ASCENT
Communication Technology

IRD1516 Tuner/ASI to IP Gateway

Quick Reference Guide

Revision A

ACT IRD1516 Tuner/ASI to IP Gateway

Quick Reference Guide

ACT Document Number: ACT IRD1516 Quick Reference Guide

User Guide Revision A

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: support@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
A	07/13/2016	Initial Release

Table of Contents

1 Product Outline

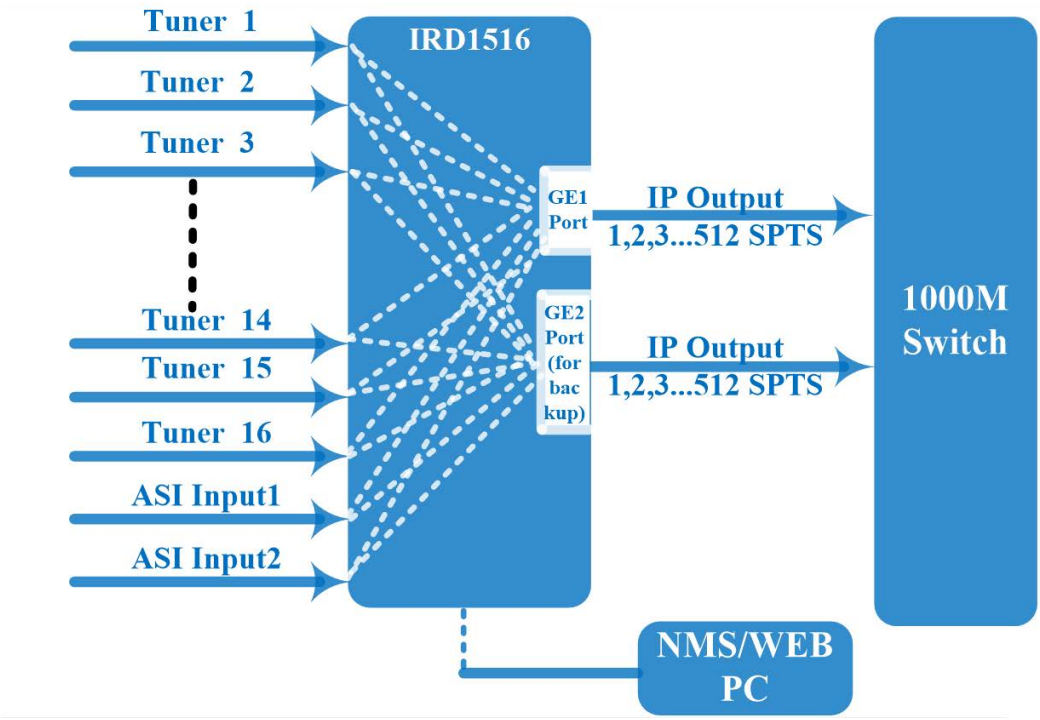
1.1 Outline

IRD1516 Tuner to IP Gateway is a head-end interface conversion device which supports MPTS and SPTS output switchable. It supports 16 MPTS or 512 SPTS outputs over UDP and RTP/RTSP protocols. It is integrated with tuner demodulation (or ASI inputs) and gateway functionality, which can demodulate a signal from 16 tuners into IP packages, or directly convert the TS from ASI input and tuner into IP packages then output the IP packages through different IP addresses and ports. BISS functionality is also embedded for tuner input to descramble tuner input programs.

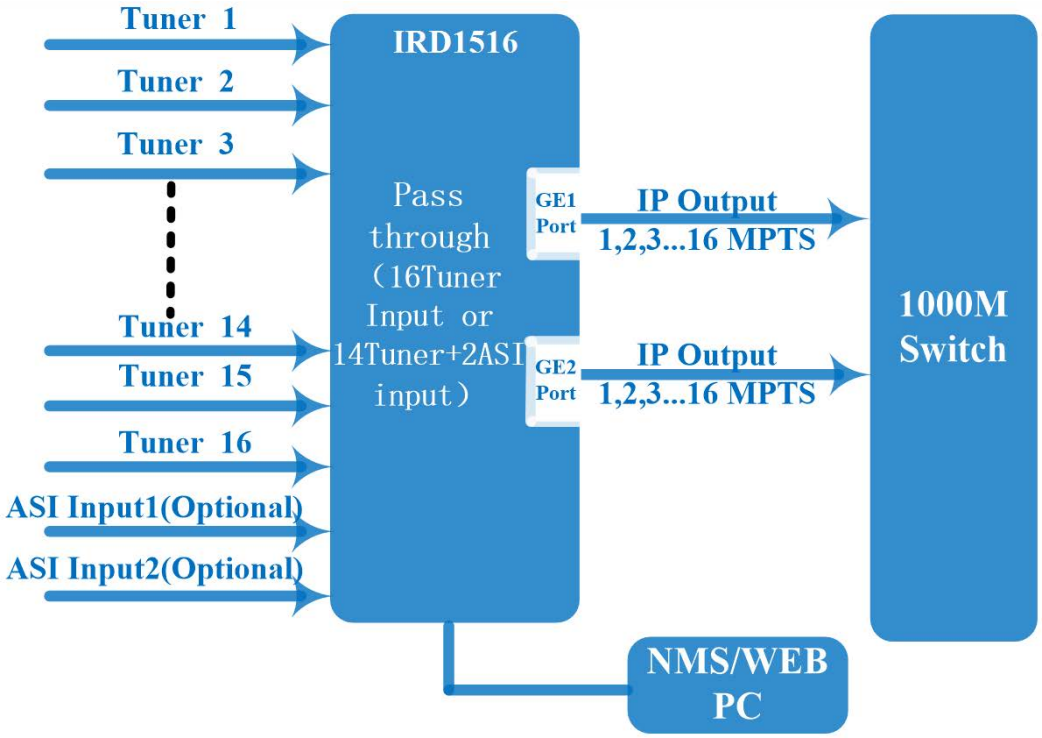
1.2 Features

- Supports 16 × FTA DVB- S/S2 (DVB-C/T/T2 /ISDB-T optional) inputs, 2 × ASI inputs
- Supports BISS descrambling
- Supports DisEqc function
- 16 × MPTS or 512 × SPTS output (MPTS and SPTS output switchable)
- 2 × GE mirrored outputs, up to 850 Mbps---SPTS
- 2 × independent GE output ports, GE1 + GE2---MPTS
- Supports PID filtering, re-mapping (only for SPTS output)
- Supports “Null PKT Filter” function (only for MPTS output)
- Supports Web operation

1.3 Inner Principle



SPTS Output



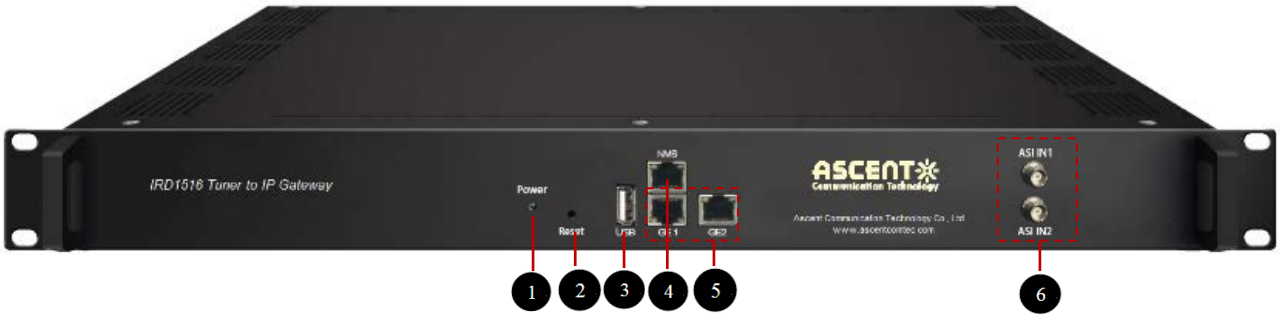
MPTS Output

1.4 Specifications

Input	Optional 1:16 tuners input +2 ASI input---SPTS output Optional 2:14 tuners input +2 ASI input --- MPTS output Optional 3:16 tuners input --- MPTS output	
Tuner Section		
DVB-C	Standard	J.83A (DVB-C), J.83B, J.83C
	Frequency In	30 MHz to 1000 MHz
	Constellation	16/32/64/128/256 QAM
DVB-T/T2	Frequency In	30 MHz to 999.999 MHz
	Bandwidth	6/7/8 M bandwidth
DVB-S/S2	Input Frequency	950-2150MHz
	Symbol Rate	DVB-S: QPSK 2 MBd to 45 MBd DVB-S2: QPSK 1 MBd to 45 MBd, 8PSK 2 MBd to 30 MBd
	Code Rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	Constellation	QPSK, 8PSK
ISDB-T	Input Frequency	30 MHz to 1000 MHz
ATSC	Input Frequency	54 MHz to 858 MHz
	Bandwidth	6 M
Output	512 × SPTS IP mirrored output over UDP and RTP/RTSP protocol through GE1 and GE2 ports, Unicast and Multicast 16 × MPTS IP output (for Tuner/ASI passthrough) over UDP and RTP/RTSP protocol through GE1 and GE2 ports, Unicast and Multicast	
BISS Descrambling	Mode 1, Mode E (Up to 850 Mbps) (descramble individual program)	
Miscellaneous		
Dimension (W × L × H)	482 mm × 410 mm × 44 mm	
Approx. Weight	3.6 kg	
Operating Temperature	0 to +45 °C	
Storage Temperature	-20 °C to +80 °C	
Power Requirements	100 V AC to 240 V AC, 50/60Hz	
Power Consumption	20 W	

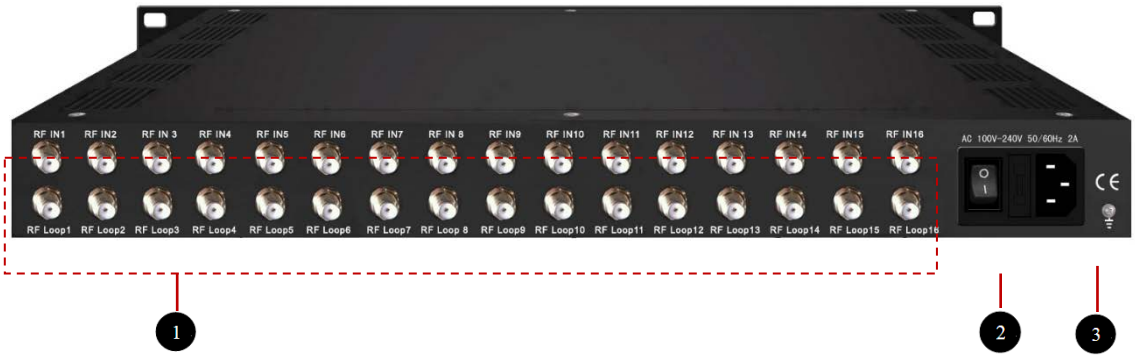
1.5 Appearance and Description

Front Panel Illustration:



1	Power indicator
2	Reset: resets webmaster IP address, recover it to default IP address
3	USB port for upgrade
4	NMS port: network management interface
5	Data ports (GE1 & GE2): IP out ports
6	ASI input port

Rear Panel Illustration



1	16 channels RF IN interface
2	Integrated power switch and socket
3	Grounding wire

2 Installation Guide

2.1 Acquisition Check

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

- IRD1516 Tuner to IP Gateway
- User's Manual
- Grounding Cable
- RF In and Loop Out Cable
- Power Cord

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

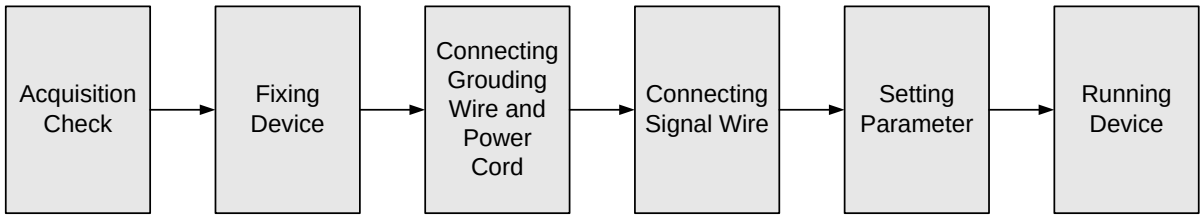
2.2 Installation Preparation

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 gateway
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.2.1 Device Installation Flow Chart Illustrated as following:



2.2.2 Environment Requirements

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 to 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: 1×10^{7} Ω to 1×10^{10} Ω, Grounding current limiting resistance: 1 M (Floor bearing should be greater than 450 kg/m^2)

Environment Temperature	5 °C to 40 °C (sustainable) 0 to 45 °C (short time) installing air-conditioning is recommended
Relative Humidity	20 % to 80 % sustainable 10 % to 90 % short time
Pressure	86 kPa to 105 kPa
Door & Window	Install rubber strips for sealing door-gaps and double-layered glass for windows.
Wall	Can be covered with wallpaper, or non-bright paint.
Fire Protection	Fire alarm system and extinguisher
Power	Device power, air-conditioning power, and lighting power should all be independent to each other. Device power requires AC power 100 V to 240 V 50/60 Hz 2A. Please carefully check before running.

2.2.3 Grounding Requirements

- Good grounding for all function modules ensures reliability and stability of these devices. They are also the best way to prevent lightning arresting and interference rejection.
- The coaxial cables' outer conductor and isolation layer should keep proper electric conducting with the metal housing of the device.
- The grounding conductor should have a 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 the grounding wire are electrically conducive and rust-proof.
- It is prohibited to use any other device as part of the 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 of the machine's frames should be connected with a protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of conduction between the 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 just beside it. The order is: power switch on the left, power supply socket on the right, and the fuse is just between them.

➢ **Connecting Power Cord**

Insert one end into a power supply socket, and insert the other end to AC power.

➢ **Connecting Grounding Wire**

When the device is solely connected to protective ground, it should have an independent path, and share the same ground with other devices. When the device adopts a united path, the grounding resistance should be smaller than 1 Ω.

Warning Before connecting power cord to IRD1516 Tuner to IP Gateway, user should set the power switch to "OFF".

3 WEB NMS Operation

Users can only control and set configuration parameters using a computer by connecting the device to a web NMS port. Users should ensure that the computer's IP address is different from the IRD1516's IP address; otherwise it will cause an IP conflict.

3.1 Login

The default IP of this device is 192.168.2.136. Connect the pc and the device with an RJ45 Ethernet cable, and use the ping command to confirm that they are on the same network segment.

For example, if the PC IP address is 192.168.99.252, change the device IP to 192.168.99.xxx (xxx can be any integer between 0 to 255 except 252 to avoid IP conflict).

Use a web browser to connect the device with the PC by inputting the Encoder & Modulator's IP address into the browser's address bar and press Enter.

Login interface should be displayed as shown in Figure - 1. Input the Username and Password (the default Username and Password are both "admin".) and then click "Login" to enter the device's settings.

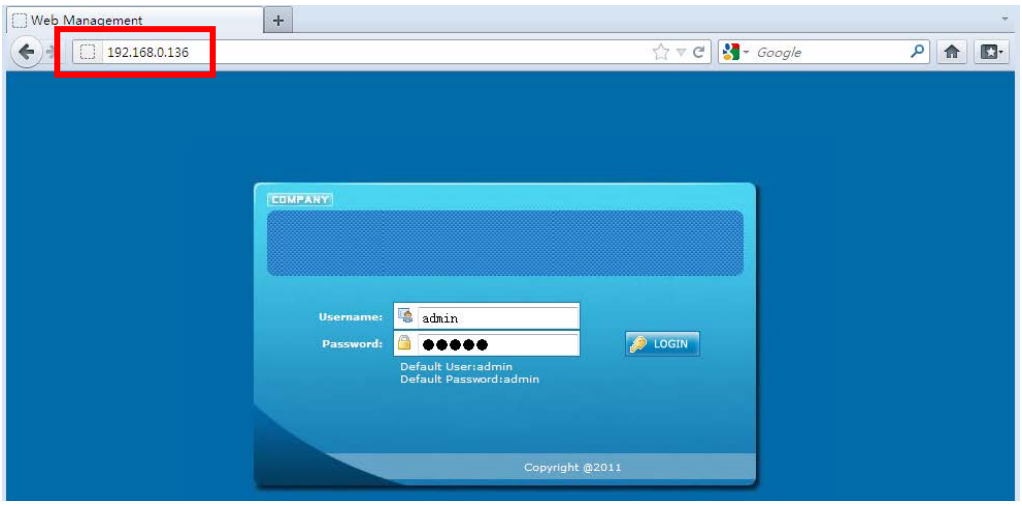


Figure - 1

3.2 Operation

Status

When login has been confirmed, it will display the status interface as shown in Figure - 2.

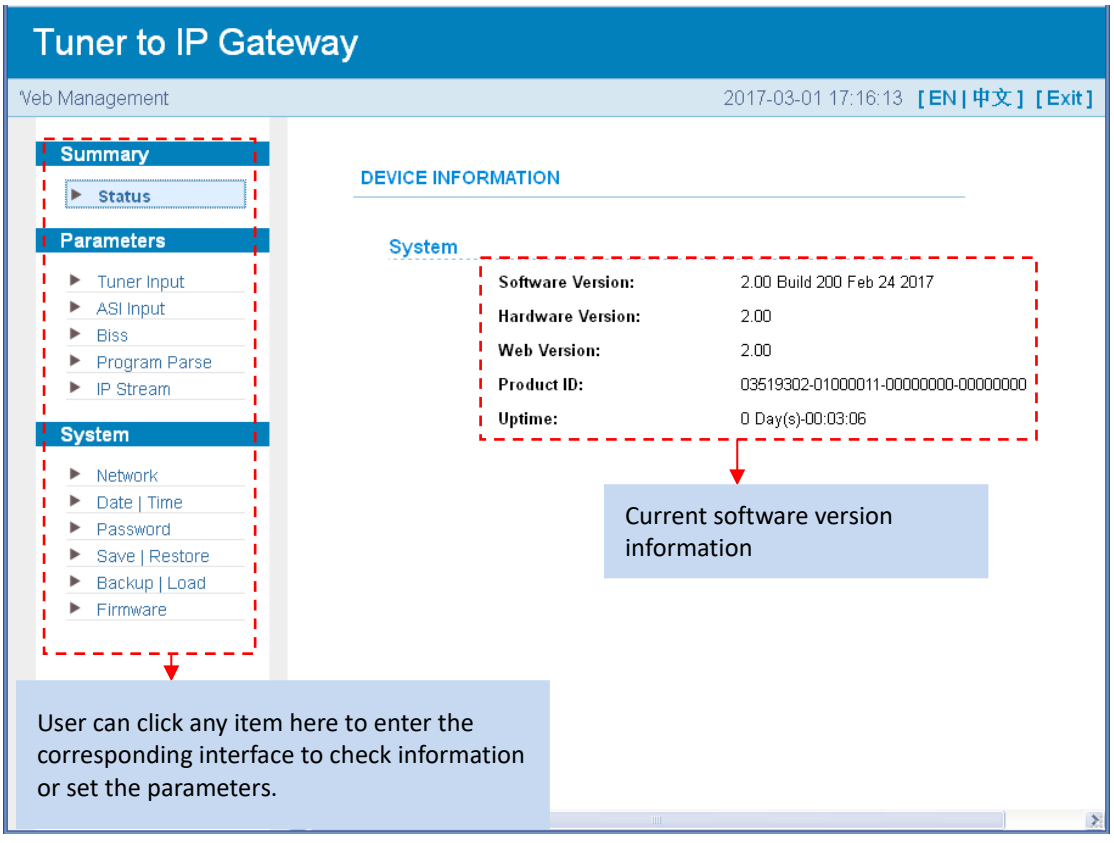


Figure - 2

Parameter → Tuner input

From the menu on the top side of the webpage, click “Tuner Input” to display the interface where users can check the 16 tuner input status channels. (Figure - 3)

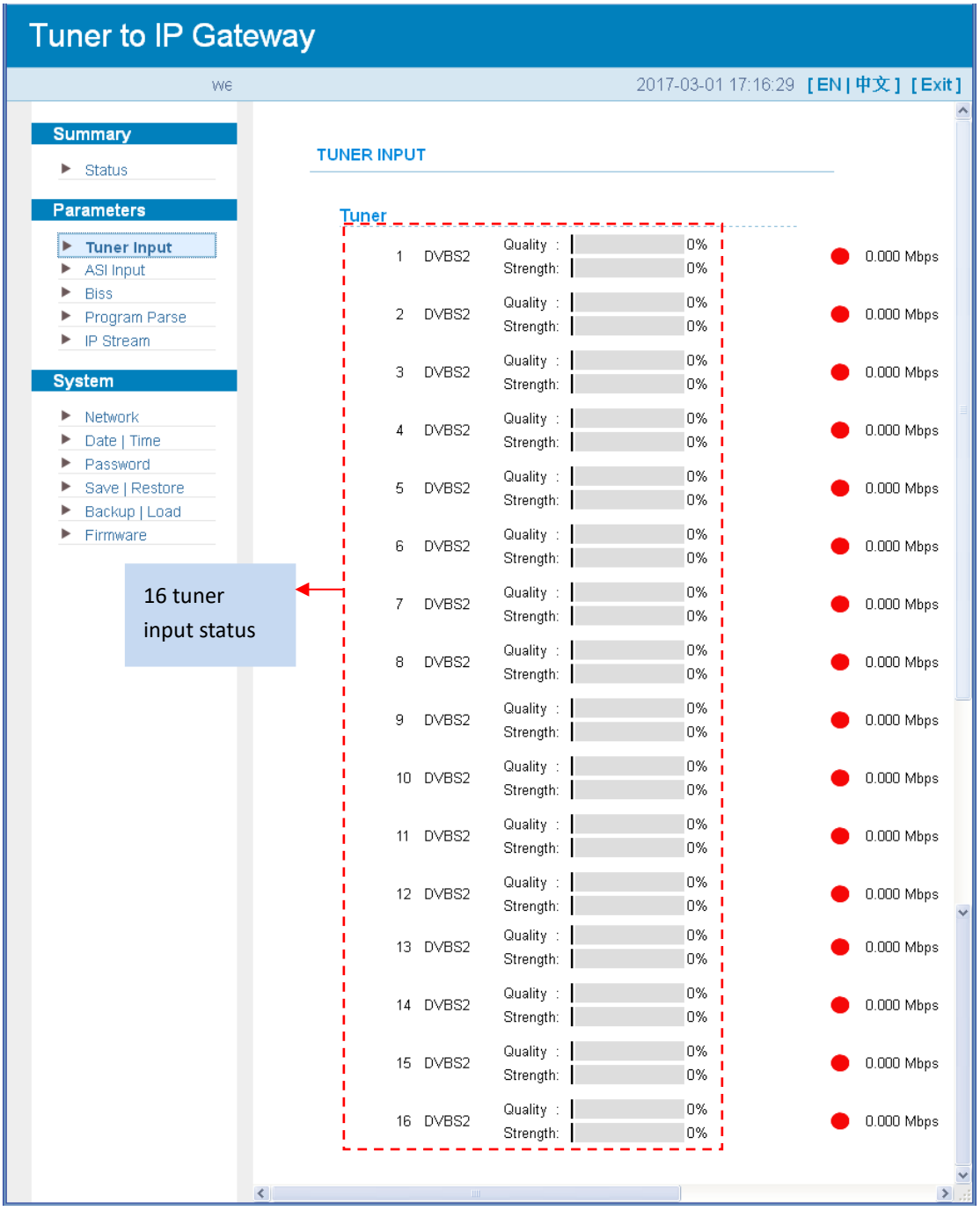


Figure - 3

Parameter → ASI input

From the menu on the top side of the webpage, click “ASI Input” to display the interface where users can check the 2 ASI input status channels. (Figure - 4)

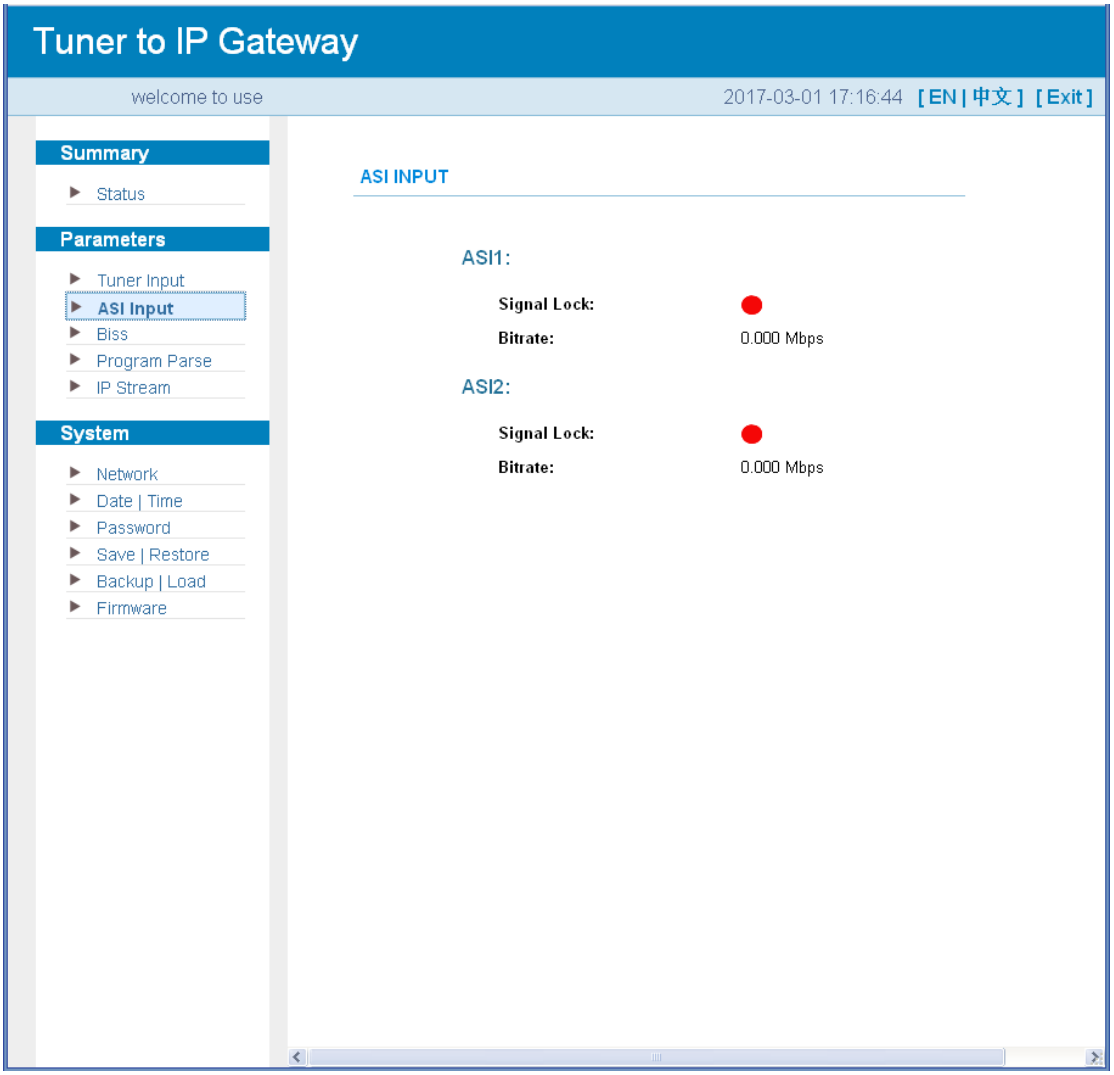


Figure - 4

Parameter → BISS

From the menu on the left side of the webpage, clicking “BISS” displays the interface where users can configure BISS settings and descramble the input channels (Figure - 5).

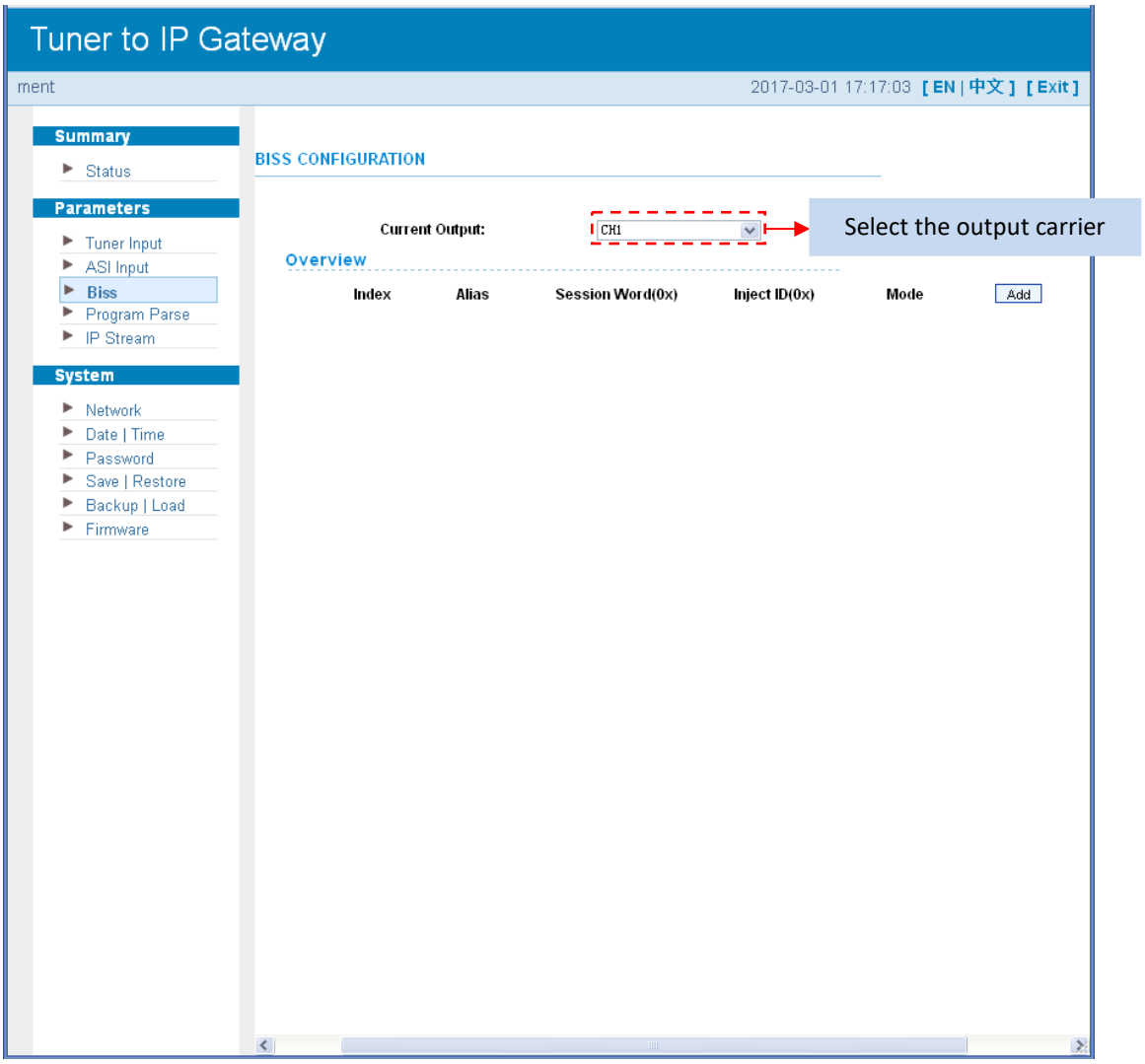


Figure - 5

Parameter → Program Parse

From the menu on the left side of the webpage, clicking “Program Parse” displays the interface where users can parse the program from the input channels.

When users disable the ASI input, IRD1516 can support 16 Tuner inputs with 16 MPTS IP outputs (Figure - 6).

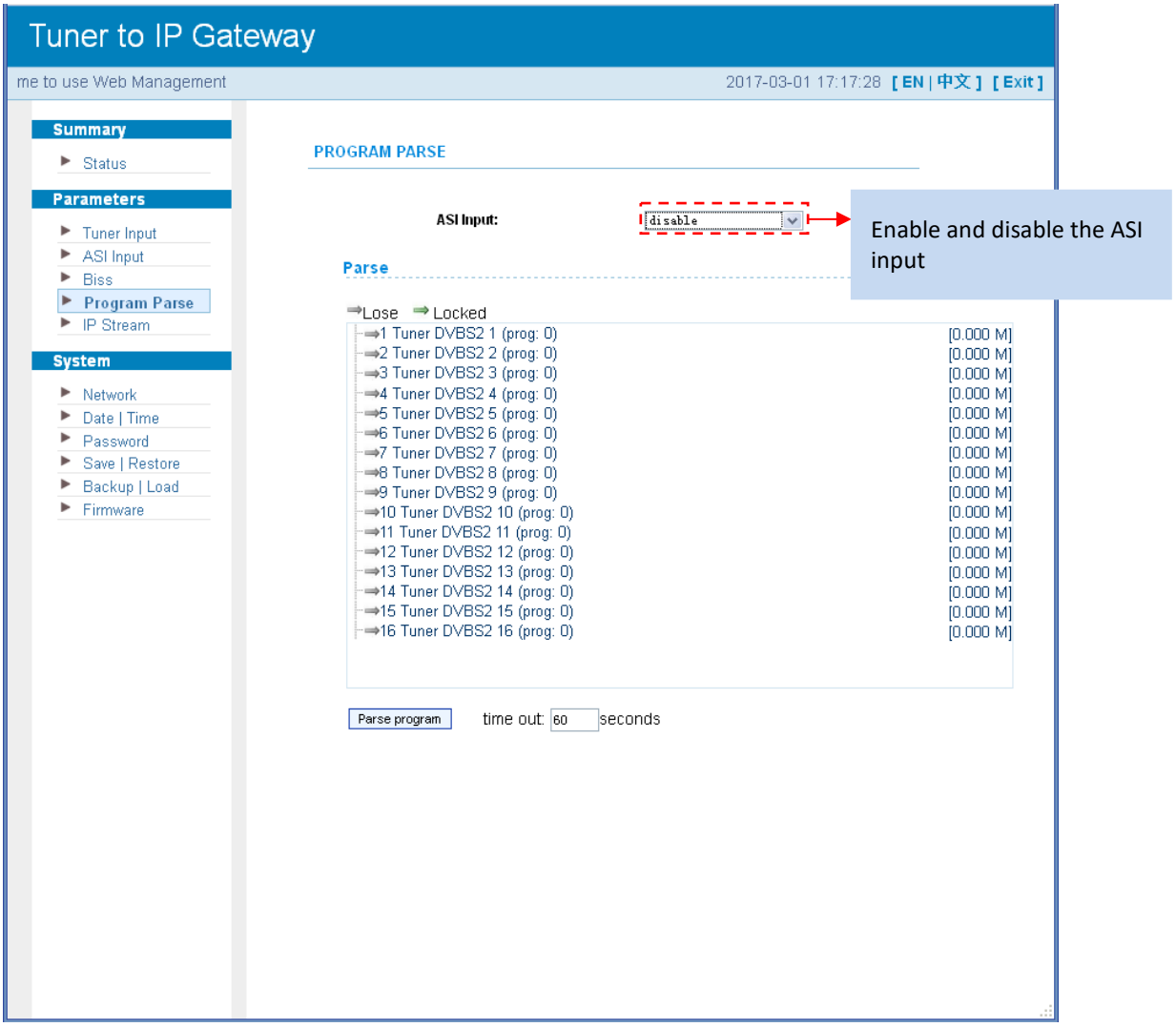


Figure - 6

When users enable the ASI input, IRD1516 can support 14 Tuner inputs and 2 ASI inputs with 16 MPTS IP outputs (Figure - 7).

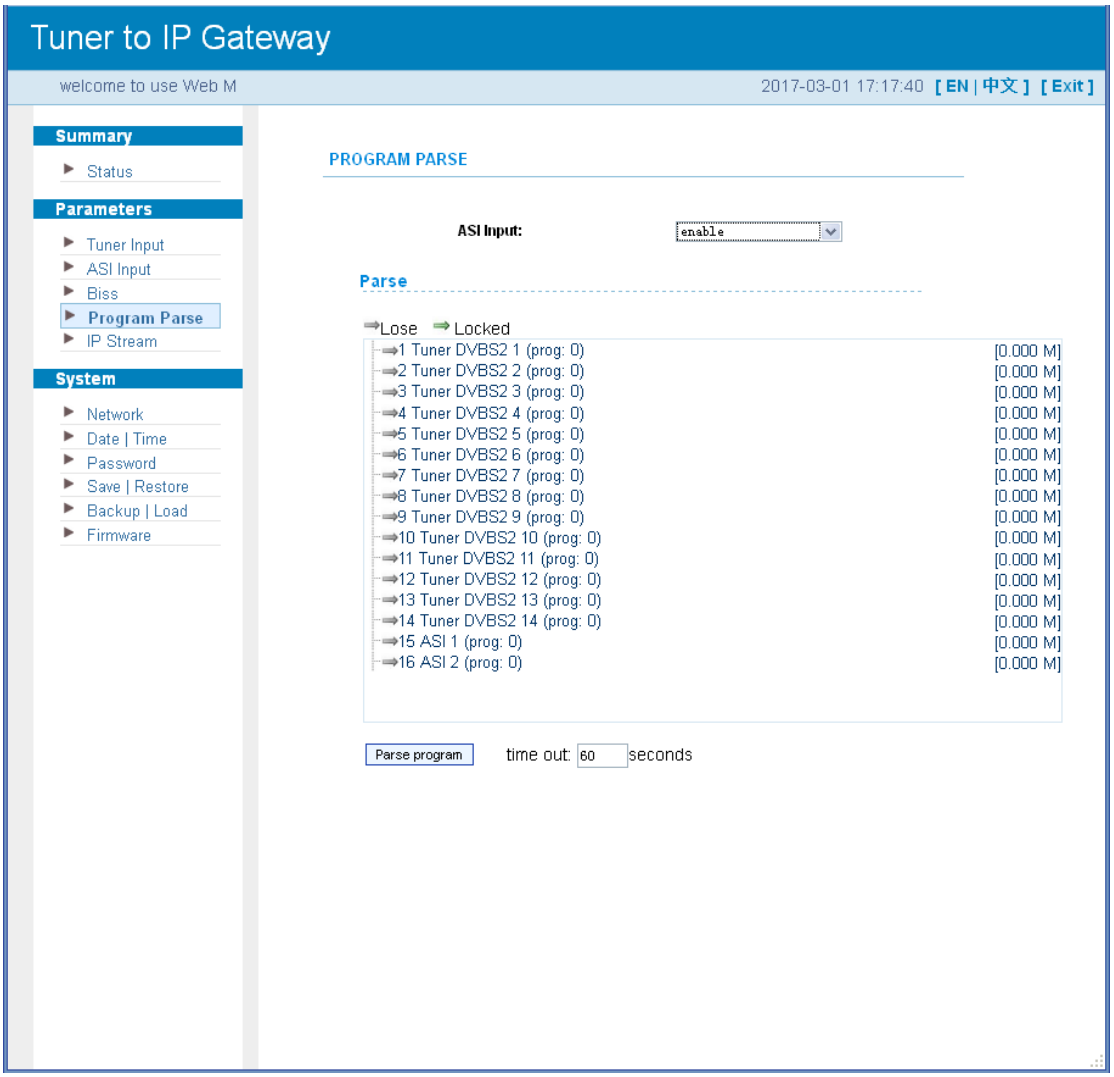

Tuner to IP Gateway
welcome to use Web M
2017-03-01 17:17:40 [EN | 中文] [Exit]
Summary
Status
Parameters
Tuner Input
ASI Input
Biss
Program Parse
IP Stream
System
Network
Date | Time
Password
Save | Restore
Backup | Load
Firmware
PROGRAM PARSE
ASI Input:
enable
Parse
Lose
Locked
1 Tuner DVBS2 1 (prog: 0) [0.000 M]
2 Tuner DVBS2 2 (prog: 0) [0.000 M]
3 Tuner DVBS2 3 (prog: 0) [0.000 M]
4 Tuner DVBS2 4 (prog: 0) [0.000 M]
5 Tuner DVBS2 5 (prog: 0) [0.000 M]
6 Tuner DVBS2 6 (prog: 0) [0.000 M]
7 Tuner DVBS2 7 (prog: 0) [0.000 M]
8 Tuner DVBS2 8 (prog: 0) [0.000 M]
9 Tuner DVBS2 9 (prog: 0) [0.000 M]
10 Tuner DVBS2 10 (prog: 0) [0.000 M]
11 Tuner DVBS2 11 (prog: 0) [0.000 M]
12 Tuner DVBS2 12 (prog: 0) [0.000 M]
13 Tuner DVBS2 13 (prog: 0) [0.000 M]
14 Tuner DVBS2 14 (prog: 0) [0.000 M]
15 ASI 1 (prog: 0) [0.000 M]
16 ASI 2 (prog: 0) [0.000 M]
Parse program
time out: 60 seconds

Figure - 7

Parameter → IP Stream

IRD1516 supports TS to output in IP (16 × MPTS) format through the GE1 and GE2 ports.

Click 'IP Stream' to display the interface where users can set IP out parameters (Figure - 8).

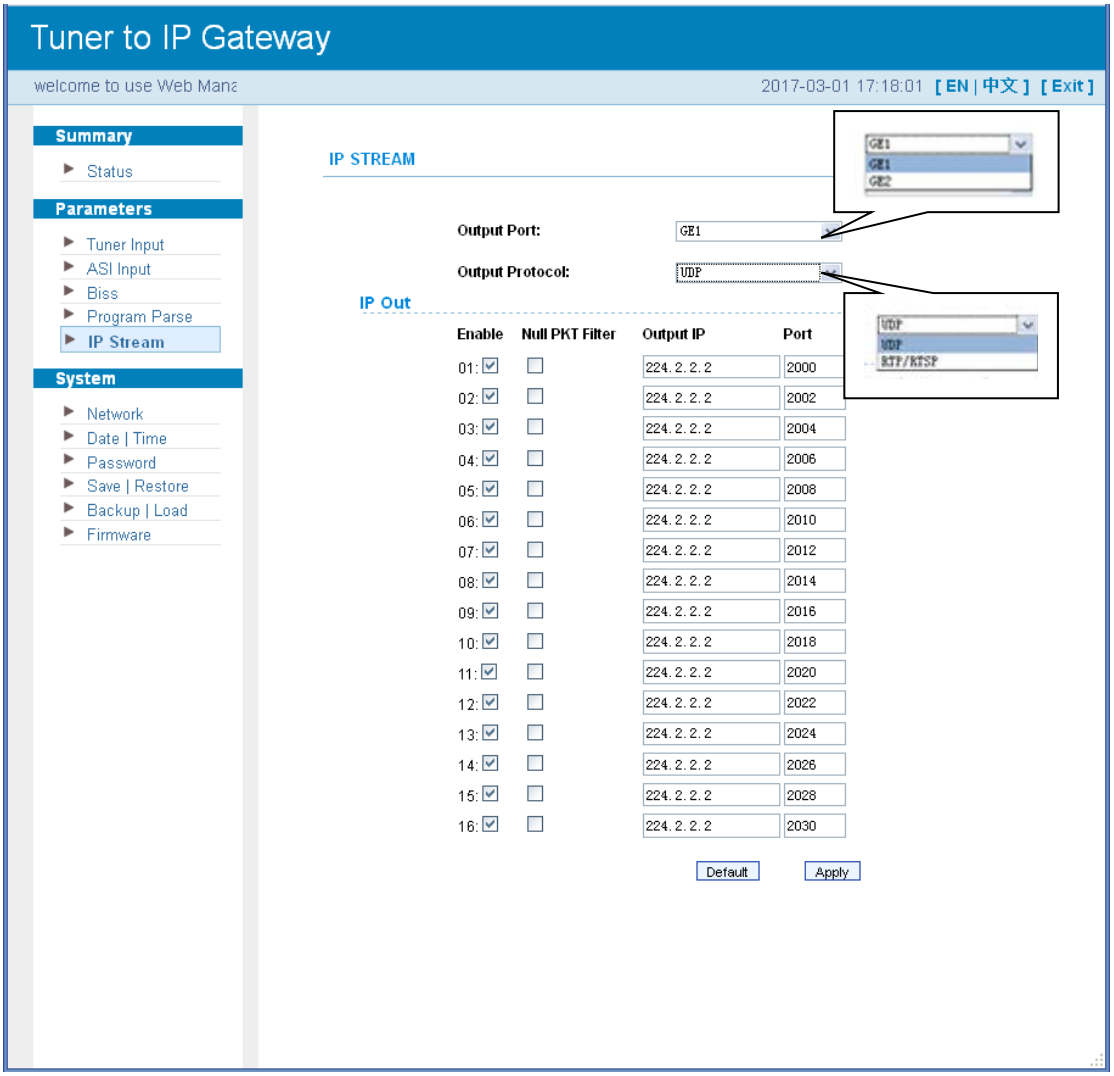


Figure - 8

IRD1516 supports 16 tuner inputs and 2 ASI inputs with 512 SPTS outputs, the parameter interface is different from MPTS. When users switch MPTS to SPTS, the new mode will work after rebooting the device.

Parameter → Tuner Input

From the menu on the top side of the webpage, click “Tuner Input” to display the interface where users can check the 8 tuner input status channels. (Figure - 9)

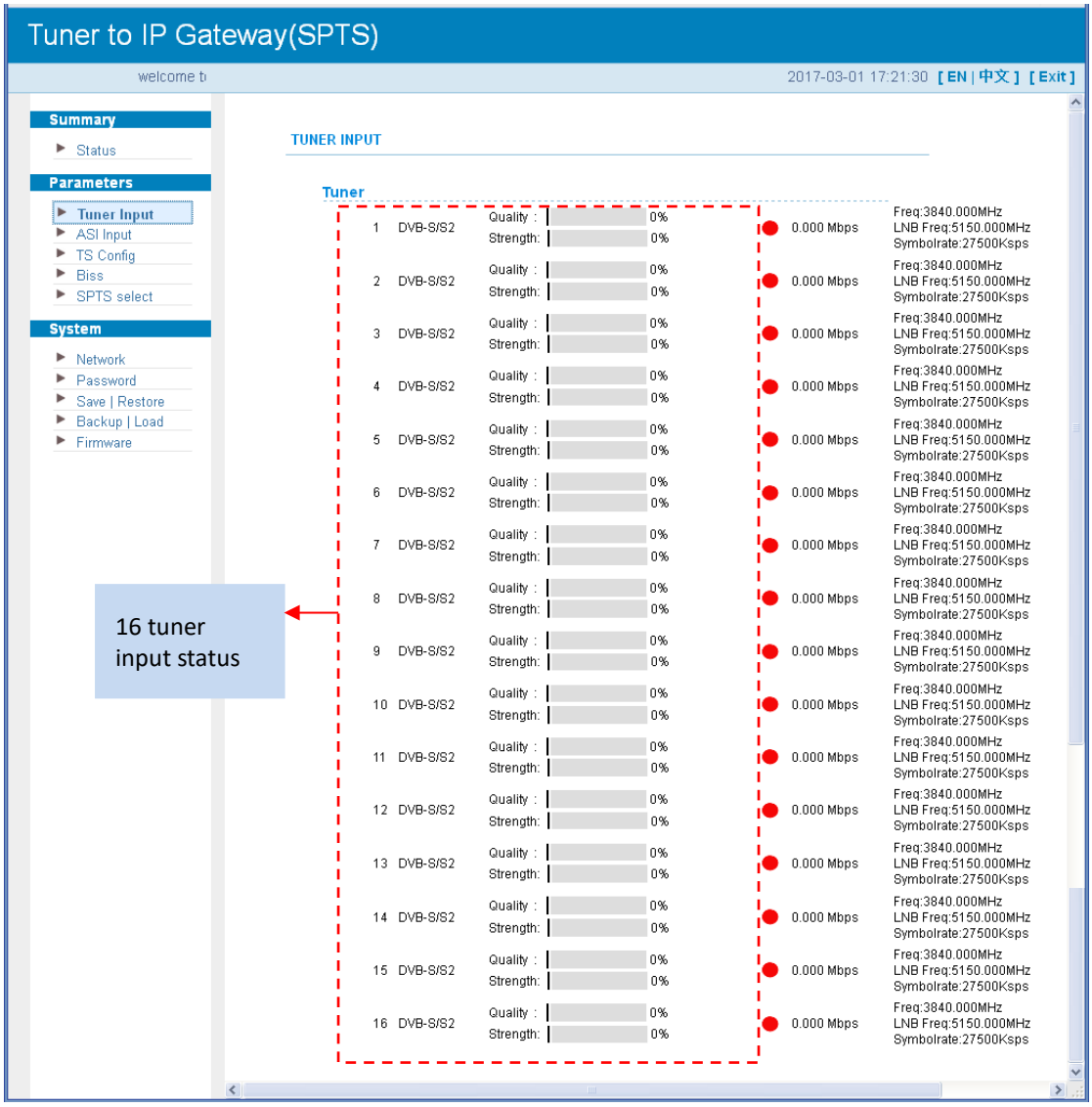


Figure - 9

Parameter → ASI Input

From the menu on the top side of the webpage, click “ASI Input” to display the interface where users can check the 2 ASI input status channels. (Figure - 10)

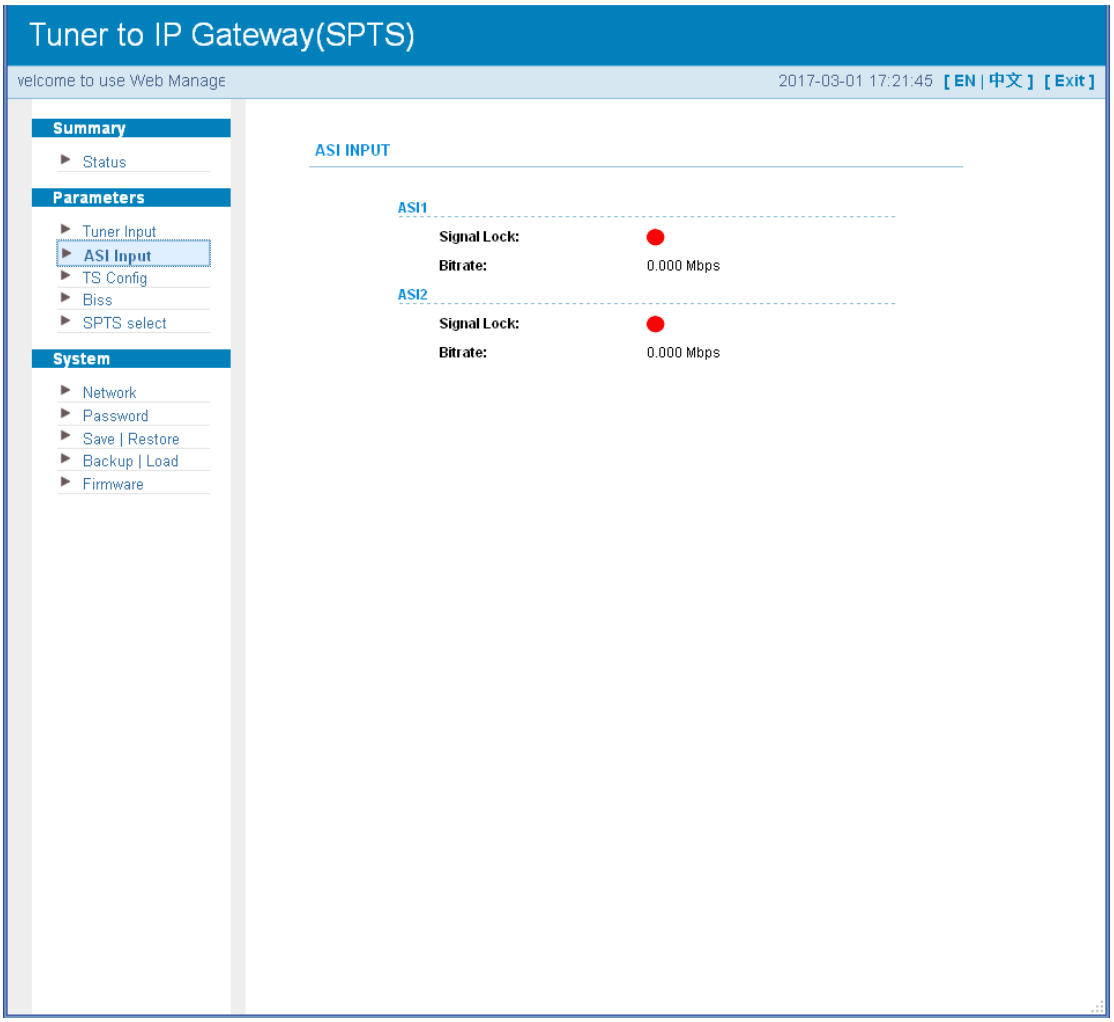


Figure - 10

Parameter → TS Config

Click “TS Config” to display the interface where users can set the output TS and configure TS ID and ON ID for the 4 output channels (Figure - 11).

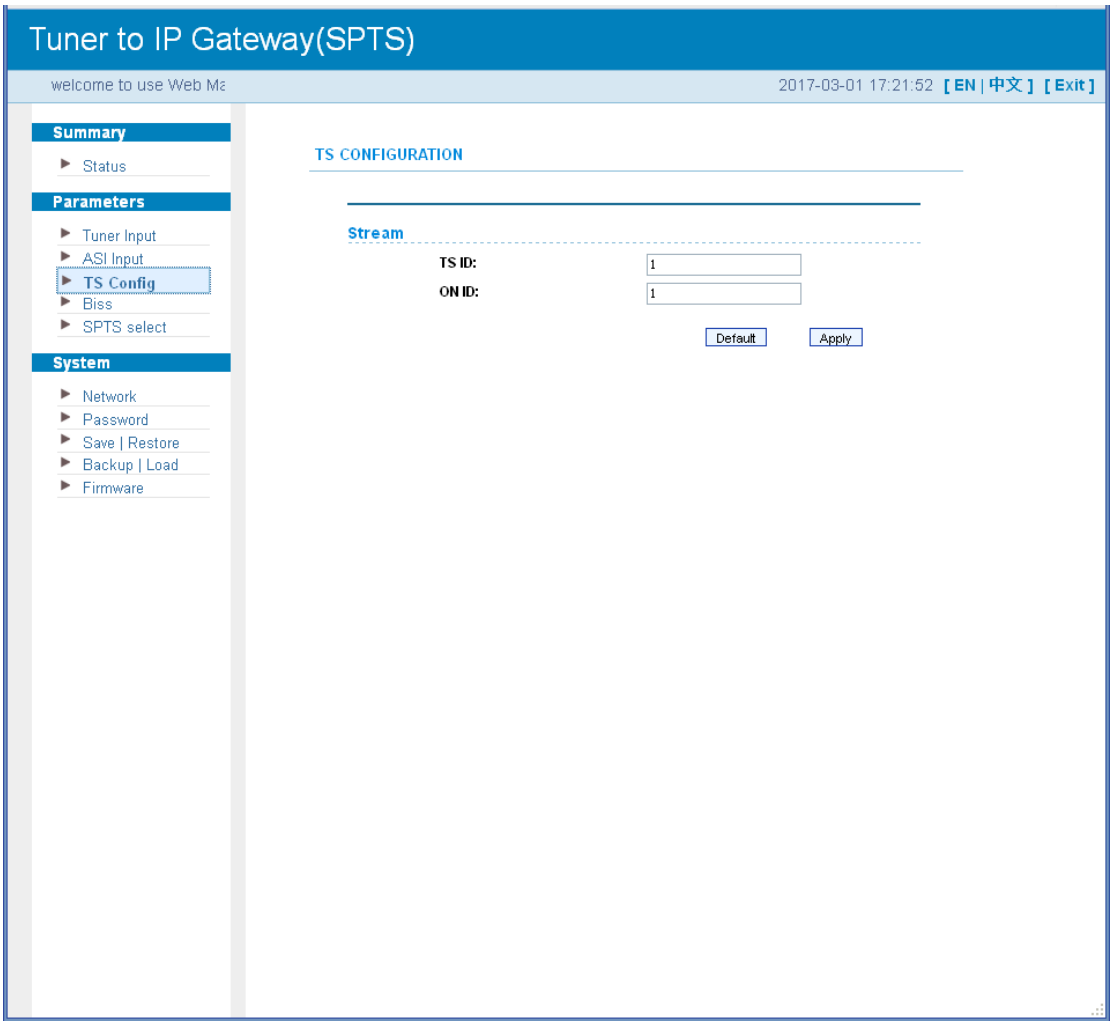


Figure - 11

Parameter → BISS:

From the menu on the left side of the webpage, clicking "BISS" displays the interface where users can configure BISS and descramble the input channels (Figure - 12).

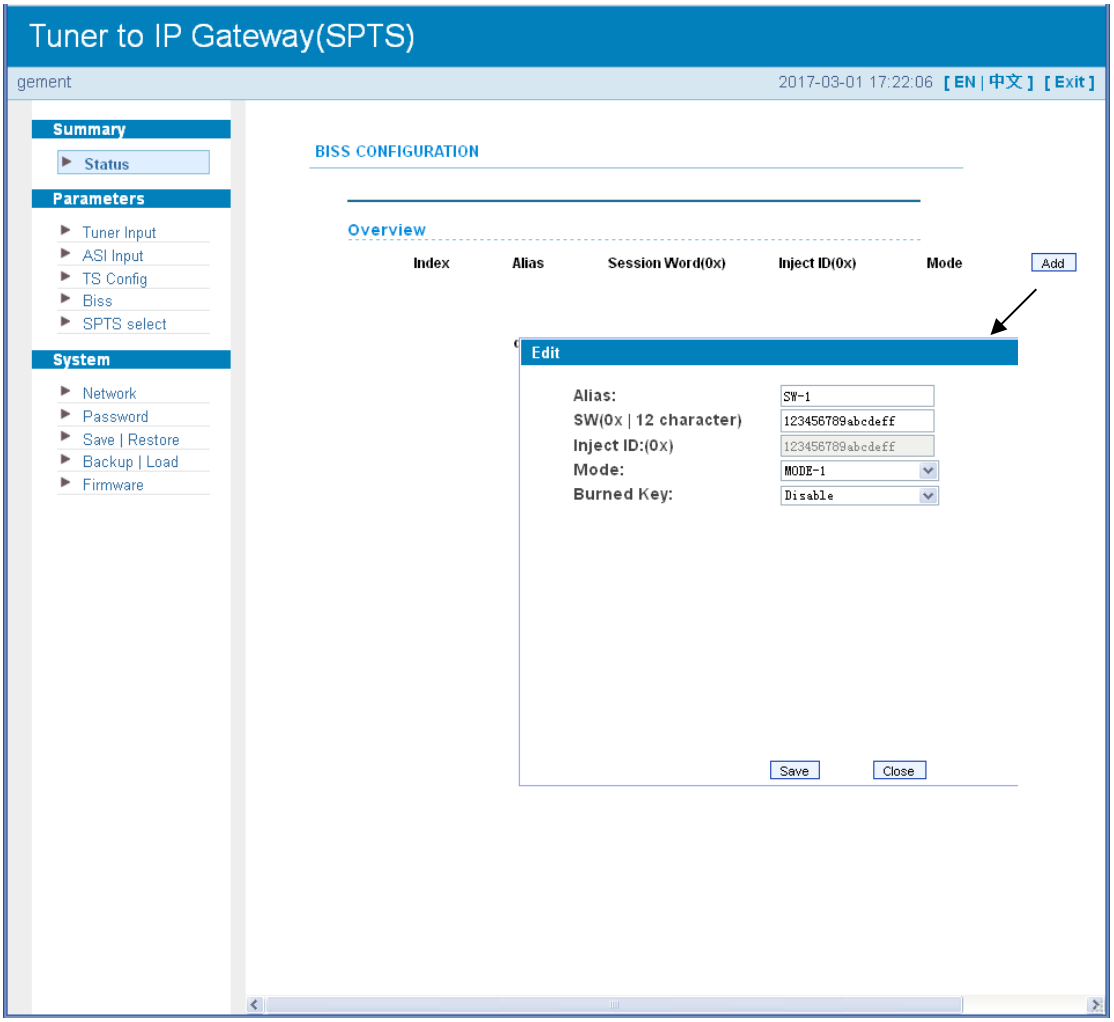


Figure - 12

Parameter → SPTS Select:

From the menu on the left side of the webpage, click “SPTS Select” to display the interface where users can choose 16 tuner input and 2 ASI input programs to output from IP (max 512 SPTS). (Figure - 13)

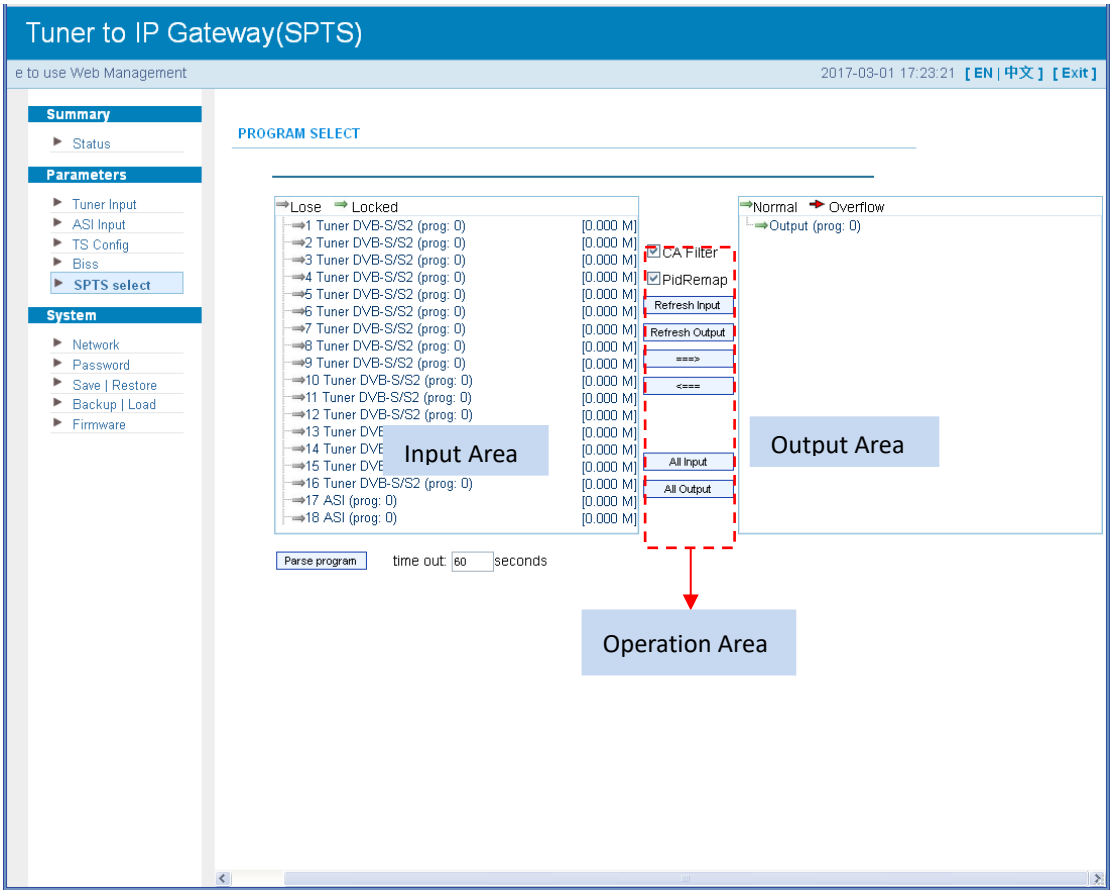


Figure - 13

Configure ‘Input Area’ and ‘Output Area’ with buttons in ‘Operation Area’. Instructions are as follows:

☑ CA Filter: To enable/disable the CA Filter function. By clicking the box, users can filter the input CA to avoid disturbing the device’s scrambling function.

☑ 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-101=>239.93.0.1:5101 , it triggers a dialog box (Figure 14) where users can input new information.

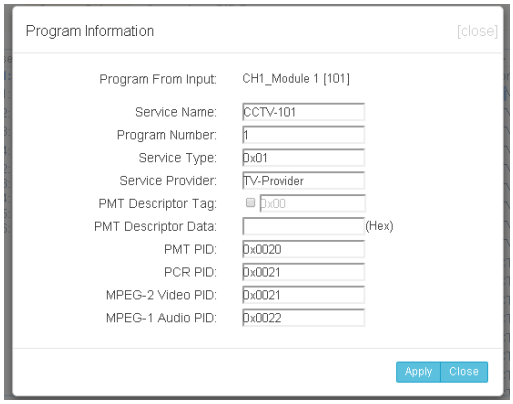


Figure - 14

System → Network:

Click 'Network' to display the interface as Figure - 15 where users can set network parameters.

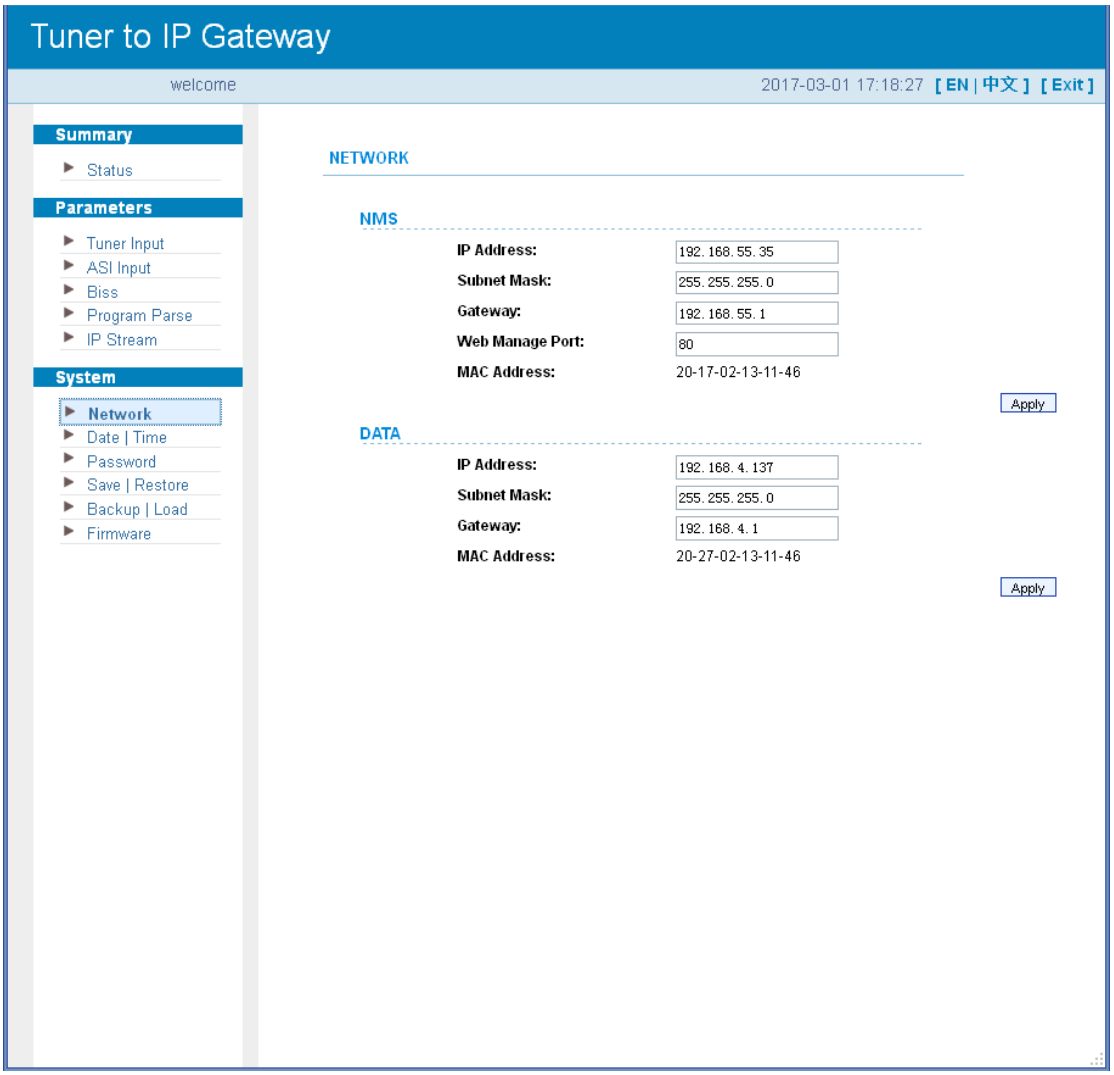


Figure - 15

System → Date/Time:

From the menu on the left side of the webpage, click “Date/Time” to display the screen as shown in Figure - 16 where users can set the date and time for the device.

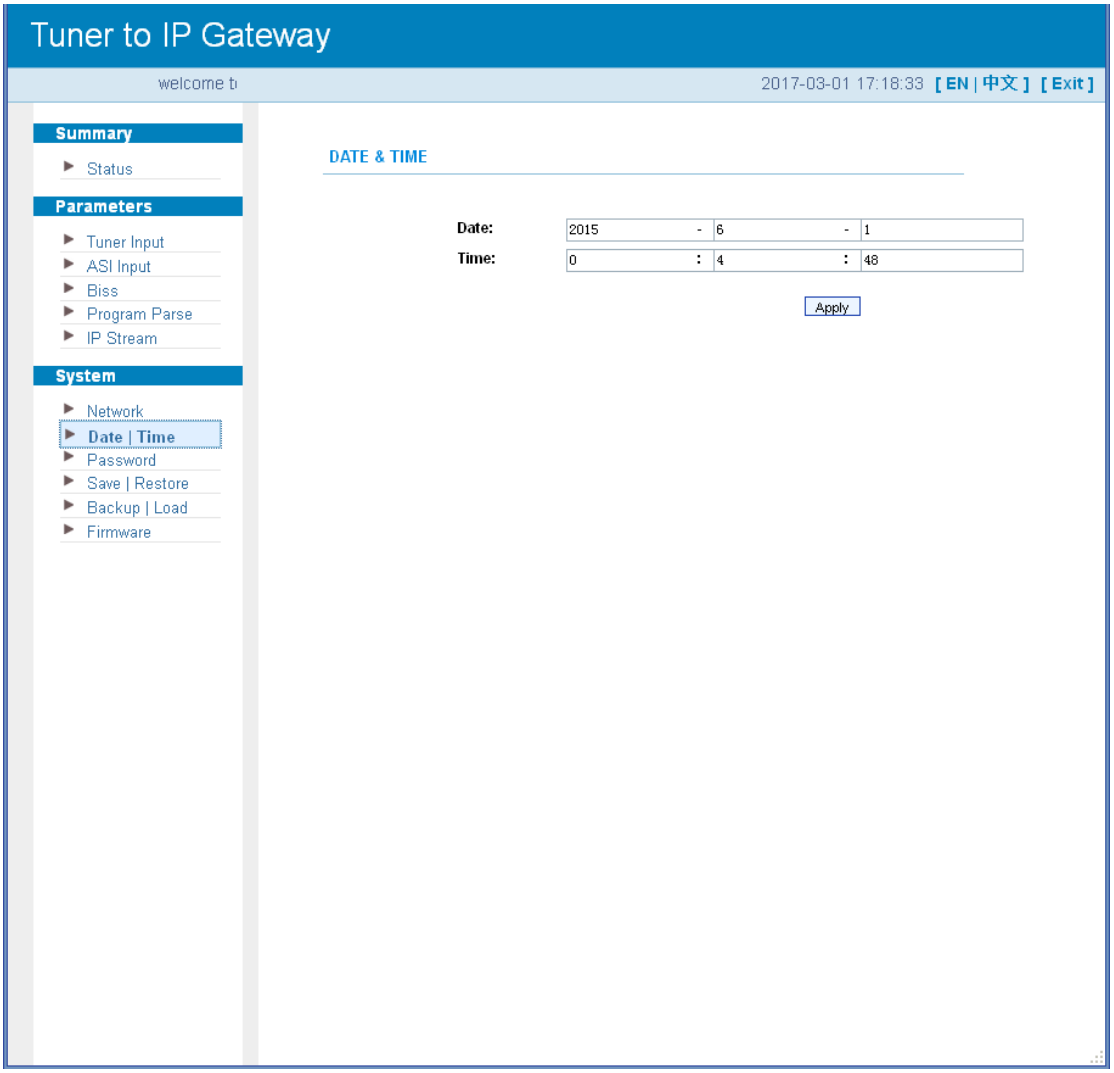


Figure - 16

System → Password:

From the menu on the left side of the webpage, clicking “Password” will display the screen as shown in Figure - 17 where users can set the login account and password for the web NMS.

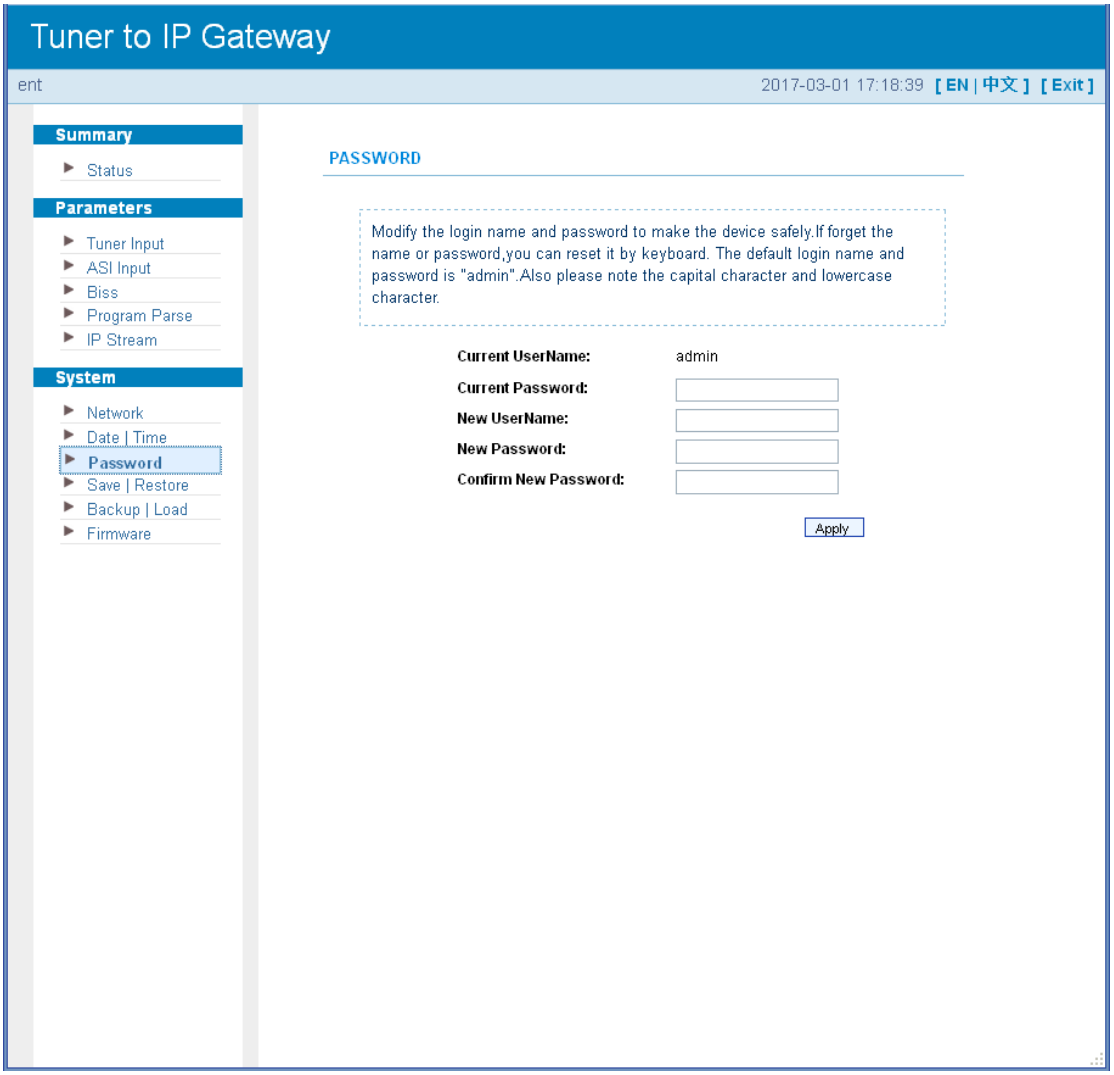


Figure - 17

System → Save/Restore:

From the menu on the left side of the webpage, click “Save/Restore” to display the screen as shown in Figure - 18 where users can save or restore their configurations.

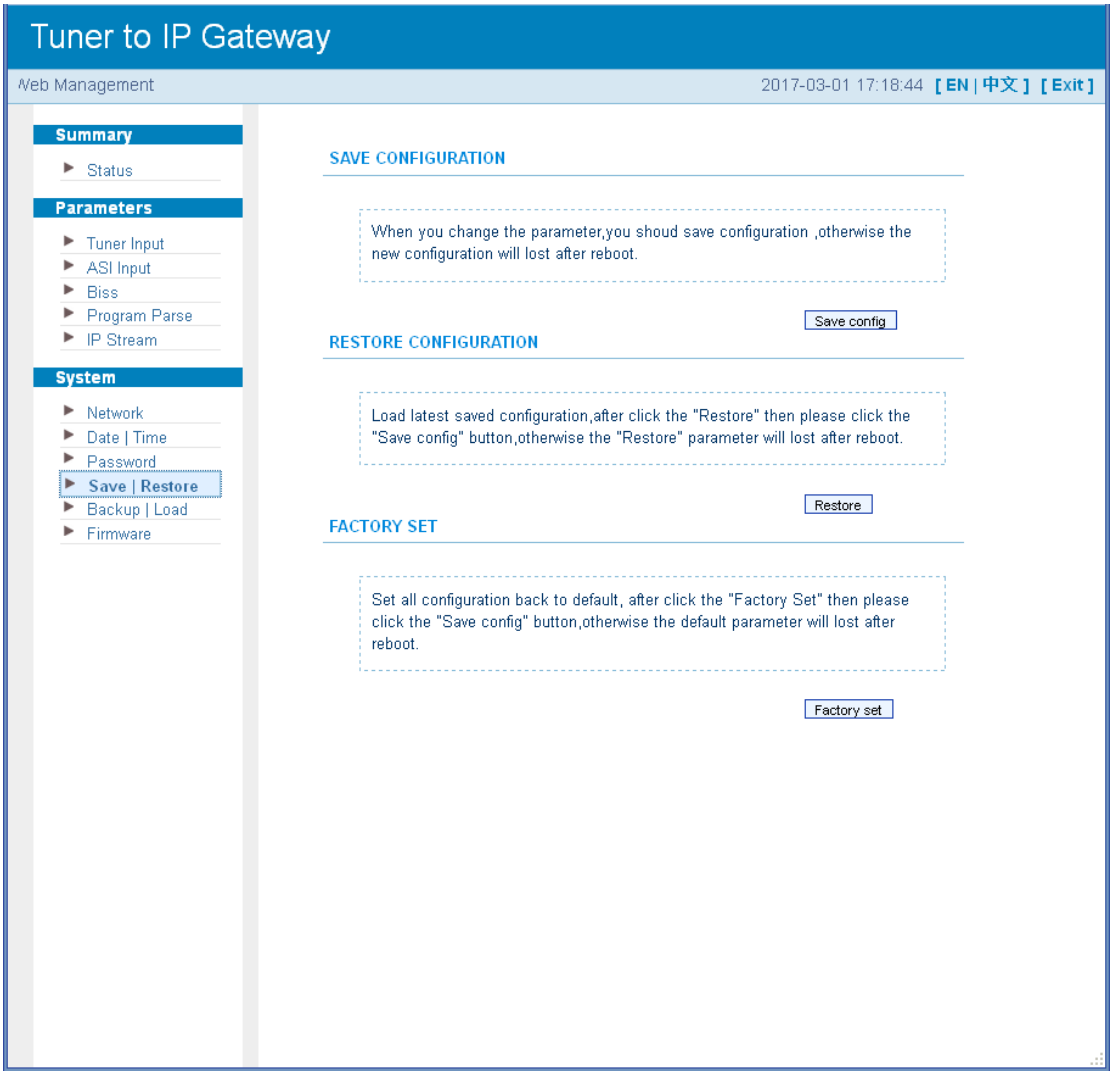


Figure - 18

System → Backup/Load:

From the menu on the left side of the webpage, clicking “Backup/Load” will display the screen as shown in Figure - 19 where users can backup or load their configurations.

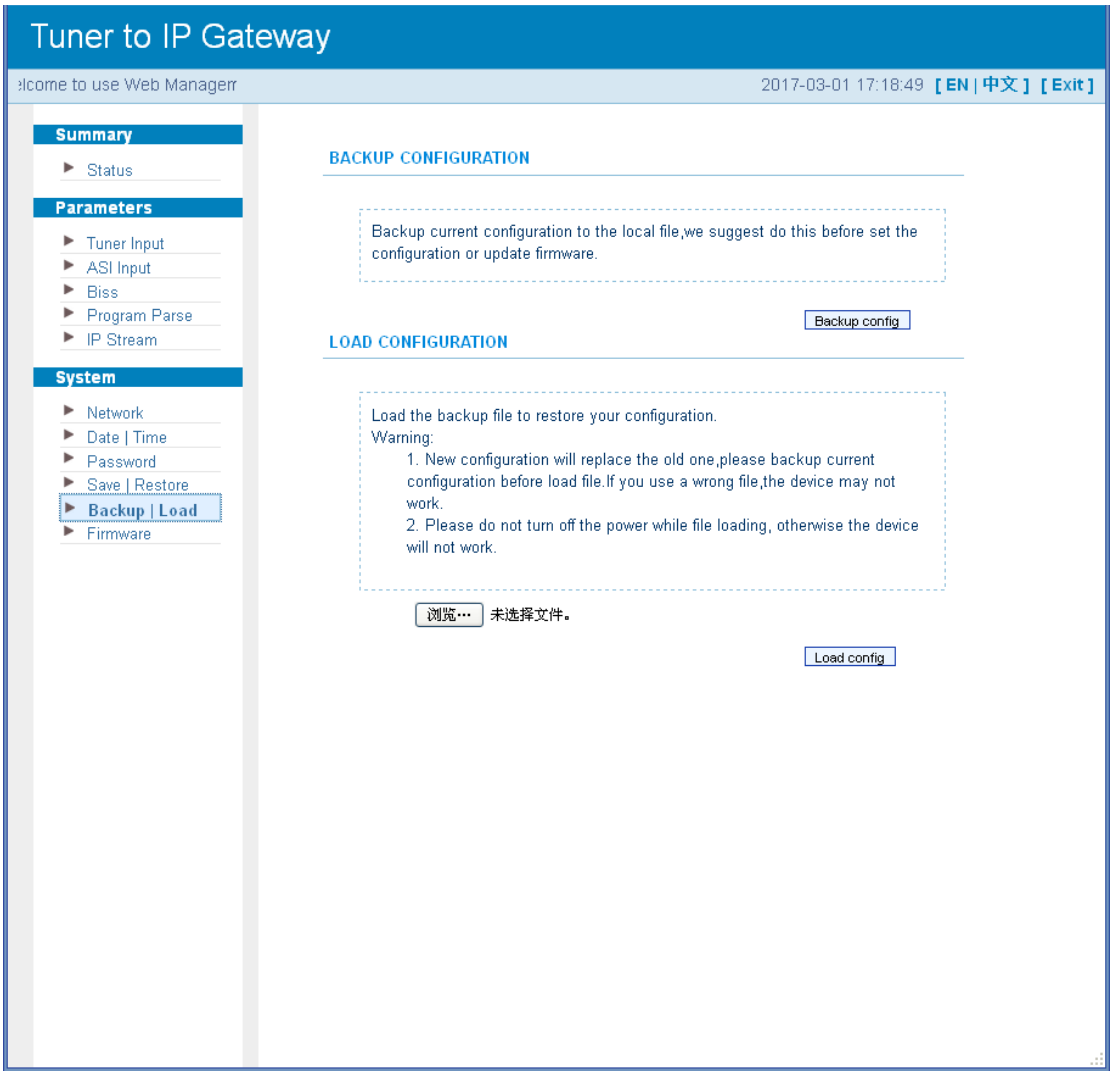


Figure - 19

System → Firmware:

From the menu on the left side of the webpage, click “Firmware” to display the screen as Figure - 20 where users can update firmware for the device.

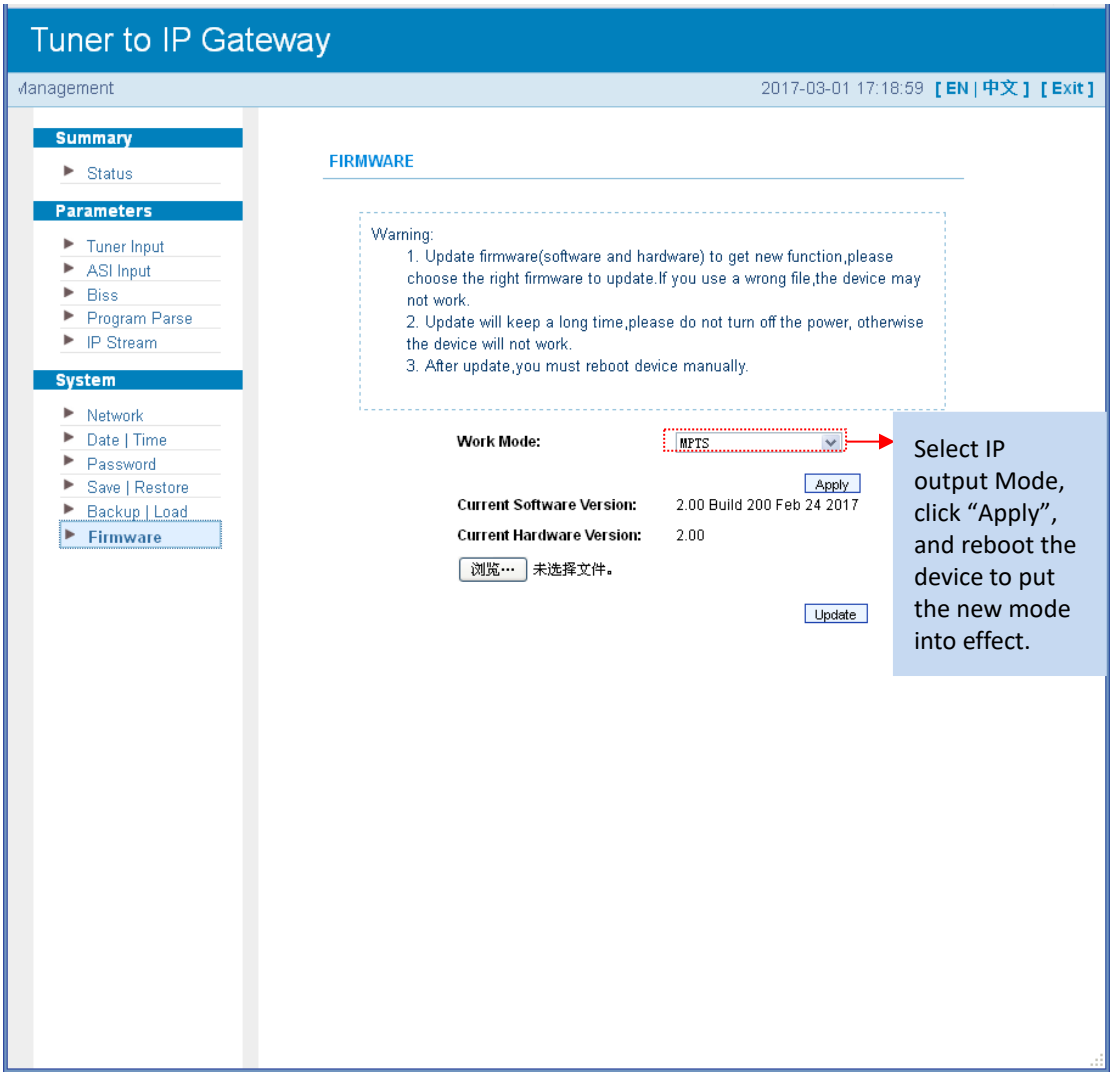


Figure - 20

4 Troubleshooting

Ascent's ISO9001 quality assurance system has been approved by the CQC organization. In order to guarantee the products' quality, reliability, and stability, all Ascent products have passed extensive testing and inspection before being shipped out of the factory. The testing and inspection scheme covers all optical, electronic, and mechanical criteria which have been published by Ascent Communication Technology. To prevent potential hazards, please strictly follow operation conditions.

Prevention measures

- Install the device in a place with environment temperatures between 0 to 45 °C
- Ensure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Check that the input AC voltage within the power supply working range and the connection is correct before switching on the device
- Check if the RF output level varies within a tolerable range if necessary
- Check to see if all signal cables have been properly connected
- Do not frequently switch on/off the device; the interval between every switching on/off should be greater than 10 seconds.

Conditions needed to unplug power cord

- Power cord or socket is damaged
- Any liquid has flowed into the device
- Any circumstance that might cause a circuit short
- Device is in a damp environment
- Device has suffered from physical damage
- Device will be idle for a long period of time
- After switching on and restoring to factory settings, device still cannot work properly
- Maintenance needed

5 Packing list

• IRD1516 tuner to IP gateway	1pcs
• User's manual	1pcs
• Grounding cable	1pcs
• RF in and loop out cable	16pcs
• Power cord	1pcs

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