Video Monitoring System Web Management Software

TSM Web



Mividi Media Systems, Inc.

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MIVIDI[™] Video Monitoring Web Management System

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Chapter 1 Introduction

Mividi provides several professional digital video monitoring systems for TV broadcasters and Internet TV (IPTV) providers to monitor their DTV signal quality and standard compliance. Mividi monitoring systems include IP Video Monitoring System TSM100, Integrated Multi-viewer Monitoring System IMS120, and HLS Analyzer (LSA100). In this User Guide, they will be called "TSM Systems" or "TSM Unit" in general.

The TSM Web Management software (named TSM Web) is a web server for users to remotely control their TSM units and view test results. It can be installed on the same TSM unit or a different computer. Specifically, the TSM units may not be directly accessible from the Internet, the TSM Web can be used as a gateway for users to view test results on TSM units.

1.1 Note on Product Variation

The TSM Web is used as a web interface to several Mividi monitoring products. Depending on the products that the TSM Web has connected to, certain features described in this document may or may not be available.

Chapter 2 Account Management

The TSM Web creates a default administrator account when the software is initially installed. The username and password of the default administrator account are "admin/admin".

2.1 User Management

The account administrator can use the User Management page to add, edit and delete additional user accounts. The User Management page can be accessed by clicking on the "Setting" button, as shown in the following figure:

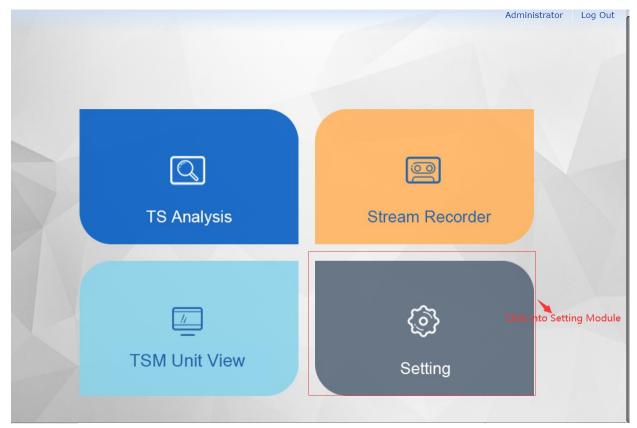


Figure 2-1 Open the Setting Module

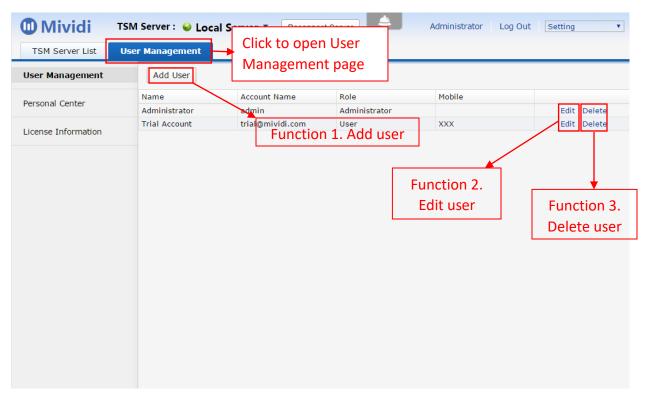


Figure 2-2 User Management Page

2.1.1 Add a User

Click "Add User" button in the User Management page to open "Add User" page. Fill in user information, then click "OK" button to save. A new user is added.

The TSM Web supports two user roles: Administrator and User. An Administrator can use all functions available on the product. A User can only view test results provided by the software, but is not allowed to change any settings to the system.

Mividi	TSM Unit : DELL Reconnect Unit Disconnect Unit	
	Administrator Log Out Setting	~
TSM Unit List	Jser Management	
User Management	Add User	
Personal Center	Essential Information	
License Information	Name *:	
	Role: User Mobile:	
	Note:	
	Login Information Account Name is required, used to for account log	jin
	Account Name *: *	
	Password *: Passwo	
	Reenter Password *:	
	Save Cancel	
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Figure 2-3 Add User Page

2.1.2 Edit User

Click "Edit" button in a user row to open the "Edit User" page. The content on this page is the same as "Add User" page. An administrator can modify general information and login password of other users.

2.1.3 Delete User

Click "Delete" button in a user row to delete this user.

2.2 Personal Center

After logging into the TSM Web, users can view and edit their personal information. Click "Setting" menu on the top menu bar to open system Setting page, then click "Personal Center" menu on the left menu list to open "Personal Center" page. You can also click the "User Name" link button on the top-right corner of the web site to open "Personal Center" page.

Users can view and modify their information and password in "Personal Center", as shown in the following figure:

Mividi тям	Server : 🥪 Local Ser	rver 🔻 Reconnect Server	Administrator Log Out	Setting 🔹
TSM Server List User	Management			1. Click to
User Management	Personal C	enter		open
Personal Center	Essential Information	DN	Click to open Personal	
License Information	Name *:	Administrator	Center page directly	
		Administrator		
2. Click to open Personal Center	Mobile: Note:			
		Save		
	Login Information			
	Account Name *:	admin		
	Password *:		Input password fo length and comple Numbers and Und	ex with Letters,
	Reenter Password *:			
		[]		

Figure 2-4 Personal Info Management Page

Chapter 3 TSM Monitoring Unit Setup

The TSM Web is a website program that manages one or more TSM monitoring units. Users can obtain TSM test results using the TSM Web and a standard Internet browser.

The TSM Web can manage multiple TSM units running in the same LAN. When the TSM Web is initially installed, the TSM Web contains a default configuration to a local TSM monitoring unit. In case that the TSM Server (such as TSM100) is not installed on the same computer with the TSM Web, you may delete the local server as described below.

3.1 TSM Monitoring Unit Display

As shown in the following Figure 3-1, the TSM Web displays all available TSM monitoring units on the top of the main page. The one that is currently selected for data analysis is highlighted. To see the test results on another server, first select the server here.

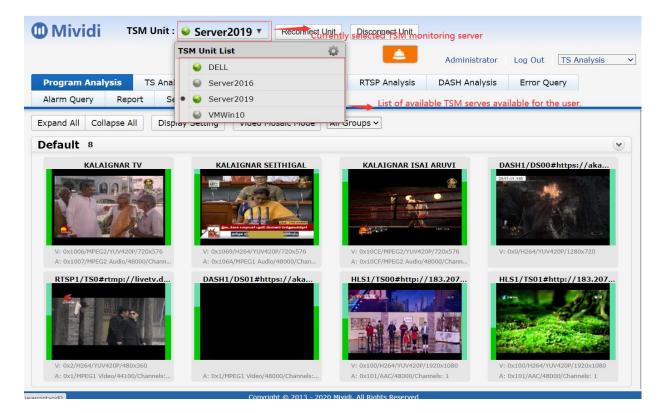


Figure 3-1 TSM Monitoring Unit List

3.2 TSM Monitoring Unit Management

In addition to the default local server pre-configured with the software, users can add more units to connect, or delete unwanted units.

As displayed in the following figure, select the "Setting" module on the top right corner, and then click "TSM Unit List" link button on the left side of the page.

	cainost:50140/Setting/ServerList.aspx?sid	=UZm45kW8nAnk4V4A5Lwmw\$	\$&UserName=admin			☆ 0
Mividi	TSM Unit : So Local ▼ C	Connect Unit			Administrator L	og Out Setting
dex TSM unit nar		Port	Note	Create Date	Connection Status	Add
Local	127.0.0.1	8280		8/11/2020 3:11:37 PM	×	Edit
PushTest1	140.97.13.12	2 8280		9/30/2020 8:00:42 PM	×	Delete
HP Computer	216.181.175.	93 8280		10/26/2020 7:43:15 PM	×	Delete
						Move down
						Connect TS Analysis Setting
						Recorder Setting

Figure 3-2 TSM Monitoring Unit Management

To add a TSM monitoring unit, click "Add" button to open the "Add TSM Unit" dialog. On the dialog, enter the unit's name and IP. The name can be given arbitrarily, as long as it is unique among the server list. The port should be a predefined value of 8280, on which the monitoring unit is listening. In addition, you can optionally add location and note to identify the server easily. Click "Save" when it's done.

Add TSM Unit	×
TSM unit name*:	Add a TSM Unit Located in the Same LAN 🗸
IP*: Port*: Location:	8280
Note:	
	OK Cancel

3-3 Add a TSM Unit

You can use the same web interface to edit unit information later on.

3.3 Add TSM Probes Located in Different Networks

The TSM Web can manager TSM monitoring devices on the same or different LAN. The communication mechanisms between the TSM Web and monitoring devices differ depending on whether the monitoring devices are in the same LAN or in different LAN. Normally, we call the TSM monitoring devices located in the same LAN as the TSM Web Server as TSM Servers and the devices located in different LAN as TSM Probes.

To enable the TSM Web management for TSM Probes, find the configuration file web.config in the TSM Web software installation folder C:\inetpub\wwwroot\TSMWeb. Open the file using a text editor such as the Notepad and set the "pushServerEnabled" parameter to True.



Figure 3-4 Enable TSM Probe in Web Config

Click the "Add" button on the TSM Unit List page to enter the "Add TSM Unit" dialog, as shown in the figure below. Select the probe type "Add a TSM Unit Located outside of the LAN", and enter the probe name and the location. Click the "OK" button to save data.

Add TSM Unit			×
TSM unit name*: Location: Note:			
	OK	Can	icel

Figure 3.5 Add a TSM Probe Located on a Different Network

After completing the TSM probe addition, select the probe just added on the TSM Unit List, and then click the "Download Configuration File" button on the right side. At this time, a "CentralManagerConfig.xml" file will be downloaded on your local computer. Move this file to the folder C:\Users\Public\AppData\TSM100 on the TSM probe. After restarting the "Mividi TSM Server" service on the probe, the TSM Web program will start to receive data pushed up by the TSM probe.

Chapter 4 Transport Streaming Monitoring

The Mividi TSM units provide comprehensive MPEG TS analysis functions. The TS analysis results can be viewed using the TSM Web program.

4.1 Transport Streams Overview

Click "TS Analysis" menu on the top menu bar to open TS overview page, which provides a summary of monitoring status of all streams as shown in the following figure:

						Administr	ator Log C	ut TS Ana	lysis 🗸
Program Analysis TS An	alysis IP Anal	ysis HTT	P Analysis	RTSP	Analysis	DASH Analy	sis Error	Query	
Alarm Query Report	Setting								
Expand All Collapse All	Display Setting	Total Bitrate: 4	837.423 M	b/s					
Streaming ID	Flow Name	Mb/s	Program	Quality	Sync Error	CC Error	PAT Error	PMT Error	PID Missin
🔻 🥪 AST Input: ASI:8283 🛛 Inp	ut Bitrate: 0.000 Mb	/s							
🔻 🥪 Input: DASH:8282 🛛 Input	Bitrate: 0.000 Mb/s								
🔻 🥪 HTTP Input: HLS:8280 🛛 In	put Bitrate: 4.628 M	lb/s							
🔞 TS00#http://183.207.255.1	HLSLive	4.628	1	68.1%	0	15	0	9	0
🔻 🤪 Input: RTSP:8281 🛛 Input I	Bitrate: 1.884 Mb/s								
TS0#rtmp://58.200.131.2:1	RTMPLive	1.884	1	N/A				6.1 × 1	
🔻 🥪 IP Input: IP:8284 🛛 Input E	Bitrate: 830.911 Mb/	/s		-	Click to o	pen detaile	d analysis pa	ge of this str	aam
229.1.1.3:6010		20.028	1	99.8%	0	71	87	87	0
229.1.1.3:6023		21.443	1	99.6%	0	80	72	72	0
229.1.1.3:6014		24.703	1	98.4%	0	75	333	333	0
229.1.1.3:6003		19.992	1	99.8%	0	77	191	192	0
229.1.1.3:6020		20.312	1	99.7%	0	72	108	108	0
225.2.2.3:3000		6.231	1	100.0%	0	100	9	9	0
229.1.1.3:6019		20.003	1	99.8%	0	75	90	90	0
229.1.1.3:6018		19.991	1	99.7%	0	75	63	63	0
229.1.1.3:6013		20.793	1	99.7%	0	74	98	98	0

Figure 4-1 TSM Web Overview Page

The TSM Web overview page displays the following stream parameters:

- Streaming ID: Namely the playlist URL;
- Stream Name: A user-friendly name given by users, such as the brand of the channel service;
- **Programs:** Program number in this Transport Stream;
- **Quality:** The TS quality score of the transport stream calculated by summarizing all error codes using a proprietary algorithm. Normally, a value above 90% indicates a good service.

The columns after Quality are optionally displayed. Each column shows the error count of a specific

error type. To select parameters to be displayed on the overview page, click "Display Setting" button to open "Display Options" panel, as shown below:

Display Options	×
Select items to display on the summary	page:
Sync Error	CC Error
PAT Error	PMT Error
PID Missing	Packet Error
CRC Error	Tbl Dec Err
PCR Error	PTS Error
CATError	
	OK Cancel

Figure 4-2 TS Overview Display Options Panel

Check the error types you wish to display and click "OK" to save the setting. The overview page will be updated and selected parameters are displayed.

4.2 Transport Stream Analysis Details

Click a transport stream in the TS Analysis overview page, and a new web page is opened to show the detailed information of this stream:

Program Analysis TS An	nalysis IP Ar	nalysis Error Query	Alarm Query	Report Setting							
Back Expand Collapse U	JDP1: 225.3.3.3	3:9013	1	S Analys	is menus	sbar 🗖					
V 😜 IP Input: UDP2	rogram Count: 5	Ts Quality Score: 100.0%	Bitrate: 24.884 M	/s				Ts Status	Tables Loudness	Plot Errors History	Alarm Histo
225.3.3.3:9013											
V 🖌 IP Input: UDP1	Program List	t.									
	Program number	Program name			Video	Audio		Data PIDs			Play
225.3.3.3:9005	518	Gulli			0x26C(AVC)	0×278; 0×277;	0×276;	0×281; 0×280; 0×29	F; 0×29E;		Play
225.3.3.3:9007	516	CNEWS			0×1A4(AVC)	0×1AE;		0×1B8; 0×1D6;			Play
225.3.3.3:9013	515	BFM TV			0×140(AVC)	0×14A;		0×154; 0×15E;			Play
225.3.3.3:9019	513	CB			0×78(AVC)	0x84; 0x83; 0;	(82;	0x96; 0x8D; 0x8C; 0	IXAA;		Play
225.3.3.3:9012	517	CSTAR			0×208(AVC)	0x213; 0x212;		0x21D; 0x21C; 0x23			Play
225.3.3.3:9018		Id HEVC video encoding is	tot supported.		0/11/00(01/00)						
225.3.3.3:9009							•				
225.3.3.3:9006	Error Summa	IFV			PIDs			\mathbf{N}			
225.3.3.3:9010	Name	TS Analysis	Details r	nanel	PID	Program		Mb/	Max/Min	Bounds	Stat
			Details		0×0		PAT	0.015	0.015/0.001		•
	SYNC_B' CONTINUITY			2	0×1				000		
	PAT_ERRO	CONT_ERROR	16849	03/15 11:37:22 03/14 15:06:11	0×10 0×11		l Pro	ogram List	.000		
	PMT_CRROR		1	03/14 15:06:11	0×12		EIT	0.063	0.067/0.011		
/	PID_MISSING		0	03/13 15:46:12	0×12		RST	0.000	0.000/0.000		
	-	PACKET ERROR	0	03/13 15:46:12	0x14		TDT/TOT	0.000	0.000/0.000		
t all streams. Click	CRC_ERROR		10	03/15 10:52:05	0×15		Unknown	0.002	0.002/0.000		
stream node to	TABLE_DECO	DING_ERROR	0	03/13 15:46:12	0×6E		PMT	0.014	0.015/0.001		
	PCR_ERROR		2175	03/15 11:37:24	0×78	513	AVC	7.223	10.533/0.819		•
			0	03/13 15:46:12	0×82	513	E AC3 Audio	0.133	0.133/0.011		•
	PTS_ERROR							0.100			
nange the stream	CAT_ERROR		0	03/13 15:46:12	0×83	513	E AC3 Audio	0.133	0.133/0.011		•
	_		0	03/13 15:46:12 03/13 15:46:12	0×83 0×84		E AC3 AUdio E AC3 Audio		0.133/0.011		

Figure 4-3 TS Analysis Details Page

4.2.1 Play a Video Program

Click the "Status" tab under "TS Analysis" main tab and a list of programs of the selected transport stream are displayed on the top. A "Play" button is shown for each program. Click the "Play" button will play this program. The remote TSM server will generate an HLS stream and the stream is played by an HLS player on a web browser.

Note: The HLS player for web browsers has a number of limitations. It can only play certain H.264 streams and other type of video streams are not supported. If the HLS play can play a stream, you may copy the URL it displays to a VLC player and play the stream on VLC. The VLC player supports more audio and video codecs.

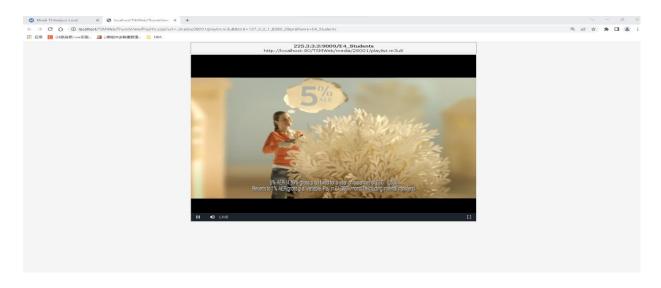


Figure 4-4 Remote Play of a Video Program

4.2.2 TR 101 290 Error Summary and PID Analysis

Click "TS Status" menu on the top-right menu bar to show the Transport Stream status view. The status view displays TR 101 290 error summary and PIDS analysis results.

The Error Summary panel shows a summary of errors detected according to the DVB Test Guideline ETSI TR 101 290. It displays the number of errors encountered in each error category as well as the time the last error occurred in this category.

Error Summary							
Name	Count	Time					
CARRIER	0	1:30 PM					
SYNC_BYTE_ERROR	0	1:30 PM					
▲ CONTINUITY_COUNT_ERR	30	1:35 PM					
ttp.apple.com.edgesuite.net/1010gwoeiur	vfg/	1:30 PM					
		1:30 PM					
O PID_MISSING	0	1:30 PM					
C TRANSPORT_PACKET_ER	0	1:30 PM					
CRC_ERROR	0	1:30 PM					
O TABLE_DECODING_ERROR	0	1:30 PM					
O PCR_ERROR	0	1:30 PM					
O PTS_ERROR	0	1:30 PM					
CAT_ERROR	0	1:30 PM					
O NIT_ERROR	0	1:30 PM					
SDT_ERROR	0	1:30 PM					
C EIT_ERROR	0	1:30 PM					

Figure 4-5 Error Summary Panel

An MPEG TS is composed of a sequence of TS packets. A TS packet is the basic unit of data and is always started with a sync byte, whose value is 0x47, followed by three one-bit flags and a 13-bit Packet Identifier (PID). This is followed by a 4-bit continuity counter. Additional optional transport fields, as signaled in the adaptation field, may follow. The rest of the packet consists of payload. Packets are 188 bytes in length, but the communication medium may add some error correction bytes to the packet.

Metadata tables, audio, video and other types of data can be present in a transport stream. Each metadata table and elementary stream in TS is identified by a 13-bit packet ID (PID).

The TSM monitoring system monitors every unique PID in the TS, and decodes metadata tables to identify the content types carried with each PID. The system performs statistical analysis to measure the bitrate of each elementary stream, and the percentage of bandwidth used by each elementary stream. A user can setup expected high and low bounds for each elementary stream bitrate (See Profile Section below) and the monitoring systems will compare the actual bitrate to the expected bitrate. If the bounds are violated, an error will be logged in the database, and an alarm may be sent to technicians if it is configured. This feature can be used to detect missing elementary streams.

The PIDs table displays PID, program number that this PID belongs to, the current bitrate, and the minimum and maximum bitrate over the monitoring period.

PAT PMT AVC AAC Null	0.00 0.00 0.47 0.04 0.00	0.00/0.00 0.00/0.00 0.55/0.39 0.06/0.03 0.00/0.00	0 0 0 0
AVC AAC	0.47 0.04	0.55/0.39	0
AAC	0.04	0.06/0.03	0
Null	0.00	0.00/0.00	0

Figure 4-6 Stream PID List

4.2.3 Table Analysis

The MPEG metadata, called the Program Specific Information (PSI), is used to describe the content of the transport stream. There are four PSI tables: Program Association Table (PAT), Program Map Table (PMT), Conditional Access Table (CAT), and Network Information Table (NIT). The MPEG-2 specification does not specify the format of the CAT and NIT.

The Transport Stream s normally just contains two tables: PAT and PMT. The PAT is the first table to decode. It lists all programs available in the transport stream. Each of the listed programs is identified by a 16-bit value called program_number, and each program has an associated value of PID for its Program Map Table (PMT). The HLS stream should only contain one program, as required in its specification.

The value 0x0000 of program_number is reserved to specify the PID where to look for Network Information Table (NIT). If such a program is not present in the PAT, the default PID value (0x0010) shall be used for NIT.

TS Packets containing PAT information always have PID 0x0000.

Program Map Tables (PMTs) contain information about programs. There is one PMT for each program. The PMT provides information on each program present in the transport stream, including the program_number, and lists the elementary streams that comprise the described MPEG-2 program. There are also locations for optional descriptors that describe the entire MPEG-2 program, as well as optional descriptors for each elementary stream. Each elementary stream is labeled with a stream_type value.

In addition to the MPEG PSI, data is needed to provide identification of services and events for users. DVB and ATSC standard each define a set of metadata tables, namely DVB Service Information (SI) and ATSC "Program and System Information Protocol" (PSIP) tables.

The TSM systems will monitor and decode all PSI, DVB SI and ATSC PSIP tables. The table intervals

between two consecutive tables are measured. A number of tests are performed on these tables. MPEG-2 standard ISO/IEC 13818-1 requires that PSI tables should repeat in an interval less than certain threshold. For example, the threshold for PAT is defined as 100 ms and that for PMT is 400 ms. The DVB test guide line TR 101 290 has additional requirements on table intervals.

All tables found in the TS are shown in the Table page. It displays information including table name, table ID, PID, interval time and its min and max value, as well as the interval thresholds according to the test standards or user settings. Click on one of the tables, the table is decoded and its content is displayed on the right side of the window, along with the original binary data.

The default table interval threshold is determined based on MPEG, DVB and ATSC standards. However, users can modify these standard values in the TS Setting page according to the users' test needs. Any violation of the threshold will result in error conditions, which will be recorded in the database and alarm messages will be sent to the user if it is configured as such.

Click "Table" menu on the TS Analysis menu bar to display Table view of transport stream, as shown in the following figure:

	S Analysis I	IP Analysis Erro		ery Report	Setting			
ack Expand Collapse	UDP1: 225.3	.3.3:9009						To Status Taklas Laudeass Nati Essars History Alarm History
IP Input: UDP2	Program Count:	 To Quality See 	re: 99.8% - Bitrate: 2.5	103 Mb/s				Te Statue Tables Loudness Flot Errors History Alarm Histo
225.3.3.3:9013	Table List							Table details
😜 IP Input: UDP1	Name	PID	ID	Interval (ms)	Max/Min	Limit	Status	PAT (TSID: 1)
225.3.3.3:9004	FAT	0×0	TSID: 1	390	636/341	500	•	B-PAT
225.3.3.3:9005	PMT	0×20	PN: 1	392	1024/330	500	•	TableID: 0
225.3.3.3:9007	NIT	0×10	Network ID: 655	9696	24180/9643		•	-ExtendedID: 1
225.3.3.3:9013	DT	0×11	Original Network		3947/1802		•	-Pid: 0 -VersionNumber: 2
225.3.3.3:9019	TDT	0×14		25508	41503/25481		•	-CurrentNext: 1
225.3.3.3:9012	EIT	0×12	Service ID: 1	1825	1867/0		•	-SectionCount: 1
225.3.3.3:9018	SCTE35	0×135	SpliceNull	2035	4481/2007		•	-TSID: 1
225.3.3.3:9009	SCTE35	0×135	SpliceInsert	246998	247010/126589		•	ia-ProgramMaps ia-ProgramMap
225.3.3.3:9006		01100	opilounione	210330	2.0010/120000		· · ·	-ProgramNumber: 1
225.3.3.3:9010								-PMT_PID: 32
	'		of a streau ist to view			the		
								Decoded table content

Figure 4-7 Transport Stream Tables Page

4.2.4 Audio Loudness Display

If you have the "Loudness Monitoring and Logging" license on the TSM server, a tab named "Loudness Plot" will be displayed under the "TS Analysis" main tab. Click the "Loudness Plot" tab, it will show a loudness and multiple true peak charts. If a stream is an MPTS, the loudness charts are displayed per program. You may select a program using the Program dropdown list.

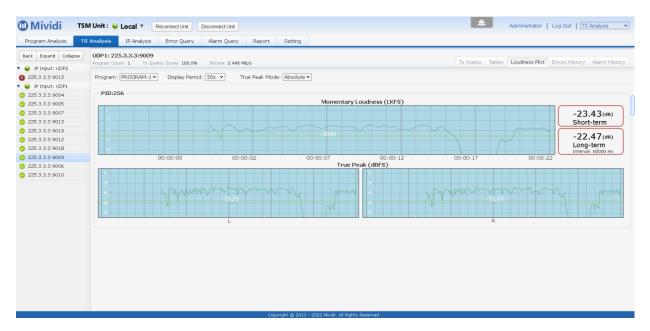


Figure 4.8 Loudness Plot

4.2.5 Error History Analysis

Click "Errors History" menu on the TS Analysis menu bar to open the "TS Error History" panel, as shown in the following figure.

The TSM Web provides a user-friendly interface to view recorded errors. The errors in the past 24 hours are grouped into 12 groups. Each group contains the errors in a period of 2 hours. Click on one of the groups, the service will expand the node and display the errors of this group by dividing the group into 12 sub-groups, each of which contains errors of a period of 10 minutes. A rectangle block represents an error group, and it shows the number of errors in this group. The color of the rectangular block is dependent on the highest error priority in the group. After clicking on the 10 minutes error sub-group, the table below will list all errors in the sub-group with detailed information.

Mividi	TS№	1 Server :	⊌ Local	Server	Reconn	ect Server		٢	Adm	ninistrator	Log Out	TS Analys	sis 🔻
Program Analysis	т	6 Analysis	IP An	alysis	HTTP Analy	sis RT	SP Analysis	Erro	r Query	Alarm Qu	uery Re	port S	etting
Back Expand Co	llapse	view pre	evious	day	ent-Ih Cli	ck to ch	nange da	ate	143/i Ts Statu:	s Ta V	iew nex	t day	lis tory
Errors count of 2 hours for each block, click to expand	kst kstv kstv hkst hkst	Í.	•	18:00 2 • 428	000		9/30/2016 2016 2:00 0	4:00	6:00 • 0	•	•	::00 14:0 • • • •78 26	
next level errors count blocks	5 168.1 inten 168.1 onten	10:00 • 101	10:10 • 112	10:20 • 57	10:30 • 81	10:40 • 69	10:50 • 84	11:00 • 72	11:10 • 68	11:20 • 126	11:30 • 38	11:40 • • •	11:50 • 125
Errors count of 10 minutes for each block,	168.1 168.1 168.1 168.1	09/30/201	6 11:10:01 6 11:10:01 6 11:10:02	4101	Description HTTP_DOWN HTTP_DOWN HTTP_DOWN	LOAD_TIME	ERROR		Additional	Message			Count 1 1 2
click to expand errors list of this block	168.1 168.1 168.1	09/30/201 09/30/201 09/30/201	6 11:10:02 6 11:10:03 6 11:10:04 6 11:12:04	4101 4101 4101	HTTP_DOWN HTTP_DOWN HTTP_DOWN HTTP_DOWN	LOAD_TIME LOAD_TIME LOAD_TIME	_ERROR _ERROR _ERROR		Errors li	st of 10) minute	S	2 3 1
 TS11#http://192. 	168.1 168.1 168.1	09/30/201	6 11:12:06 6 11:12:06 6 11:12:13	4101	HTTP_DOWN HTTP_DOWN HTTP_DOWN	LOAD_TIME	ERROR						1 2 1

Figure 4-9 Transport Stream Error History Page

4.2.6 TS Alarms History

The "TS Alarm History" page displays all alarms sent to the users. Click "Alarm History" menu on the TS Analysis menu bar to open the page, as shown below.

Similar to the Error History page, the alarms in the past 24 hours are grouped into 12 groups. Each group contains the alarms in a period of 2 hours. Click on one of the groups, the service will expand the node and display the alarms of this group by dividing the group into 12 sub-groups. A rectangle block shows the number of errors in this group. The color of the rectangular block is dependent on the highest error priority in the group. After clicking on one of the sub-groups, the table below shows detailed information of all alarms in this sub-group.

Program Analysis TS	Analysis IP An	alysis H	TTP Analysi	RTSP Analysis	s Err	or Query	Alarm Q	uery Report	Setting
Back Expand Collapse	View previous		t-Ih. Clic	k to change d	late	Ts Statu	s Viev	v next day	story
 Input: Input3 IP Input: Input2 				Date: 09/30/2016					
Error alarms count of 2 hours for each	16:00		0 22:00	09/30/2016 2:00	4:00	6:00	8:00	10:00 12:00 1 2	0
block, click to expand errors	Time	Method	Receivers	Mess	sage	말뜻 이번 말뜻 이번			
list of this	09/30/2016 12:12:16						ow threshold		
block	09/30/2016 12:30:20	Display		TS C	Quality Sco	ore 0.00 bel	ow threshold	80	
TS06#http://192.168.1									
TS10#http://192.168.1									
TS07#http://192.168.1									
TS09#http://192.168.1			I						
TS14#http://192.168.1				Error alarm	ns list o	of 2 hou	rs		
TS11#http://192.168.1									

Figure 4-10 TS Alarm History Page

4.3 Error Query

While the Error History page provides a convenient way to review past errors of a single stream, the Error Query page can be used to search errors in all transport streams. Click "Error Query" menu on the top menu bar to open the Error Query page, as shown in the following figure:

Program Analysis	TS Analysis	IP Analysis	6 HTT	P Analysis	RTSP	Analysis	Error	Query	Alarm Query	Report	Setting
Filter By Input:	Error T	ype:	Start Time	:		Enter Error	Codes:			Se	earch
Input2	▼ ● IP E	rror	09/29/2016	14:34:22							
Transport Stream Na	ime: OTS I	Frror	End Time:					and the d	//	Delete	Delete All
			09/30/2016	15:34:22		Select Error	Codes		rror codes separated by	Exp	ort
									Separated by		
Time	Code	Description		Additional Mes	ssage			Count	Input	Tran	sport
09/29/2016 14:34:40	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 6.0	0 on 225.1.1.	7:5000	18	Input2	225.	1.1.7:5000
09/29/2016 14:35:51	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 47.0	00 on 225.1.1	.7:5000	36	Input2	225.	1.1.7:5000
9/29/2016 14:37:02	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 4.0	0 on 225.1.1.	7:5000	49	Input2	225.	1.1.7:5000
9/29/2016 14:38:11	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 5.0	0 on 225.1.1.	7:5000	21	Input2	225.	1.1.7:5000
9/29/2016 14:39:12	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 16.0	00 on 225.1.1	.7:5000	43	Input2	225.	1.1.7:5000
9/29/2016 14:39:27	4001	MEDIA_DELAY	FACTOR	Delay factor =	= 316 on	225.1.1.7:50	000	1	Input2	225.	1.1.7:5000
09/29/2016 14:40:12	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 9.0	0 on 225.1.1.	7:5000	40	Input2	225.	1.1.7:5000
09/29/2016 14:41:13	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 4.0	0 on 225.1.1.	7:5000	56	Input2	225.	1.1.7:5000
9/29/2016 14:42:14	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 2.0	0 on 225.1.1.	7:5000	33	Input2	225.	1.1.7:5000
9/29/2016 14:43:22	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 4.00	0 on 225.1.1.	7:5000	41	Input2	225.	1.1.7:5000
9/29/2016 14:43:30	4001	MEDIA_DELAY	FACTOR	Delay factor =	= 264 on	225.1.1.7:50	000	1	Input2	225.	1.1.7:5000
09/29/2016 14:44:23	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 13.0	00 on 225.1.1	.7:5000	40	Input2	225.	1.1.7:5000
09/29/2016 14:45:24	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 5.0	0 on 225.1.1.	7:5000	21	Input2	225.	1.1.7:5000
9/29/2016 14:46:08	4001	MEDIA_DELAY	FACTOR	Delay factor =	= 271 on	225.1.1.7:50	000	3	Input2	225.	1.1.7:5000
09/29/2016 14:46:25	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 2.0	0 on 225.1.1.	7:5000	42	Input2	225.	1.1.7:5000
09/29/2016 14:47:13	4001	MEDIA_DELAY	FACTOR	Delay factor =	= 220 on	225.1.1.7:50	000	1	Input2	225.	1.1.7:5000
09/29/2016 14:47:25	4002	MEDIA_LOSS_	ERROR	Media loss rat	e = 4.00	0 on 225.1.1.	7:5000	37	Input2	225.	1.1.7:5000

Figure 4-11 Error Query Page

Fill in query conditions and click "Search" button, the TSM Web will find the errors that match the search criteria. The displayed errors can be exported to a PDF or Excel file. The parameters for setting the query criteria are described below:

> Filter by Input:

When you have multiple input, using this parameter to limit the errors belong to certain inputs.

> Transport Stream Name:

The Streaming ID of Transport Streams as described in TS Overview section (See 3.3). The field can be empty. In this case, errors are search in all Transport Streams.

Start Time and End Time:

Define the time period when the errors occurred.

Error Codes:

Filter errors by error code, multiple error codes can be entered and separated by ",". This field can be empty.

Description of operation buttons:

> Delete:

Delete the errors displayed from database.

> Delete All:

Delete all errors of selected Input from database.

Export:

Export the searched errors to PDF or Excel file.

4.4 Alarm Query

While the Alarm History page provides a convenient way to review past alarms of a single Transport Stream, the Alarm Query page can be used to query alarms in all transport streams. Click "Alarm Query" menu on the top menu bar to open the "Alarm Query" page, as shown in the following figure:

Program Analysis	TS Analysis	IP Analysis	HTTP Analysis	RTSP Analysis	Error Query	Alarm Query	Report Setting
Filter By Input:	Start Time	:	End Time:	Search for	:	Search	Delete
HLS	▼ 09/29/2016	14:36:38	09/30/2016 15:36:38			Export	Delete All
Time	Method	Receivers	Message			Input	Transport
09/29/2016 17:16:38	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS09#http://192
09/29/2016 17:16:41	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS12#http://192
09/29/2016 17:16:41	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS11#http://192
09/29/2016 17:16:41	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS08#http://192
09/29/2016 17:16:41	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS07#http://192
09/29/2016 17:16:41	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS14#http://192
09/29/2016 17:52:31	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS01#http://yipo
09/29/2016 17:52:30	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS02#http://yipo
09/29/2016 17:52:32	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS03#http://yipo
09/29/2016 18:05:29	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS01#http://yipo
09/29/2016 18:08:58	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS03#http://yipo
09/30/2016 09:55:25	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS05#http://192
09/30/2016 09:56:20	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS01#http://yipo
09/30/2016 09:56:25	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS02#http://yipo
09/30/2016 10:22:06	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS03#http://yip
09/30/2016 11:40:25	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS05#http://192
09/30/2016 11:43:47	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS01#http://yip
09/30/2016 11:52:06	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS09#http://192
09/30/2016 11:52:07	Display		TS Quality S	Score 0.00 below thre	shold 80	HLS	TS08#http://192

Figure 4-12 Alarm Query Page

Fill in query conditions and click "Search" button, find the errors that match the search criteria. The displayed errors can be exported to a PDF or Excel file. The parameters for setting the query criteria are described below:

> Filter by Input:

When you have multiple inputs, using this parameter to limit the errors belong to certain inputs.

Start Time and End Time:

Define the time period when the errors occurred.

Search for:

Enter a value for fuzzy query; The TSM Web will filter alarms that contain the query value and display all items that meet other search criteria.

Description of operation buttons:

> Delete:

Delete the alarms displayed from database.

> Delete All:

Delete all alarms of selected Input from database.

> Export:

Export the searched alarms to PDF or Excel file.

Chapter 5 IP Analysis

In addition to the TS layer analysis, TSM100 and IMS120 also perform various tests and analyses on the IP transport layer. The TSM systems will monitor all MPEG data over UDP or over RTP/UDP on an Ethernet input. All media flow properties, including IP, port, source IP, bitrate and protocol are displayed. In addition, TSM systems will monitor and calculate MDI values (Delay Factor and Medial Loss Rate), and analyze various RTP parameters if the TS is carried in an RTP flow. The test data is displayed in two pages: IP Analysis and RTP Analysis.

5.1 IP Analysis

The IP Analysis page will show all the IP flows being monitored by the TSM servers. Once a TSM server is connected to a network, it will start to sniff the network IP packets and analyze video streams. The "IP Analysis" page displays the basic information of the IP flow including IP, port, source IP, bitrate and the Media Delivery Index (MDI) measurement values. For more detailed information on the measurement, please refer to "Mividi TSM User Guides".

Mividi T	SM Serve	er : 🥹 Local Se	erver • Reconnect Ser	rver		Administ	rator Log O	ut TS Anal	ysis 🔻
Program Analysis	TS Analys	sis IP Analys	sis HTTP Analysis	RTSP Analysis	Error (Query A	larm Query	Report	Setting
Expand All Collapse Al	Tota	al Bitrate: 64.621	Mb/s				I	P Flows R	TP Analysis
IP	Port	Source IP	Flow Name	Protocol	Mb/s	Programs	Delay Factor	Media Loss	MDI Status
🔻 🥪 IP Input: Input2 🛛 In	put Bitrat	e: 64.621 Mb/s							
239.1.1.1	5004	192.168.1.3		MPEG	18.567	1	376.000	0.000	•
239.1.1.1	5003	192.168.1.3		MPEG	0.000	0			8
239.1.1.1	5000	192.168.1.3		MPEG	22.620	4	651.000	0.000	•
239.1.1.1	5002	192.168.1.3		MPEG	19.529	1	342.000	0.000	•
239.1.1.1	5001	192,168,1,3		MPEG	3.904	1	97.000	0.000	

Figure 5-1 IP Analysis

5.2 RTP Analysis

RTP, which stands for Real-time Transport Protocol (RTP), defines a standardized packet format for delivering audio and video over IP networks. RTP is used extensively in communication and entertainment systems that involve streaming media, such as telephone, video teleconference applications, television services and web-based push-to-talk features.

A number of measures are important to determine the quality of the video transport stream, as described in detail by ANSI/SCTE 168-6 2010: Recommended Practice for Monitoring Multimedia Distribution Quality. The TSM servers will perform the following test on the RTP streams, including finding the number of sequence errors, the packet loss rate, the maximum loss duration, and the minimum loss distance. An example of RTP test results are shown in the figure below. To see the RTP Analysis results, click on "RTP Analysis" menu to display the following page.

Program Analy	sis TS Analys	is IP Analys	sis HTTP Ana	lysis RTSP An	alysis Error	Query Alarm Que	ery Report	Setting
Expand All Co	llapse All						IP Flows	RTP Analysis
Flow ID	Seq. Error Count	Loss Rate(E-6)	Loss Duration	Loss Distance	Max Loss Duration	Min Loss Distance	MPEG	IP Status
🔻 🥪 IP Input: In	put2							
124.239.176.163	0	0	0	NA	0	NA	None	٠
124.239.176.163	0	0	0	NA	0	NA	None	•
124.239.176.163	0	0	0	NA	0	NA	None	•
192.168.1.1:53	0	0	0	NA	0	NA	None	•
192.168.1.3:500	0	0	0	NA	0	NA	None	•
192.168.1.3:500	0	0	0	NA	0	NA	None	•
192.168.1.3:517	0	0	0	NA	0	NA	None	•
192.168.1.3:523	0	0	0	NA	0	NA	None	•
192.168.1.3:526	0	0	0	NA	0	NA	None	•
192.168.1.3:536	0	0	0	NA	0	NA	None	•
192.168.1.3:545	0	0	0	NA	0	NA	None	•
192.168.1.3:549	0	0	0	NA	0	NA	None	•
192.168.1.3:550	0	0	0	NA	0	NA	None	•
192.168.1.3:565	0	0	0	NA	0	NA	None	•
192.168.1.3:576	0	0	0	NA	0	NA	None	•
192.168.1.3:587	0	0	0	NA	0	NA	None	•
192.168.1.3:595	0	0	0	NA	0	NA	None	•
192.168.1.3:607	0	0	0	NA	0	NA	None	•

Figure 5-2 RTP Analysis

Chapter 6 HTTP Analysis

In addition to the TS layer analysis, the TSM monitoring systems also perform various tests and analyses on the HTTP sessions. The TSM systems can simultaneously start multiple HTTP sessions to download TS data from one or more video servers. (Please refer to Section 11.1.1 concerning how to start an HLS streaming session). The system will monitor all HLS sessions initiated by the service and perform extensive analysis on HTTP transfer status, HLS playlist file format, MPEG TS standard compliance, and audio and video qualities in all video services.

6.1 HTTP Stream Overview

Click "HTTP Analysis" menu on the top menu bar to open HTTP stream overview page. Similar to the TS Overview page, the available HLS Inputs and HLS streams in each input are all displayed in this page, along with several real-time properties of the streams, including:

- Playlist: The Playlist URL of an HLS stream;
- Media File: The latest TS segment file of an HLS stream;
- Stream Name: A user-friendly name for the stream (Please refer to Section 3.1.2);
- Download Time: The time that the HACS downloads this TS segment file;
- Media Time: Duration of the TS segment in playing time;
- **Sequence:** The sequence number of the TS segment file.

• **Bitrate:** Bitrate of an HLS stream, as calculated based on the encoded PCR value in an HLS stream.

Program Analysis TS Ana	lysis IP Analysis	HTTP Analysis	RTSP A	nalysis Er	ror Query	Alarm Query	Report	Setting
Expand All Collapse All To	otal Bitrate: 38.304 Mb/s	S			HTTP	Stream Overview	HTTP Strea	m History
Play List	Media File	Flow Name	Download Time(s)	Media Time (s)	Sequence	Media Bitrate(Kb/s)	Download Bitrate(Kb/s)	Transfe Status
🔻 🥪 HTTP Input: HLS 🛛 Input Bit	rate: 38.304 Mb/s							
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.162	10.000	0	3426.182	4355.583	•
http://yipcontent-lh.akamaihd.n	segment147521702_7		0.766	10.000	147521616	3782.786	0.140	•
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.229	10.000	0	4355.583	4355.583	•
http://yipcontent-lh.akamaihd.n	segment147521707_2		8.010	10.000	147521624	228.907	228.907	•
http://yipcontent-lh.akamaihd.n	segment147521706_4		0.252	10.000	147521623	1150.116	0.140	•
http://192.168.1.113:99/channel	playlist-334018.ts		2.089	10.000	0	3336.019	3428.367	•
http://192.168.1.113:99/channel	playlist-334018.ts		1.631	10.000	0	3396.126	3428.367	•
http://192.168.1.113:1935/vod/	media_w311050472_2		0.187	4.628	0	0.000	981.221	•
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.245	10.000	0	3426.182	4355.583	•
http://192.168.1.10/hls/channel0	playlist-334021.ts		0.125	10.000	0	3336.019	3427.766	•
http://192.168.1.10/hls/channel0	playlist-334021.ts		0.227	10.000	0	3336.019	3427.766	•
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.166	10.000	0	3426.182	4355.583	•
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.159	10.000	0	3426.182	4355.583	•
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.204	10.000	0	3426.182	4355.583	•
http://192.168.1.10/hls/channel0	playlist-33409.ts		0.149	10.000	0	3426.182	4355.583	•

Figure 6-1 HTTP stream overview

6.2 HTTP Stream History

Click "HTTP Stream History" menu on the top-right menu bar in the HTTP Stream overview page to open the "HTTP Stream History" page. Users can view downloading statistics of TS segment files of each HLS stream in the Input.

🛈 Mividi	TSM Server :	Local Serve	er 🔻 Re	connect Server			-	Administ	rator Log Out	TS Analysis 🔻
Program Analysis	TS Analysis	IP Analysis	НТТР А	nalysis RTSP	Analysis	Error Quer	y Aları	m Query	Report S	Setting
								HTTP Stre	am Overview	HTTP Stream History
Filter By Input:	Play List	URL:	5	Start Time:		End Time:			Search	Delete
HLS	T			09/29/2016 15:42:55		09/30/2016 16:	42:55		Export -	Delete All
Time	Play List			Media File	Download Time(s)	Medi	a Time (s)	Sequence	File Size (KB)	Transport
09/29/2016 15:42:58	http://192.168.1.1	13:99/channel12/	playlist.m	playlist-33405.ts	9.809	10		0	4330	TS00#http://192.168
09/29/2016 15:43:08	http://192.168.1.1	13:99/channel12/	playlist.m	playlist-33406.ts	9.952	10		0	4261	TS00#http://192.168
09/29/2016 15:43:00	http://192.168.1.1	13:99/channel12/	playlist.m	playlist-33407.ts	1.383	10		0	3777	TS04#http://192.168
09/29/2016 15:43:10	http://192.168.1.1	13:99/channel12/	playlist.m	playlist-33408.ts	2.509	10		0	4285	TS04#http://192.168
09/29/2016 15:43:01	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334015.ts	1.036	10		0	4285	TS08#http://192.168.
09/29/2016 15:43:11	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334016.ts	1.300	10		0	4285	TS08#http://192.168
09/29/2016 15:43:20	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334017.ts	0.366	10		0	4285	TS08#http://192.168
09/29/2016 15:43:21	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	segment147513	103.336	10		147513	1895	TS02#http://yipconter
09/29/2016 15:43:21	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	segment147513	0.183	10		147513	0	TS02#http://yipconter
09/29/2016 15:43:22	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	. segment147513	0.183	10		147513	0	TS02#http://yipconten
09/29/2016 15:43:22	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	. segment147513	0.183	10		147513	0	TS02#http://yipconten
09/29/2016 15:43:23	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	. segment147513	0.183	10		147513	0	TS02#http://yipconten
09/29/2016 15:43:27	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	. segment147513	52.226	10		147513	1161	TS01#http://yipconten
09/29/2016 15:43:27	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	. segment147513	0.233	10		147513	0	TS01#http://yipconter
09/29/2016 15:43:28	http://yipcontent-l	lh.akamaihd.net/i,	/cincomas	. segment147513	0.233	10		147513	0	TS01#http://yipconter
09/29/2016 15:43:01	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334015.ts	1.112	10		0	4285	TS13#http://192.168
09/29/2016 15:43:12	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334016.ts	1.280	10		0	4285	TS13#http://192.168
09/29/2016 15:43:21	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334017.ts	0.375	10		0	4285	TS13#http://192.168
09/29/2016 15:43:31	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334018.ts	1.266	10		0	4285	TS13#http://192.168
09/29/2016 15:43:01	http://192.168.1.1	10/hls/channel02/p	olaylist.m3	playlist-334015.ts	0.766	10		0	4285	TS14#http://192.168
09/29/2016 15:43:12	http://192.168.1.1	0/hls/channel02/p	olaylist.m3	playlist-334016.ts	1.746	10		0	4285	TS14#http://192.168

Figure 6-2 HLS Stream Downloading History Page

By filling in search query, it can limit the display to the files that meet the search criteria. The search results can be exported to a PDF or Excel file. The query parameters are described below:

> Filter by Input:

When you have multiple inputs, using this parameter to limit the streams belong to certain inputs.

Start Time and End Time:

Define the time period when the segment files are downloaded.

> Playlist URL:

When this field is empty, the playlist URL is not tested and all the records that meet other conditions are displayed.

Description of operational buttons:

> Delete:

Delete the TS segment files displayed in the page from database.

> Delete All:

Delete all TS segment files of a selected HLS Input from database.

Export:

Export the searched TS segment files to a PDF or Excel file.

Chapter 7 RTSP/RTMP Analysis

In addition to the TS layer analysis, TSM Web system also supports streaming media analysis using RTSP, RTMP, MMS protocols. It monitors streaming errors and checks the streams based on user-defined stream profiles.

7.1 RTSP/RTMP Analysis

Click "RTSP/RTMP Analysis" menu on the top menu bar to open RTSP/RTMP stream overview page. Similar to the TS overview page, the available RTSP, RTMP streams are all displayed in this page, along with real-time bitrate of the streams, and stream name, as shown in figure7-1:

Program Analysis TS Analysis IP Analysis	HTTP Analysis	RTSP Anal	ysis Error	Query	Alarm Query	Report	Setting	
Expand All Collapse All Total Bitrate: 5.220 Mb/	/S							Messag
ay List		Mb/s	Flow Name					
' 🥪 Input: Input3 Input Bitrate: 5.220 Mb/s								
rso#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.419						
FS11#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.517						
FS4#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.537						
rS5#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.515						
rS9#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.508						
[S1#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.527						
FS7#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.511						
rS2#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.532						
FS6#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.503						
rs8#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.532						
FS3#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.527						
rS10#rtmp://live.hkstv.hk.lxdns.com/live/hks		0.524						



RTSP uses text messages to exchange information between the RTSP streaming server and client. The server sends the client stream properties, and the client send a number of control commands to the server. The TSM Web monitors the real-time message exchange between the server and the client, therefore helps users to trouble-shoot potential problem in streaming service. Click on a stream to enter the RTSP message page, all messages are displayed in the Message page. As shown in Figure 7-2.

Program Analysis TS	Analysis IP Analysis	HTTP Analysis	RTSP Analysis	Error Query	Alarm Query	Report	Setting			
Back Expand Collapse	Input3: TS12#rtsp://19	2.168.1.113:193	ō/vod/mp4:sample.	mp4					Me	ssage
 T57#tmp://live.hkstv T510#tmp://live.hkstv T512#ttp://live.hkstv T512#ttp://live.hkstv T52#tmp://live.hkstv T59#tmp://live.hkstv T51#tmp://live.hkstv T51#tmp://live.hkstv T51#tmp://live.hkstv T50#tmp://live.hkstv T50#tmp://live.hkstv T50#tmp://live.hkstv T50#tmp://live.hkstv T50#tmp://live.hkstv T50#tmp://live.hkstv T50#tmp://live.hkstv T54#tmp://live.hkstv 	RTSP Message 10/9/2016 41:2:20 PM RTSP/10.200 K Content-Base: rtsp://102.168:1 Date: Sun, 90 Ct 2016 16:1:1 Cession: S13227160;tlmeout= Expire: Sun, 9 Ct 2016 16:1:1 Cester: Worza Streaming Engl Cache-Control: no-cache V=0 0= s=sample.mp4 0=104 0.0.0 t=0 a=samplan;en a=morphice a=stompa;0-556.458 a=rtbma;90 556.458	(5 CST 60 5:15 CST ne 4.1.1 build13180 4 IP4 127.0.0.1	ample.mp4/	Date: Sun, 9 Oc Content-Length Session: 85182 Surgires: Sun, 9 Content-Type: Content-C	tsp://192.168.1.113 2016 16:15:15 (5 569 7160;timeout=60 Od 2016 16:15:15 (pplication/sdp Streaming Engine 4.: oo-cache 851827160 IN IP4 0	T CST 1.1 build13180		/		
	a=ripraground programmer and program	ode='AAC- = 3 ;in dex deltalength = 3 = 1 ;profile-level-id= 420	01E;sprop-parameter-	Control Uri: rtsp://192.168. Number Of Stre	1.113:1935/vod/mp4 ams:2	4:sample.mp4/				

Figure 7-2 RTSP Message

Similar to RTSP protocol, RTMP also uses various messages for server and client communication. Click on a stream to enter the RTMP message page, as shown in Figure 7-3. Both binary data and decoded text messages are displayed in this page.

Back Expand Collapse	Input3: TS4#rtmp:	//live.hkstv	.hk.lxdns.com/live/hks	Messagi			
Input: Input3							
TS0#rtmp://live.hkstv	RTMP Message						
TS11#rtmp://live.hkstv	Time	Туре	Data	RTMP Message			
754#rtmp://live.hkstv			03 00 00 00 00 00 D2 14 00 00 00 02 00 07 63 6F 6E 6E 65 63 74 00	5 connect 0 app:live;flashVer:LNX			
TS5#rtmp://live.hkstv		Request 2E 35 69 67	3F F0 00 00 00 00 00 00 03 00 03 61 70 70 02 00 04 6C 69 76 65 00 08 66 6C 61 73 68 56 65 72 02 00 0D 4C 4E 58 20 39 2C 30 2C 31 32 34				
TS9#rtmp://live.hkstv	10/0/2016 2:16:16		2C 32 00 05 74 63 55 72 6C 02 00 28 72 74 6D 70 3A 2F 2F 6C 69 76 65				
TS1#rtmp://live.hkstv	10/9/2016 3:16:16 PM		2E 68 6B 73 74 76 2E 68 6B 2E 6C 78 64 6E 73 2E 63 6F 6D 3A 31 39 33 35 2F 6C 69 76 65 00 04 66 70 61 64 01 00 00 0C 63 61 70 61 62 69 6C	9,0,124,2;tcUrl:rtmp://live.hkstv.hk.lxdns.com:1935/live;fpad:False;ca			
TS7#rtmp://live.hkstv			69 74 69 C3 65 73 00 40 2E 00 00 00 00 00 00 00 08 61 75 64 69 6F 43 6F 64 65 63 73 00 40 AF CE 00 00 00 00 00 00 0B 76 69 64 65 6F 43 6F	<i>p</i> :-			
TS2#rtmp://live.hkstv			64 65 63 73 00 40 6F 80 00 00 00 00 00 00 00 00 00 76 69 64 65 6F 46 75 6E				
TS6#rtmp://live.hkstv			63 74 69 6F 6E 00 3F F0 00 00 00 00 00 00 00 00 09 02 00 00 00 00 00 04 05 00 00 00 00 00 26 25 A0 42 00 00 00 00 00 05				
TS8#rtmp://live.hkstv			06 00 26 25 A0 02 02 00 00 00 00 00 00 00 00 00 00 00				
TS3#rtmp://live.hkstv			00 03 00 00 00 00 00 F1 14 00 00 00 00 02 00 07 5F 72 65 73 75 6C 74 00 3F F0 00 00 00 00 00 00 03 00 66 66 D 73 56 65 72 02 00 0D 46 4D				
⊘ TS10≠rtmp://live.hkstv	10/9/2016 3:16:16 PM	Response	$ \begin{array}{c} 53 \ 2 F \ 33 \ 2 C \ 30 \ 2 C \ 31 \ 2 C \ 31 \ 32 \ 33 \ 00 \ C \ 63 \ 61 \ 70 \ 61 \ 62 \ 69 \ 6C \ 69 \ 74 \ 69 \ 65 \ 74 \ 69 \ 6C \ 69 \ 76 \ 90 \ 76 \ 90 \ 70 \ 70 \ 70 \ 70 \ 70 \ 70 \ 70$	SetServerBandwidth: 2500000 Type: 160			
	10/9/2016 3:16:16 PM	Request	02 00 00 00 00 04 05 00 00 00 00	SetServerBandwidth:			
			$\begin{array}{cccccccccccccccccccccccccccccccccccc$				

Figure 7-3 RTMP Message

Chapter 8 MPEG-DASH Analysis

The TSM Web supports IP streaming based on the MPEG-DASH protocol and checks the syntax of DASH MDP file and analyzes downloaded media data.

8.1 MPEG-DASH Analysis

Click the "DASH Analysis" tab on the main menu bar to go to the "DASH Analysis" page, as shown in Figure 8.1.

Program Analysis TS Analysis IP Analysis HTTP Analysis RTSP Analysis DA	SH Analysis Erro	or Outors	Alarm Oueru	Report	Setting			
Program Analysis IS Analysis IP Analysis HTTP Analysis RTSP Analysis DA	SH Analysis Erro	or Query	Alarm Query	Report	Setting			
Expand All Collapse All Total Bitrate: 23.924 Mb/s							DASH Stream	Overviev
lay List	Media File		Flow Name	Download Time(s)	Media Time (s)	Download Bitrate(Kb/s)	Media Bitrate(Kb/s)	Transf Status
Input: MPEG DASH Input Bitrate: 23.924 Mb/s								
DS02#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/0:mp4a.40.2,130358,	segment_351.m	14s		1.92	1.98	134.8	130.3	•
DS12#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/7:avc1.4d4028,4149264,1920x818	segment_8.m4s			1.74	2.00	3762.0	3265.4	•
DS14#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/0:	subtitles_en.vtt			605.40	N/A	0.0	N/A	•
DS03#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#1/0:mp4a.40.2,130395,	segment_339.m	14s		1.95	1.98	132.5	130.4	•
DS13#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/8:avc1.4d4028,6214307,1920x818	segment_14.m4	s		2.04	2.00	4086.8	4160.3	•
DS06#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/1:avc1.4d4015,520929,638x272	segment_138.m	14s		1.93	2.00	444.9	428.4	•
DS16#http://bitdash-a.akamaihd.net/content/sintel.mpd#2/0:	subtitles_es.vtt			605.40	N/A	0.0	N/A	•
DS15#http://bitdash-a.akamaihd.net/content/sintel.mpd#1/0:	subtitles_de.vtt			605.40	N/A	0.1	N/A	•
DS08#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/3:avc1.4d401f,1144430,958x408	segment_126.m	14s		1.64	2.00	2546.2	2089.1	•
DS10#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/5:avc1.4d401f,2487897,1277x544	segment_433.m	14s		2.55	2.00	3783.8	4818.7	•
DS04#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#2/0:mp4a.40.5,321836,	segment_344.m	14s	+	1.95	1.98	327.8	322.5	•
DS17#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#3/0:	subtitles_fr.vtt			605.40	N/A	0.1	N/A	•
DS05#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/0:avc1.4d400d,258157,426x180	segment_168.m	14s		1.93	2.00	328.1	316.1	•
DS00#https://livesim.dashif.org/livesim/testpic_2s/Manifest.mpd#0/0:mp4a.40.2,48000,	782882493.m4s		Mividi	2.73	2.00	39.0	53.2	•
DS09#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/4:avc1.4d401f,1558322,1277x544	segment_444.m	14s		0.36	2.00	360.6	65.1	•
DS07#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/2:avc1.4d4015,831270,638x272	segment_154.m	14s		2.01	2.00	735.8	740.9	•
DS11#http://bitdash-a.akamaihd.net/content/sintel/sintel.mpd#0/6:avc1.4d4028,3113198,1920x818	segment_190.m	14s		2.55	2.00	5688.8	7253.2	•
DS01#https://livesim.dashif.org/livesim/testpic_2s/Manifest.mpd#0/0:avc1.64001e,300000,640x360	782882472.m4s		Mividi	1.06	2.00	284.8	150.5	•



This page shows the results of the HTTP download activity and the download status in real time. The average download time is calculated and compared with the playback time of the streaming media segment. If the download time is greater than the media time, the stream status will be displayed in red color, indicating the delay of download media segment.

The "DASH Analysis" page displays the following columns:

- Playlist URL: shows the playlist URL of the DASH stream;
- Media File: the media clip file currently being analyzed by the server;
- Stream Name: user-defined stream name;
- Download time: the time taken by the monitoring server to download the current media clip file;

• **Download Bit Rate**: the bit rate of downloading the current media clip file by the monitoring server downloads;

- Media Bit Rate: the bit rate of the DASH stream based on the playback time;
- Status: the real-time status of the downloading of the current DASH stream.

Chapter 9 Key Frame Thumbnail Display

Note: This feature described in this chapter is not available when the TSM Web is connected to a "TSM for Broadband" product.

The TSM units decode video key frames, and periodically decode audio frames as well. The decoded video frames are re-encoded into small thumbnails to be displayed on the Video Mosaic page for visual verification that the streaming services are running.

The Video Mosaic page displays thumbnails from all streams being monitored in a single page. The thumbnails from different streams can be grouped according to users' preference.

9.1 Key Frame Display

Click "Program Analysis" menu on the top menu bar to open the Video Mosaic page, as shown in the following figure.

This page will display thumbnails in groups. One thumbnail panel corresponds to a program, and it shows the video thumbnail, audio VU bars, stream ID, audio and video encoding information.

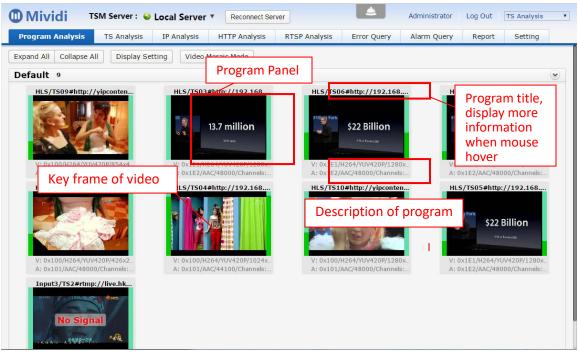


Figure 9-1 Video Mosaic page

9.2 Display Setting

The users can change the display settings according to their preference. Three parameters which can be changed on the display include: 1. Selection of programs to be displayed; 2. Group a program belongs to; 3. Display order of programs and groups.

Click "Display Setting" button on the Video Mosaic page to open display setting dialog.

9.2.1 Program Group Setting

Click "Program Groups" button on the "Display Setting" dialog to open the Program Groups setting dialog as shown below:

Display Setting Program Display Setting Program Groups	Program group List area	>
Group list Default Visible Program grouproperties pa	IP nel	Delete Edit Add Edit Delete Move up Move down
		OK Save Cancel

Figure 9-2 Display Setting dialog – Program Groups Setting Tab

The Group List box displays all groups configured. Click a row in the group list to select this group, and then click "Move Up" and "Move Down" buttons on the right side to change the order of program groups. Use "Delete" button to delete this program group. Click "Edit" button to open the Group Edit Panel to modify the properties of this program group. Click "Add" button to open Add Group panel. Fill in each item in the Add Panel to add a new program group.

The properties of a program group include:

• Group Name: The name must be unique can cannot be reused;

• **Visible:** If checked, this program group will be displayed in the Video Mosaic page. Otherwise, this group will not be displayed.

Note: After modifying Program Groups setting, click "OK" or "Save" button in the bottom of the page to save the changes. Otherwise, the modification is not saved and the new parameters are not applied to the service.

9.2.2 Program Display Setting

Click "Program Display Setting" tab in the Display Setting dialog to open the "Program Display Setting" page:

ndex	Unit	Input	Transport	Program number	Name	Live	Group	Disable	Move up	
L	Local Server	IP	192.168.0.130:1001	1		×	•			
	Local Server	IP	192.168.0.130:1003	2		V	•		Move down	
3	Local Server	HLS	TS0#localhost:89/channel1/playlist.m3u8	1		×	•		Delete	
\$	Local Server	IP	192.168.0.130:1001	2		V	•		Delete	
5	Local Server	HLS	TS1#localhost:89/channel1/playlist.m3u8	1		V	•			
6	Local Server	IP	192.168.0.130:1001	12		V	•			
7	Local Server	IP	192.168.0.130:1003	1		Image: A start of the start	•			
8	Local Server	HLS	TS3#localhost:89/channel1/playlist.m3u8	1		Image: A start of the start	•			
9	Local Server	IP	192.168.0.130:1003	4		1	•			
10	Local Server	IP	192.168.0.130:1001	3		Image: A start of the start	•			
11	Local Server	IP	192.168.0.130:1003	3		V	•			
12	Local Server	IP	192.168.0.130:1001	4		1	•		H Pro	gram
13	Local Server	IP	192.168.0.130:1003	12		Image: A start of the start	•		List	area
14	Local Server	HLS	TS2#localhost:89/channel2/playlist.m3u8	1		Image: A start of the start	•			
15	Local Server	IP	192.168.0.130:1002	1		×	•			

Figure 9-3 Display Setting Dialog - Programs Display Setting Tab

The table on the left side shows the current configuration, including the program identification, whether the program thumbnail to be displayed, which group it belongs to, and the display order. Click a row in the program list table to select a program, and then click "Move Up" and "Move Down" buttons on the right side to sort programs. Click "Delete" button to delete this program. In addition, users can set a user-friendly name for this program. When a program has a given name, the panel title in the Video Mosaic page will show this name, instead of the HLS playlist URL.

Note: After modifying Program Display Setting, click "OK" or "Save" button in the bottom of the page to save the changes. Otherwise, the modification is not saved and the new parameters are not applied to the service.

Description of each column in the program list table:

- Input: The Input which contains the Transport Stream;
- Transport: The name of the stream containing this program;
- Program Number: Program number of this program;
- •Name: A user-friendly name of this program;
- Live: Show if this program is currently alive;
- Group: Selected display group for this program;

• Enable: If checked, this program will be displayed in the Video Mosaic page. Otherwise, it will not be displayed.

9.2.3 Penalty Box Setting on Thumbnail Display

The TSM Web contains a Penalty Box feature which will display the thumbnails of video programs with error alarms. When an error alarm is received for a program, the TSM Web will move the program thumbnail from a user-defined group to the Penalty Box group. If you need to enable this function, you need to do that in the "Program Group Settings" dialog. Open the "Program Group Settings" page, check the "Display Penalty Group" checkbox, as shown in the following figure:

Display Setting		×
Program Display Setting Program Groups Current User -		
Group list		Add
Show Penalty Box Group		Edit
Default Visible	Delete Edit	
News Visible	Delete Edit	Delete
Sports Visible	Delete Edit	Move up
Movies Visible	Delete Edit	Move down
		Hove down
		Apply
	Refresh Clear	OK Cancel Apply

Figure 9-4 Penalty Box Group

Click the "Apply" button or click the "OK" button to save and close the Program Display Group setting. At this time, a Penalty Box Group will be added to the thumbnail display page. If your program has an error alarm, the program thumbnail will be moved from other groups to Penalty Box Group. If the alarm error disappears and you want to return the program in the Penalty Box Group to the previous group, click the "Resolved" button under the thumbnail, and the program thumbnail will be removed from the Penalty Box Group to a normal group.

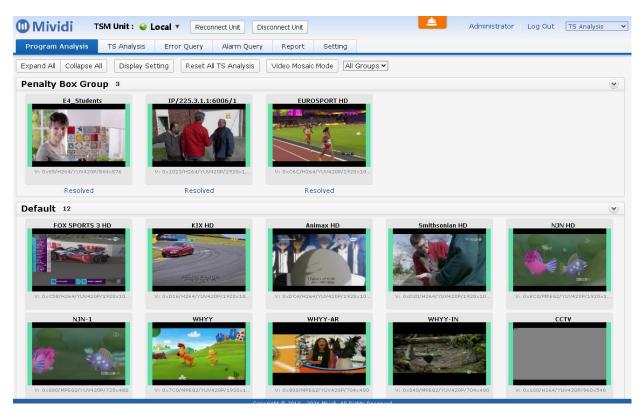


Figure 9-5 Thumbnails of Programs with Error Alarms in the Penalty Box Group

9.2.4 Create Display Setting for Different Users

The TSM Web defines two user roles: Administrator and Users. All settings have to be done by an Administrator. The Administrator needs to set the thumbnail display panels for other users, and users can only see programs that selected for them to see.

To configure for a different user, select a user from the user drop down list on the top of Display Setting page. Set the program display using the method described in the previous section 9.2.2, as shown in the following figure:

 Input IP IP IP IP IP IP 	↑ Transport 225.3.1.1:6006 225.3.1.1:6020 225.3.1.1:6020 225.3.1.1:6020	1 316 318	Name FOX SPORTS 3 HD EUROSPORT HD	Live	Group	Disable	Move up
IP IP IP	225.3.1.1:6006 225.3.1.1:6020 225.3.1.1:6020 225.3.1.1:6020	316 318		1			
IP IP	225.3.1.1:6020 225.3.1.1:6020	318			Default	< □	Move down
IP	225.3.1.1:6020		EUDOODODT UD	V	Default	✓	Move down
		0.04	EUROSPURT HD	V	Default	✓	Delete
IP		336	KIX HD	1	Default	✓	Delete
	225.3.1.1:6020	342	Animax HD	V	Default	✓	
IP	225.3.1.1:6020	366	Smithsonian HD	1	Default	✓	
IP	225.3.3.3:9001	1	E4_Students	V	Visible	✓	
FILE	TSO	1	NJN HD	1	Default	✓	
FILE	TSO	2	NJN-1	1	Default	✓	
FILE	TSO	4	WHYY	1	Default	•	
FILE	TSO	5	WHYY-AR	1	Default	✓	
FILE	TSO	6	WHYY-IN	V	Default	■	
Input6	srt://192.168.1.8:9	1	E4_Students	1	zaj	✓	
rtsp	TSO#rtmp://livetv.d	0	RTMP	V	Subtitle	✓	
HLS	TS02#https://cctv	1	CCTV	1	Default	•	
HLS	TS00#http://hw-m	1	zhengjiang_%\$Tv	1	Default	✓	
	FILE FILE FILE FILE FILE Input6 rtsp HLS	FILE TS0 FILE TS0 FILE TS0 FILE TS0 FILE TS0 Input6 srt://192.168.1.8:9 rtsp TS0#rtmp://livetv.d HLS TS02#https://cctv	FILE TSO 1 FILE TSO 2 FILE TSO 4 FILE TSO 5 FILE TSO 6 Input6 srt://192.168.1.819 1 rtsp TSO2#https://ixetv.d 0	FILE TS0 1 NIN HD FILE TS0 2 NJN-1 FILE TS0 4 WHYY FILE TS0 5 WHYY-AR FILE TS0 6 WHYY-IN Input6 srt://192.168.1.8:9 1 E4_Students rtsp TS02#https://ctv.d 0 RTMP	FILE TS0 1 NJN HD FILE TS0 2 NJN-1 FILE TS0 4 WHYY FILE TS0 5 WHYY-AR FILE TS0 6 WHYY-IN Input6 srt://192.168.1.8!9 1 E4_Students rtsp TS04rtmp://invetv.d 0 RTMP HLS TS02#https://cctv 1 CCTV	FILE TSO 1 NJN HD ✓ Default FILE TSO 2 NJN-1 ✓ Default ✓ FILE TSO 4 WHYY ✓ Default ✓ FILE TSO 5 WHYY-AR ✓ Default ✓ FILE TSO 6 WHYY-IN ✓ Default ✓ Input6 srt://192.168.1.8:9 1 E4_Students ✓ Zaj ✓ rtsp TS0#rtmp://livetv.d 0 RTMP ✓ Subtitle ✓ HLS TS02#https://cctv 1 CCTV ✓ Default ✓	FILE TSO 1 NUN HD ✓ Default ✓ FILE TSO 2 NUN-1 ✓ Default ✓ FILE TSO 4 WHYY ✓ Default ✓ FILE TSO 5 WHYY-AR ✓ Default ✓ FILE TSO 6 WHYY-IN ✓ Default ✓ Input6 srt://192.168.1.8:9 1 E4_Students ✓ Zaj ✓ rtsp TS0#rtmp://ivetv.d 0 RTMP ✓ Subtitle ✓ HLS TS02#https://cctv 1 CCTV ✓ Default ✓

Figure 9-6 Perform Display Setting by an Administrator for Different users

You can also copy the settings of the current Administrator user to other users if you want other users to have similar settings. To do that, simply click the "Copy Current User Settings" button to copy the settings to the user you want to set, as shown in the following figure:

Progr	am Display 🕯	Setting Program	m Groups mividi	~ [C	Copy Current User Settings				
ndex	Unit	\$ Input	+ Transport	Program number	Name	Live	Group	Disable	Move up
	Local	IP	225.3.1.1:6020	316	FOX SPORTS 3 HD	1	~		Move down
	Local	IP	225.3.1.1:6020	318	EUROSPORT HD	V	~		Move down
	Local	IP	225.3.1.1:6020	336	KIX HD	V	~		Dulutu
	Local	IP	225.3.1.1:6020	342	Animax HD	V	~		Delete
	Local	IP	225.3.1.1:6020	366	Smithsonian HD	V	~		
	Local	FILE	TSO	1	NJN HD	V	~		
	Local	FILE	TSO	2	NJN-1	1	~		
	Local	FILE	TSO	4	WHYY	V	~		
	Local	FILE	TSO	5	WHYY-AR	V	~		
0	Local	FILE	TSO	6	WHYY-IN	V	~		
1	Local	IP	225.3.3.3:9001	1	E4_Students	V	Default 🗸		
2	Local	Input6	srt://192.168.1.8:9	1	E4_Students	V	Default 🗸		
з	Local	rtsp	TSO#rtmp://livetv.d	0	RTMP	V	Subtitle 🗸		
4	Local	HLS	TS02#https://cctv	1	CCTV	\checkmark	Default 🗸		
5	Local	IP	225.3.1.1:6006	1	E4_Students	V	Default 🗸		
6	Local	HLS	TS00#http://hw-m	1	zhengjiang_%\$Tv	V	Default 🗸		

Figure 9-7 Copy Display Setting from the Current Administrator User to Another User

Chapter 10 Statistics and Report

The TSM Web can create several types of reports. The reports are divided into three groups: TS Analysis Reports, HTTP Analysis Reports and IP Analysis Reports. TS Analysis Reports are generated per transport stream and they include: Error Summary report, Error Selection Report, Transport Stream Quality Report, Transport Snapshot Report and Statics Report. HTTP Analysis Reports are generated per HLS Input and they include: HTTP Errors, Streaming Summary Report and Streaming Status Report. IP Analysis Reports are generated per IP Input and they include: IP Errors Report, IP Flow Status Reports, MDI Reports.

10.1 TS Analysis Reports

10.1.1 Error Summary Report

Click "Report" menu on the top menu bar to open the "Report" page. Click "Error Summary" menu on the left menu list to open the "Error Summary Report" page. Select an input, set the start and end time for the reporting period. You can also optionally select the error priority types you want to include in the report, and finally click the "Create" button. The software will split the time period into 10 equal time periods and assign all errors in these 10 periods. If there are no errors in some periods, there will be no data for that period on the plot. You may need to adjust the start and end time to get a plot you need. An example of the Error Summary report is shown in the following figure. Once the report is created, you can print it or save it in PDF or Excel format.

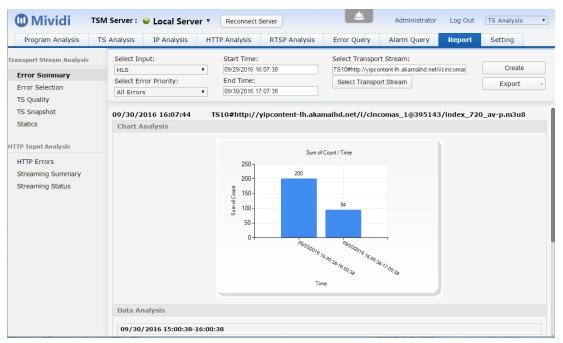


Figure 10-1 Error Summary Report Page

10.1.2 Error Selection Report

Click "Report" menu on the top menu bar to open the "Report" page, and then click "Error Selection" menu on the left menu list to open the "Error Selection Report" page. Similar to the Error Summary report, you can select input, transport stream, start and end time for the report. The difference is in this page, you can plot only errors of specific error codes, instead of all errors in the previous page.

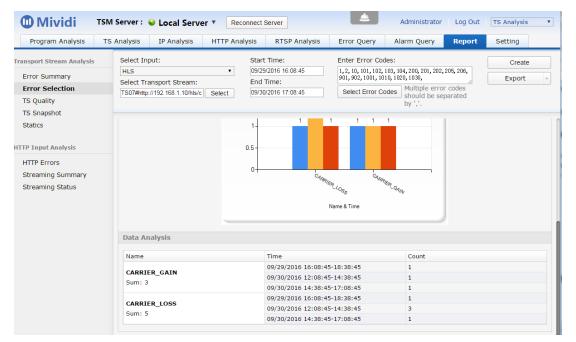


Figure 10-2 Error Selection Report Page

10.1.3 Transport Stream Quality Report

Click "Report" menu on the top menu bar to open "Report" page, then click "TS Quality" menu on the left menu list to open the "TS Quality" report page. The report is generated similar to the other reports described in previous two sections.

					Error Quany Alarm Quany Banart			Sotting		
Program Analysis	TS Analysis IP Analysis	H	TTP Analysis	RTSP Analysis	Error Query	Alarm Query	Report	Setting		
ansport Stream Analysis	Select Input:		Start Time:		Select Transpo	rt Stream:				
Error Cummon	HLS	•	09/29/2016 1	6:10:36	TS10#http://yipco	ontent-lh.akamaihd.net/i	/cincoma:	Create		
Error Summary	Number of Samples:		End Time:		Select Transport Stream			Export		
Error Selection	100	•	09/30/2016 17:10:36					Export	Export	
TS Quality										
TS Snapshot	09/30/2016 16:10:3) 1	rs10#http://	yipcontent-Ih.aka	ontent-lh.akamaihd.net/i/cincomas_1@395143/index_720_av-p.m3u8					
Statics	Quality				Time					
	100.00				9/30/2016 3:49):49 PM				
TTP Input Analysis	100.00				9/30/2016 3:51	L:43 PM				
HTTP Errors	100.00				9/30/2016 3:51	L:51 PM				
	98.28				9/30/2016 3:52	2:49 PM				
Streaming Summary	99.85			9/30/2016 3:53	3:53 PM					
Streaming Status	99.81				9/30/2016 3:54	1:51 PM				
	99.89				9/30/2016 3:55	5:55 PM				
	99.67				9/30/2016 3:56	5:53 PM				
	99.67				9/30/2016 3:57	7:55 PM				
	100.00				9/30/2016 3:58	3:53 PM				
	99.85				9/30/2016 3:59	9:53 PM				
	99.84				9/30/2016 4:00					
	99.92				9/30/2016 4:01					
	99.92				9/30/2016 4:02					
	99.89				9/30/2016 4:03					
	100.00				9/30/2016 4:04					
	99.59				9/30/2016 4:06					
	100.00				9/30/2016 4:07					
	99.89				9/30/2016 4:07	7:57 PM				

Figure 10-3 Transport Stream Quality Report Page

10.1.4 Transport Stream Snapshot Report

Click "Report" menu on the top menu bar to open report page, then click "TS Snapshot" menu on the left menu list to open the "TS Snapshot" report page. Select an HLS Input and set the start and end time for the reporting period. Then select how many snap shots you want to create during the time period, and finally click the "Create" button. The system will create the reports at a uniform time interval. Information including PIDs, stream types, programs, bitrates, and max/min bitrates will be shown on the report. An example of the report is shown in the following figure:

🛈 Mividi 🛛 T	SM Server : 🥪 Loo	al Serv	/er •	Reconnect	Server		Administrator	Log Out	TS Analysis	
Program Analysis	TS Analysis IP A	nalysis	НТТ	P Analysis	RTSP Analysis	Error Query	Alarm Query	Report	Setting	
ansport Stream Analysis	Select Input:			Start Time	:	Select Transpor	t Stream:			
Error Summary	HLS		•	09/29/2016	16:11:22	TS10#http://yipcor	ntent-lh.akamaihd.net/i	/cincoma:	Create	
	Number of Snap	shots:		End Time:		Select Transpo	rt Stream		Export	
Error Selection	5		•	09/30/2016	17:11:22					
TS Quality										
TS Snapshot	09/30/2016 16:11:25 TS10#http://yipcontent-lh.akamaihd.net/i/cincomas_1@395143/index_72							0_av-p.m3u8		
Statics	09/30/2016	5:51:48								
	Time	F	PID		Program	Туре	Bitrate	М	ax/Min	
TP Input Analysis	09/30/2016 15	51:48 0	0×1FFF			Null	0.000	0.	000/0.000	
HTTP Errors	09/30/2016 15	51:48 0	0×101			Unknown	0.000	0.	000/0.000	
Streaming Summary	09/30/2016 15	51:48 0	0×100			Unknown	0.000	0.	000/0.000	
Streaming Status										
Su earning Status	09/30/2016	5:56:51								
	Time	F	PID		Program	Туре	Bitrate	М	ax/Min	
	09/30/2016 15	56:51 0	DxFFF			PMT	0.001	0.	007/0.000	
	09/30/2016 15	56:51 0	0×0			PAT	0.001	0.	007/0.000	
	09/30/2016 15	56:51 0	0×1FFF			Null	0.000	0.	000/0.000	
	09/30/2016 15				1	Unknown	0.000	0.	000/0.000	
	09/30/2016 15				1	AAC	0.098		377/0.075	
	09/30/2016 15	56:51 0	0×100		1	AVC	2.024	3.	935/1.531	
	09/30/2016									
	Time		PID		Program	Туре	Bitrate		ax/Min	
	09/30/2016 16		XFFF			PMT	0.000		007/0.000	
	09/30/2016 16					PAT	0.000		007/0.000	
	09/30/2016 16	01:54 0	JX1FFF			Null	0.000	0.	000/0.000	

Figure 10-4 Transport Stream Snapshot Report Page

10.1.5 Statics

Click "Report" menu on the top menu bar to open "Report" page, and then click "Statics" menu on the left menu list to open the "Statics" report page. The report is generated similar to other reports described in previous pages.

ansport Stream Analysis Error Summary Error Selection TS Quality	Select Input: Start Time: HLS 09/29/2016 1 Select Transport Stream: End Time: Select Transport Stream 09/30/2016 1	16:15: Stream Loss Video Fra	Export -		
TS Snapshot	9/30/2016 Pe	eriod: 9/29/2016 4:15:25 PM-9/30/	2016 5:15:25 PM		
Statics	Transport Stream Name	Error Type	Percentage		
TTP Input Analysis	http://192.168.1.10/hls/channel02/playli http://192.168.1.113:1935/vod/mp4:bd0		0.61		
HTTP Errors	http://192.168.1.113:99/channel12/playl	Stream Loss	0.00		
Streaming Summary	http://yipcontent-lh.akamaihd.net/i/cinco	. Stream Loss	5.04		
Streaming Status	http://yipcontent-lh.akamaihd.net/i/cinco	Stream Loss	10.40		

Figure 10-5 Statics Report Page

10.2 HTTP Analysis Report

10.2.1 HTTP Errors Report

Click "Report" menu on the top menu bar to open "Report" page, then click "HTTP Errors" menu on the left menu list to open the "HTTP Errors" report page. Select an HLS service and click the "Create" button to generate a report.

[™] Mividi ^{TS}	M Server : 🥪 Local Server 🔻				
Program Analysis	TS Analysis IP Analysis HT	TP Analysis RTSP Analysis	Error Query Alarm Q	uery Report Setting	
nsport Stream Analysis		itart Time: End Ti 19/29/2016 16:32:06 09/30/2	ime: 2016 17:32:06 Crea	te Export -	
Error Summary		03/30/2	2010 17:32:00		
Error Selection	09/30/2016 16:32:07 H	TTP Input:HLS			
TS Quality	TS00#http://192.168.1.113:				
TS Snapshot	Time	Code	Description	Count	
Statics	09/29/2016 16:00:06-17:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	58	
	09/29/2016 17:00:06-18:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	10	
FP Input Analysis	09/30/2016 08:00:06-09:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	10	
HTTP Errors	09/30/2016 09:00:06-10:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	87	
Streaming Summary	09/30/2016 10:00:06-11:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	32	
, v	09/30/2016 11:00:06-12:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	41	
Streaming Status	09/30/2016 12:00:06-13:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	83	
	09/30/2016 13:00:06-14:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	73	
	09/30/2016 14:00:06-15:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	55	
				449	
	TS04#http://192.168.1.113:	99/channel12/playlist.m3u8			
	Time	Code	Description	Count	
	09/29/2016 16:00:06-17:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	4	
	09/29/2016 17:00:06-18:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	10	
	09/30/2016 08:00:06-09:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	11	
	09/30/2016 09:00:06-10:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	84	
	09/30/2016 10:00:06-11:00:06	4101	HTTP_DOWNLOAD_TIME_ERR	31	

Figure 10-6 HTTP Errors Report Page

10.2.2 Streaming Summary Report

Click "Report" menu on the top menu bar to open report page, then click "Streaming Summary" menu on the left menu list to open the "Streaming Summary" report page. Select an HLS Input, set the start and end time for the reporting period, and click the "Create" button. The report contains information including the Play List URL, media file count, total media size downloaded, start and end time. In addition, the system can create detailed status report for a single transport stream. An example of the report is shown in the following figure:

Program Analysis	S Analysis IP Analysis	HTTP Analysis	RTSP Analysis	Error Query	Alarm Query Repor	t Setting	
ransport Stream Analysis	Select Input:	Start Time:	En	d Time:			
ansport Stream Analysis	HLS	 09/29/2016 16: 		30/2016 17:12:30	Create	Export -	
Error Summary			12.00	001201011112:00			
Error Selection	09/30/2016 16:12:32	HTTP Input:HLS					
TS Quality	Name	Play List URL	Media Cou	nt Total Size (KB)	Start Time	End Time	
TS Snapshot	TS00#http://192.168.1.1			606431	09/29/2016 08:12:27	09/29/2016 08:35:29	
Statics	TS01#http://yipcontent-	1.00		12594	09/29/2016 08:12:2/	09/29/2016 08:33:29	
	TS02#http://yipcontent-	1.1111		19364	09/29/2016 08:11:50	09/29/2016 08:34:5	
FTP Input Analysis	TS03#http://yipcontent-	1.0071		18003	09/29/2016 08:12:18	09/29/2016 08:35:4	
	TS04#http://192.168.1.1	1.11.1		586005	09/29/2016 08:12:37	09/29/2016 08:35:3	
HTTP Errors	TS05#http://192.168.1.1	1.11		35452	09/29/2016 08:16:15	09/29/2016 08:18:5	
Streaming Summary	TS05#http://192.168.1.1	1.11		35452	09/29/2016 08:24:51	09/29/2016 08:27:4	
Streaming Status	TS05#http://192.168.1.1	1.11		35452	09/29/2016 08:30:40	09/29/2016 08:33:23	
	TS05#http://192.168.1.1			33733	09/29/2016 08:19:07	09/29/2016 08:21:52	
	TS05#http://192.168.1.1	1.11		33733	09/29/2016 08:21:59	09/29/2016 08:24:4	
	TS05#http://192.168.1.1			35452	09/29/2016 08:13:23	09/29/2016 08:16:07	
	TS05#http://192.168.1.1	1.11		35452	09/29/2016 08:27:47	09/29/2016 08:30:3	
	TS05#http://192.168.1.1	1.11		24589	09/29/2016 08:33:31	09/29/2016 08:34:59	
	TS05#http://192.168.1.1			6158	09/29/2016 08:12:35	09/29/2016 08:13:15	
	TS07#http://192.168.1.1	http://192.168.1.10/	hls/c 185	784363	09/29/2016 08:12:33	09/29/2016 08:34:50	
	TS08#http://192.168.1.1	http://192.168.1.10/	hls/c 185	784361	09/29/2016 08:12:34	09/29/2016 08:35:30	
	TS09#http://192.168.1.1	http://192.168.1.10/	hls/c 186	788922	09/29/2016 08:12:34	09/29/2016 08:34:50	
	TS11#http://192.168.1.1	http://192.168.1.10/	hls/c 182	771484	09/29/2016 08:12:34	09/29/2016 08:34:50	
	TS12#http://192.168.1.1	http://192.168.1.10/	hls/c 182	772705	09/29/2016 08:12:34	09/29/2016 08:34:50	
	TS13#http://192.168.1.1	http://192.168.1.10/	hls/c 187	792696	09/29/2016 08:12:34	09/29/2016 08:35:36	
	TS14#http://192.168.1.1	http://192.168.1.10/	hls/c 182	771188	09/29/2016 08:12:33	09/29/2016 08:34:55	

Figure 10-7 Streaming Summary Report Page

10.2.3 Streaming Status Report

Click "Report" menu on the top menu bar to open "Report" page, then click "Streaming Status" menu on the left menu list to open the "Streaming Status" report page. Select an HLS Input and set the start and end time for the reporting period. Select an HLS service and click the "Create" button to generate a report.

Program Analysis	TS Analysis	IP Analysis	HTTP Analysis	RTSP Analysis	Error Query	Alarm Query	Report Setting	
nsport Stream Analysis	Select In	put: St	art Time:	End Time:	Select Transp	oort Stream:	Create	
Error Summary Error Selection	HLS	HLS O9/29/2016 16:34:29 O9/30/2016 17:34:29 TS10#http://yipcontent-lh.akama						
S Quality	09/30/2	016 16:34:32	HTTP Input:H	LS				
TS Snapshot	Time		Play List URL		Download Time(s)	Media Time (s)	Sequence	
Statics	09/30/2	016 07:51:29	http://yipcontent-lh	.akamaihd.net/i/cincom	0.314	10	147522090	
	09/30/2	016 07:51:29	http://yipcontent-lh	.akamaihd.net/i/cincom	0.226	10	147522090	
TP Input Analysis	09/30/2	016 07:51:30	http://yipcontent-lh	.akamaihd.net/i/cincom	0.227	10	147522090	
HTTP Errors	09/30/2	016 07:51:30	http://yipcontent-lh	.akamaihd.net/i/cincom	0.23	10	147522090	
Streaming Summary	09/30/2	016 07:51:30	http://yipcontent-lh	.akamaihd.net/i/cincom	66.44	10	147522090	
, , , , , , , , , , , , , , , , , , ,	09/30/2	016 07:52:38	http://yipcontent-lh	.akamaihd.net/i/cincom	0.23	10	147522090	
Streaming Status	09/30/2	016 07:52:38	http://yipcontent-lh	.akamaihd.net/i/cincom	0.23	10	147522090	
	09/30/2	016 07:52:39	http://yipcontent-lh	.akamaihd.net/i/cincom	5.41	10	147522090	
	09/30/2	016 07:52:58	http://yipcontent-lh	.akamaihd.net/i/cincom	0.283	10	147522090	
	09/30/2	016 07:54:29	http://yipcontent-lh	.akamaihd.net/i/cincom	0.32	10	147522090	
	09/30/2	016 07:54:29	http://yipcontent-lh	.akamaihd.net/i/cincom	0.23	10	147522090	
	09/30/2	016 07:54:30	http://yipcontent-lh	.akamaihd.net/i/cincom	0.217	10	147522090	
	09/30/2	016 07:54:30	http://yipcontent-lh	.akamaihd.net/i/cincom	0.23	10	147522090	

Figure 10-8 Streaming Status Report Page

10.3 IP Analysis Report

10.3.1 IP Errors

Click the **"Report"** in the main menu to enter the "Report" page and click the "IP Errors" link on the left side to enter the "IP Report" page. Enter the "Start Time" and "End Time" and select a stream. Click "Create" to create an error report, as shown in the Figure below:

Program Analysis	TS Analysis IP Analysis HTTP Analysis	nalysis RTSP Analysis	DASH Analysis Error Qu	ery Alarm Query Repo	ort Setting	
nsport Stream Analysis	Select Input:	Start	: Time:	End Time:	Select Transport Stream:	Create
rror Summary	Ib	• 08/13	/2019 14:53:47	08/14/2019 15:53:47	Select Transport Stream	Export
'S Quality	08/14/2019 14:53:55 IP Inp	ut:IP				
'S Snapshot	08/14/2019 09:00:00-10:00:00					
Statics	Input Name	Code	0	escription	Count	
	225.1.1.1:5023	4002	٩	IEDIA_LOSS_ERROR	10	
P Input Analysis	225.1.1.1:5023	4007	1	IEDIA_JITTER_ERROR	2	
ITTP Errors					12	
treaming Summary	08/14/2019 10:00:00-11:00:00					
treaming Status	Input Name	Code	0	escription	Count	
	225.1.1.1:5023	4007		IEDIA_JITTER_ERROR	11	
nput Analysis	225.1.1.1:5023	4002		IEDIA_LOSS_ERROR	31	
P Errors					42	
P Flow Status	08/14/2019 11:00:00-12:00:00					
DI						
	Input Name	Code		escription	Count	
	225.1.1.1:5023 225.1.1.1:5023	4007 4002		IEDIA_JITTER_ERROR IEDIA_LOSS_ERROR	14 31	
	223.1.1.1:3023	4002	r	IEDIA_LOSS_ERROR	45	
	08/14/2019 12:00:00-13:00:00					
	Input Name	Code		escription	Count	
	225.1.1.1:5023	4002		IEDIA_LOSS_ERROR	29	
	225.1.1.1:5023	4002		IEDIA_LOSS_ERROR	6	
	223.1.1.1.3023	4007	I I	CON_DITION_CONVON	35	



10.3.2 IP Stream Status

Click the "Report" menu in the main menu to enter the "Report" page and click the "IP Flow Status" link on the left side the enter the "IP Flow Status" page. Enter the "Start Time" and "End Time" and click "Create" to create an "IP Flow Status" report, as shown in the Figure below:

Program Analysis T	S Analysis IP Analysis	HTTP Analysis RT	SP Analysis DASH A	analysis Error Query	Alarm Query Repo	rt Setting			
ransport Stream Analysis	Select Input:		art Time:	End T	īme:	Number of	Create		
Error Summary Error Selection	IP	v 08/	/13/2019 14:54:19	08/14/	2019 15:54:19	Snapshots: 10	▼ Export		
TS Quality	223.1.1.1.3000	0/11/2010 11:00:11	152.100.1.100		11120	0.20	*		
TS Snapshot	225.1.1.1:5023								
Statics	Flow ID	Time	Source IP	Flow Name	Protocol	Mb/s	Programs		
	225.1.1.1:5023	8/14/2019 09:43:31	192.168.1.108	India	MPEG	25.01	3		
TTP Input Analysis	225.1.1.1:5023	8/14/2019 10:19:11	192.168.1.108	India	MPEG	25	3		
HTTP Errors	225.1.1.1:5023	8/14/2019 10:53:19	192.168.1.108	India	MPEG	25.01	3		
Streaming Summary	225.1.1.1:5023	8/14/2019 11:27:31	192.168.1.108	India	MPEG	24.8	3		
	225.1.1.1:5023	8/14/2019 12:01:44	192.168.1.108	India	MPEG	25.02	3		
Streaming Status	225.1.1.1:5023	8/14/2019 12:36:58	192.168.1.108	India	MPEG	24.98	3		
	225.1.1.1:5023	8/14/2019 13:11:05	192.168.1.108	India	MPEG	24.98	3		
P Input Analysis	225.1.1.1:5023	8/14/2019 13:45:15	192.168.1.108	India	MPEG	25.02	3		
IP Errors	225.1.1.1:5023	8/14/2019 14:19:28	192.168.1.108	India	MPEG	24.98	3		
IP Flow Status	225.1.1.1:5023	8/14/2019 14:53:41	192.168.1.108	India	MPEG	24.98	3		
MDI	225.1.1.1:5024								
	Flow ID	Time	Source IP	Flow Name	Protocol	Mb/s	Programs		
	225.1.1.1:5024	8/14/2019 09:43:31	192.168.1.108		MPEG	25.02	3		
	225.1.1.1:5024	8/14/2019 10:19:11	192.168.1.108		MPEG	24.99	3		
	225.1.1.1:5024	8/14/2019 10:53:19	192.168.1.108		MPEG	24.98	3		
	225.1.1.1:5024	8/14/2019 11:27:31	192.168.1.108		MPEG	25	3		
	225.1.1.1:5024	8/14/2019 12:01:44	192.168.1.108		MPEG	25	3		
	225.1.1.1:5024	8/14/2019 12:36:58	192.168.1.108		MPEG	24.99	3		
	225.1.1.1:5024	8/14/2019 13:11:05	192.168.1.108		MPEG	24.99	3		
	225.1.1.1:5024	8/14/2019 13:45:15	192.168.1.108		MPEG	25.01	3		
	225.1.1.1:5024	8/14/2019 14:19:28	192.168.1.108		MPEG	25	3		
	225.1.1.1:5024	8/14/2019 14:53:41	192.168.1.108		MPEG	24.99	3		

Figure 10-10 IP Flow Status Report

10.3.3 MDI Report

Click the "Report" menu in the main menu to enter the "Report" page and click the "MDI" link on the left side to enter the "MDI" page. Enter the "Start Time" and "End Time" and click "Create" button to create an "MDI" report, as shown in the Figure below:

Program Analysis	TS Analysis IP Analysis	HTTP Analysis RTSP Analysis	DASH Analysis E	rror Query Alarm Query	Report	Setting	
ansport Stream Analysis	Select Input:		Start Time:	End Time:		Select Transport Stream:	Create
Error Summary Error Selection	IP	۲	08/13/2019 14:55:03	08/14/2019 15:55:03		Select Transport Stream	Export
TS Quality	08/14/2019 14:55:08						
TS Snapshot	225.1.1.1:5023						
Statics	Time	Flow ID	Delay Factor	Jitter	Media Loss	Mb/s	
	8/14/2019 9:42:36 AM	225.1.1.1:5023	21	6	0(0)	25.01	
TP Input Analysis	8/14/2019 9:43:32 AM	225.1.1.1:5023	20	6	0(0)	24.98	
	8/14/2019 9:44:33 AM	225.1.1.1:5023	23	6	0(0)	24.98	
HTTP Errors Streaming Summary Streaming Status	8/14/2019 9:46:01 AM	225.1.1.1:5023	24	6	232(2)	24.99	
	8/14/2019 9:48:09 AM	225.1.1.1:5023	22	3059	0(0)	25.01	
	8/14/2019 9:49:04 AM	225.1.1.1:5023	27	6	0(0)	25	
	8/14/2019 9:50:05 AM	225.1.1.1:5023	26	7	213(3)	25.01	
Input Analysis	8/14/2019 9:51:05 AM	225.1.1.1:5023	23	6	0(0)	24.98	
IP Errors	8/14/2019 9:52:05 AM	225.1.1.1:5023	21	6	0(0)	25.02	
	8/14/2019 9:53:05 AM	225.1.1.1:5023	22	6	0(0)	24.98	
IP Flow Status	8/14/2019 9:54:06 AM	225.1.1.1:5023	21	6	202(3)	24.99	
MDI	8/14/2019 9:55:06 AM	225.1.1.1:5023	19	6	0(0)	25.03	
	8/14/2019 9:56:06 AM	225.1.1.1:5023	20 .	6	0(0)	24.99	
	8/14/2019 9:57:06 AM	225.1.1.1:5023	20	6	0(0)	24.98	
	8/14/2019 9:58:07 AM	225.1.1.1:5023	22	3045	321(2)	24.99	
	8/14/2019 9:59:07 AM	225.1.1.1:5023	22	6	0(0)	25.01	
	8/14/2019 10:00:08 AM	225.1.1.1:5023	24	6	0(0)	24.99	
	8/14/2019 10:01:08 AM	225.1.1.1:5023	26	6	0(0)	25.01	
	8/14/2019 10:02:08 AM	225.1.1.1:5023	21	3041	318(2)	25.01	
	8/14/2019 10:03:09 AM	225.1.1.1:5023	13	6	0(0)	24.99	
	8/14/2019 10:04:09 AM	225.1.1.1:5023	13	6	0(0)	24.99	
	8/14/2019 10:05:09 AM	225.1.1.1:5023	13	6	0(0)	24.99	
	8/14/2019 10:06:09 AM	225.1.1.1:5023	20	3048	364(2)	25	

Figure 10-11 MDI Report Page

Chapter 11 Input Stream Setting

You can use the TSM Web service to configure the input streams. The procedure to add HLS URLs are as follows:

11.1 HLS Input

An "HLS Input" is a virtual input that bundles multiple HLS streams being monitored. A single TSM unit can contain multiple HLS Inputs. One input can contain a maximum of 100 streams, therefore if more than 100 streams will be monitored, more than one inputs can be created.

The TS Analysis page will list all inputs and all HLS streams being monitored under each input, as shown in the following figure:

	Total bitrate.	19.403	Mb/s								
aming ID Flow Name	Mb/s	Progr	ram Quality	Sync Error	CC Error	PAT Error	PMT Error	PID Missing	CRC Error	PCR Error	CAT Erro
Input Bitrate: 19.40)3 Mb/s										
TS10#http://yipcontent-lh.a	2.050	1	99.8%	0	170	0	0	0	0	586	0
TS06#http://192.168.1.10/h	3.426	1	99.6%	0	983	0	0	0	0	0	0
TS04#http://192.168.1.113:	0.582	1	99.6%	0	34	0	0	0	0	54	0
TS09#http://yipcontent-lh.a	2.167	1	99.9%	0	207	0	0	0	0	639	0
TS03#http://192.168.1.113:	3.486	1	99.8%	0	718	0	0	0	0	0	0
TS08#http://yipcontent-lh.a	0.180	1	99.3%	0	371	0	0	0	0	1408	0
TS07#http://192.168.1.10/h	3.366	1	99.6%	0	980	0	0	0	0	0	0
TS05#http://192.168.1.10/h	3.366	1	99.6%	0	981	0	0	0	0	0	0
IP Input: Input2:8281 Input Bitrate: 0.000	Mb/s										
☑ Input: Input3:8282 Input Bitrate: 0.000 Mb	b/s										

Figure 11-1 Overview of HLS Input Nodes and All HLS streams

11.1.1 HTTP Session Setting

"HTTP Session setting" page is used to add playlist URLs to an HLS Input. Click "Setting" menu on the top menu bar to open the "Setting" page, then click "HTTP Session" menu on the menu list to open "HTTP Session Setting" page, as shown in the figure below:

Mividi Program Analysis	TSM Server : 🧉	Local Server Reconnect Server	γsis	Erro	Administrator	Log Out ery Rep	TS Anal	lysis Settin	T I
	Informatio	n on an HLS Input, including	g 🗌	HTTP P	rofile IP Profile	RTSP Sessi	on Al	arm S	Settina
Expand All Collar	streams be	ing monitored and max	_						
Play List URL			Enable	Loop	Name	Untimed			
▼ HLS [Added Strea	am Number:8] Add	HTTP Session							
http://192.168.1.27/ht	ttpstreams/channel2/	playlist.m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://192.168.1.27/ht	ttpstreams/channel2/	playlist.m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://192.168.1.113:9	99/channel12/playlist	.m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://192.168.1.113:1	1935/vod/mp4:bd0.m	p4/playlist.m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://192.168.1.10/hl	s/channel02/playlist.	m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://192.168.1.10/hl	s/channel02/playlist.	m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://192.168.1.10/hl	s/channel02/playlist.	m3u8	Yes					it	Delete
http://192.168.1.27/ht	ttpstreams/channel	HLS Input operational link	s	Op	perations on ar	ו HLS se	ession	it	Delete
http://192.168.1.27/ht	ttpstreams/channel	HLS IIIput operational link	s	105		105	Disable	Luit	Delete
http://192.168.1.27/ht	ttpstreams/channelz/	piayiist.maus	res	Yes		Yes	Disable	Edit	Delete
	campibd_pot/i/cincom	as_1@395143/master.m3u8	Yes	Yes		Yes	Disable	Edit	Delete
http://yipcontent-lh.ak	camania.net/1/cmcom			Yes		Yes			Delete

Figure 11-2 HTTP Session Setting Page

11.1.1.1 Edit Max Stream Number of an HLS Input

As mentioned before, an HTTP Input can contain up to 100 HLS streams. If there are more than one input, you can distribute these streams to different inputs and set a max number for each input as long as this value is less than 100. In that case, a user cannot add more streams to this input once your self-set maximum number is reached.

Click "Edit Max Stream Number" button next to the HTTP Input label to open the edit panel, as shown in the following figure:



Figure 11-3 Edit HLS Input Max Stream Number

11.1.1.2 Add an HTTP Session

Click "Add HTTP Session" button next to the HTTP Input label to open the "Add/Edit HTTP Session" panel, as shown in the following figure:

Add/Edit HTTP S	ession		×
* Play List URL: Name:	Single URL http://qthttp.apple.c	OURL Group com.edgesuite.net/1010qwoeiur	yfg/sl.m3u8
	☑ Enable Rotating Group :	✓ Loop 0 (Integer,defalut:0)	✓ Untimed
Start Time:	03/15/2023 12:06:3	34	
End Time:	03/15/2023 12:06:3	34	
Repeat:			~
	□ AES Encryption	n	
	* indicates requir	ed field	
			OK Cancel

Figure 11-4 Add HTTP Session Panel

The following parameters related to an HTTP session can be edited:

- Playlist URL: The playlist URL of HLS services;
- Name: A user-friendly name given to this HLS;
- **Enable:** If checked, this HLS will be analyzed in the TSM systems; and if unchecked, this HLS URL will be recorded in a configuration file but not analyzed;

The TSM systems also support HLS session timing. Uncheck **Untimed** item and set **Start Time** and **End Time**, the TSM system will analyze this HLS between the start time and end time. If a value for **Repeat** item is set, the TSM systems will repetitively analyze this stream according to the setting, such as daily, weekly, monthly.

11.1.1.3 Enable or Disable an HTTP Session

Clicking "Enable" checkbox will start HLS analysis if it is unchecked. Clicking it again will disable or stop the analysis.

When a playlist URL contains a master playlist file that includes a list of alternative bitrate streams, the TSM systems will automatically start analyzing all alternative bitrate streams listed in the master file. If the master URL is disabled in the HTTP Session panel, the analysis on all streams will be stopped.

11.1.1.4 Edit an HTTP Session

Click "Edit" button in an HLS row to open "Add/Edit HTTP Session" panel. On the "Add/Edit HTTP Session" panel the value of Playlist URL cannot be modified. If you want change the URL, please delete the old playlist URL and add a new one.

11.1.1.5 Delete an HTTP Session

Click "Delete" button in an HLS row to delete this HTTP Session.

Note: Deleting an HTTP Session is different from disabling an HTTP Session. The TSM systems will not analyze the HLS after it is disabled in HTTP Session, but this HTTP Session is still record in profile file and users can enable it again later. Deleting an HTTP Session will stop the analysis and remove the HLS from the HLS analysis configuration file.

11.1.2 HTTP Profile

The "HTTP Profile" page let users to set the low and up bound of an HLS bitrate. When the actual bitrate is out of the bound, an error will be triggered and recorded. This feature can be used to detect that an expected HLS service is lost.

Current Input: HLS Save Enable All					
Current Input: HLS Save Enable All	Disable All				
Play List Name	Min Bitrate (bps)	Max Bitrate (bps)	Current	Enable	
http://192.168.1.27/httpstreams/channel2/playlist.m3	0	10000000			Delete
http://192.168.1.113:99/channel12/playlist.m3u8	0	10000000	4355584		Delete
http://192.168.1.113:1935/vod/mp4:bd0.mp4/playlist	0	10000000			Delet
http://192.168.1.10/hls/channel02/playlist.m3u8	0	10000000	0		Delet
http://yipcontent-lh.akamaihd.net/i/cincomas_1@395	0	10000000			Delet
http://192.168.1.20:1935/vod/mp4:bd0.mp4/playlist	0	10000000			Delet
http://yipcontent-lh.akamaihd.net/i/cincomas_1@395	0	10000000	141		Delete
http://yipcontent-lh.akamaihd.net/i/cincomas_1@395	0	10000000	141		Delete
http://192.168.1.113:1935/vod/mp4:bd0.mp4/chunkli	0	10000000	1115884	v	Delete
http://yipcontent-lh.akamaihd.net/i/cincomas_1@395	0	10000000	141	v	Delete



The following parameters can be entered in this page:

• Name: The same as the Name in the HTTP Session page;

• **Min bitrate** and **Max bitrate**: The minimum and maximum bitrate of an HLS service. When the actual bitrate exceeds this limit, the HACS will report an error;

• **Enable**: The bound check is enabled or disabled.

11.2 IP Profile

Similar to the "HTTP Profile", the "IP Profile" page can be used to set the test threshold and the code rate range of the media stream. IP test is based on the US standard ANSI / SCTE 168-6 2010: *Recommended method for monitoring the quality of multimedia streaming to determine the type of test and the default thresholds.*

You can change the test threshold according to testing needs. The fields in the IP Test Setting list are editable, and you only need to enter values in the appropriate locations. Check the box for each test to enable or disable some items. As shown in the table, the default threshold depends on the encoding standard and the streaming rate.

Program Analysis	TS Analysis	IP Analysis HTT	P Analysis RT	SP Analysis Error	Query Alarm Q	uery Report	Setting
			HTTF	P Session HTTP Pro	file IP Profile	RTSP Session	Alarm Setting
Current Input:	Input2	\$	Save				
IP Profile	Codec	Bitrate(Mb/s)	Latency	Loss Duration	Loss Distance	Loss Rate(E-6)	Enable
	MPEG2	3	200	16	60	5.850	
Ip Test Setting	MPEG2	4	200	16	60	5.460	
low Bandwidth Setti	MPEG2	5	200	16	60	5.260	
	MPEG2	15	200	16	240	1.170	
	MPEG2	17	200	16	240	1.160	
	MPEG2	18	200	16	240	1.170	
	AVC	2	200	16	60	6.680	
	AVC	2	200	16	60	7.310	v
	AVC	3	200	16	60	5.850	
	AVC	3	200	16	60	5.850	
	AVC	8	200	16	240	1.280	
	AVC	10	200	16	240	1.240	
	AVC	12	200	16	240	1.220	v

Figure 11-6 IP Test Setting

Program Analysis	TS Analysis	IP Anal	ysis HTTP A	nalysis RT	SP Analysis E	rror Query Ala	arm Query	Report Se	tting
					Session HTTP	Profile IP Pro	file RTSP Se	ession Alar	m Setti
rent Input:	Input2	Port	Sav	e Reset	Min Bitrate	Max Bitrate	Current	- ··	
Ip Test Setting	225.1.1.7	5001	192.168.1.13	Flow Name	(bps) 0	(bps) 10000000	0	Enable	Delet

Figure 11-7 Flow Bandwidth Setting

Users can also define the bit rate for all streaming media in the network. As shown in the above figure, the Stream Bandwidth Settings table displays all the media streams in the network and the IP, Port, Source IP, Flow Name, and current bit rate. The system will not monitor the bit range of the IP stream by default. Users can enable this monitoring and even set the alarm.

On this page, you can set the expected minimum and maximum values for each stream. Click the "Save" button to save the configuration changes. System will then detect the bit rate that is likely to exceed the condition range.

11.3 RTSP Input

An "RTSP Input" is a virtual input that bundles multiple RTSP/RTMP streams being monitored. A TSM unit can contain multiple RTSP Inputs. The TS Analysis page will list all inputs and all RTSP/RTMP streams being monitored under each input, as shown in the following figure:

Program Analysis TS Analysis	IP Analysis HTT	P Analysis	RTSP An	alysis E	Error Query	Alarm Q	uery Re	port Sett	ing
Expand All Collapse All Display Set	ting Total Bitrate:	24.562 Mi	o/s						
Streaming ID Flow Nam	e Mb/s	Program	Quality	Sync Error	CC Error	PAT Error	PMT Error	PID Missing	CRC E
HTTP Input: HLS:8280 Input Bitrate:	18.538 Mb/s								
 IP Input: Input2:8281 Input Bitrate: 	0.000 Mb/s								
🔻 🥹 Input: Input3:8282 🛛 Input Bitrate: 6.0	024 Mb/s								
📀 TS25#rtmp://live.hkstv.hk.l	0.489	1	N/A						
📀 TS16#rtmp://live.hkstv.hk.l	0.515	1	N/A						
🥏 TS19#rtmp://live.hkstv.hk.l	0.477	1	N/A						
TS20#rtmp://live.hkstv.hk.l	0.459	1	N/A						
📀 TS17#rtmp://live.hkstv.hk.l	0.483	1	N/A						
TS21#rtmp://live.hkstv.hk.l	0.514	1	N/A						
TS22#rtmp://live.hkstv.hk.l	0.516	1	N/A						
TS15#rtmp://live.hkstv.hk.l	0.531	1	N/A						
📀 TS14#rtmp://live.hkstv.hk.l	0.520	1	N/A						
📀 TS24#rtmp://live.hkstv.hk.l	0.537	1	N/A						
TS18#rtmp://live.hkstv.hk.l	0.473	1	N/A						
TS23#rtmp://live.hkstv.hk.l	0.504	1	N/A						

Figure 11-8 Overview of RTSP/RTMP Input Nodes and All RTSP/RTMP streams

11.3.1 RTSP Session Setting

The "RTSP Session" setting page is used to add playlist URLs to an RTSP/RTMP Input. Click "Setting" menu on the top menu bar to open the "Setting" page, then click "RTSP Session" menu on the menu list to open RTSP Session setting page, as shown in the figure below:

			or Query Alarm Q	uery Rep	oort Setting
HTTP	Session	HTTP P	Profile IP Profile	RTSP Sessi	on Alarm Settir
Expand All Collapse All Show All Columns					_
lay List URL	Enable	Loop	Name	Untimed	
Input3 [Added Stream Number:0] Add RTSP Session					
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele
rtmp://live.hkstv.hk.lxdns.com/live/hks	No	Yes		Yes	Enable Edit Dele



11.3.1.1 Add an RTSP/RTMP Session

Click "Add RTSP Session" button next to the HTTP Input label to open "Add RTSP Session" panel, as shown in the following figure:

	Add RTSP Sessi	on			×
N		Single URL	O URL Group		
	* Play List URL:				
1	Name:				
k		Enable	🗆 Loop	Untimed	
k	Start Time:	09/30/2016 17:29:53			
k	End Time:	09/30/2016 17:29:53			
k	Repeat:			Ψ	
k		* indicates require	d field		
k					
K					
k					
k				OK Cano	el
K					

Figure 11-10 Add RTSP Session Panel

The following parameters related to an RTSP/RTMP session can be edited:

• Playlist URL: The playlist URL of RTSP/RTMP services;

- Name: A user-friendly name given to this RTSP/RTMP stream;
- **Enable:** If checked, this RTSP/RTMP stream will be analyzed in the TSM systems; and if unchecked, this RTSP/RTMP URL will be recorded in a configuration file but not analyzed;

TSM units also support scheduling of RTSP/RTMP stream analysis. Uncheck **Untimed** item and set **Start Time** and **End Time**, the TSM units will analyze this RTSP/RTMP stream between the start time and end time. If a value for **Repeat** item is set, the TSM units will repetitively analyze this stream according to the setting, such as daily, weekly, monthly.

11.3.1.2 Enable or Disable an RTSP/RTMP Session

Clicking "Enable" checkbox will start RTSP/RTMP analysis if it is unchecked. Clicking it again will disable or stop the analysis.

11.3.1.3 Edit an RTSP/RTMP Session

Click "Edit" button in an RTSP/RTMP stream row to open "Edit RTSP Session" panel. On the "Edit RTSP Session" panel, the value of playlist URL cannot be modified. If you want change the URL, please delete the old playlist URL and add a new one.

11.3.1.4 Delete an RTSP/RTMP Session

Click "Delete" button in an RTSP/RTMP stream row to delete this RTSP/RTMP Session.

Note: Delete an RTSP/RTMP Session is different from disable an RTSP/RTMP Session. The TSM systems will not analyze the stream after it is disabled in RTSP/RTMP Session, but this RTSP/RTMP Session is still record in the configuration file and users can enable it again later. Delete an RTSP/RTMP Session will stop the analysis and remove the stream from the RTSP/RTMP analysis configuration file.

11.4 MPEG DASH Input

11.4.1 MPEG DASH Session Setting

The "DASH Session" setting page is used to add playlist URLs to the MPEG DASH input. Click the "Settings" menu at the top of the menu bar to open the "Setting" page, and then click the "DASH Session" menu to open the "DASH Session" settings page, as shown below:

Program Analysis TS Analysis IP	Analysis HTTP Analysis	RTSP Analysis	DASH Analysis	Error Query	Alarm Quer	у	Report	Setting		
				HTTP Session	HTTP Prof	île	IP Profile	RTSP Session	DASH Sess	ion Alarm Setti
pand All Collapse All Show All Colu	nns									
list URL					Enable	Loop	Name		Untimed	
IPEG DASH [Added Stream Number:18]	Add DASH Session									
os://livesim.dashif.org/livesim/testpic_2s/Mar	ifest.mpd				Yes	Yes	Mividi		Yes	Disable Edit Del
://bitdash-a.akamaihd.net/content/sintel/sin	:el.mpd				Yes	Yes			Yes	Disable Edit Del
						1				

Figure 11-11 DASH Session Setting Page

11.4.1.1 Add MPEG-DASH Session

Click "Add DASH Session" button to open the "DASH Session" editing dialog box as shown below:

Add/Edit DASH S	Session
	● Single URL ○ URL Group
* Play List URL:	
Name:	
	🗆 Enable 🔹 Loop 🛃 Untimed
	Rotating Group : 0 (Integer,defalut:0)
Start Time:	03/15/2023 12:08:35
End Time:	03/15/2023 12:08:35
Repeat:	~
	* indicates required field
For encrypted str	ream only:
Key Pairs:	✓
Key ID:	
Key:	
	Add Key Save Key Delete Key
Please re-enable t	the URL to apply the changes.
	OK Cance

Figure 11-12 Add DASH Session Page

The following fields are on the DASH Session page:

- **Playlist URL:** This contains the MPEG DASH Stream URL;
- Name: The user-defined name of MPEG DASH Stream;
- Enable: When this checkbox is checked, the monitoring server will start to play and monitor the MPEG DASH service;

The MPEG DASH monitoring server also allows the user to define specific monitoring period and repeat option. First, check the **Untimed** checkbox, and then enter the **Start Time** and **End Time** to define time period the stream will be monitored. If you select an option for the **Repeat**, the monitoring session will be repeated daily, weekly or monthly according to your configuration.

11.4.1.2 Enable and Disable DASH Session

If a monitoring session is already started, you can click "Disable" checkbox to disable the session. Once a session is disabled, you can restart the session by click the "Enable" button.

11.4.1.3 Edit DASH Session

Click the "Edit" button next to the DASH URL and it will open the "Add/Edit DASH Session" dialog. Please note the URL field cannot be edited. If you want to edit the URL, please delete the session and enter a new session.

11.4.1.4 Delete DASH Session

Click the "Delete" button next to the DASH URL and you can delete the DASH session. Note: "Delete" is different from "Disable". "Disable" will stop the monitoring of the stream, and "Delete" will remove the session from the configuration document so it will not be displayed again.

11.5 SRT Input

11.5.1 SRT Session Configuration

Use the "SRT Session" setting to add the addresses of the SRT streams to be monitored. Click the top-level menu "Settings" to enter the system settings page, and then click the "SRT Session" sub menu to enter the SRT session management page.

IP Multicast HTTP Session HTTP Profile IP Profile RTSP Session DASH Session SRT Session Alarm Se Expand All Collapse All Show All Columns SRT Address Enable Name Untimed ✓ Input6 [Added Stream Number:2] Add SRT Session ✓ Input6 [Added Stream Number:2] Add SRT Session ✓ It://36.46.154.201:1008075treamid=#1::m=reguest,h=live.dayang.com/livetc/W8o887 Ves Ves Ves Disable Edit U
RT Address Enable Name Untimed I nput6 [Added Stream Number:2] Add SRT Session Ves Enable Edit (1) srt://36.46.154.201:10080?mode=listener No Ves Enable Edit (1)
▼ Input6 [Added Stream Number:2] Add SRT Session srt://36.46.154.201:10080?mode=listener No Yes Enable Edit (
srt://36.46.154.201:10080?mode=listener No Yes Enable Edit (
srt://36-46-154-201:10080?streamid=#1::m=request h=live dayang.com/livetc/W86887 Ves Ves Ves Disable_Edit
srt://192.168.1.8:9900 Yes Yes Disable Edit

Copyright © 2013 - 2021 Mividi. All Rights Reserved Figure 11-13 SRT Input Session Management Page

11.5.1.1 Add SRT Session

In the "SRT Session" page, click "Add SRT Session" to open the "Add/Edit Session" dialog as shown in the following figure:

Add/Edit SRT S	ession	٢
* Play List URL:		
Name:		
	Enable Intimed	
	Rotating Group : 0 (Integer,defalut:0)	
Start Time:	08/25/2021 16:35:32	
End Time:	08/25/2021 16:35:32	
Repeat:	×	
	* indicates required field	
	OK Cancel	

Figure 11-14 Add SRT Session Dialog

Enter the following parameter of an SRT session:

• Playlist URL: the URL address of the corresponding SRT stream;

• Name: a user-defined name of the SRT stream. This value will be used as the SRT stream name in the subsequent display;

• Enable: If checked, the SRT stream will be analyzed, otherwise, only the session will be recorded but not analyzed;

The SRT analysis service also supports time-based analysis which can start and stop at specific times. Uncheck the "untimed" option, and set the "start time" and "end time", and the system can analyze the SRT stream within the specified time period.

11.5.1.2 Disable and Enable SRT Sessions

Users can disable and enable SRT sessions by checking or unchecking the "Enable" and "Disable" link button in the "SRT Session" page.

11.5.1.3 Modify SRT Session

Click the "Modify" button on the "SRT Session" page to pop up the "Add/Edit SRT Session" dialog.

When you click the "Edit SRT Session" link to open the dialog, the "Playlist URL" item is populated and cannot be changed. If you want to change the "Playlist URL", delete the original URL first, and then add a new one.

11.5.1.4 Delete SRT Session

Click the "Delete" button on the "SRT Session" page to delete the SRT session. Note: Deleting is different from disabling. Disabling means that the system will not analyze the corresponding SRT stream, but the SRT session is still recorded in the relevant configuration file and can be re-enabled next time; deleting will stop the SRT session analysis and also remove the SRT address from the configuration.

11.6 Alarm Setting

TS Setting provides user-configurable monitoring parameters. It includes three parts:

- Transport Stream Profile
- Transport Stream Error Setting
- Transport Stream Alarm Setting

Click "Alarm Setting" tab on the menu bar on the "Setting" page to show the "Alarm Setting" page.

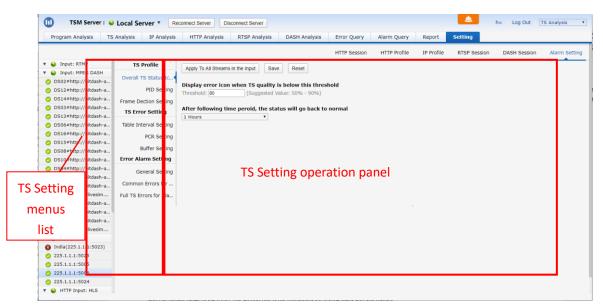


Figure 11-15 Transport Stream Setting Panel

11.6.1 Transport Stream Profile

Transport stream profile includes three components: The first one is the overall TS status icon setting. The second one defines the PIDs present in the stream and the bitrate range of each PID. The third one is the thresholds for testing black and still frames.

1. Overall TS Status Icon Setting

Click "Overall TS Status Icon Setting" menu on the left side under the "TS Profile label" to open "Overall TS Status Icon Setting" panel, as shown in the following figure:

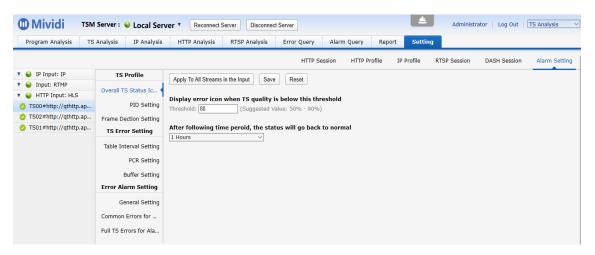


Figure 11-16 TS Setting – Overall Status Icon Setting Panel

The TSM Web uses an icon to display the overall status of the transport stream. The icon has three statuses: error (red), warning (yellow), and normal (green). When the icon displays an error status, it indicates that there is currently an error in the transport stream. The following conditions can trigger an error in the transport stream:

- The overall TS quality is below the configured threshold
- Video or audio stream loss
- Black or still Frames

The warning icon indicates that an error occurred in the past, but the stream has returned to normal. To avoid an error that occurred long in the past is still being displayed as a warning, you can select a time period by using the "After following time period, the status will go back to normal" option. After this time period, if the error does not occur again, the overall status of the transport stream becomes normal.

The button "Apply to All Streams in the Input" will apply the current status icon configuration to all the streams in the Input.

2. PID Setting

Click "PID Setting" menu on the left side under the "TS Profile" label to open "PID Setting" panel, as shown in the following figure:

Program Analysis	TS Analysis	IP Analysis	HTTP Analysis	RTSP Analysis	DASH Analysis	Error Query	Alarm Query	Report	Setting			
						HTTP Session	HTTP Profile	IP Profile	RTSP Session	DASH Se	ssion Ala	rm Settin
🤪 Input: RTMP	TSF	Profile									_	-
Input: MPEG DASH			Save Cancel									
DS02#http://bitdash-a.	Overall T	'S Status Ic	PID		Туре		Program	Min Bitrate	Max Bitrate	Current	Enable	
DS12#http://bitdash-a.		PID Setting	Video 0xC3B		AVC		518	(bps) 0	(bps) 100000000	6023368		Delete
DS14#http://bitdash-a.	Frame De	ction Setting	Audio 0xC3C		AAC		518	0	1000000000	165740		Delete
DS03#http://bitdash-a.			Null		Reserved		0	0	100000000	26169		Delete
DS13#http://bitdash-a.	TS Erro	or Setting										
DS06#http://bitdash-a.	Table Int	erval Setting										
DS16#http://bitdash-a.		PCR Setting										
DS15#http://bitdash-a.												
DS08#http://bitdash-a.	. В	Suffer Setting										
DS10#http://bitdash-a.	. Error Ala	rm Setting										
DS04#http://bitdash-a.		and Cathorn										
	Ge	neral Setting										
DS17#http://bitdash-a.		neral Setting Errors for										
DS17#http://bitdash-a.	 Common	Errors for										
DS17#http://bitdash-a. DS05#http://bitdash-a. DS00#https://livesim	Common											
 DS17#http://bitdash-a. DS05#http://bitdash-a. DS00#https://livesim DS09#http://bitdash-a. 	Common Full TS En	Errors for										
 DS17#http://bitdash-a. DS05#http://bitdash-a. DS00#https://livesim DS09#http://bitdash-a. DS07#http://bitdash-a. 		Errors for										
 DS17#http://bitdash-a. DS05#http://bitdash-a. DS00#https://livesim DS09#http://bitdash-a. DS07#http://bitdash-a. DS11#http://bitdash-a. 	Ger Full TS En	Errors for										
DS17=http://bitdash-a. DS05=http://bitdash-a. DS00=https://livesim DS09=http://bitdash-a. DS07=http://bitdash-a. DS11=http://bitdash-a. DS01=https://livesim	Ger Full TS En	Errors for										
 DS17#http://bitdash-a. DS05#http://bitdash-a. DS00#https://livesim DS09#http://bitdash-a. DS07#http://bitdash-a. DS11#http://bitdash-a. DS11#http://livesim IP Input: IP 	Ger Full TS En	Errors for										
DS17#http://bitdash-a. DS05#http://bitdash-a. DS09#http://bitdash-a. DS09#http://bitdash-a. DS11#http://bitdash-a. DS11#http://bitdash-a. DS11#http://bitdash-a. DS11#http://bitdash-a. DS11#http://bitdash-a.	Ger Full TS En	Errors for										
DS17≠http://bitdash-a. DS05≠http://bitdash-a. DS00≠http://bitdash-a. DS00≠http://bitdash-a. DS11≠http://bitdash-a. DS11≠http://bitdash-a. DS11≠http://bitdash-a. DS12+http://bitdash-a. DS12+http://bitdash-a. DS11≠http://bitdash-a. DS11+http://bitdash-a. DS11+http://bitdash-a. DS11+http://bitdash-a. DS11+http://bitdash-a. DS12+http://bitdash-a. DS12+http:/bitdash-a. DS12+http:/bitdash-a. DS12+http:/bitdash-a. DS12+http:/bitdash-	Ger Full TS En	Errors for										
DS17=http://bitdash-a. DS05=http://bitdash-a. DS00=https://bitdash-a. DS11=http://bitdash-a. DS11=http:/bitdash-a. DS12=bttp:/bttp:/bitdash-a. DS12=bttp:/btttp:/bttp:/bttp:/bttp:/bttp:/bttp:/bttp:/bttp:/btttp:/b	Ger Full TS En	Errors for										
 DS17#http://bitdash-a. DS05#http://bitdash-a. DS00#https://livesim DS09#http://bitdash-a. DS07#http://bitdash-a. DS11#http://bitdash-a. 	Ger Full TS En	Errors for										

Figure 11-17 TS Setting – PID Setting Panel

This panel displays the audio and video PIDs of selected Transport Stream. Users can setup expected high and low bitrate bounds for each PID and the TSM systems will test the actual bitrate against the bounds. If the bounds are violated, an error will be logged in the database, and an alarm may be sent to the user if it is configured. The logged errors can be seen in the TS Errors panel (See 3.4.4).

The "Enable" checkbox let users to enable or disable the bitrate check.

3. Frame Detection Setting

Click "Frame Detection Setting" menu under the "TS Profile" label to open "Frame Detection Setting" panel.

The "Frame Detection Setting" is used to set the thresholds for **Black Frame** and **Still Frame** detection. The threshold for the black frame detection is the pixel gray scale value (range 0-255). A gray scale below the threshold is considered as a black pixel. The still frame threshold set the bound for the difference in gray scale in two consecutive frames. The value in the "Error after Consecutive Frames" field defines that an error is triggered if the number of consecutive frames meets the test conditions. The "Enable" checkbox will enable or disable the tests. Similar to the PID Setting, if the frame detection profiles are violated, an error will be logged in the database, and an alarm may be sent to the user if it is configured as such.

If the software is not able to decode the video at all, it will report "Failed to decode video error". A user

can specify the time period in which the software fails to decode to trigger an error alarm.

Please note: The frame test is currently only applied to the key frames. Therefore, the consecutive frames mean consecutive key frames.

Click "Apply to All Streams in the Input" will apply the same setting to all streams being monitored in this input.

Mividi TSM	l Unit : ⊌ Local 🔻	Reconnect Unit Disconnect Unit Administrator Log Out TS Analysis 🗸	·
Program Analysis TS A	Analysis IP Analysis	HTTP Analysis DASH Analysis Error Query Alarm Query Report Setting	
		IP Multicast HTTP Session HTTP Profile IP Profile RTSP Session DASH Session SRT Session Alarm Setting	1
🔻 🤪 IP Input: UDP1	TS Profile	Apply To All Streams in the Input Save Reset	1
225.3.3.3:9010		Apply To All Streams in the Input Save Reset	
225.3.3.3:9009	Overall TS Status Ico	Black Frame:	
225.3.3.3:9013	PID Setting	Deack France: Threshold (32): 32 Error after Consecutive Frames (3): 10 Enable	
225.3.3.3:9007	Loudness Check Sett	Intestind (32), Va Life and Consectave Hames (3), To Cultable	
225.3.3.3:9004		Still Frame:	l
225.3.3.3:9018	Frame Dection Setting	Threshold (10): 10 Error after Consecutive Frames (3): 10 Enable	
225.3.3.3:9019	Subtitle Loss Setting		
225.3.3.3:9005	TS Error Setting	Failed To Decode:	
225.3.3.3:9012		Threshold (30): 30	
225.3.3.3:9006	Table Interval Setting	Valid Testing Period:	
🔻 🤪 IP Input: UDP2	PCR Setting	Start Time: 0 V Hour 0 V Minute 0 V Second	
🔻 🤪 HTTP Input: HLS/HTTP	Buffer Setting		
🔻 🤪 Input: MPEG DASH			
	Error Alarm Setting		
	General Setting		
	Common Errors for		
	Full TS Errors for Alar		
	Select Streams to Al		
			1
		Convictet @ 2013 - 2022 Muldi All Picture Recorved	

Figure 11-18 TS Setting – Frame Detection Setting Panel

4. Subtitle/CC Loss Configuration

Click the "Subtitle Loss Setting" menu in the "TS Profile" setting menu list, and the subtitle loss setting panel will appear, as shown in the figure below:

You can add the program number of the subtitle data you want to monitor and edit the interval time. If no subtitle or closed captioning data is found after this interval, the TSM monitoring system will report an error. Check the "Enable" checkbox to enable monitoring. After completing the configuration, click the "Save" button to save the changes.

Figure 11-19 TS Profile – Subtitle/CC Loss Setting

11.6.2 TS Error Setting

Although MPEG, DVB and ATSC standards provide default thresholds for table interval, PCR timing, and buffer usage, users may change these thresholds based on their own test needs. The following three sections describe methods for setting up these thresholds.

Note: The "TS Error Setting" is applied input-wide, which means that if the setting is changed for one stream, the new setting is applied to all streams under the same input.

1. Table Interval Setting

Click "Table Interval Setting" menu under the "TS Error Setting" label on the left side of the page to open the interval setting page:

Program Analysis TS An	alysis IP Analysis	HTTP Analysis RTS	SP Analysis DASH Analysi	s Error Query Alarm Quer	y Report Setting	
				HTTP Session HTTP Profi	le IP Profile RTSP Session	DASH Session Alarm Settin
🤪 Input: RTMP	TS Profile	Save Reset Standar	rd: DVB 🔻	Change testi	ng standard	
Input: MPEG DASH	Overall TC Chabus Is	Save Reset Standar	Id. DVB -		ng stanuaru	
OS02#http://bitdash-a	Overall TS Status Ic	* The following settings are	e applied to all transport strean	ns in the same input.		
DS12#http://bitdash-a	PID Setting	Table Name	Table ID	Max Interval (ms)	Default Interval (ms)	Enable
DS14#http://bitdash-a	Frame Dection Setting	PAT	0x0	500	500	■ Enable
DS03#http://bitdash-a		PMT	0x0	500	500	€ €
DS13#http://bitdash-a	TS Error Setting	NIT	0x40	10000	10000	×
DS06#http://bitdash-a	Table Interval Setting	SDT	0x42	2000	2000	
DS16#http://bitdash-a	PCR Setting	EIT	0x4E	2000	2000	2
DS15#http://bitdash-a	FOR Setting	TDT	0x70	30000	30000	
DS08#http://bitdash-a	Buffer Setting	NIT_OTHER	0x41	10000	10000	
DS10#http://bitdash-a	Error Alarm Setting	SDT_OTHER	0x46	10000	10000	
DS04#http://bitdash-a	October 1 Contract	EIT_OTHER	0x4F	10000	10000	
DS17#http://bitdash-a	General Setting					
	Common Errors for					
DS00#https://livesim	Full TS Errors for Ala					
DS09#http://bitdash-a						
DS07#http://bitdash-a						
DS11#http://bitdash-a						
DS01#https://livesim						
IP Input: IP						
India(225.1.1.1:5023)						
225.1.1.1:5025						
225.1.1.1:5025 225.1.1.1:5005 225.1.1.1:5006						

Figure 11-20 TS Error Setting – Table Interval Setting Panel

The interval threshold can be different under different testing standards. Three test standards are currently supported: MPEG, DVB and ATSC. The "Standard" dropdown list is used to change the testing standard. When a different test standard is selected, only the tables applicable to this standard are displayed. Enter the max table interval value to change the table threshold setting. The "Enable" check box is used to enable or disable table interval check for a selected table type. Click "Save" button to save the setting.

2. PCR Setting

Click "PCR Setting" menu under the "TS Error Setting" label on the left side of the page to open the "PCR Setting" panel:

Program Analysis TS	Analysis IP Analysis	HTTP Analysis	RTSP Analysis DASH Analys	s Error Query Alarm Query	Report Setting	
				HTTP Session HTTP Profile	IP Profile RTSP Session	DASH Session Alarm Settin
🥪 Input: RTMP	TS Profile	Save Reset				
Input: MPEG DASH	Overall TS Status Ic					
DS02#http://bitdash-a		* The following settings	are applied to all transport stream	ns in the same input.		
DS12#http://bitdash-a	PID Setting	Test Name	Threshold	Default	Unit	Enable
DS14#http://bitdash-a	Frame Dection Setting	PCR Accuracy	500	500	ns	
DS03#http://bitdash-a	TS Error Setting	PCR Jitter	1000	1000	ns	2
DS13#http://bitdash-a	13 Error Setting	PCR Interval	100	100	ms	
DS06#http://bitdash-a	Table Interval Setting	PCR Offset	810	810	Hz	
DS16#http://bitdash-a	PCR Setting					
DS15#http://bitdash-a	-					
DS08#http://bitdash-a	Buffer Setting					
DS10#http://bitdash-a	Error Alarm Setting					
DS10#http://bitdash-a DS04#http://bitdash-a						
DS04#http://bitdash-a	General Setting					
DS04#http://bitdash-a						
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a	General Setting					
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS00#https://livesim	General Setting Common Errors for					
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS00#https://livesim DS09#http://bitdash-a	General Setting Common Errors for					
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS00#https://livesim DS09#http://bitdash-a DS07#http://bitdash-a	General Setting Common Errors for					
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS00#http://bitdash-a DS00#http://bitdash-a DS09#http://bitdash-a DS07#http://bitdash-a DS11#http://bitdash-a	General Setting Common Errors for					
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a DS07#http://bitdash-a DS01#http://bitdash-a DS01#http://bitdash-a	General Setting Common Errors for					
DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a DS1#http://bitdash-a DS1#http://bitdash-a <td>General Setting Common Errors for</td> <td></td> <td></td> <td></td> <td></td> <td></td>	General Setting Common Errors for					
DS04#http://bitdash-a DS07#http://bitdash-a DS05#http://bitdash-a DS00#http://bitdash-a DS09#http://bitdash-a DS07#http://bitdash-a DS01#http://bitdash-a DS01#http://bitdash-a DS01#http://bitdash-a DS01#http://bitdash-a	General Setting Common Errors for					
DS04=http://bitdash-a DS17=http://bitdash-a DS05=http://bitdash-a DS00=http://livesim DS09=http://bitdash-a DS07=http://bitdash-a DS11=http://livesim OS11=http://livesim IP1put: IP India(225.1.1.1:5025)	General Setting Common Errors for					
<pre>DS04#http://bitdash-a DS03#http://bitdash-a DS05=http://bitdash-a DS00#http://bitdash-a DS09#http://bitdash-a DS01#http://bitdash-a DS01#http://bitdash-a DS01#http://livesim @ IP Input: IP India(225.1.1.1:5023)</pre>	General Setting Common Errors for					

Figure 11-21 TS Error Setting – PCR Setting Panel

The PCR testing parameters are displayed in "PCR Setting" panel. Users can set the threshold for each PCR parameter. If the threshold is exceeded, an error will be logged in the database. The "Enable" check box is used to enable or disable PCR testing. Click "Save" button to save the setting.

Note: Because most HLS streams are variable bitrate (VBR) streams, the PCR accuracy and Jitter testing are automatically disabled.

3. Buffer Setting

Click "Buffer Setting" menu under the "TS Error Setting" label on the left side of the page to open "Buffer Setting" panel:

Program Analysis T	S Analysis IP Analysis	HTTP Analysis	RTSP Analysis	DASH Analysis	Error Query	Alarm Query	Report S	etting		
					HTTP Session	HTTP Profile	IP Profile	RTSP Session	DASH Session	Alarm Settin
🥪 Input: RTMP	TS Profile									-
🥹 Input: MPEG DASH		Save Reset								
DS02#http://bitdash-a	Overall TS Status Ic	* The following setting	nos are applied to a	II transport streams in	the same input.					
DS12#http://bitdash-a	PID Setting	-				B C B (44)			Enable	
DS14#http://bitdash-a	Frame Dection Setting	Test Name Audio Buffer		Threshold (%) 100		Default (%)				
DS03#http://bitdash-a		Video Buffer		100		100				
DS13#http://bitdash-a	TS Error Setting	Video Bullel		100		100				
DS06#http://bitdash-a	Table Interval Setting									
DS16#http://bitdash-a	PCR Setting									
DOMESTIC: AND A STREET	FOR Setting									
DS15#http://bitdash-a										
	Duffee California									
DS08#http://bitdash-a	Duffee California									
DS08#http://bitdash-a DS10#http://bitdash-a	Buffer Setting									
 DS08#http://bitdash-a DS10#http://bitdash-a DS04#http://bitdash-a 	Buffer Setting Error Alarm Setting General Setting									
 DS08#http://bitdash-a DS10#http://bitdash-a DS04#http://bitdash-a DS17#http://bitdash-a 	Buffer Setting									
 DS08#http://bitdash-a DS10#http://bitdash-a DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a 	Buffer Setting									
 DS08#http://bitdash-a DS10#http://bitdash-a DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS05#http://bitdash-a DS00#https://livesim 	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
 DS08=http://bitdash-a DS10=http://bitdash-a DS04=http://bitdash-a DS17=http://bitdash-a DS05=http://bitdash-a DS00=https://livesim DS09=http://bitdash-a 	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
 DS08#http://bitdash-a DS10#http://bitdash-a DS04#http://bitdash-a DS17#http://bitdash-a DS05#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a 	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
 DS08#http://bitdash-a DS10#http://bitdash-a DS04#http://bitdash-a DS05#http://bitdash-a DS05#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a DS09#http://bitdash-a 	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
DS08=http://bitdash-a DS10=http://bitdash-a DS04=http://bitdash-a DS05=http://bitdash-a	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
 DS08=http://bitdash-a DS10=http://bitdash-a DS04=http://bitdash-a DS05=http://bitdash-a DS05=http://bitdash-a DS05=http://bitdash-a DS05=http://bitdash-a DS07=http://bitdash-a DS11=http://bitdash-a 	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
DS08 = http://bitdash-a DS10 = http://bitdash-a DS04 = http://bitdash-a DS04 = http://bitdash-a DS05 = http://bitdash-a DS05 = http://bitdash-a DS09 = http://bitdash-a DS09 = http://bitdash-a DS09 = http://bitdash-a DS01 = http:/bitdash-a DS01 = h	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
DS08 = http://bitdash-a DS10 = http://bitdash-a DS04 = http://bitdash-a DS05 = http://bitdash-a DS05 = http://bitdash-a DS05 = http://bitdash-a DS06 = http://bitdash-a DS06 = http://bitdash-a DS05 = http://bitdash-a DS05 = http://bitdash-a DS05 = http://bitdash-a DS01 = http://bitdash-a DS01 = http://bitdash-a DS01 = http://bitdash-a DS11 = http://bitdash-a DS12 = http://bitdash-a DS11 = http://bitdash-a DS12 = http://bitdash-a DS13 =	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									
 DS08=http://bitdash-a DS10=http://bitdash-a DS04=http://bitdash-a DS04=http://bitdash-a DS05=http://bitdash-a DS09=http://bitdash-a DS09=http://bitdash-a DS09=http://bitdash-a DS19=http://bitdash-a DS1=http://bitdash-a DS1=http://bitdash-a DS1=http://bitdash-a 	Buffer Setting Error Alarm Setting General Setting Common Errors for Full TS Errors for Ala									

Figure 11-22 TS Error Setting – Buffer Setting Panel

Because the buffer usage limit for audio and video streams depends on encoding parameters and the value is either encoded in the stream or derived from encoding parameters, users are not allowed to set an arbitrary number, which is difficult to decide. Instead, users can set a relative percentage value, such as 150% or 200% of the standard value as the new limit.

11.6.3 Transport Stream Alarm Setting

To notify users when TS errors occur, the TSM systems provide several ways of sending alarm messages to users: Email, SMS, multi-viewer display and sound alarm on TSM Web. In order to email alarm messages, you need to add the receiver email addresses in this page. The SMS messages are sent by your local wireless providers via their Internet gateway.

Please note that the error alarms are not generated by default. They must be configured before any error alarms will be sent. The configuration procedure for alarms is described in the following sections.

All error alarms generated by the service are also recorded in the TSM monitoring system database for review and search. This information is displayed in "TS Alarm History" page (See 4.2.4).

The procedures for setting up alarms are as follows:

1. General Setting

Click "General Setting" menu under the "Error Alarm Setting" label to open "General Setting" panel:

Mividi TSN	/IUnit: ⊌ Local 🔻	Reconnect Unit Disconnect Unit	Administrator Log Out TS Analysis 💌
Program Analysis TS	Analysis IP Analysis	HTTP Analysis DASH Analysis Error Query Alarm Query Report Setting	
		IP Multicast HTTP Session HTTP Profile IP Profile RTSP Sess	ion DASH Session SRT Session Alarm Setting
🔻 🤪 IP Input: UDP1	TS Profile	Save Cancel	
225.3.3.3:9010	Overall TS Status Ico	Carte	
225.3.3.3:9009	Overall 15 Status Ico	* The following settings are applied to all transport streams in the same input.	
225.3.3.3:9013	PID Setting		
225.3.3.3:9007	Loudness Check Sett	Email Addresses to Send Alarms: Config Mail Server Edit Email Template	
225.3.3.3:9004	5 B 6		
225.3.3.3:901B	Frame Dection Setting		
225.3.3.3:9019	Subtitle Loss Setting		
225.3.3.3:9005	TS Error Setting	ex: person@gmail.com;person1@gmail.com	
225.3.3.3:9012	This is a second converse		
225.3.3.3:9006	Table Interval Setting	Messaging Service to Send Alarms: Config SMS Server	
🔻 🤪 IP Input: UDP2	PCR Setting		
HTTP Input: HLS/HTTP	Buffer Setting		
🔻 🤪 Input: MPEG DASH	Error Alarm Setting		
	Endradamoetang	ex: 10001;10002	
	General Setting	Configure Webhook	
	Common Errors for	ooringere reserveer	
	Full TS Errors for Alar	Resend Repeat Errors Resend Interval:	
	Select Streams to Al	Resend Interval.	
		Alarm Period: (To cross to next day, make the end time less than the start time.)	
		Start Time: 0 • Hour 0 • Minute 0 • Second	
		End Time: 0 v Hour 0 v Minute 0 v Second	
		Alarm Length (second)	
		5 (Alarm Length has to be between 1 - 1000 seconds.)	
		Convright (b 2013 - 2022 Mivid). All Rights Reserved	

Figure 11-23 Error Alarm Setting – General Setting Page

On this page, users can set email addresses and phone numbers to receive alarms. Because TS errors often happen repetitively, users can choose whether they want the system to re-send alarms when the same errors happen again. If so, the repeat interval can also be set here.

Users can send alarms to a Slack channel using Slack Webhook API. To do that, first follow the direction from Slack website to setup Slack Webhook. Once you finish, the Slack service should generate a URL for application to send messages to a Slack channel, such as the one below: https://hooks.slack.com/services/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

2. Common Errors for Alarm

Click "Common Errors for Alarm" menu under the "Error Alarm Setting" label to open the alarm setting panel for common errors, as shown in the following figure:

🕕 Mividi тsм	Unit : ⊌ Local 🔻	econnect Unit Disconnect Unit		Administrator	Log Out TS Analysis 🗸
Program Analysis TS A	Analysis IP Analysis	HTTP Analysis DASH Analysis Error Query Alarm Query Repo	rt Setting		
		IP Multicast HTTP Sessio	on HTTP Profile IP Profile	RTSP Session DASH Session	SRT Session Alarm Setting
 P Input: UDP1 225.3.3.3:9010 225.3.3.3:9009 225.3.3:9013 	TS Profile Overall TS Status Ico PID Setting	Save Cancel * The following settings are applied to all transport streams in the same input.			
 225.3.3.3:9007 225.3.3.3:9004 225.3.3:9018 225.3.3:9019 	Loudness Check Sett Frame Dection Setting Subtitle Loss Setting	TS Quality Threshold: (Set Threshold in TS Profile Section.) Carrier Loss (Loss of Input Signal): Carrier Gain (Regain Input Signal):		Messaging (Email, SMS, SNMP, Slack) Messaging (Email, SMS, SNMP, Slack)	Visual/Audio
 225.3.3.3:9005 225.3.3.3:9012 225.3.3.3:9006 	TS Error Setting Table Interval Setting	Conner vann (vegan in pout signar); Consecutive Black Frames: Still Frames (Consecutive Identical Frames);		Messaging () Messaging () Messaging ()	□ Visual/Audio □ Visual/Audio □ Visual/Audio
 IP Input: UDP2 HTTP Input: HLS/HTTP Input: MPEG DASH 	PCR Setting Buffer Setting Error Alarm Setting	PID Bitrate Out Of Range (the bitrate range can be set in Stream Prifile tab):		Messaging ()	Visual/Audio
	General Setting Common Errors for Full TS Errors for Alar Select Streams to Al	Subtite/CC Loss (Loss of Subtitle or CC):		OMessaging ()	Usual/Audio
		Copyright (b) 2013 - 2022 Mividi, All Rights	Reserved		

Figure 11-24 Error Alarm Setting – Common Errors for Alarm Setting Page

The common errors are the important errors that users normally would like to receive alarms when they occur. They include six common errors:

TS Quality Threshold:

The TS Quality summarizes the overall TS error status. Users can set a TS quality threshold, and the TSM servers will send error alarms when the actual quality scores of a Transport Stream are below the threshold.

Carrier Loss and Carrier Gain:

Alarms are sent when the Transport Stream service is not available, or an off-line Transport Stream service shows up again.

Black Frames and Still Frames:

The alarms are triggered when black frames or frozen frames are detected as described in the Transport Stream Profile (See11.6.1.3) section.

PID Bitrate Out of Range

The alarms are triggered when audio or video bitrate is out-of-defined range, as described in in the Transport Stream Profile (See11.6.1.2) section. This feature can often be used to detect loss of audio or video elementary stream.

3. Full TS Errors for Alarm

Click "Full TS Errors for Alarm" menu under the "Error Alarm Setting" label to open the alarm setting panel for a full list of error code, as shown in the following figure:

All error codes are displayed in this page which can be selected to trigger alarms. The meaning of each code is described in more detailed in the **Appendix: Monitoring System Error Codes.**

Mividi TSM	Unit : ⊌ Local 🔻 🛛	Reconnect Unit	Disconnect Unit	Administra	itor Log Out	TS Analysis
Program Analysis TS A	Analysis IP Analysis	HTTP Analysis	DASH Analysis	Error Query Alarm Query Report Setting		
				IP Multicast HTTP Session HTTP Profile IP Profile RTSP Session DASH Session	SRT Sessio	n Alarm Settin
🔻 🤪 IP Input: UDP1	TS Profile					
225.3.3.3:9010		Save Cance		Search Show Enabled Errors Only All Errors		
225.3.3.3:9009	Overall TS Status Ico	* The following a	attings are applied t	o all transport streams in the same input.		
225.3.3.3:9013	PID Setting			o air d'ansport streams in die same input.		
225.3.3.3;9007		Code	Priority	Message	Messaging	Visual/Audio
225.3.3.3:9004	Loudness Check Sett	1	General Errors	STREAM_START		
225.3.3.3:9018	Frame Dection Setting	2	General Errors	STREAM_END		
225.3.3.3:9019		101	General Errors	INPUT_ERROR		
	Subtitle Loss Setting	102	General Errors	SYSTEM_ERROR		
225.3.3.3:9005	TS Error Setting	103	General Errors	SYSTEM_BUFFER_OVERFLOW		
225.3.3.3:9012	Table Interval Setting	104	General Errors	LICENSE_ERROR		
225.3.3.3:9006	Table Interval Secong	203	General Errors	FAILED_TO_DECODE_VIDEO		
😔 IP Input: UDP2	PCR. Setting	213	General Errors	BLACK_FRAME_STOPPED		
😔 HTTP Input: HLS/HTTP	D. Hour Contract	214	General Errors	STILL_FRAME_STOPPED		0
🖌 🤪 Input: MPEG DASH	Buffer Setting	204	General Errors	LOUDNESS_NORMAL		
	Error Alarm Setting	207	General Errors	AUDIO_MISSING		
	General Setting	208	General Errors	VIDE0_MISSING		
	General Secong	210	General Errors	OVERALL_QUALITY_LOW		
	Common Errors for	211	General Errors	FRAME_SCORE_LOW		
	Full TS Errors for Alar	220	General Errors	PACKET_SCRAMBLED		
	Tuil to chois for Aldi	225	General Errors	LOUDNESS_EXCEEDS_DIALNORM_BOUND		
	Select Streams to Al	226	General Errors	LOUDNESS_RETURNED_NORMAL_FROM_TOO_LOW		
		227	General Errors	LOUDNESS_RETURNED_NORMAL_FROM_TOO_HIGH		
		228	General Errors	LOUDNESS_RETURNED_TO_DIALNORM_BOUND		
		300	General Errors	RECORDING_STOPPED		
		301	General Errors	RECORDING_RUNNING_AFTER_STOPPED		
		302	General Errors	HARD_DRIVE_FULL		
		902	General Errors	SYNC_GAIN		0
		1003	Priority One	MISSING_EPG_EVENT_INFO		
		1006	Priority One	PROGRAM_DATA_LOSS		

Figure 11-25 Error Alarm Setting – Full TS Errors for Alarm Setting Page

4. Select Streams to Alarm

In the "Alarm Settings" page, click the "Select Streams to Alarm" menu and it will show a list of streams being monitored. By default, if you enable alarms for an input, all streams under the input will generate alarms if errors are detected. However, you can unselect some streams. For example, if some test streams contain known errors, you may not want these streams to generate alarms over and over again. To do that, unselect some streams and click the "Save" button, and alarms will not be sent for these streams even errors are detected.

		HTTP Analysis	RTSP Analysis	DASH Analys	is Error Que	ry Alarm Query	Report	Setting
	IP Multicas	t HTTP Session	HTTP Profile	IP Profile	RTSP Session	DASH Session	SRT Session	Alarm Settin
🤪 IP Input: IP	TS Profile	Save Cancel						
225.3.1.1:6006	Overall TS Status Ic	Bare Cancer						
225.3.3.3:9001								-
225.3.1.1:6020	PID Setting	Stream ID				Stream Name	Online	Select
🤪 Input: rtsp 🛛 👔	Frame Dection Setti	225.3.1.1:6006 225.3.3.3:9001					✓	
3 TSO#rtmp://livetv.dhtv	Subtitle Loss Setting	225.3.3.9001					✓ ✓	
🥹 Input: dash								_
🥹 Input: Input6	TS Error Setting							
	Table Interval Setting							
🕉 srt://36.46.154.201:10	PCR Setting							
😔 HTTP Input: HLS	Ť							
7500#http://hw-m-l.cz	Buffer Setting							
· · ·	Error Alarm Setting							
7S01#http://hw-m-l.cz	General Setting							
1 TS02#https://cctvksh5								
 The input The 	Common Errors for							
-	Full TS Errors for Al							
751	Select Streams to A							

Figure 11-26 Alarm Setting – Select Streams to Alarm

11.7 Sound Alarm

The TSM Web provides sound alarm when any of the monitoring systems trigger an error alarm, in addition to the Email, SMS and Multi-viewer display alarms provided by the TSM monitoring systems. To enable alarms and set up alarm triggers, click "Setting" on the top menu bar. Select a transport stream and click the "Alarm Setting" sub-menu item. On the list of TS Setting categories, select either "Common Errors for Alarm" or "Full TS Errors for Alarm" to configure the alarm triggers.

🕕 Mividi тsм	l Unit : ⊌ Local 🔻	Reconnect Unit Disconnect Unit	Administrator	Log Out TS Analysis
Program Analysis TS A	Analysis IP Analysis	HTTP Analysis DASH Analysis Error Query Alarm Query Report Setting		
		IP Multicast HTTP Session HTTP Profile IP P	Profile RTSP Session DASH Session	SRT Session Alarm Setting
🕈 🤪 IP Input: UDP1	TS Profile	Save Cancel		
225.3.3.3:9010	Overall TS Status Ico			
225.3.3.3:9009		* The following settings are applied to all transport streams in the same input.		
225.3.3.3:9013	PID Setting	TS Quality Threshold: (Set Threshold in TS Profile Section.)	Messaging (Email, SMS, SNMP, Slack)	□ Visual/Audio
225.3.3.3:9007	Loudness Check Sett	To Quality Threshold. (Jet Threshold in To Frome Jeculon.)	 Messaging (Email, SMS, SNIMP, Slack) 	U Visual/Audio
225.3.3.3:9004	Frame Dection Setting	Carrier Loss (Loss of Input Signal):	Messaging (Email, SMS, SNMP, Slack)	Visual/Audio
225.3.3.3:9018	-		_	
225.3.3.3:9019	Subtitle Loss Setting	Carrier Gain (Regain Input Signal):	Messaging ()	Visual/Audio
225.3.3.3:9005	TS Error Setting	Consecutive Black Frames:	Messaging ()	Visual/Audio
225.3.3.3:9012	Table Interval Setting			
225.3.3.3:9006 IP Input: UDP2		Still Frames (Consecutive Identical Frames):	Messaging ()	Visual/Audio
 W IP Input: ODP2 HTTP Input: HLS/HTTP 	PCR Setting	PID Bitrate Out Of Range (the bitrate range can be set in Stream Prifile tab):	Messaging ()	□ Visual/Audio
S Input: MPEG DASH	Buffer Setting	Tib bladte out of hange (ale bladte hange car be bet if of carrier tab).	Cinessagilig ()	U VISUAI/AUGIO
Tiput. MEEG DASH	Error Alarm Setting	Loudness Error:	Messaging ()	□ Visual/Audio
	General Setting	Subtitle/CC Loss (Loss of Subtitle or CC):	Messaging ()	□ Visual/Audio
	Common Errors for			
	Full TS Errors for Alar			
	Select Streams to Al			
		Convright (b) 2013 - 2022 Mividi, All Rights Reserved		

Figure 11-27 Setting Alarm Trigger Condition

If the trigger conditions are reached, the TSM Web will immediately play the sound alarm and the doorbell color is changed, as shown in Figure 11-24. In addition, the monitoring servers may also send alarms using emails, SMS, or show the errors on the multi-viewer if they are configured.

Program Analysis TS	Analysis IP Analysis	HTTP A	nalysis RTSP	Ana	lysis Er	ror Query	Alarm	n Query	Report	Set	ting	
Back Expand Collapse	HLS: TS00#http://yipo Program Count: 1 Ts Qua	content-lh.al			WEB	143/in		av-n.m3u8 Fs Status		rrors Hi	story Alar	m History
 Same Strain Strai	Error Summary		Sound A	la	rm							
O TS4#rtmp://live.hkstv	Name	Count	Time	n	PID	Program	Туре	Mb/s	Max/M	1in	Bounds	Status
O TS3#rtmp://live.hkstv	CARRIER	14	10/08 09:39:21		0x0	-	PAT	0.000	0.000/	/0.000		•
O TS5#rtmp://live.hkstv	SYNC_BYTE_ERROR	0	10/08 08:25:12		0×100	1	AVC	0.664	1.656	/0.092		•
TS2#rtmp://live.hkstv	CONTINUITY_COUN	287	10/08 09:38:51		0x101	1	AAC	0.027	0.266/	/0.012		•
TS6#rtmp://live.hkstv	PAT_ERROR	0	10/08 08:25:12		0x102	1	Unknown	0.000	0.000/	/0.000		•
O TS10#rtmp://live.hkstv	PMT_ERROR	0	10/08 08:25:12		0xFFF		PMT	0.000	0.000/	/0.000		•
TS9#rtmp://live.hkstv	PID_MISSING	0	10/08 08:25:12		0x1FFF		Null	0.000	0.000/	/0.000		•
TS0#rtmp://live.hkstv	TRANSPORT_PACKE	0	10/08 08:25:12									
O TS11#rtmp://live.hkstv	CRC_ERROR	0	10/08 08:25:12									
O TS1#rtmp://live.hkstv	TABLE_DECODING	0	10/08 08:25:12									
TS7#rtmp://live.hkstv	PCR_ERROR	1148	10/08 09:36:41									
🗸 🥪 HTTP Input: HLS	PTS_ERROR	0	10/08 08:25:12									
TS02#http://yipcontent	CAT_ERROR	0	10/08 08:25:12									
1500#http://yipcontent	NIT_ERROR	0	10/08 08:25:12									
TS01#http://yipcontent	SDT_ERROR	0	10/08 08:25:12									
🛚 🥪 IP Input: Input2	EIT_ERROR	0	10/08 08:25:12									
	RST ERROR	0	10/08 08:25:12									

Figure 11-28 Sound Alarm of TSM Web

To get more information about the reason of alarm, click the alarm bell icon on the page and the alarm record will be displayed.

To disable the alarm sound, a user can click the "mute" button, and the TSM Web will stop make the alarm ringtone. Once the alarm is disabled, you can change the configuration to enable automatically after a certain period of time. To change the configuration, go to the TSM Web installation folder:

"C:\inetpub\wwwroot\TSM Web\" find the "web.config" file and open it with a text editor, as shown below:

<pre>ile Edit Format View Help </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <!--</th--><th>🥘 web.config - Notepad</th><th></th><th>_</th><th></th><th>×</th></pre></pre></pre></pre></pre></pre></pre></pre></pre>	🥘 web.config - Notepad		_		×
<pre>Port for register Remoting TCP Channel. System will assign port automatically when set 0. It need set a non-zero value and allow the specified port through Windows Firewall if connet to remote tsm ser > <add kalue="2" key="disableAlarmRecoveryInMinutes"></add> <add key="showNideInWidiLink" value="False"></add> <add key="showVideOWall" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="condingOnly" value="false"></add> <</pre>	File Edit Format View Help				
System will assign port automatically when set 0. It need set a non-zero value and allow the specified port through Windows Firewall if connet to remote tsm ser > <add key="disableAlarmRecoveryInMinutes" walue="2"></add> <add key="showMividiLink" value="false"></add> <add key="showMividiLink" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="comEnableRotation" value="true"></add> <add key="comEnabled" value="false"></add> <add key="comEnabled" td="" val<=""><td><!--</td--><td></td><td></td><td></td><td></td></td></add>	</td <td></td> <td></td> <td></td> <td></td>				
It need set a non-zero value and allow the specified port through Windows Firewall if connet to remote tsm ser > <add key="remotingChannelPort" value="\$800"></add> <add key="disableAlarmRecoveryInMinutes" walue="2"></add> <add key="showMividiLink" value="False"></add> <add key="showMivideWall" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbleRotation" value="false"></add> <add key="condingOnly" value="false"></add> <add key="condingOnly" value="false"></add> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</td><td>Port for register Remoting TCP Channel.</td><td></td><td></td><td></td><td></td></tr><tr><td>>
cadd key=" disablealarmrecoveryinminutes"="" kalue="2" key="condingS>
<connectionStrings>
<add name=" tsmconnectionstring"=""></add> <add key="showMividiLink" value="False"></add> <add key="showMivideWall" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="condingOnly" remotingchannelport"="" value="8800"></add> <add kalue="2" key="disableAlarmRecoveryInMinutes"></add> <add key="showMivdiLink" value="false"></add> <add key="showMivdiLink" value="false"></add> <add key="thumbnaiAutoDisplay" value="false"></add> <add key="thumbnaiAutoDisplay" value="false"></add> <add key="thumbnaiAutoDisplay" value="false"></add> <add key="recordingOnly" value="true"></add> <add key="recordingOnly" value="true"></add> <add key="recordingOnly" value="true"></add> <add key="recordingOnly" value="false"></add> <add key="recordingOnly" value="talse"></add> <add key="recordingOnly" value="talse"></add> <add key="talse"></add> <add disablealarmrecoveryinminutes"="" kalue="2" key="tal</td><td>It need set a non-zero value and allow the specified port through W</td><td>Windows Firewall if c</td><td>onnet to remote</td><td>tsm se</td><td>rve</td></tr><tr><td><pre><add key="></add> <add key="showMividiLink" value="False"></add> <add key="showVideoWall" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="condingOnly" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="showNideoWall" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="showNideoWall" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="conEnabled" value="false"></add> <add key="showNideoWall" value="false"></add> <add key="conEnabled" value="false"></add> <add key="con</td><td>></td><td></td><td></td><td></td><td></td></tr><tr><td><pre><add key=" showmividilink"="" value="False"></add> <add key="showMivideWall" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="thumBRotation" value="true"></add> <add key="recordingOnly" value="false"></add> <add key="camEnabled" value="false"></add> <add< td=""><td><pre><add key="remotingChannelPort" value="8890"></add></pre></td><td></td><td></td><td></td><td></td></add<>	<pre><add key="remotingChannelPort" value="8890"></add></pre>				
<add key="thumbnailAutoDisplay" value="false"></add> <add key="thumbnailAutoDisplay" value="false"></add> <add key="tecordingOnly" value="tralse"></add> <add key="recordingOnly" value="false"></add> <add key="oemEnabled" value="false"></add> <add key="oemEnabled" value="false"></add> <connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</td><td><add key=" disablealarmrecoveryinminutes"="" name="TSMConnectionString" value="2"></add></connectionstrings>					
<add key="thumbnailAutoDisplay" value="false"></add> <add key="EnableRotation" value="true"></add> <add key="recordingOnly" value="false"></add> <add key="oemEnabled" value="false"></add> <connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</td><td><add key=" name="TSMConnectionString" showmividilink"="" value="False"></add></connectionstrings>					
<pre><add key="EnableRotation" value="true"></add> <add key="recordingOnly" value="false"></add> <add key="oemEnabled" value="false"></add> <connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</pre></td><td><add key=" name="TSMConnectionString" showvideowall"="" value="false"></add></connectionstrings></pre>					
<add key="recordingOnly" value="false"></add> <add key="oemEnabled" value="false"></add> <connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</td><td><add key=" name="TSMConnectionString" thumbnailautodisplay"="" value="false"></add></connectionstrings>					
<pre><add key="oemEnabled" value="false"></add> <connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</pre></td><td><add key=" enablerotation"="" name="TSMConnectionString" value="true"></add></connectionstrings></pre>					
<connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</td><td><add key=" name="TSMConnectionString" recordingonly"="" value="false"></add></connectionstrings>					
<connectionstrings> <add connectionstring="Data Source=.\TEST2014;AttachDbFilename= DataDirectory \TSM.mdf;</td><td><add kev=" name="TSMConnectionString" oemenabled"="" value="false"></add></connectionstrings>					
<connectionstrings> </connectionstrings>					

Figure 11-29 Setup Alarm Bell Auto Recovery Time Period

Find the parameter "disableAlarmRecoveryInMinutes" and change the value. If the value is 2, it means the alarm will recover in 2 minutes.

To delete alarm records under the bell, click the "Clear" link button.

🔟 🛛 TSM Server : 🥪	Local Server T Rec	connect Server	Disconnect Server		Error Alarms 08/14 15:23:05 BLACK	FRAME - Pid:0x	1005	Mute C
		1			Local Server->IP->India(22		TUCE	
Program Analysis TS	Analysis IP Analysis	HTTP Analy	sis RTSP Analys	is DASH Analysis Error Query		TLE_LOSS - Pid:0	x101 ; Program	Number: 1
				HTTP Session	Local Server->HLS->cc1(TS			
				HTTP Session	HITP Profile IP Profile	RISP	ASH Sessio	n Alarm Settir
Input: RTMP	TS Profile	Save Car	ncel	Search Show Enabl	led Errors Only All Errors			
Input: MPEG DASH	Overall TS Status Ic							
DS02#http://bitdash-a	Overall 13 Status It	* The following	settings are applied	to all transport streams in the same input.				
DS12#http://bitdash-a	PID Setting							
DS14#http://bitdash-a	Frame Dection Setting	Code	Priority	Message		Email	SMS	Visual/Audio
DS03#http://bitdash-a		1	General Errors	STREAM_START				
DS13#http://bitdash-a	TS Error Setting	2	General Errors	STREAM_END				
DS06#http://bitdash-a	Table Interval Setting	101	General Errors	INPUT_ERROR				
DS16#http://bitdash-a	DCD Coming	102	General Errors	SYSTEM_ERROR				
DS15#http://bitdash-a	PCR Setting	103	General Errors	SYSTEM_BUFFER_OVERFLOW				
DS08#http://bitdash-a	Buffer Setting	104	General Errors	LICENSE_ERROR				
DS10#http://bitdash-a	Error Alarm Setting	204	General Errors	LOUDNESS_NORMAL	-			
DS04#http://bitdash-a		205	General Errors	LOUDNESS_TOO_LOW				
DS17#http://bitdash-a	General Setting	206	General Errors	LOUDNESS_TOO_HIGH	Error Alarm Re	cord		
DS05#http://bitdash-a	Common Errors for	207	General Errors	AUDIO_MISSING				
		208	General Errors	VIDEO_MISSING				
DS00#https://livesim	Full TS Errors for Ala	210	General Errors	OVERALL_QUALITY_LOW				
DS09#http://bitdash-a		220	General Errors	PACKET_SCRAMBLED				
DS07#http://bitdash-a		300	General Errors	RECORDING_STOPPED				
DS11#http://bitdash-a		301 302	General Errors General Errors	RECORDING_RUNNING_AFTER_STOPPED HARD_DRIVE_FULL				
DS01#https://livesim		902	General Errors	SYNC GAIN				
IP Input: IP		1002	Priority One	SUBTITLE_LOSS				
India(225.1.1.1:5023)		1002	Priority One	MISSING_EPG_EVENT_INFO				
225.1.1.1:5025		1005	Priority One	PROGRAM_DADA_LOSS				
225.1.1.1:5005		1010	Priority One	SYNC_LOSS				0
225.1.1.1:5006		1020	Priority One	SYNC BYTE ERROR				
225.1.1.1:5024		1030	Priority One	PAT_PID_INTERVAL_ERROR				
🖌 HTTP Input: HLS		1031	Priority One	PAT_SCRAMBLING				

Figure 11-30 Error Alarm Records

Chapter 12 Stream Recorder

Stream Recorder module can be used to record entire transport streams or selected programs. It supports auto-recording as well as manual recording. Additionally, users can use the Client application to remotely manage recorded files and play audio and video from recorded files. During recording, it will keep tracking disk storage space. When the free disk space is less than 10% of the hard drive size, the software will automatically delete old files to save disk space for continuous recording. Furthermore, the system supports external recording media for high bandwidth transport stream recording.

Click the "Stream Recorder" module to enter the recording pages, as shown below:

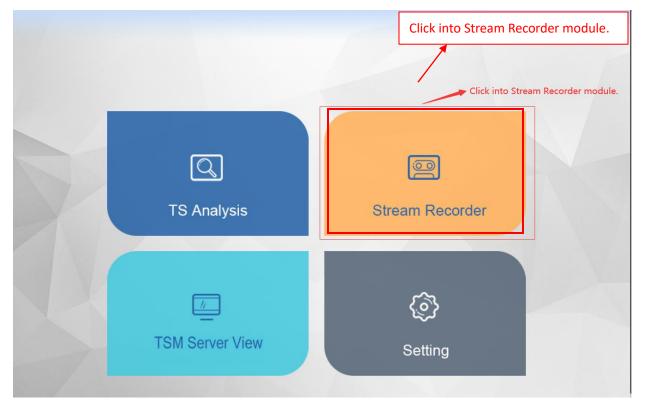


Figure 12-1 Click the Stream Recorder Module

ansport Stream	Bitrate	Folder	Enable	SizeRecorded	Record
 (Local Server)127.0.0.1:8280 					
▼ RTMP					
▼ IP					
225.1.1.1:5023	24.803	D:\New folder	True	1402076928	Stop
225.1.1.1:5025	24.113		False		Record
225.1.1.1:5005	19.378	D:\New folder	True	1096036992	Stop
225.1.1.1:5006	6.230	D:\New folder	False	39723648	Stop
225.1.1.1:5024	24.989	D:\New folder	False	569558784	Recor
▼ HLS					
 TS10#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor
 TS04#http://localhost/hls/cc/playlist.m3u8 	0.952		False		Recor
 TS01#http://localhost/hls/mividi/720/playlist.m3u8 	3.475		False		Recor
TS06#http://cfvod.kaltura.com/scf/hls/p/243342/sp/24334200/serveFl	0.951		False		Recor
 TS03#http://localhost/hls/mividi/540/playlist.m3u8 	2.627		False		Recor
 TS11#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000	1	False		Recor
 TS00#http://localhost/hls/mividi/1080/playlist.m3u8 	5.461		False		Recor
TS05#http://cfvod.kaltura.com/scf/hls/p/243342/sp/24334200/serveFl	0.524		False		Recor
TS08#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti	0.000		False		Recor
 TS07#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor
 TS09#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor
 TS02#http://localhost/hls/mividi/360/playlist.m3u8 	1.305		False		Recor
 TS13#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor
 TS12#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor

Figure 12-2 Open the Stream Recorder Module

The Recording Status page display the transport stream name, programs of each stream (PN: 1), the bit rate of the stream, the location where the recorded file is stored, whether the recording enabled (True or False), the bytes recorded, and the status of the control (Record or Stop).

When the TSM Server program is running in the background and the system has active stream input, the data in the Transport Streams and Bit Rate columns will be automatically populated. If the Transport Stream Recorder already contains recording configurations for some streams or programs, the data will be displayed in the Folder, Enabled and Status columns. If recording is enabled, the data in the recording status column will show the size of the recorded data. You can manually turn on and off the recording process using the "Record" and "Stop" buttons.

When the file folder path field is empty, clicking on the recording will prompt a message that the file location has not been set (Figure 12-3) and needs to be configured in the recording configuration page.

Recording Status File Manager Recording Setting Auxiliary	path is n				
ansport Stream			Enable	SizeRecorded	Record
 (Local Server)127.0.0.1:8280 					
▼ RTMP					
▼ IP					
225.1.1.1:5023	25.026	D:\New folder	True	1506141696	Stop
225.1.1.1:5025	23.920		False		Record
225.1.1.1:5005	19.401	D:\New folder	True	1170728640	Stop
225.1.1.1:5006	6.227	D:\New folder	False	64061376	Stop
225.1.1.1:5024	25.008	D:\New folder	False	569558784	Recon
▼ HLS					
 TS10#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recon
 TS04#http://localhost/hls/cc/playlist.m3u8 	0.956		False		Recor
 TS01#http://localhost/hls/mividi/720/playlist.m3u8 	3.899		False		Recor
TS06#http://cfvod.kaltura.com/scf/hls/p/243342/sp/24334200/serveFl	0.931		False		Recor
 TS03#http://localhost/hls/mividi/540/playlist.m3u8 	2.914		False		Recor
 TS11#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor
 TS00#http://localhost/hls/mividi/1080/playlist.m3u8 	6.571		False		Recor
 TS05#http://cfvod.kaltura.com/scf/hls/p/243342/sp/24334200/serveFl 	0.524		False		Recor
TS08#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti	0.000		False		Recon
TS07#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti	0.000		False		Recor
 TS09#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recor
 TS02#http://localhost/hls/mividi/360/playlist.m3u8 	1.306		False		Recor
 TS13#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti 	0.000		False		Recon
TS12#http://cfvod.kaltura.com/api_v3/index.php/service/caption_capti	0.000		False		Recor



12.1 Recording Setting

12.1.1 Continuous Recording Setting

Click "Recording Setting" tab and then click the link "Continuous Recording Setting" on the left side, the setting page will be displayed as below:

Continuous Recording	Input:		R	ecording Folder:	
Setting		rding Duration Per File: 60		Apply To All Streams Advanced	Refres
Trigger Recording Setting					
	Stream ID	Program	Duration(s)	Recording Folder Ena	ble De
	225.1.1.1:5005	FULL TS	600	D:\New folder	
	225.1.1.1:5005	1	600	D:\New folder	
	225.1.1.1:5005	FULL TS	600	D:New folder	
	225.1.1.1:5006	518	600	D:\New folder	
	225.1.1.1:5023	FULL TS	600	D:\New folder	
	225.1.1.1:5023	1	600	D'New folder	
	225.1.1.1:5023	2	600	D:New folder	
	225.1.1.1:5023	3	600	D:New folder	
	225.1.1.1:5024	FULL TS	600	D'New folder	
	225.1.1.1:5024	1	600	D:New folder	
	225.1.1.1:5024	2	600	D:New folder	
	225.1.1.1:5024	3	600	D:New folder	
	225.1.1.1:5025	FULL TS	600		
	225.1.1.1:5025	8258	600		
	225.1.1.1:5025	8325	600		
	225.1.1.1:5025	8294	600		
	225.1.1.1:5025	8575	600		
	225.1.1.1:5025	8646	600		
	225.1.1.1:5025	8384	600		
	225.1.1.1:5025	8448	600) (
	225.1.1.1:5025	8442	600	0) (
	225.1.1.1:5025	8452	600		1
	225.1.1.1:5025	8353	600) (
	225.1.1.1:5025	8771	600) (
	225.1.1.1:5025	8772	600) (

Figure 12-4 Recording Setting Page

You can configure each stream or program individually, or you can configure all streams of an input at

once. To do one-time configuration of the input is as follows:

1. Select Input;

2. Add the path to the recording folder of the transport streams and set the recording duration for each file. When a file recording time is longer than the set time, the recording service will close the current file and open a new file to record automatically;

3. Select the "Enable" check box, click "Apply to all streams", and click "Apply" in the bottom to start recording.

To change the settings for individual transport streams, select a stream or a program and modify its settings directly in the configuration table, and then click "Apply" button to save the data. In addition, the system also supports the timed recording function. Click the "Advanced" button shown in Figure 12-4 to enter the advanced setting page shown in Figure 12-5 to configure the timing parameters.

Recording Status Fi	le Manager Recording Setti	ng Auxiliary D	oata							
Continuous Recording Setting	Input:	uto Recording: 🔲	Recording	Rec Duration Per File: 600 (Sec)	ording Folder:		Apply To All Strea	ims Sim	ole	Refresh
Trigger Recording Setting	Enable A		recording				rippij to ta ou ou			
		-			_					
	Stream ID	Program	Duration(s)	Recording Folder	Timing	Start Time	End Time	Repeat	Enable	Dele
	225.1.1.1:5005	FULL TS	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •	1	
	225.1.1.1:5005	1	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •	1	
	225.1.1.1:5006	FULL TS	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •		
	225.1.1.1:5006	518	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •		
	225.1.1.1:5023	FULL TS	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •	1	
	225.1.1.1:5023	1	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •	1	
	225.1.1.1:5023	2	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •	1	
	225.1.1.1:5023	3	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •	1	
	225.1.1.1:5024	FULL TS	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •		
	225.1.1.1:5024	1	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never 🔻		
	225.1.1.1:5024	2	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never 🔻		
	225.1.1.1:5024	3	600	D:\New folder		01/01/2000 00:00:00	01/01/2100 00:00:00	Never •		E
	225.1.1.1:5025	FULL TS	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		E
	225.1.1.1:5025	8258	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		E
	225.1.1.1:5025	8325	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		
	225.1.1.1:5025	8294	600	1		08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		
	225.1.1.1:5025	8575	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		
	225.1.1.1:5025	8646	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		E
	225.1.1.1:5025	8384	600	1		08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		
	225.1.1.1:5025	8448	600	1		08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		E
	225.1.1.1:5025	8442	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		
	225.1.1.1:5025	8452	600	1		08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		0
	225.1.1.1:5025	8353	600	1		08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		0
	225.1.1.1:5025	8771	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •	-	
	225.1.1.1:5025	8772	600			08/14/2019 15:26:57	08/14/2019 16:26:57	Never •		

Figure 12-5 Advanced Configuration Page

To set the timed recording function, first select the enable timer and set the start time, end time, and repeat (Daily, Weekly, Monthly, Monthly, Weekly, Monthly) options, and then click the "Apply" button.

12.1.2 Triggered Recording Setting

Click "Recording Setting" tab and then click the link "Triggered Recording Setting" on the left side, the setting page will be displayed as below:

ting	IP • Recording Duration Per File: 60 (Sec)	Max Recordin	gs: 10 Enable Auto Recording	Recording Folder:	Ap	pply To All Stre	ams	Refresh
gger Recording Settin	g Select Triggering Conditions (Errors are generate only when you also module):	have stream		 Video/Audio Bitrate Out Of Bound (200) Black or Frozen Frames (201/202) 		w Quality (2		Refresh
	Stream ID	Duration(s)	Recording Folder	Max Reco	ordings	Codes	Enable	Delet
	225.1.1.1:5005	60		10				
	225.1.1.1:5006	60		10				
	225.1.1.1:5023	60		10				
	225.1.1.1:5024	60		10				
	225.1.1.1:5025	60		10				

Figure12-6 Triggered Recording Setting Page

The TSM server supports stream error triggered recording. Users can configure which error will trigger the recording.

The "Trigger Recording Setting" page is similar to the "Continuous Recording Settings" page. Users need to specify the error code that will trigger the recording. Multiple error codes are separated by commas. Users can also check the required error codes in the multiple check boxes above for one-time settings.

12.2 File Manager

Click "File Management" to enter the "File Management" page. The user interface includes delete, search, filter and export functions, as shown in figure 12-7. Enter search criteria, such as input, transport stream (supports fuzzy query), start time and end time, then click "Search" button. If the data matches the search criteria, it will be displayed on the list.

Check the box under the "Delete" column and click "Delete files" to delete selected files. Click "Clear Database" will delete all file records from database. When the system deletes a recording file, it will also delete the reference to the file from database.

Recording Status File Manager Recording Setting	Auxiliary Data					
Filter By Input: Stream Name:	Start Time: End Time: 08/13/2019 15:32:41 08/14/2019 16:32:41	Recording Folder Path:		Search	Delete Files	
4P .	001012101010.22.41			Export	Clear Database	
Transport Stream	File Path	Start Time	Duration(s)	File Size	Delete	Play
25.1.1.1:5006	D:\New folder\225_1_1_1_5006_2019_08_14_15_14_47.ts	8/14/2019 3:14:47	600.0	466612992		Play
25.1.1.1:5005	D:\New folder\225_1_1_1_5005_2019_08_14_15_18_06.ts	8/14/2019 3:18:06	600.0	14535498		Play
25.1.1.1:5023	D:\New folder\India_2019_08_14_15_18_07.ts	8/14/2019 3:18:07	600.0	18748442		Play
25.1.1.1:5005	D:\New folder\225_1_1_1_5005_1_2019_08_14_15_18_14.ts	8/14/2019 3:18:14	600.0	13685076		Play
25.1.1.1:5023	D:\New folder\India_3_2019_08_14_15_18_24.ts	8/14/2019 3:18:24	600.3	252329088		Play
25.1.1.1:5023	D:\New folder\India_1_2019_08_14_15_18_27.ts	8/14/2019 3:18:27	600.4	312474048		Play
25.1.1.1:5023	D:\New folder\India_2_2019_08_14_15_18_37.ts	8/14/2019 3:18:37	600.6	187708224		Play
25.1.1.1:5006	D:\New folder\225_1_1_1_5006_2019_08_14_15_24_48.ts	8/14/2019 3:24:48	467.7	363946944		Play
25.1.1.1:5005	D:\New folder\225_1_1_1_5005_2019_08_14_15_28_06.ts	8/14/2019 3:28:06	272.9	661594560		Play
25.1.1.1:5023	D:\New folder\India_2019_08_14_15_28_07.ts	8/14/2019 3:28:07	273.3	853778688		Play
25.1.1.1:5005	D:\New folder\225_1_1_1_5005_1_2019_08_14_15_28_14.ts	8/14/2019 3:28:14	264.1	602568576		Play
25.1.1.1:5023	D:\New folder\India_3_2019_08_14_15_28_24.ts	8/14/2019 3:28:24	254.2	106862208		Play
25.1.1.1:5023	D:\New folder\India_1_2019_08_14_15_28_28.ts	8/14/2019 3:28:28	253.1	131759424		Play
25.1.1.1:5023	D:\New folder\India 2 2019 08 14 15 28 37.ts	8/14/2019 3:28:37	245.2	76649856		Play

Figure 12-7 File Manager Page

The Export function saves the data in the table to a file, and the export file can be viewed in a text editor. As shown in figure 12-8:

RecordingMessage - Notepad	-		
File Edit Format View Help			
10/8/2016 11:38:18 AM 10/8/2016 11:38:18 AM 10/8/2016 11:38:18 AM 10/8/2016 11:38:18 AM 10/8/2016 11:38:18 AM 10/8/2016 11:38:18 AM	C:\Users\Admin\Deskto C:\Users\Admin\Deskto C:\Users\Admin\Deskto C:\Users\Admin\Deskto	op\J\yipcontent-lh_akamaihd_net_i_cincom op\J\yipcontent-lh_akamaihd_net_i_cincom op\J\yipcontent-lh_akamaihd_net_i_cincom op\J\yipcontent-lh_akamaihd_net_i_cincom op\J\yipcontent-lh_akamaihd_net_i_cincom op\J\yipcontent-lh_akamaihd_net_i_cincom	nas_1@395143_index_48(nas_1@395143_index_72(nas_1@395143_index_24(nas_1@395143_index_24(
			Ψ.
[• [1		H. ▲

Figure 12-8 Export File

12.3 Playback and Cut Recorded Files

12.3.1 Setup Virtual Path

You can use the TSM Web to playback and cut recorded files. To use these functions, the first step is to configure the virtual path in the IIS. Open Windows Internet Information Manager (IIS) Manager and browse to the Default Web Site as shown in the following figure:

DESKTOP-7DT487J (DESKTOP- DESKTOP-7DT487J (DESKTOP- DESKTOP-7DT487J (DESKTOP-	Filter:	Edit Virtual Directory	?	×
	ASP.NET Explore	Site name: Default Web Site		
> 🔐 hls	Edit Permissions Add Application 2	Path: / Alias: 3		
> 👘 TSMWeb 🛃	Add Virtual Directory	MividiRecording		
> 😔 jiekou > 📣 T	Edit Bindings	Example: images		
	Manage Website 🔹 🕨	Physical path: 4		
(d)	Refresh	E:\records		
×	Remove	Pass-through authentication		
	Rename	Connect as Test Settings		
	Switch to Content View			
		ОК	Cancel	

Figure 12-9 Configure IIS Virtual Directory

Click "Add Virtual Directory" and name the virtual director to "MividiRecording". Enter the physical path where your recorded files are located. Click "OK" to save the configuration and the setting will take effect after you restart the IIS service.

12.3.2 Playback Recorded Files

Refer to the method described in Chapter 12.2 to search for the recorded files. Click a file to play the file. Since most web browsers can only play MP4, the TSM Web will first convert the recorded TS files to MP4 files so it may take some time before the player starts.

Recording Status File M					Administ	rator Log Ou	ic Stream	Recorder
	anager Recording Setting	g Auxiliary Data						
Filter By Input:	Stream Name:	Start Time:	End Time:			Search	Delete Fil	ies
IP v	08/2	29/2021 09:55:46	08/30/2021 10:55:46			Export	Clear Data	base
Transport Stream	Fil	e Path		Start Time	Duration(s)	File Size	Delete	Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	316_2021_08_30_09_27_18.ts	8/30/2021 9:27:18 AM	1665.3	1587241136		Play
25.3.1.1:6020	E;	\records\225_3_1_1_6020_	342_2021_08_30_09_27_12.ts	8/30/2021 9:27:12 AM	1700.9	1051631204		Play
25.3.3.3:9001	E:	\records\225_3_3_3_9001_	1_2021_08_30_09_27_10.ts	8/30/2021 9:27:10 AM	1718.1	404645748		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	318_2021_08_30_09_27_08.ts	8/30/2021 9:27:08 AM	1642.9	1478104316		Play
25.3.1.1:6020	E;	\records\225_3_1_1_6020_	336_2021_08_30_09_26_57.ts	8/30/2021 9:26:57 AM	1498.5	1272143548		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	366_2021_08_30_09_26_55.ts	8/30/2021 9:26:55 AM	1471.4	1249196832		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	2021_08_30_09_26_51.ts	8/30/2021 9:26:51 AM	1566.3	7440892420		Play
25.3.3.3:9001	E;	\records\225_3_3_3_9001_	2021_08_30_09_26_50.ts	8/30/2021 9:26:50 AM	1738.7	543445396		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	316_2021_08_30_08_27_17.ts	8/30/2021 8:27:17 AM	3387.4	3225412788		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	342_2021_08_30_08_27_12.ts	8/30/2021 8:27:12 AM	3427.6	2119493012		Play
25.3.3.3:9001	E:	\records\225_3_3_3_9001_	1_2021_08_30_08_27_09.ts	8/30/2021 8:27:09 AM	3417.3	805373764		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	318_2021_08_30_08_27_08.ts	8/30/2021 8:27:08 AM	3522.3	3170004864		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	336_2021_08_30_08_26_57.ts	8/30/2021 8:26:57 AM	3407.6	2892965244		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	366_2021_08_30_08_26_55.ts	8/30/2021 8:26:55 AM	3410.2	2895203948		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	2021_08_30_08_26_51.ts	8/30/2021 8:26:51 AM	3600.0	17101459		Play
25.3.3.3:9001	E:	\records\225_3_3_3_9001_	2021_08_30_08_26_49.ts	8/30/2021 8:26:49 AM	3596.0	1123829408		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	316_2021_08_30_07_27_17.ts	8/30/2021 7:27:17 AM	3476.4	3311602892		Play
25.3.1.1:6020	E:	\records\225_3_1_1_6020_	342_2021_08_30_07_27_12.ts	8/30/2021 7:27:12 AM	3576.6	2211279876		Play

Figure 12-10 Select a Recorded File to Play

If the recorded file is a multi-program TS (MPTS), the TSM Web will list available program numbers as shown in the following figure. Please select one program to play:

Select Program Numbe	e 🗙
316	
318	
336	
342	
366	

Figure 12-11 Select a	Program to	Play from	MPTS
-----------------------	------------	-----------	------

The converted MP4 file is located in the same folder and the TSM Web will open the player window and start to play the file. The converted MP4 will be automatically deleted one hour later.

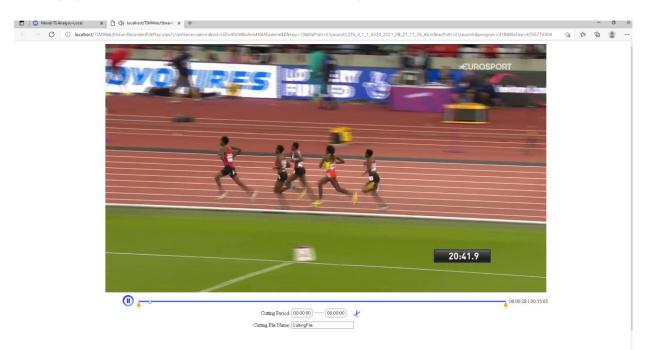
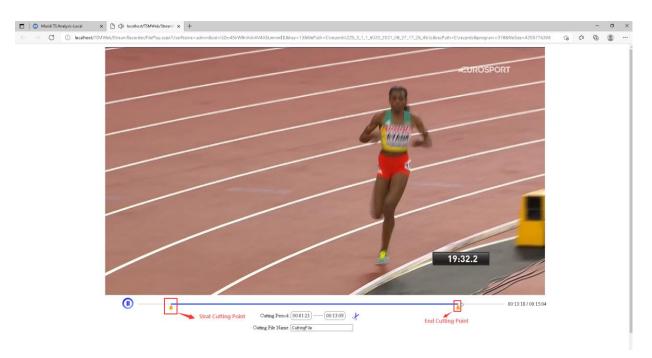


Figure 12-12 Playback a Recorded File on TSM Web

12.3.3 Cut Recorded File

On the video player window, you can cut a piece of video file from the original recorded file. Drag the "Start" end "End" mark on the timeline of video file and then enter the name of new file that will be cut.

Click the button with the " ign and the application will cut the file. The cut file will be downloaded



automatically to the "Download" folder in your local computer.

Figure 12-13 Cut a Recorded File

12.4 Auxiliary Data

12.4.1 Subtitle

Click "Auxiliary Data" button, then click the "Subtitle" menu on the left panel to enter the "Subtitle" page, fill in the search conditions, such as Input, Stream Name (support fuzzy query), Program number, Start and End Time, and then click "Search" button. If there is data that meets the search conditions, the data will be displayed on the list. The "Export" button exports the data from the table to a text file that can be viewed in a text editor, as shown in the figure below:

Recording Status	File Manager Recordi	ing Setting Auxiliary Data							
Subtitle/CC									
EPG	Filter By Input:		Start Time:	End Time:	Prog	ram:	Search	Delete Subtitles	
	HLS	✓ 08/22/2	019 18:24:15	08/23/2019 19:24:15			Export	Clear Database	
	Time	Text	Туре	Program	Service Name	Tpansport Stream	1	Input	
	8/23/2019 6:23:36	NO BOND.	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:36	TONIGHT, WE ARE STILL WORKING TO	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:36	FIND OUT WHEN HE WILL MAKE HIS	SUBTITLE_ASS	1		TS03#http://192	http://192.168.1.17/hls/cc/play HLS		
	8/23/2019 6:23:37	FIRST APPEARANCE IN JUVENILE	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:37	COURT.	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:37	WE ARE LIVE TONIGHT OUTSIDE THE	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:37	SEMINOLE COUNTY DETENTION	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:37	CENTER.	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:37	TY RUSSELL, EYEWITNESS NEWS AT	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:37	10:00.	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:38	>>> ORLANDO INTERNATIONAL	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:38	AIRPORT SAYS IT CAN STILL GET	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:38	ITS HUGE NEW SOUTH TERMINAL	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:38	PROJECT DONE ON TIME, EVEN	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:42	THOUGH IT FIRED THE CONTRACTOR	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:42	TODAY.	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:42	AIRPORT LEADERS FIRED PCL	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:42	CONSTRUCTION OVER ISSUES WITH	SUBTITLE_ASS	1		TS03#http://192			
		THE CONTRACT THEY WORKED OUT.	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:43	THE AUR AIRPORT SAYS THE	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:43	COMPANY WAS	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	
	8/23/2019 6:23:43	TRYING TO SHIFT ALL THE RISK OF	SUBTITLE_ASS	1		TS03#http://192	.168.1.17/hls/cc/	play HLS	

Figure 12-14 Subtitle search

12.4.2 EPG

Click the "Auxiliary Data" button, then click the "EPG" menu on the left panel to enter the "EPG" page. Enter search conditions, such as Input, Stream Name (support fuzzy query), Program number, Start and End Time which can be selected by Event Time and Timestamp and click "Search" button. If there is data that meets the search conditions, the data will be displayed on the list. The "Export" button exports the data from the table to a txt file that can be viewed in a text editor.

Subtitle/CC										
	Filter By Input:	Sta	rt Time:	Program:						
PG	IP	· 08/22/2019	18:51:53					Search D	elete EPGs	
	Stream Name:	En	d Time:	O By Event Time				Event Cla	ar Database	
		08/23/2019	19:51:53	By Timestamp				Export	ar Database	
	Time	Event Name	Description	Start Time	Duration(s)	Туре	Program	Service Name	Tpansport Stream	Input
	8/23/2019 6:33:29	Macbeth@Ia		12/27/2008 10:00:0	10200	0	8442		225.3.3.3:80	IP
	8/23/2019 6:33:34	More4 Previe		12/24/2008 6:00:00	10800	0	8442		225.3.3.3:80	IP
	8/23/2019 6:34:38	Death Beco		12/27/2008 7:50:00	7200	0	8294		225.3.3.3:80	IP
	8/23/2019 6:34:54	ITV Nightscr		12/31/2008 3:40:00	6600	0	8258		225.3.3.3:80	IP
	8/23/2019 6:34:54	ITV Early Mo		12/31/2008 5:30:00	1800	0	8258		225.3.3.3:80	IP
	8/23/2019 6:34:54	Film FileNMo		12/27/2008 6:00:00	600	0	8294		225.3.3.3:80	IP
	8/23/2019 6:34:54	A Christmas		12/27/2008 6:10:00	5700	0	8294		225.3.3.3:80	IP
	8/23/2019 6:34:54	The Prime of		12/27/2008 7:45:00	8100	0	8294		225.3.3.3:80	IP
	8/23/2019 6:34:59	The Ice Harv		12/25/2008 12:40:0	6600	0	8294		225.3.3.3:80	IP
	8/23/2019 6:34:59	Cane©Alex f		12/25/2008 2:30:00	2400	0	8294		225.3.3.3:80	IP
	8/23/2019 6:35:04	Surgical Spiri		12/25/2008 3:10:00	1500	0	8294		225.3.3.3:80	IP
	8/23/2019 6:35:04	Surgical Spiri		12/25/2008 3:35:00	1500	0	8294		225.3.3.3:80	IP
	8/23/2019 6:35:04	Teleshopping		12/25/2008 4:00:00	7200	0	8294		225.3.3.3:80	IP
	8/23/2019 6:35:09	Paul Hollins		12/27/2008 1:00:00	10800	0	8772		225.3.3.3:80	IP
	8/23/2019 6:35:29	Nick Snaith		12/24/2008 1:00:00	10800	0	8772		225.3.3.3:80	IP
	8/23/2019 6:35:29	Emma B#Em		12/24/2008 4:00:00	10800	0	8772		225.3.3.3:80	IP
	8/23/2019 6:35:40	Murder, She		12/24/2008 12:25:0	6900	0	8294		225.3.3.3:80	IP
	8/23/2019 6:35:40	A Christmas		12/24/2008 2:20:00	5700	0	8294		225.3.3.3:80	IP
	8/23/2019 6:35:55			12/26/2008 12:05:0	9300	0	8353	ITV4	225.3.3.3:80	
	8/23/2019 6:35:55	ITV4 Nightsc		12/26/2008 2:40:00	1200	0	8353	ITV4	225.3.3.3:80	IP

Figure 12-15 EPG search

Chapter 13 TSM Unit View

The TSM Unit View module will display the status of all TSM units (or Probes) connected to the TSM Web server. It provides summary information of the inputs, streams, errors and alarms of each TSM unit. This view can combine data from different TSM units on the same view for the convenience of comparison. You can also create thumbnail view by selecting programs from different TSM units.



13.1 Enter the TSM Unit View Pages

13.1 TSM Status

The TSM Status page will list all TSM units connected to the TSM Web server. For each TSM unit, it displays the number of alarms since last reset, the input count in the TSM unit, total stream bandwidth being monitored, number of streams, as well as the number of streams in error, warning or normal state. Below is an example of TSM Status view.

D Mividi	TSM Unit View			A A	Administrator	Log Out	TSM Unit Vi
TSM Status	Thumbnails Setti	ng					
DELL 166.13.192.162	Alarm : 🚺	Localhost	Alarm : 🕕				
Input Count : 5	817.118 Mbps	Input Count : 5	35.984 Mbps				
Total Streams : 43	0 2 41	Total Streams : 7	133				
cou . 45%	memory , 39% ,	apu , 39% ,,,,	mamory , 36% 100				



Figure 13.2 TSM Unit Status Info

13.2 Thumbnails

Click "Thumbnails" tab to enter the thumbnail display page. This thumbnail display page is different from that in the TS Analysis module such that thumbnails from different TSM units can be selected and displayed on the same page. The thumbnails are grouped based on the configuration. The configuration method is described in the following section. Each thumbnail panel displays thumbnails decoded from video key frames, and audio volume bars. In addition, it also displays program metadata including program name, audio and video PIDs, codec and pixel information, aspect ratio for video, sample rate and channel number for audio.

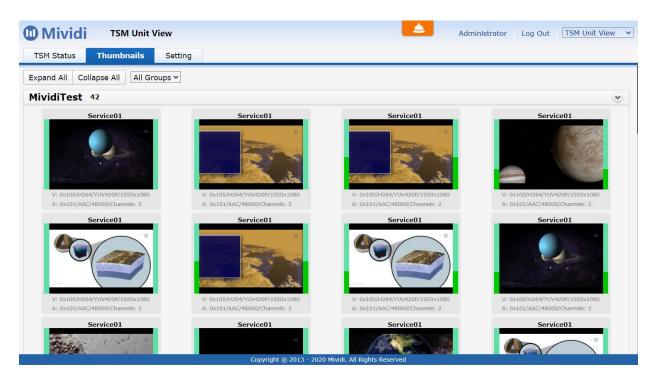


Figure 13.3 Thumbnail Page in TSM Unit View Module

13.3 Setting

TSM Unit View allows users to generate any number of TSM display groups and assign thumbnails from different TSM Units to the same group. To perform thumbnail setting, click the "Setting" tab to enter the setting page as shown in the following diagram:

Mividi TS	M Unit View				Administrator Log Out	TSM Unit View 👻
TSM Status Thumb	nails Setting					
Current User Expand A Show Penalty Box Group	VII Collapse All Add Group	Save Settings				
‡Unit	\$ Input	\$Stream ID	\$Stream Name	Program number	Name	Live

Figure 13.4 TSM Unit View Setting Page

Click "Add Group" button to open the "Add/Edit Program Group" dialog box. Enter a group name such as "Mividi Test" and click "OK" to create and save a group:

Add/Edit Prog	ram Group	×
Group Name:	MividiTest	
	ОК	Cancel

Figure 13.5 Add/Edit Program Groups

After you click a group, the "Setting" page will display three image buttons: "Select Programs", "Edit Group Name" and "Delete Group".

13.3.1 Select Programs to Be Displayed

Once you create a group, you can add programs to this group. Click "Select Programs" button to open the "Select Programs" box. First select a TSM unit in the Unit drop down list. Then you can enter a phrase such as a channel name or stream ID to search for programs, and the software will list all matching programs on the table, as shown in the figure below as an example.

Unit : DELL	✓ Stream	ID/Name : Search				
Unit	Input	Stream ID	Stream Name	Program number	Program name	
DELL	HLS	http://183.207.255.188/live/program/live/dnwshd/400	HLSLive	1	HLSLive	
DELL	IP	225.2.2.3:3000		518		. 🔽
DELL	IP	229.1.1.3:6001		1	CCTV6	. 🔽
DELL	IP	229.1.1.3:6002		1	Service01	. 🗸
DELL	IP	229.1.1.3:6003		1	Service01	. 🗸
DELL	IP	229.1.1.3:6004		1	Service01	. 🗸
DELL	IP	229.1.1.3:6005		1	Service01	
DELL	IP	229.1.1.3:6006		1	Service01	
DELL	IP	229.1.1.3:6007		1	Service01	
DELL	IP	229.1.1.3:6008		1	Service01	
DELL	IP	229.1.1.3:6009		1	Service01	
DELL	IP	229.1.1.3:6010		1	Service01	
DELL	IP	229.1.1.3:6011		1	Service01	
DELL	IP	229.1.1.3:6012		1	Service01	
DELL	IP	229.1.1.3:6013		1	Service01	. 🗸
DELL	IP	229.1.1.3:6014		1	Service01	. 🗸
DELL	IP	229.1.1.3:6015		1	Service01	. 🗸
DELL	IP	229.1.1.3:6016		1	Service01	. 🗸
DELL	IP	229.1.1.3:6017		1	Service01	

Figure 13.6 Search and Select Programs

Check the programs you want to show, and after completion, click "OK" button to save the selected programs and exit the "Select Programs" dialog. The "Setting" page will update all selected programs as shown below.

Current User 🗸	Expand All Collapse All	Add Group Save Settings					
Show Penalty Bo	ox Group						
0nit	\$Input	\$Stream ID	\$Stream Name	Program number	Name	Live	
🕂 🖊 📋 G	roup Name: MividiTest						<u>~</u>
_ocal	UDP1	225.3.3.3:9004		1	Service01	V	1
ocal	UDP1	225.3.3.3:9005		11	NBC East HD	V	1
_ocal	UDP1	225.3.3.3:9005		20	Telemundo East HD	V	🛍 🔺 🔻
_ocal	UDP1	225.3.3.3:9005		51	COZI TV SD	V	🛍 🔺 🔻
.ocal	UDP1	225.3.3.3:9006		1	InCar Cam 1	V	🔟 🔺 🛡
.ocal	UDP1	225.3.3.3:9006		2	InCar Cam 2	V	💼 🔺 🔻
_ocal	UDP1	225.3.3.3:9006		3	Race Line Cut	V	🛍 🔺 🔻
ocal	UDP1	225.3.3.3:9006		4	Specialty POV	V	💼 🔺 🛡
ocal	UDP1	225.3.3.3:9007		316	FOX SPORTS 3 HD	V	💼 🔺 🛡
local	UDP1	225.3.3.3:9007		318	EUROSPORT HD	V	💼 🔺 🔻
Local	UDP1	225.3.3.3:9007		336	KIX HD	V	💼 🔺 🔻
_ocal	UDP1	225.3.3.3:9007		342	Animax HD	V	💼 🔺 🛡
_ocal	UDP1	225.3.3.3:9007		366	Smithsonian HD	1	💼 🔺 🛡
_ocal	UDP1	225.3.3.3:9009		1	E4_Students	V	💼 🔺 🛡
_ocal	UDP1	225.3.3.3:9010		1	E4_Students	V	💼 🔺 🔻
_ocal	UDP1	225.3.3.3:9012		3701	□CCTV-3,ßÇå	V	啦 🔺 🛡
_ocal	UDP1	225.3.3.3:9012		3702	□CCTV-5,ßÇå	V	前 🔺 🛡
.ocal	UDP1	225.3.3.3:9012		3703	OCCTV-6_6Çå	V	💼 🔺 🛡
_ocal	UDP1	225.3.3.3:9012		3704	OCCTV-8_6Çå	Image: A start of the start	💼 🔺 🔻
Local	UDP1	225.3.3.3:9013		513	C8	V	💼 🔺 🛡
Local	UDP1	225.3.3.3:9013		515	BFM TV	V	🕅 🔺 🔻



Click "Save Setting" button on the top of page to save the settings. The Thumbnail page will display thumbnails based on the setting.

13.3.2 Penalty Box Setting on Thumbnail Display

Once the checkbox "Show Penalty Box Group" is checked and saved, thumbnails with active error alarms will be displayed inside the Penalty Box. When an error alarm occurs on a program, the thumbnail of that program will be moved out from the regular display group and moved to the Penalty Box.

13.3.3 Edit Group Name

Click the image button "Edit Group Name" to edit the name of selected group. After finishing change, click "OK" button to save the change.

13.3.4 Delete a Group

If you don't want a group, click the image button "Delete Group" to delete the group. Then click "Save Setting" to save the change.

13.3.5 Change Setting for Different Users

Only users of Administrator role can change the settings. The Administrators are responsible to create settings for general users. Then general users will be able to see thumbnails based on settings created by the Administrator.

To create settings for a different user, select a user in the user selection drop down list and follow the steps in previous sections to create settings.

TSM Status	Thumbnails Setting						
Current User	x Group	Add Group Save Settings					
mividi Unit	Select User	\$Stream ID	\$Stream Name	Program number	Name	Live	
+ 🖊 📋 Gr	oup Name: MividiTest						e
ocal	UDP1	225.3.3.3:9004		1	Service01	V	1
ocal	UDP1	225.3.3.3:9005		11	NBC East HD	V	🗊 🔺 🛡
.ocal	UDP1	225.3.3.3:9005		20	Telemundo East HD	V	🛍 🔺 🔻
.ocal	UDP1	225.3.3.3:9005		51	COZI TV SD	V	🗑 🔺 🛡
ocal	UDP1	225.3.3.3:9006		1	InCar Cam 1	V	🗑 🔺 🛡
ocal	UDP1	225.3.3.3:9006		2	InCar Cam 2	×	🔟 🔺 🔻
.ocal	UDP1	225.3.3.3:9006		3	Race Line Cut	V	🗑 🔺 🔻
.ocal	UDP1	225.3.3.3:9006		4	Specialty POV	V	💼 🔺 🔻
ocal	UDP1	225.3.3.3:9007		316	FOX SPORTS 3 HD	V	🛍 🔺 🔻
ocal	UDP1	225.3.3.3:9007		318	EUROSPORT HD	V	🔟 🔺 🔻
ocal	UDP1	225.3.3.3:9007		336	KIX HD	V	🔟 🔺 🔻
ocal	UDP1	225.3.3.3:9007		342	Animax HD	V	🛍 🔺 🔻
ocal	UDP1	225.3.3.3:9007		366	Smithsonian HD	V	💼 🔺 🛡
ocal	UDP1	225.3.3.3:9009		1	E4_Students	V	💼 🔺 🔻
ocal	UDP1	225.3.3.3:9010		1	E4_Students	V	💼 🔺 🔻
.ocal	UDP1	225.3.3.3:9012		3701	DCCTV-3,6Çå	×	前 🔺 🔻
.ocal	UDP1	225.3.3.3:9012		3702	□CCTV-5,ßÇå	V	🖄 🔺 🔻
ocal	UDP1	225.3.3.3:9012		3703	□CCTV-6,ßÇå	V	👘 🔺 🔻
.ocal	UDP1	225.3.3.3:9012		3704	OCCTV-8,6Çå	V	🛍 🔺 🔻
.ocal	UDP1	225.3.3.3:9013		513	C8	V	🗑 🔺 🛡
.ocal	UDP1	225.3.3.3:9013		515	BFM TV	V	🗊 🔺 🔻

Figure 13.8 Configure Program Display Setting for a User

Appendix: Monitoring System Error Codes

Code	Name	Description
1	STREAM_START	Stream monitoring starts.
2	STREAM_END	Stream monitoring ends.
10	TS_QUALITY_SCORE	Calculated TS quality level.
101	INPUT_ERROR	General input error.
102	SYSTEM_ERROR	General system error.
103	SYSTEM_BUFFER_OVERFLOW	The application input buffer has overflowed.
104	LICENSE_ERROR	The number of streams exceeds the license limit.
200	PID_BITRATE_OUT_OF_BOUND	PID bitrate is out of user defined bounds.
201	BLACK_FRAME	Black frame detected.
202	STILL_FRAME	Still frame detected.
204	LOUDNESS_NORMAL	The audio loudness is normal.
205	LOUDNESS_TOO_LOW	The audio loudness is too low.
206	LOUDNESS_TOO_HIGH	The audio loudness is too high.
207	AUDIO_MISSING	The audio pid is missing.
208	VIDEO_MISSING	The video pid is missing.
210	OVERALL_QUALITY_LOW	The overall quality of the stream is low.
211	FRAME_SCORE_LOW	The frame quality score is lower than the threshold.
220	PACKET_SCRAMBLED	Packet level scrambling including sync byte.
225	LOUDNESS_EXCEEDS_DIALNORM_B	The difference between actual loudness and Dialnorm
	OUND	exceeds the specified range.
226	LOUDNESS_RETURNED_NORMAL_FR	Loudness returned to normal from too low.
	OM_TOO_LOW	
227	LOUDNESS_RETURNED_NORMAL_FR	Loudness returned to normal from too high.
	OM_TOO_HIGH	
228	LOUDNESS_RETURNED_TO_DIALNO	Loudness returned to Dialnorm bound.
	RM_BOUND	
300	RECORDING_STOPPED	Stream recording stopped.
301	RECORDING_RUNNING_AFTER_STOP	Stream recording is running again after no status update for a
	PED	period.
302	HARD_DRIVE_FULL	The hard drive used for recording is full.
901	CARRIER_GAIN	Transport stream carrier gain.
902	SYNC_GAIN	Transport stream re-gains sync.
1001	CARRIER_LOSS	Carrier_loss Loss of signal carrier.
1002	SUBTITLE_LOSS	Subtitle data is missing.
1003	MISSING_EPG_EVENT_INFO	Missing EPG event information.

1006	PROGRAM_DATA_LOSS	All program data are lost and a stream contains only null
		packets.
1010	SYNC_LOSS	TS_sync_loss Loss of synchronization with consideration of
		hysteresis parameters.
1020	SYNC_BYTE_ERROR	Sync_byte_error Sync_byte not equal 0x47.
1030	PAT_PID_INTERVAL_ERROR	PAT_error PID 0x0000 does not occur at least every 0,5 s.
1031	PAT_SCRAMBLING	PAT_error Scrambling_control_field is not 00 for PID
		0x0000.
1032	PAT_SECTION_INTERVAL_ERROR	PAT_error_2 Sections with table_id 0x00 do not occur at
		least every 0,5 s on PID 0x0000.
1033	PAT_SECTION_ID_ERROR	PAT_error_2 Section with table_id other than 0x00 found on
		PID 0x0000.
1040	COUNTINUITY_COUNT_ERROR	Continuity_count_error Incorrect packet order, a packet
		occurs more than twice or lost packet.
1041	REPEAT_CC	Continuity_count_error Repeated continuity count.
1050	PMT_SECTION_ID_ERROR	PMT_error Sections with table_id 0x02, (i. e. a PMT), do
		not occur at least every 0,5 s on the PID which is referred to
		in the PAT.
1051	PMT_SCRAMBLING	PMT_error Scrambling_control_field is not 00 for all PIDs
		containing sections with table_id 0x02 (i.e. a PMT)
1052	PMT_SECTION_INTERVAL_ERROR	PMT_error_2 Sections with table_id 0x02, (i.e. a PMT), do
		not occur at least every 0,5 s on each program_map_PID
		which is referred to in the PAT.
1060	PID_MISSING	PID_error Referred PID does not occur for a user specified
		period.
2010	TRANSPORT_ERROR_INDICATOR	Transport_error Transport_error_indicator in the TS-Header
		is set to "1".
2020	CRC_ERROR	CRC_error CRC error occurred in CAT, PAT, PMT, NIT,
		EIT, BAT, SDT or TOT table.
2021	SECTION_LENGTH_ERROR	Encoded table section length is invalid.
2022	VERSION_NUMBER_INCREMENT_ER	Different sections have different version number.
	ROR	
2023	VERSION_NUMBER_INCONSISTENT	Version increment is not one.
2024	TABLE_FORMAT_ERROR	Unable to decode the table due to format error.
2030	PCR_DISCOUNTINUITY	PCR_error PCR discontinuity of more than 100 ms
		occurring without specific indication.
2031	PCR_REPETITION_ERROR	PCR_repetition_error Time interval between two
		consecutive PCR values more than 40 ms.
2032	ADAPT_LENGTH_ERROR	PCR_error Adaptation_field_length is invalid.
2033	PCR_DISC_INDICATOR	PCR_error PCR discountinuity indicator is set.
2040	PCR_ACCURACY_ERROR	PCR_accuracy_error PCR accuracy of selected programme

		is not within 500 ns.
2041	PCR_OFFSET_ERROR	PCR_frequency_offset_error PCR frequency offset of selected programme is not within 810 Hz.
2042	PCR_OVERALL_JITTER_ERROR	PCR_jitter_error Overall PCR jitter of selected programme is out of range.
2050	PTS_REPETITION_ERROR	PTS_error PTS repetition period more than 700 ms.
2060	CAT_MISSING	CAT_error Packets with transport_scrambling_control not 00 present, but no section with table_id = 0x01 (i.e. a CAT) present.
2061	CAT_SECTION_ID_ERROR	CAT_error Section with table_id other than 0x01 (i.e. not a CAT) found on PID 0x0001.
3010	NIT_SECTION_ID_ERROR	NIT_error Section with table_id other than 0x40 or 0x41 or 0x72 (i. e. not an NIT or ST) found on PID 0x0010.
3011	NIT_SECTION_MISSING	NIT_error No section with table_id 0x40 or 0x41 (i.e. an NIT) in PID value 0x0010 for more than 10 s.
3012	NIT_ACTUAL_SECTION_ID_ERROR	NIT_actual_error Section with table_id other than 0x40 or 0x41 or 0x72 (i. e. not an NIT or ST) found on PID 0x0010.
3013	NIT_ACTUAL_REPETITION_ERROR	NIT_actual_error Any two sections with table_id = $0x40$ (NIT_actual) occur on PID $0x0010$ within a specified value (25 ms or lower).
3014	NIT_OTHER_SECTION_INTERVAL_ER ROR	NIT_other_error Interval between sections with the same section_number and table_id = $0x41$ (NIT_other) on PID $0x0010$ longer than a specified value (10s or higher).
3015	NIT_SCRAMBLING	NIT_error Scrambling_control_field is not 00 for NIT PID.
3020	SI_REPETITION_ERROR	SI_repetition_error Repetition rate of SI tables outside of specified limits.
3030	TB_BUFFER_OVERFLOW	Buffer_error TB_buffering_error overflow of transport buffer (TBn).
3031	TBSYS_BUFFER_OVERFLOW	Buffer_error TBsys_buffering_error overflow of transport buffer for system information (Tbsys).
3032	MB_BUFFER_OVERFLOW	Buffer_error MB_buffering_error overflow of multiplexing buffer (MBn) or if the vbv_delay method is used: underflow of multiplexing buffer (Mbn).
3033	EB_BUFFER_OVERFLOW	Buffer_error EB_buffering_error overflow of elementary stream buffer (EBn) or if the leak method is used: underflow of elementary stream buffer (EBn) though low_delay_flag and DSM_trick_mode_flag are set to 0 else (vbv_delay method) underflow of elementary stream buffer (EBn).
3034	B_BUFFER_OVERFLOW	Buffer_error B_buffering_error overflow or underflow of main buffer (Bn).

3035	BSYS_BUFFER_OVERFLOW	Buffer_error Bsys_buffering_error overflow of PSI input
		buffer (Bsys).
3036	MB_BUFFER_UNDERFLOW	Buffer_error MB_buffering_error underflow of main buffer
		(Bn).
3037	EB_BUFFER_UNDERFLOW	Buffer_error B_buffering_error underflow of main buffer
		(Bn).
3040	UNREFERENCED_PID	Unreferenced_PID PID (other than PAT, CAT, CAT_PIDs,
		PMT_PIDs, NIT_PID, SDT_PID, TDT_PID, EIT_PID,
		RST_PID, reserved_for_future_use PIDs, or PIDs user
		defined as private data streams) not referred to by a PMT
		within 0,5 s (note 1).
3041	UNREFERENCED_PID	Unreferenced_PID PID (other than PMT_PIDs, PIDs with
		numbers between 0x00 and 0x1F or PIDs user defined as
		private data streams) not referred to by a PMT or a CAT
		within 0.5 s.
3050	SDT_SECTION_MISSING	SDT_error Sections with table_id = $0x42$ (SDT, actual TS)
		not present on PID 0x0011 for more than 2 s.
3051	SDT_SECTION_ID_ERROR	SDT_error Sections with table_ids other than 0x42, 0x46,
		0x4A or 0x72 found on PID 0x0011.
3052	SDT_ACTUAL_SECTION_ID_ERROR	SDT_actual_error Sections with table_ids other than 0x42,
		0x46, 0x4A or 0x72 found on PID 0x0011.
3053	SDT_ACTUAL_REPETITION_ERROR	SDT_actual_error Any two sections with table_id = $0x42$
		(SDT_actual) occur on PID 0x0011 within a specified value
		(25 ms or lower).
3054	SDT_OTHER_SECTION_INTERVAL_ER	SDT_other_error Interval between sections with the same
	ROR	section_number and table_id = $0x46$ (SDT, other TS) on PID
		0x0011 longer than a specified value (10s or higher).
3055	SDT_SCRAMBLING	SDT_error Scrambling_control_field is not 00 for SDT PID.
3060	EIT_SECTION_MISSING	EIT_error Sections with table_id = 0x4E (EIT-P/F, actual
		TS) not present on PID 0x0012 for more than 2 s
3061	EIT_SECTION_ID_ERROR	Sections with table_ids other than in the range 0x4E - 0x6F
		or 0x72 found on PID 0x0012.
3062	EIT_SECTION_0_MISSING	EIT_actual_error Section '0' with table_id = $0x4E$ (EIT-P,
		actual TS) not present on PID 0x0012 for more than 2 s.
3063	EIT_SECTION_1_MISSING	EIT_actual_error Section '1' with table_id = $0x4E$ (EIT-F,
		actual TS) not present on PID 0x0012 for more than 2 s.
3064	EIT_ACTUAL_SECTION_ID_ERROR	EIT_actual_error Sections with table_ids other than in the
		range $0x4E - 0x6F$ or $0x72$ found on PID $0x0012$.
3065	EIT_ACTUAL_REPETITION_ERROR	EIT_actual_error Any two sections with table_id = $0x4E$
		(EIT-P/F, actual TS) occur on PID 0x0012 within a specified
		value (25ms or lower).

3066	EIT_OTHER_SECTION_INTERVAL_ER	EIT_other_error Interval between sections with table_id =
3000	ROR	0x4F (EIT-P, other TS) on PID 0x0012 longer than a
	KOK	specified value (10s or higher).
3067	EIT_OTHER_SECTION_1_INTERVAL_E	EIT_actual_error Interval between sections '1' with table_id
5007	RROR	= 0x4F (EIT-F, other TS) on PID 0x0012 longer than a
	MOR	specified value (10s or higher).
3068	EIT PF ERROR	EIT_PF_error If either section ('0' or '1') of each EIT P/F
5000		subtable is present both must exist. Otherwise EIT_PF_error
		should be indicated.
3070	RST_SECTION_ID_ERROR	RST_error Sections with table_id other than 0x71 or 0x72
		found on PID 0x0013.
3071	RST_REPETITION_ERROR	RST_error Any two sections with table_id = $0x71$ (RST)
		occur on PID 0x0013 within a specified value (25 ms or
		lower).
3080	TDT_SECTION_MISSING	TDT_error Sections with table_id = $0x70$ (TDT) not present
		on PID 0x0014 for more than 30 s.
3081	TDT_SECTION_ID_ERROR	TDT_error Sections with table_id other than 0x70, 0x72
		(ST) or 0x73 (TOT) found on PID 0x0014.
3082	TDT_REPETITION_ERROR	TDT_error Any two sections with table_id = $0x70$ (TDT)
		occur on PID 0x0014 within a specified value (25 ms or
		lower).
3083	TDT_SCRAMBLING	TDT_error Scrambling_control_field is not 00 for TDT PID.
3090	EMPTY_BUFFER_ERROR	Transport buffer (TBn) not empty at least once per second or
		transport buffer for system information (TBsys) not empty at
		least once per second or if the leak method is used
		multiplexing buffer (MBn) not empty at least once per
		second.
3100	DATA_DELAY_ERROR	Delay of data (except still picture video data) through the
		TSTD buffers superior to 1 second, or delay of still picture
		video data through the TSTD buffers superior to 60 s.
4001	MEDIA_DELAY_FACTOR_ERROR	Media Delivery Delay Factor out of bound.
4002	MEDIA_LOSS_ERROR	Media Loss Rate out of bound.
4003	RTP_PACKET_LOSS_ERROR	RTP packet loss detected.
4004	RTP_MAX_LOSS_PERIOD	RTP stream exceeds max loss period limit.
4005	RTP_MIN_LOSS_DISTANCE	RTP stream exceeds min loss distance limit (below the limit).
4006	RTP_SEQUENCE_ERROR	RTP sequence number is non-consecutive. Packets lost.
4007	MEDIA_JITTER_ERROR	IP packet jitter out of bound.
1000		
4008	LONG_TERM_MEDIA_LOSS_ERROR	Long term media loss rate out of bound.
4008	LONG_TERM_MEDIA_LOSS_ERROR PROFILE_ERROR_FLOW_NOT_EXIST	Long term media loss rate out of bound. Expected flow does not exist.

4100	HTTP_FILE_SEQUENCE_ERROR	Media file index for HTTP Live Streaming is reversed.
4101	HTTP_DOWNLOAD_TIME_ERROR	HTTP file downloading time exceeds media time.
4102	ACTUAL_DURATION_LARGER_THAN	The actual duration is larger than target duration by 10%.
	_TARGET_ERROR	
4103	MEDIA_PCR_VALUE_JUMP_ERROR	The difference between two consecutive PCR values are
		very large.
4104	HTTP_FILE_NOT_FOUND	The requested file is not found on the server.
4105	GENERAL_HTTP_ERROR	An error has returned from HTTP Server.
4106	HLS_MEDIA_TYPE_NOT_TS	The HLS media is not in transport stream format.
4107	HTTP_DOWNLOAD_BANDWIDTH_ER	HTTP file downloading bitrate is less than required media
	ROR	bitrate.
4200	INVALID_PLAYLIST_FILE	The first tag line of the file is not #EXTM3U.
4201	ILLEGAL_TAG	Before the type of playlist file determined, the tag that can
		not determine the type of playlist file appears.
4202	UNKNOWN_TAG	The tag is not defined in HLS protocol.
4203	UNEXPECTED_TAG	The tag can not be placed in current playlist file.
4204	INVALID_TAG_VALUE	The tag value is out of range or its type is wrong.
4205	VERSION_LOW	One tag or attribute needs higher version of HLS protocol
		supported.
4206	MISSING_ATTRIBUTE	The tag have lost one of its attribute.
4207	INVALID_ATTRIBUTE_VALUE	The attribute value is out of range or its type is wrong.
4208	UNEXPECTED_ATTRIBUTE	One attribute must not appear in the tag.
4209	MEDIA_FILE_SEQUENCE_OUT_OF_S	The media file sequece number for different profile or
	YNC	elementary streams is different.
4210	MEDIA_TIME_OUT_OF_SYNC	The total media play time for different profile or elementary
		streams is different.
4211	AUDIO_PTS_SYNC_ERR	The segment start audio PTS for different profile streams is
		different.
4212	VIDEO_PTS_SYNC_ERR	The segment start video PTS for different profile streams is
		different.
4300	MPD_MISSING_ATTRIBUTE	The MPD element has lost one of its attribute.
4301	MPD_UNEXPECTED_ATTRIBUTE	The MPD element has an unexpected attribute.
4302	MPD_MISSING_ELEMENT	The MPD element is missing.
4303	MPD_INVALID_ATTRIBUTE_VALUE	MPD_INVALID_ATTRIBUTE_VALUE
5001	PAT repetition error	PAT repetition interval error (100ms < cycle time <= 200ms)
5002	PAT repetition error	PAT repetition interval error (200ms < cycle time <= 500ms)
5003	PAT absence error	PAT not found (cycle time > 500ms)
5004	PAT syntax error	Packet with PID 0x0000 does not have table_id 0x00
5005	PAT syntax error	CRC is incorrect for table_id 0x00 within PID 0x0000
5006	PAT syntax error	scrambling_control_field is not 00 for packet within PID 0x0000

5011	PMT repetition error	PMT repetition interval error (400ms < cycle time <= 800ms)
5012	PMT repetition error	PMT repetition interval error (800ms < cycle time <= 2000ms)
5013	PMT absence error	PMT not found (cycle time > 2000ms)
5014	PMT syntax error	Packet with PMT_PID does not have table_id 0x02
5015	PMT syntax error	CRC is incorrect for table_id
5016	PMT syntax error	scrambling_control_field is not '00' for packets containing PMT
5017	PMT syntax error	PMT_PID referenced by PAT not found
5021	MGT repetition error	MGT repetition interval error (150ms < cycle time <= 300ms)
5022	MGT repetition error	MGT repetition interval error (300ms < cycle time <= 750ms)
5023	MGT absence error	MGT not found (cycle time > 750ms)
5024	MGT syntax error	CRC is incorrect for table_id 0xC7
5025	MGT syntax error	scrambling_control_field is not '00' for packets containing MGT 2
5031	TVCT repetition error	TVCT repetition interval error (400ms < cycle time <=800ms)
5032	TVCT repetition error	TVCT repetition interval error (800ms < cycle time <=2000ms)
5033	TVCT absence error	TVCT not found (cycle time > 2000ms)
5034	TVCT syntax error	CRC is incorrect for table_id 0xC8
5035	TVCT syntax error	scrambling_control_field is not '00' for packets containing TVCT
5041	CVCT repetition error	CVCT repetition interval error (400ms < cycle time <= 800ms)
5042	CVCT repetition error	CVCT repetition interval error (800ms < cycle time <= 2000ms)
5043	CVCT absence error	CVCT not found (cycle time > 2000ms)
5044	CVCT syntax error	CRC is incorrect for table_id 0xC9
5045	CVCT syntax error	scrambling_control_field is not '00' for packets containing CVCT
5051	RRT repetition error	RRT repetition interval error (60,000ms < cycle time <=120,000ms)
5052	RRT repetition error	RRT repetition interval error (120,000ms < cycle time <= 300,000ms)
5053	RRT absence error	RRT not found (cycle time > 300,000ms)
5054	RRT syntax error	CRC is incorrect for table_id 0xCA
5055	RRT syntax error	scrambling_control_field is not '00' for packets containing

		RRT
5061	EIT-0 repetition error	EIT-0 repetition interval error (500ms < cycle time <= 1000ms)
5062	EIT-0 repetition error	EIT-0 repetition interval error (1000ms < cycle time <= 2500ms)
5063	EIT-0 absence error	EIT-0 not found (cycle time > 2500ms)
5064	EIT syntax error	CRC is incorrect for table_id 0xCB
5065	EIT syntax error	scrambling_control_field is not '00' for packets containing EIT
5066	EIT-1 repetition error	EIT-1 repetition interval error (3 seconds < cycle time <= 6 seconds)
5067	EIT-1 repetition error	EIT-1 repetition interval error (6 seconds < cycle time <= 15 seconds)
5068	EIT-1 absence error	EIT-1 not found (cycle time > 15 seconds)
5069	EIT-2, EIT-3 repetition error	EIT-2, EIT-3 repetition interval error (1 minute < cycle time <= 2 minutes)
5070	EIT-2, EIT-3 repetition error	EIT-2, EIT-3 repetition interval error (2 minutes < cycletime <= 5 minutes)
5071	EIT-2, EIT-3 absence error	EIT-2, EIT-3 not found (cycle time > 5 minutes)
5072	ETT syntax error	CRC is incorrect for table_id 0xCC
5073	ETT syntax error	scrambling_control_field is not '00' for packets containing ETT
5081	STT repetition error	STT repetition interval error (1000ms < cycle time <= 2000ms)
5082	STT repetition error	STT repetition interval error (2000ms < cycle time <= 5000ms)
5083	STT absence error	STT not found (cycle time > 5000ms)
5084	STT syntax errors	CRC is incorrect for table_id 0xCD
5085	STT time value error	STT time value is more than 30 seconds away from currentcorrectGPSsecond_count(includingGPS_UTC_offsetimpact)
5091	PCR error	Unsignaled PCR discontinuity
5092	PCR repetition error	PCR repetition interval error (100ms < cycle time <= 200ms)
5093	PCR repetition error	PCR repetition interval error (200ms < cycle time <= 500ms)
5094	PCR absence error	PCR not found (cycle time > 500ms)
5095	PCR error	500 ns < PCR inaccuracy <= 2500 ns
5096	PCR error	PCR inaccuracy > 2500 ns
5097	PCR related parameters	810 Hz < PCR frequency offset <= 4050 Hz
5098	PCR related parameters	PCR frequency offset > 4050 Hz)
5099	PCR related parameters	75 milliHerz/second (mHz/s) < PCR frequency drift <= 375 mHz/s

5100	PCR related parameters	PCR frequency drift > 375 mHz/s
5101	PCR related parameters	25 micro seconds < PCR overall jitter <= 125 micro seconds
5102	PCR related parameters	PCR overall jitter > 125 micro seconds
5110	PTS interval error	700 ms < Interval between coded PTS values <= 1400 ms
5111	PTS interval error	1400 ms < Interval between coded PTS values <= 3500 ms
5112	PTS absence error	Interval between coded PTS values > 3500 ms
5113	PTS increment error	PTS time not incrementing at the reciprocal of the frame rate
5121	TSID	TSID values in PAT and VCT (transport_stream_id) do not match
5122	PAT/VCT mismatch	2 Different number of programs found in VCT than signaled in PAT
5123	VCT/PMT mismatch	SLD/PMT mismatch (number of services)
5124	VCT/PMT mismatch	SLD/PMT element mismatch (different parameters for matching program elements)
5125	PMT/EIT-0 descriptor mismatch	Mismatch in duplicated descriptors for current event between PMT and EIT-0
5126	ETT syntax errors	ETT has invalid ETM_ID or ETM_ID does not match existing event_id in EIT (excludes channel ETT)
5127	ETT syntax errors	ETT has ETM_ID of channel ETT, but MGT does not flag channel ETT on this PID
5128	Multiple sources of PSI	Version numbers for particular PSI tables should never decrease (except at wraparound)
5129	Daylight Savings time settings	STT contains invalid values for Daylight Savings time switchover
5130	Service Location Descriptor missing from VCT	No Service Location Descriptor in VCT
5131	Dangling source_id	source_id mismatch (either source_id in VCT does not have a corresponding source_id in EIT or source_id in EIT does not have a corresponding source_id in VCT)
5132	MGT mismatch	Version number and/or size of tables signaled in MGT does not match with actual table
5133	MGT mismatch	PSIP table found in stream, but not signaled in MGT
10001	MISSING_SCTE35_MESSAGE	Missing SCTE35 messages in the input stream
20001	RTSP_MISSING_VIDEO	Missing video stream from the RTSP stream
20002	RTSP_MISSING_AUDIO	Missing audio stream from the RTSP stream
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