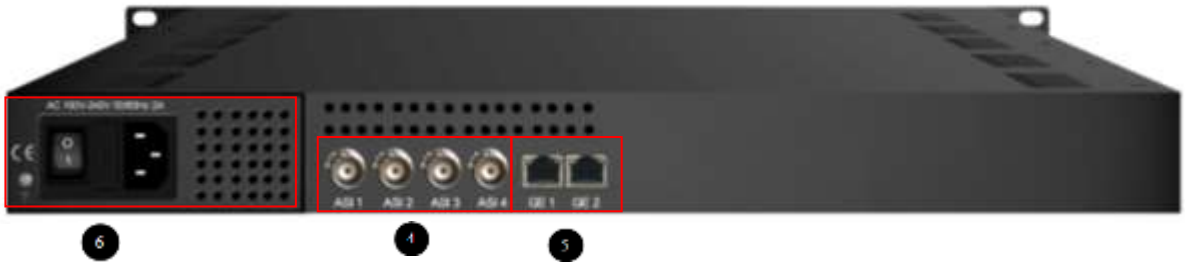
1.4 Technical Specifications

Input / Output	4 bi-direction ASI ports: max 4 ASI input/output, BNC 75Ω 3 bi-direction Data ports (RJ45): 513 IP input over UDP/RTP (256×2 IP in thruGE1 and GE2, 1 IP in thru Data port) 5 IP (MPTS) output over UDP/RTP (4 MPTS out thru GE1 and GE2, 1 MPTS out thru Data port) 100/1000Mbps self-adaption	
	Packet format	204/188 self-adaption
Re-multiplex	Max PIDs	512 output per channel
	Functions	PID re-mapping
		PCR accurate adjusting
		Automatic generating PSI/SI table
	PID transparent	Any PID transparent and mapping achievable
System	Web management:10/100M NMS port	
	Language: English and Chinese	
	Ethernet software upgrade	
General	Dimensions	482mm×300mm×44mm (WxLxH)
	Weight	3.5kg
	Temperature	0~45℃(operation), -20~80℃(storage)
	Power supply	AC 110V±10%, 50/60Hz Or AC 220V±10%, 50/60Hz
	Consumption	≤40W

1.5 Appearance and description

Front Panel Illustration:

Rear Panel Illustration



1	NMS port for network management connection
2	Data port for IP input and output
3	Run and Power Indicators
4	4 ASI input/output Interfaces (Bi-direction interface)
5	GE1, GE2 (IP stream input and output interface)
6	Power switch/Fuse/Socket/ Grounding Wire

Chapter 2 Installation Guide

2.1 Acquisition Check

When user opens the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

- DX3504 IP Multiplexer 1pc
- User's Manual 1pc
- Power Cord 1pc

If any item is missing or mismatching with the list above, please contact.

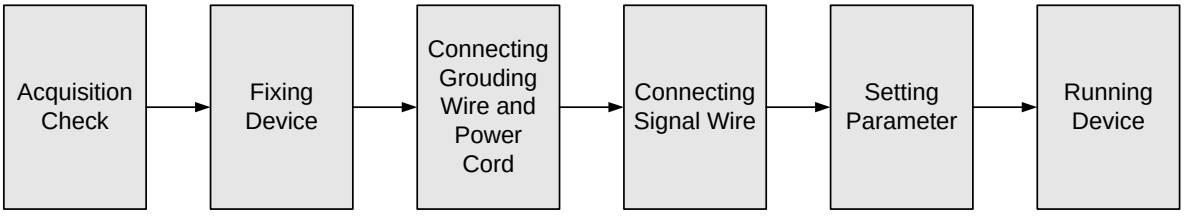
2.2 Installation Preparation

When users install device, please follow the below steps. The details of installation will be described at the rest part of this chapter. Users can also refer rear panel chart during the installation.

The main content of this chapter including:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing modulator
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as following：



2.2.2 Environment Requirement

Item	Requirement
Machine Hall Space	When user installs machine frame array in one machine hall, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m.
Machine Hall Floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: $1X10^{7}$~$1X10^{10}\Omega$, Grounding current limiting resistance: 1M (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40℃(sustainable) , 0~45℃(short time) , installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105KPa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC power 100-240V 50-60Hz. Please carefully check before running.

2.2.3 Grounding Requirement

- All function modules' good grounding is the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- Coaxial cables outer conductor and isolation layer should keep proper electric conducting with the metal housing of device.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.

- Users should make sure the 2 ends of grounding wire well electric conducted and be antirust.
- It is prohibited to use any other device as part of grounding electric circuit
- The area of the conduction between grounding wire and device's frame should be no less than 25mm^2.

2.2.4 Frame Grounding

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

2.2.5 Device Grounding

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

2.3 Wire's Connection

The grounding wire conductive screw is located at the right end of rear panel, and the power switch, fuse, power supply socket is just beside ,whose order goes like this, power switch is on the left ,power supply socket is on the right and the fuse is just between them.

- Connecting Power Cord

  User can insert one end into power supply socket, while insert the other end to AC power.
- Connecting Grounding Wire

  When the device solely connects 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 power cord to DX3504 IP Multiplexer, user should set the power switch to "OFF".

2.4 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:

2.4.1 DX3504 IP Multiplexer Cable Illustration:

- **IP Output Cable Illustration:**

- **ASI Input /Output Cable Illustration:**

Chapter 3 Web-based NMS Management

Users can only control and set the configuration with the web Brower in the PC (Personal Computer). Connect the PC and the device with net cable, and use ping command to confirm they are on the same network segment.

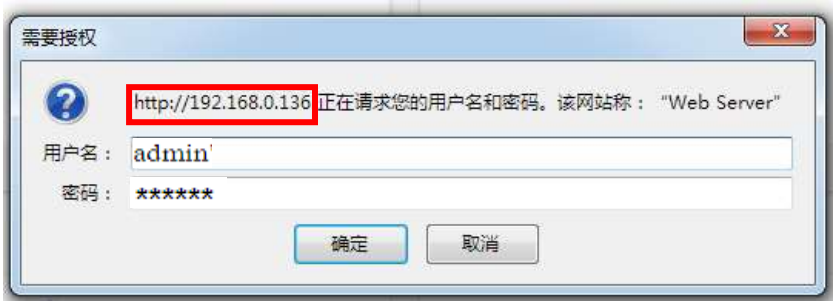
3.1 login

The default IP address of this device is 192.168.0.136.

I.G. the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 1 to 254 except 252 to avoid IP conflict).

Use web browser to connect the device with PC by inputting the IP Multiplexer's IP address in the browser's address bar and press Enter.

It will display the Login interface as Figure-1. Input the Username and Password (Both are defaulted as "admin".) and then click "LOGIN" to start the device setting.



3.2 Operation

3.2.1 Summary

When we confirm the login, it displays the WELCOME interface as Figure-2 where users can have an overview of the device's system information and working status.

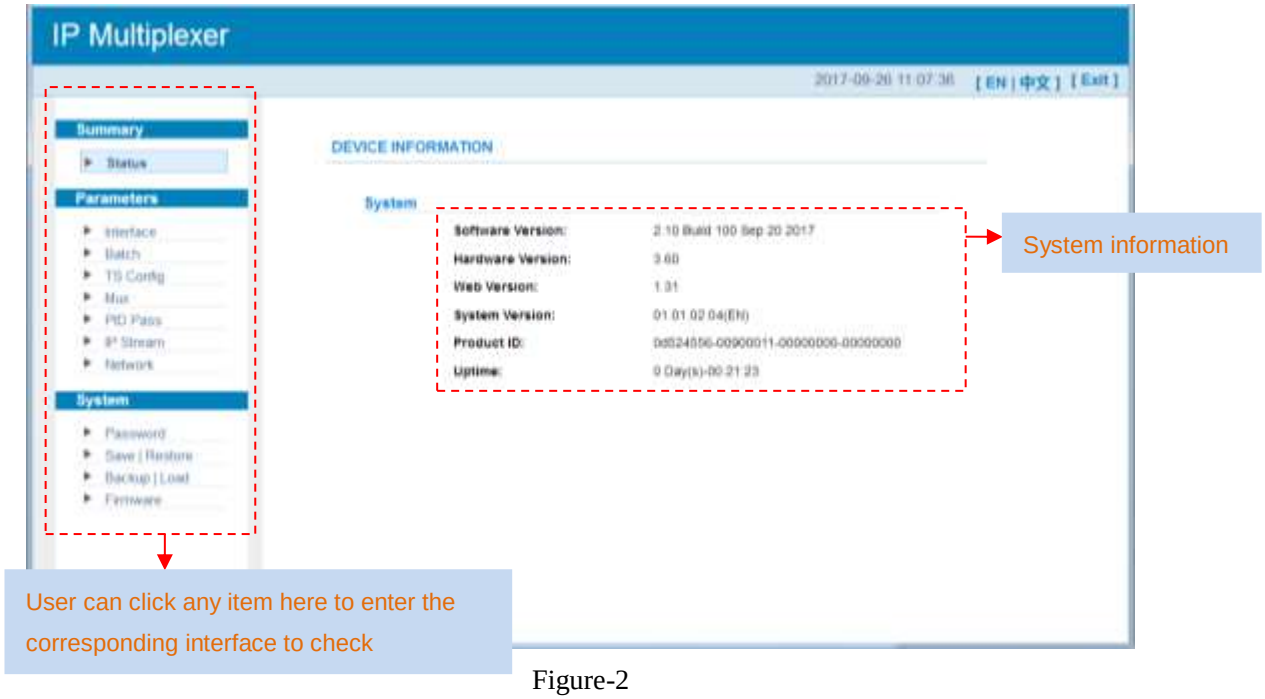


Figure-2

3.2.2 Parameters

Parameters →Interface

Clicking "Interface", it displays the interface where users can configure the input parameters. (Figure-3) Users can choose ASI or IP as the input source, and select ASI direction and set IP input address.

When select ASI/IP (front data port) interface:

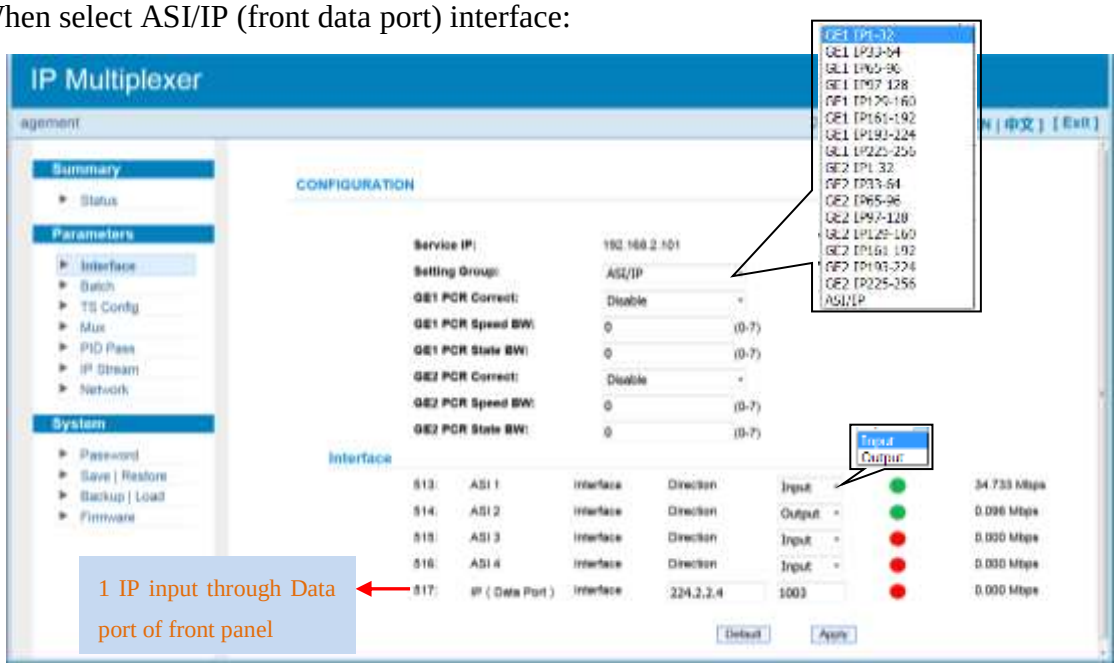


Figure-3

When select IP input from 2 GE ports, users can set IP input parameters as below. Each port can input 256 IP. (Figure-4)

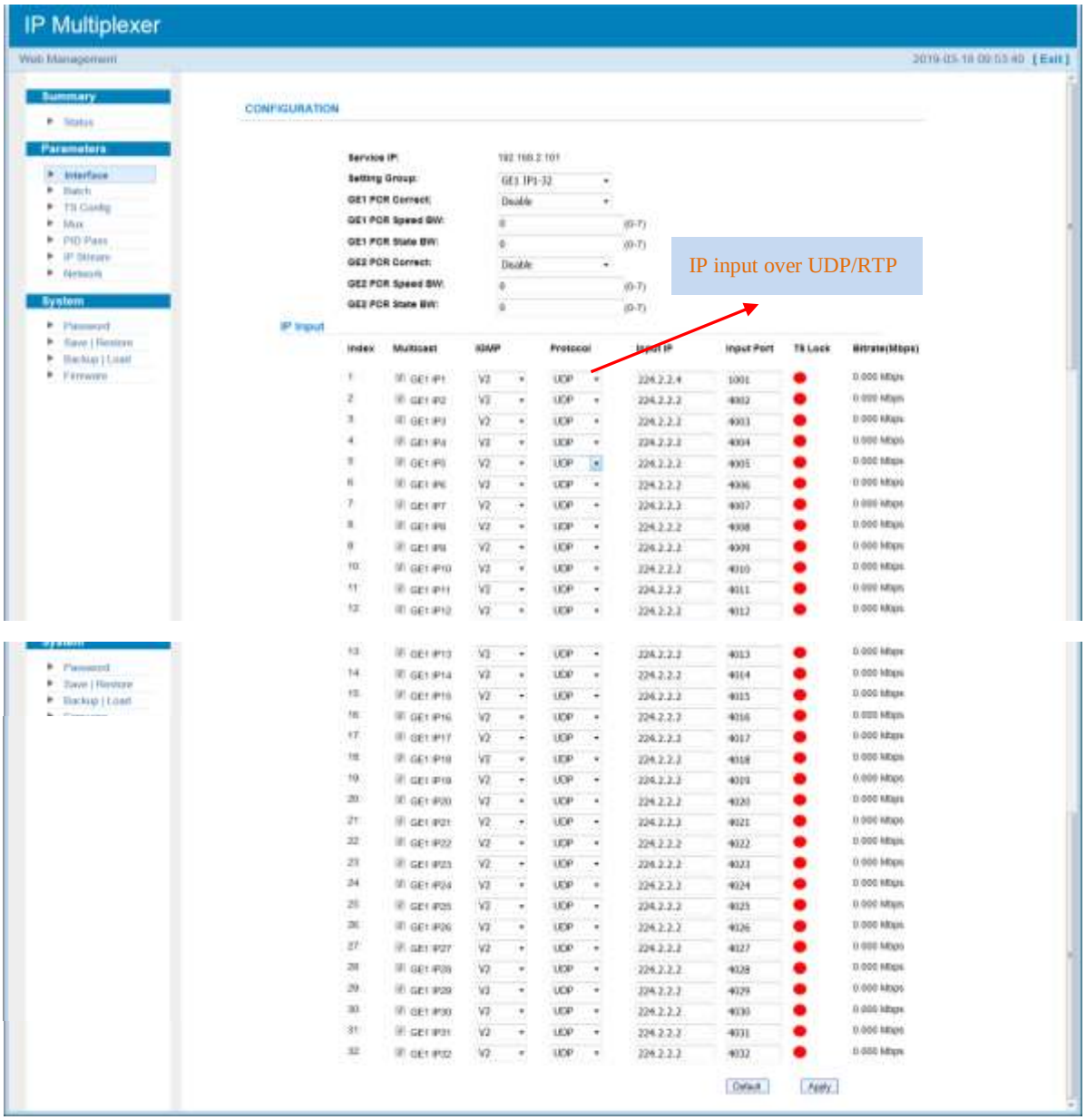


Figure-4

Parameters →Batch

Clicking "Batch", users can batch process IP input parameters and program mux parameters.(Figure-5)

Parse program: parse all the program at rang of setting. The range is 1-517 (513 IP & 4 ASI). If you set the range as 1 to 32 and click "Apply", it will parse the programs of IP 1-32.

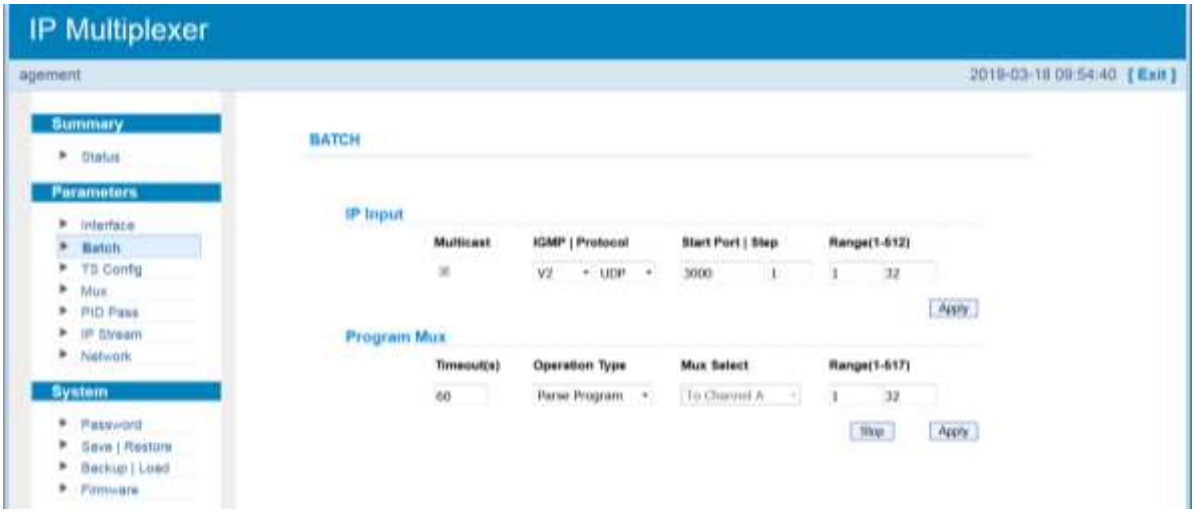


Figure-5

Mux: multiplex program to out at rang of setting. Select the output channel (Channel A-E) and set the range. If you set the range as 1 to 32, select "to Channel A" and then click "Apply", it will output all the multiplexed programs (IP 1-32) to output channel A. (Figure-6)

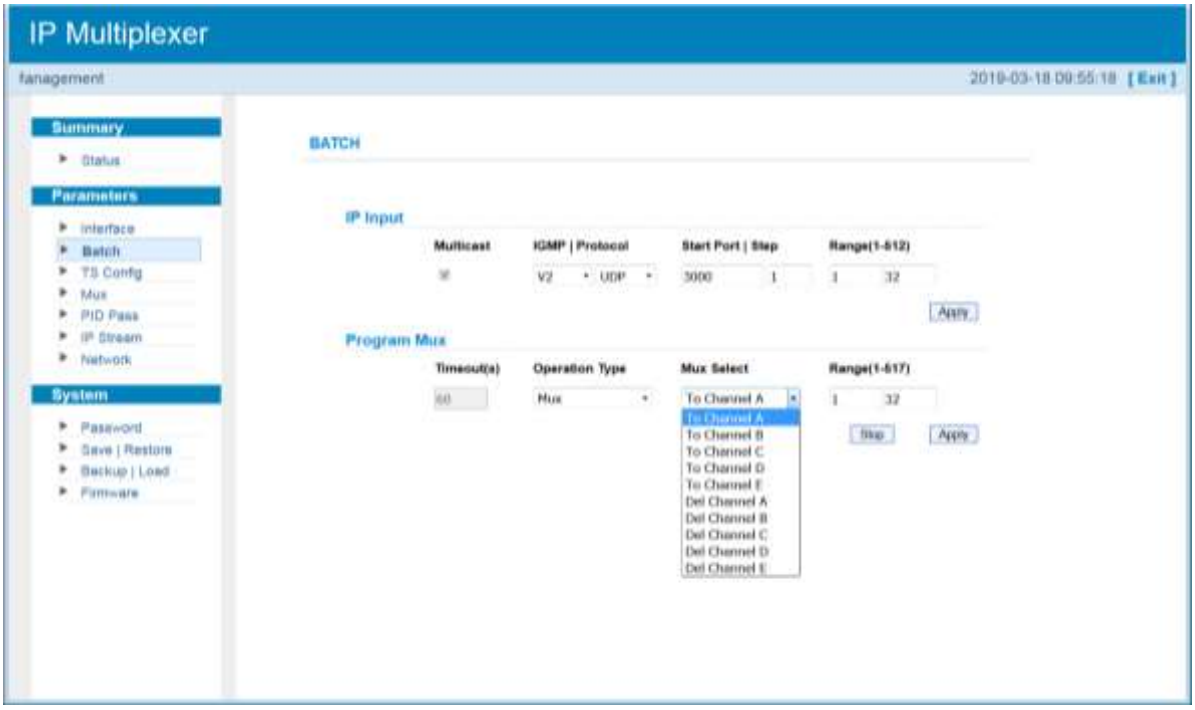


Figure-6

Parameters →TS Config

Click "TS Config", it displays the interface where users can configure the 5 output TS channels and select output mode with multiplex out or out bypass. (Figure-7)

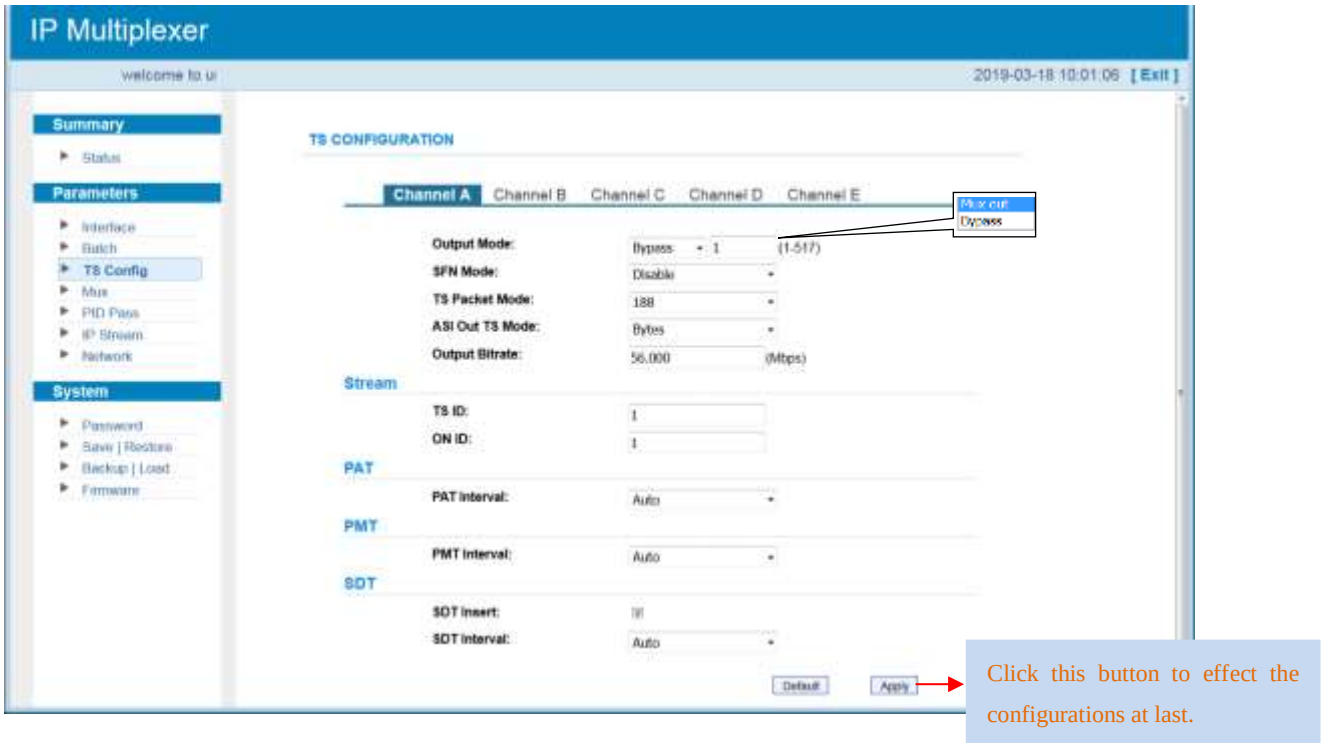


Figure-7

Parameters →Mux

Click "Mux", it displays the interface where users can configure the 5 output channels parameters separately. (Figure-8)

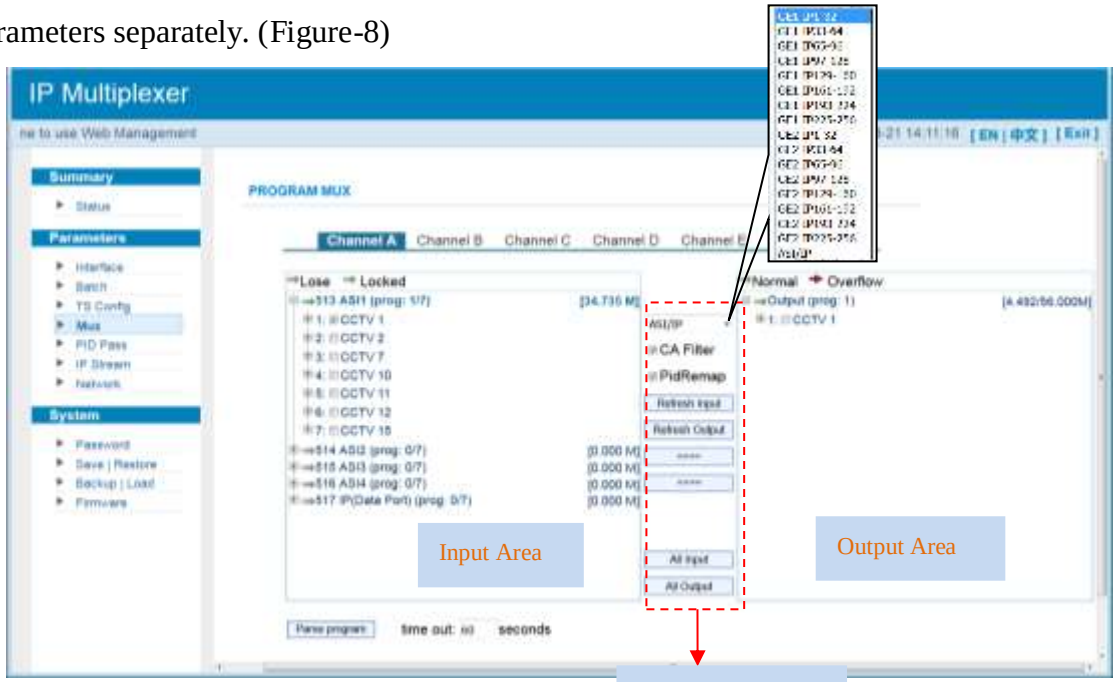


Figure-8

Configure 'Input Area' and 'Output Area' with buttons in 'Operation Area'. Instructions are as below:

☑ PID Remap: To enable/disable the PID remapping

Refresh Input To refresh the input program information

Refresh Output To refresh the output program information

===> Select one input program first and click this button to transfer the selected program to the right box to output.

<=== Similarly, user can cancel the multiplexed programs from the right box.

All Input To select all the input programs

All Output To select all the output programs

Parse program To parse programs time out: 60 seconds time limitation of parsing input programs

Program Modification:

The multiplexed program information can be modified by clicking the program in the 'output' area. For example, when clicking 1:CCTV 1 , it triggers a dialog box (Figure 9) where users can input new information.

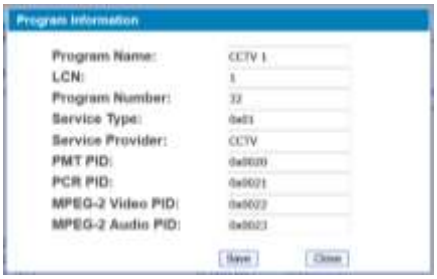


Figure-9

Input new data and click 'Save' button at last to confirm the modification.

Parameters →PID Pass

Click "PID Pass", it will display the interface as Figure-10 where to set the PID PASS. The total number of mapping PID is 748 per output channel.

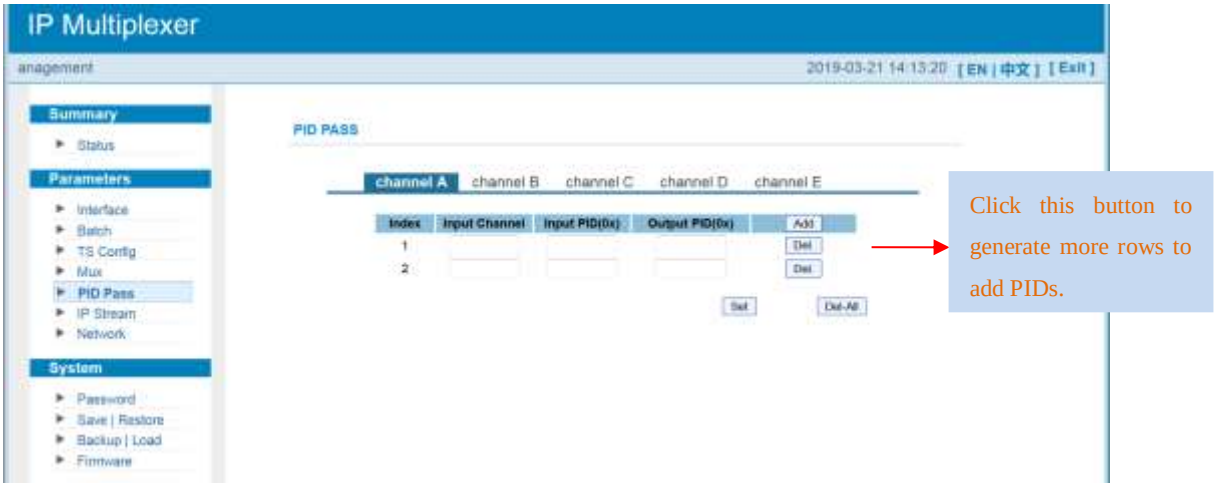


Figure-10

Parameters →IP Stream

Click 'IP Stream', it will display the interface as Figure-11 where to set IP out parameters.

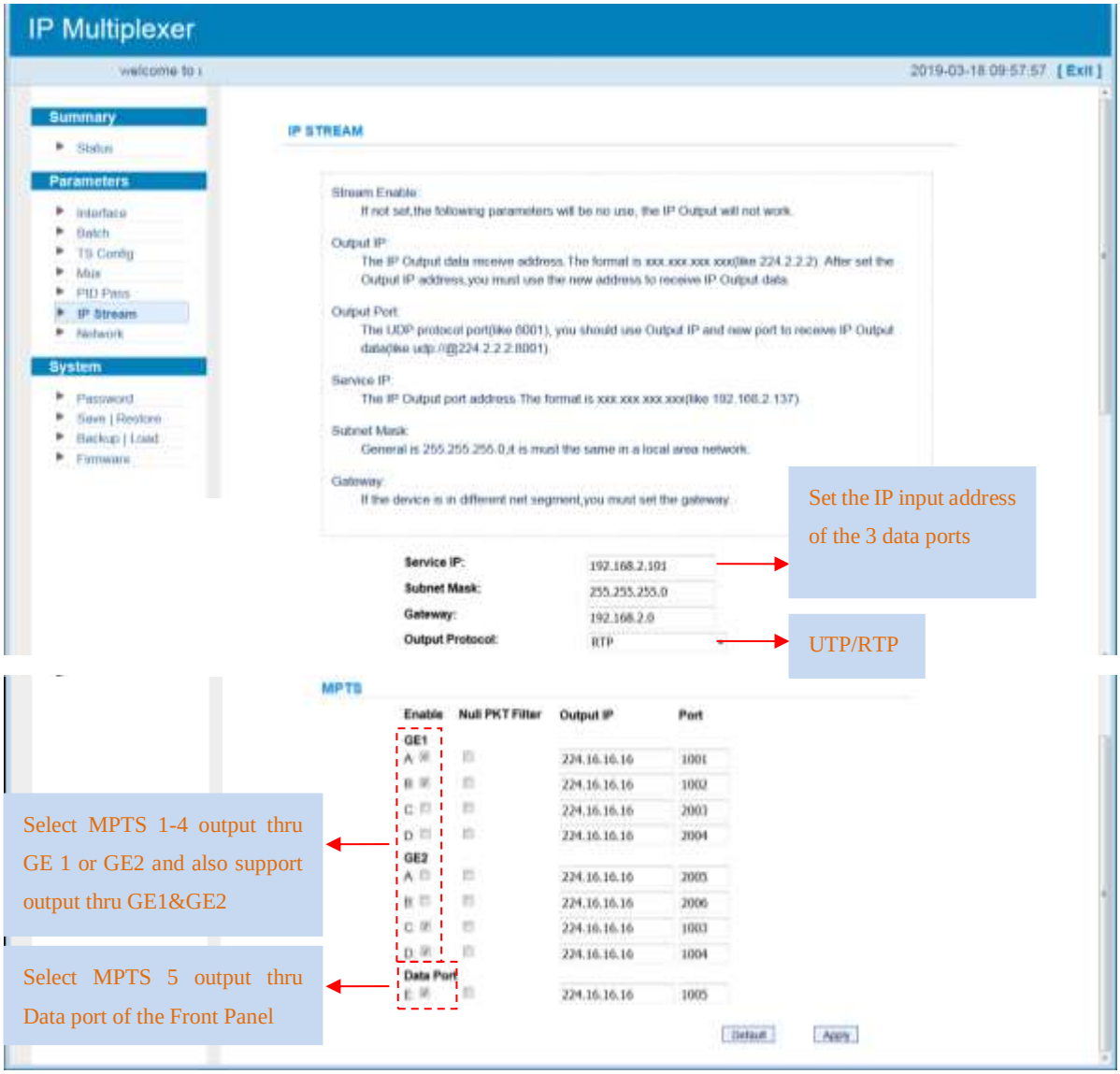


Figure-11

Parameters →Network

Click "Network", it will display the interface as Figure-12 where to set network parameters.

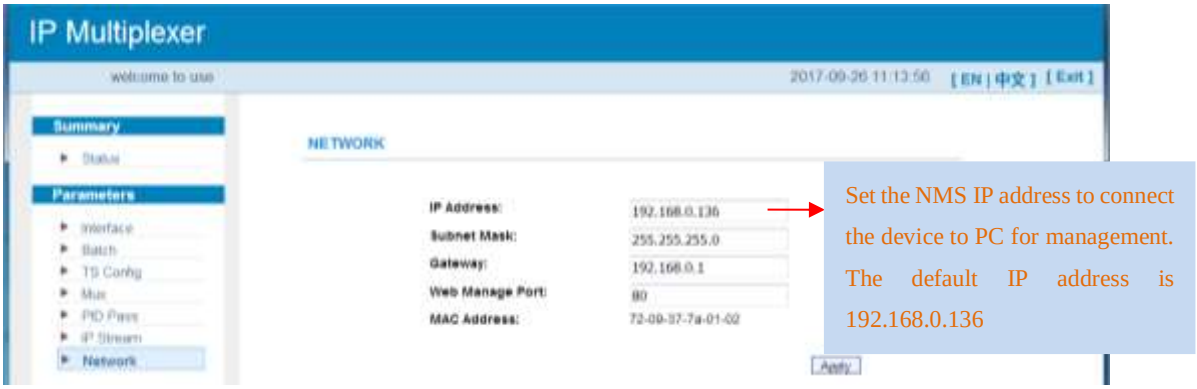


Figure-12

3.2.3 System

System →Password

Click "Password", it will display the screen as Figure-13 where to set the login account and password for the web NMS.

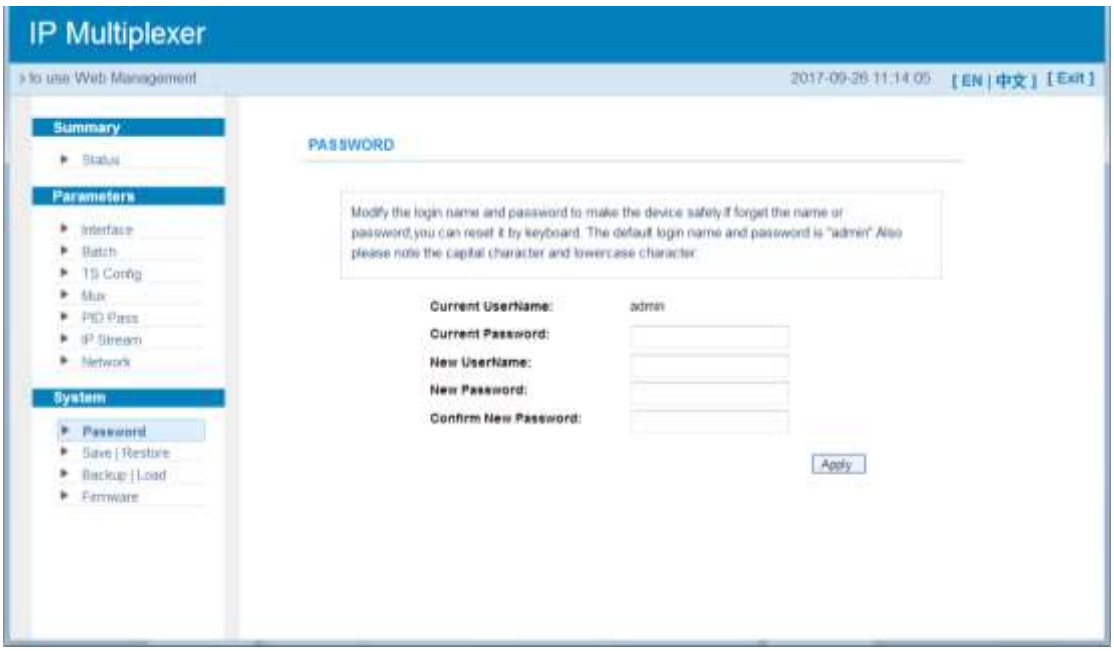


Figure-13

System →Save/Restore

Click "Save/Restore", it will display the screen as Figure-14 where to save or restore your configurations.

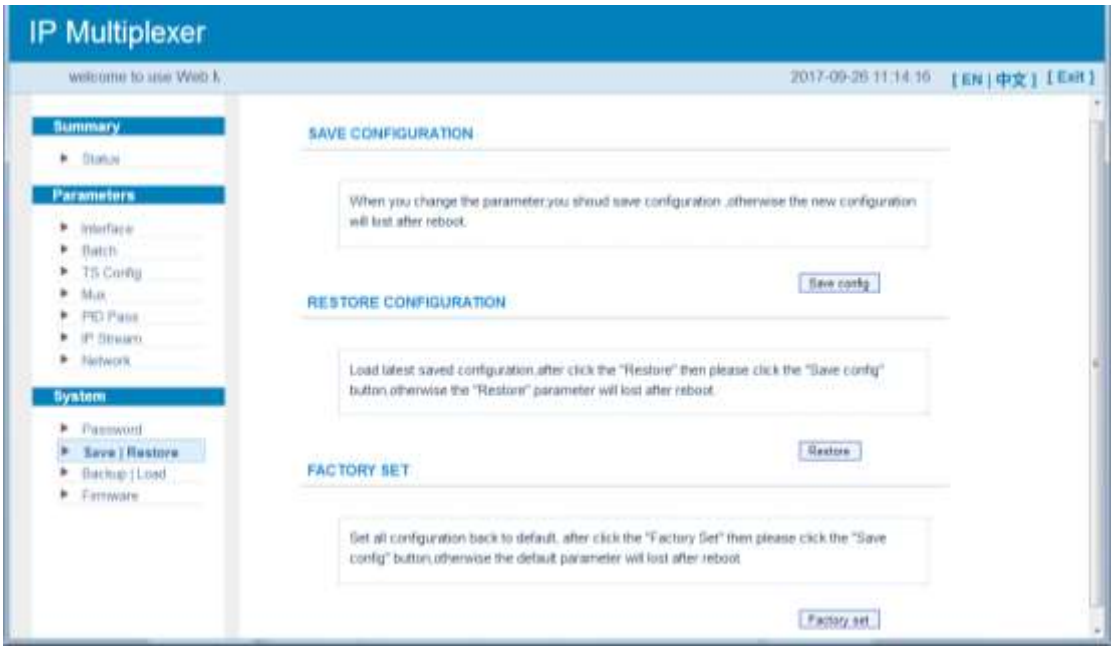


Figure-14

System →Backup/Load

Click "Backup/Load", it will display the screen as Figure-15 where to backup or load your configurations.

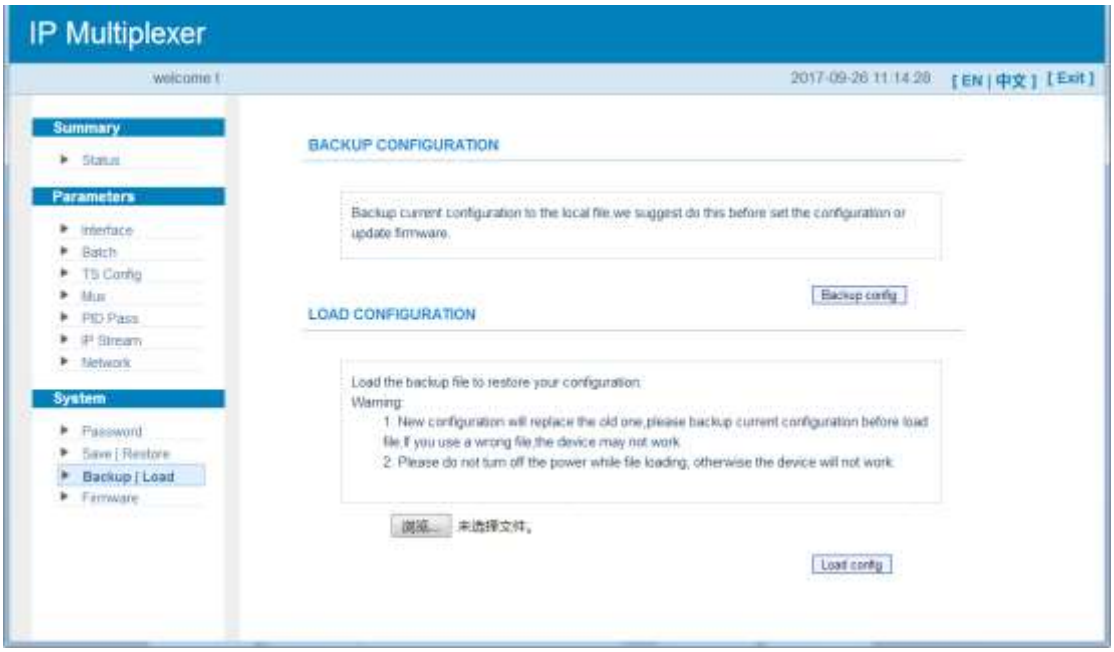


Figure-15

System →Firmware

Click "Firmware", it will display the screen as Figure-16 where to update firmware for the device.

Figure-16

Chapter 4 Troubleshooting

DEXIN's ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All DEXIN 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 DEXIN. 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 ℃
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC voltage 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