
MEDIAEDGE

Technical Manual

- Technical References -

MEDIAEDGE Version 3.50

Ver. 3.50, 1st Edition, August 2008



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The information in this manual is described according to the following MEDIAEDGE versions unless otherwise noted.

MEDIAEDGE-SVS3 Ver.3.50
MEDIAEDGE-SWT3 Ver.1.21
MEDIAEDGE-SWT3-DS Ver.1.00
MEDIAEDGE-DAS3 Ver.1.20
MEDIAEDGE-STB3 Ver.2.0.11
MEDIAEDGE-LEB Ver.1.51.0.3
MEDIAEDGE-LSB Ver.1.0.0
HDMA-4000/Sync Ver.3.0.11

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I. Technical References

I-1. Product Specifications

I-1-1. MEDIAEDGE-SVS3

■ Features

- ◆ Delivers stream in HD video (MPEG2-HD), MPEG1, or MPEG2.
- ◆ Provides VOD (video on demand) and schedule delivery.
- ◆ Records and delivers live video, utilizing live units or live devices.
- ◆ Supports multicast and unicast deliveries.
- ◆ Provides a Web application for configuring contents and schedules.

■ Specifications

Operating environment	
CPU	Intel Pentium III 1.0GHz or faster
Memory	256MB or more
Network I/F	100Base-TX minimum
CD-ROM drive	Required for SVS3 installation
Hard drive	System use: 8GB Video files: Depends on content volume (DMA transfer required)
USB Port	Required for the dongle
Supported OS	Microsoft Windows Server 2003 (Service pack 1 or later)
Supported DBMS	Microsoft SQL Server 2000 (Service pack 3 or later) Microsoft SQL Server 2005 Microsoft SQL Server 2005 Express Edition (Included)

* HD live video streaming: To perform live streaming, you must have a server computer that has IEEE1394 ports (MEDIAEDGE-SVS3) or the MEDIAEDGE-LSB.

* SD live video streaming: To perform live streaming, you must have a realtime encoder board (MVR-D4400, MVR-D4000, MVR-D2200V) or the MEDIAEDGE-LEB60. For the MVR series, the number of lines of the video stream that can be sent depends on the number of servers and the number of PCI busses per server.

■ I-1-2. MEDIAEDGE-STB3

■ Features

- ◆ Supports HD video (MPEG2-HD), MPEG1, and MPEG2 reception and playback.
- ◆ Provides a customizable menu screen.
- ◆ Provides component ports and DVI-D ports that allow playback in high resolution.
- ◆ Provides gigabit LAN ports.
- ◆ Provides a remote controller.
- ◆ Provides a built-in Web server for modifying various settings via a browser.
- ◆ Provides playback control by means of the redirect function.
- ◆ Supports up/down conversion.
- ◆ Supports time adjust by NTP.
- ◆ Supports SNMP.

■ Specifications

Network interface	
Format	100Base-TX, 1000Base-T Ethernet/IEEE802.3 frame format Auto negotiation supported Full-duplex supported
Connector	RJ45 modular jack x1

Video output		
480/59.94i (NTSC) 576/50i (PAL)	SD signal	
	Connector	- Composite output connector x1 - Component output BNC connector x3 - Y/C output S connector x1 (Matched load impedance: 75 Ohm)
1080/59.94i 1080/50i 720/59.94p 720/50p	HD signal	
	Connector	Component output BNC connector x3 (Matched load impedance: 75 Ohm)
1080/59.94i(DVI) 1080/50i(DVI) 720/59.94p(DVI) 720/50p(DVI)	Digital signal	
	Connector	DVI-D connector x1

Audio output		
Analog audio output	Format	Stereo line output (unbalanced)
	Connector	Left channel pin-jack x1 (white)
		Right channel pin-jack x1 (red)
	Max. output level	2Vrms @RL=10k Ohm
Load impedance	10k Ohm or higher recommended	
Digital audio output	Format	S/PDIF coaxial
	Connector	Pin-jack x1 (black)
	Output level	0.5V @RL=75 Ohm
	Load impedance	75 Ohm

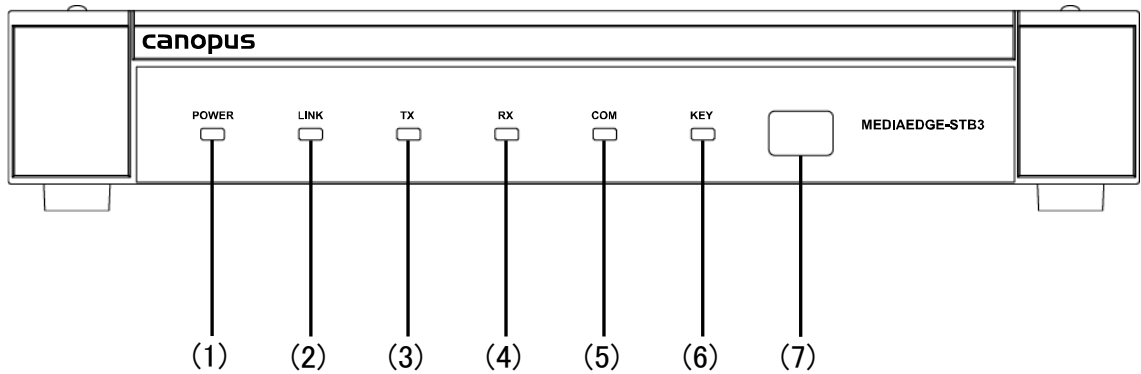
Remote control		
Infrared wireless remote control	Wireless remote controller	Infrared receiver x1
Wired remote control	Remote control terminal	Mini-jack for remote control x1 Switched automatically by inserting plug (Exclusive use with Infrared wireless remote control)

Generic I/O		
Serial port	Format	EIA-232
	Connector	D-SUB 9 pin (male) x1

Specification		
Voltage	AC adapter	Input: AC 100V - 240V (50Hz/60Hz) Output: DC 12V 2A (max)
	Unit	Input: DC 12V 1.8A (max)
Power consumption		30W (Maximum) / 4W (Waiting) / 7W (WOL Standby)
Temperature condition	Operating temperature	5 - 40 degrees C

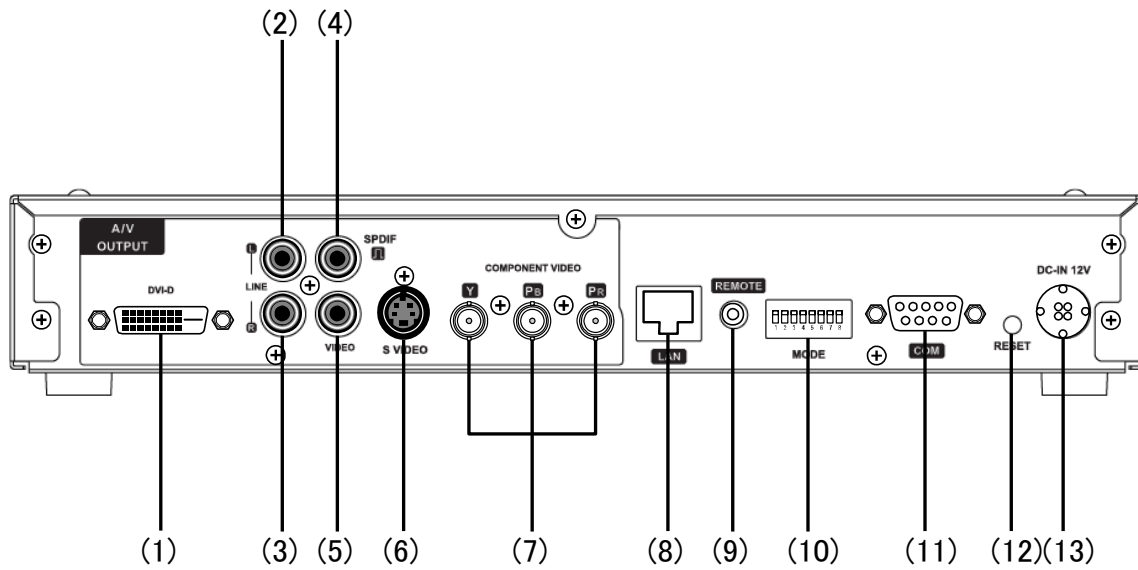
Others	
Dimensions	W 288 x D 215 x H 44 mm (Projecting parts not included)
Weight	1.5kg approximately

MEDIAEDGE-STB3 Front Panel



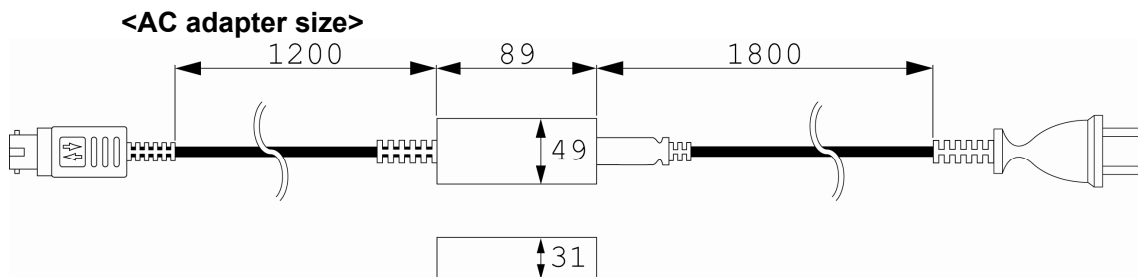
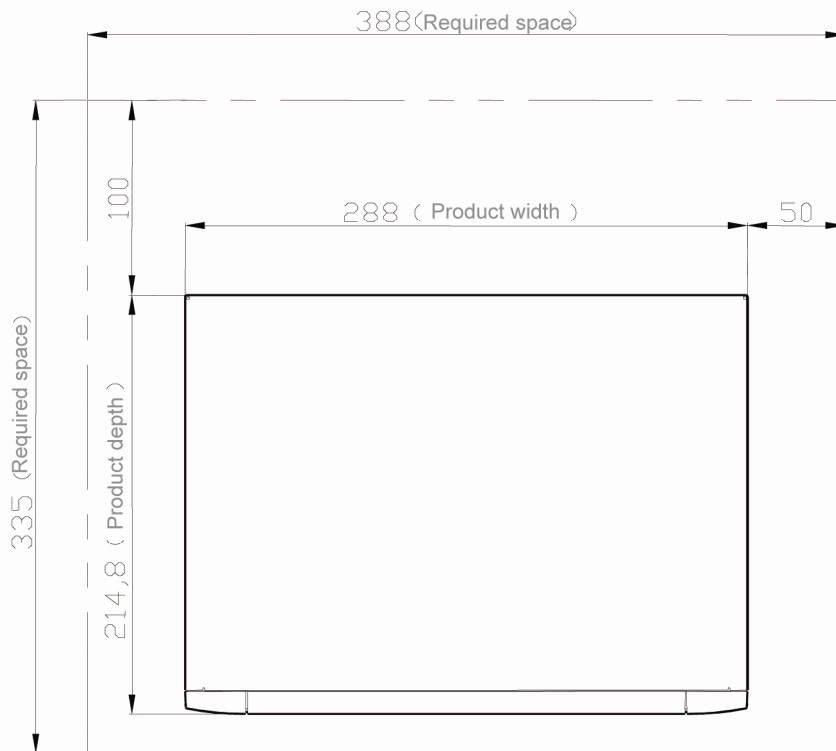
(1)	POWER LED	(4)	RX LED
	Lights while MEDIAEDGE-STB3 operates. - Unlit: Power is not on. - Lit orange: Stand-by. - Flashing orange: Wake On LAN Stand-by. - Lit green: Operating. - Flashing green: Starting up/shutting down.	(5)	COM LED
	(2)	LINK LED	(6)
(3)	TX LED	(7)	Infrared receiver
	Lights when MEDIAEDGE-STB3 is connected to a network (via a hub or other such device).		Lights when MEDIAEDGE-STB3 is receiving data from the network.
	Lights when MEDIAEDGE-STB3 is sending data to the network.		Lights when MEDIAEDGE-STB3 is sending/receiving data via COM port.
			Lights when receiving a key signal from an infrared remote controller or an external remote terminal.
			Built in infrared receiver for remote controllers.

MEDIAEDGE-STB3 Rear Panel



(1)	DVI-D DVI-D signal output.	(8)	LAN Port for connecting to Ethernet.
(2)	AUDIO OUT-LEFT Audio output (left).	(9)	REMOTE Remote terminal.
(3)	AUDIO OUT-RIGHT Audio output (right).	(10)	DIP switches Used to enable WOL (Wake On LAN), or change the video output format.
(4)	S/PDIF Coaxial digital audio output.	(11)	COM port RS-232C (for pass-through) terminal.
(5)	VIDEO OUT Composite video signal output.	(12)	RESET Used in emergencies.
(6)	S VIDEO OUT S-video signal output.	(13)	Power terminal Connects to the accompanying AC adapter.
(7)	COMPONENT VIDEO OUT Component video (Y/Pb/Pr) output.		

Dimensions/Required installation space



■ I-1-3. HDMA-4000

■ Features

- ◆ Plays back high-definition contents such as MPEG2-TS / HDV.
- ◆ Line-up of the models with 2.5 inch HDD or silicon disk
- ◆ Schedules playback with the date and time specified.
- ◆ Maintains contents and schedules via network.
- ◆ Provides control functions with DVD/LD-compatible commands.
- ◆ Supports up/down conversion.
- ◆ Supports power management by the UPS connected to the USB.
- ◆ Supports playback from external memory devices (HDD, USB memory) connected with the USB.
- ◆ Provides a built-in WEB server, which allows modifying various settings via a browser.
- ◆ Provides playback control by the redirect function.
- ◆ Supports time adjust by NTP.
- ◆ Supports SNMP.

■ Specifications

Network interface	
Format	100Base-TX, 1000Base-T Ethernet/IEEE802.3 frame format Auto negotiation supported Full-duplex supported
Connector	RJ45 modular jack x1

Video output		
480/59.94i (NTSC) 576/50i (PAL)	SD signal	
	Connector	Composite output connector x1 Component output BNC connector x1 Y/C output S connector x1 (Matched load impedance: 75 Ohm)
1080/59.94i 1080/50i 720/59.94p 720/50p	HD signal	
	Connector	Component output BNC connector x3 (Matched load impedance: 75 Ohm)
1080/59.94i(DVI) 1080/50i(DVI) 720/59.94p(DVI) 720/50p(DVI)	Digital signal	
	Connector	DVI-D connector x1

Audio output		
Analog audio output	Format	Stereo line output (unbalanced)
	Connector	Left channel pin-jack x1 (white)
		Right channel pin-jack x1 (red)
	Max. output level	2Vrms @RL= 10k Ohm
Load impedance	10k Ohm or higher recommended	
Digital audio output	Format	S/PDIF coaxial
	Connector	Pin-jack x1 (black)
	Output level	0.5V @RL= 75 Ohm
	Matched load impedance	75 Ohm

Remote control		
Infrared wireless remote control	Wireless remote controller	Infrared receiver x1
Wired remote control	Remote control terminal	Mini-jack for remote control x1 Switched automatically by inserting plug (Exclusive use with Infrared wireless remote control)

Generic I/O		
Serial port	Format	EIA-232
	Connector	D-SUB 9 pin (male) x1
USB port	Format	USB 2.0
	Connector	USB type A x1

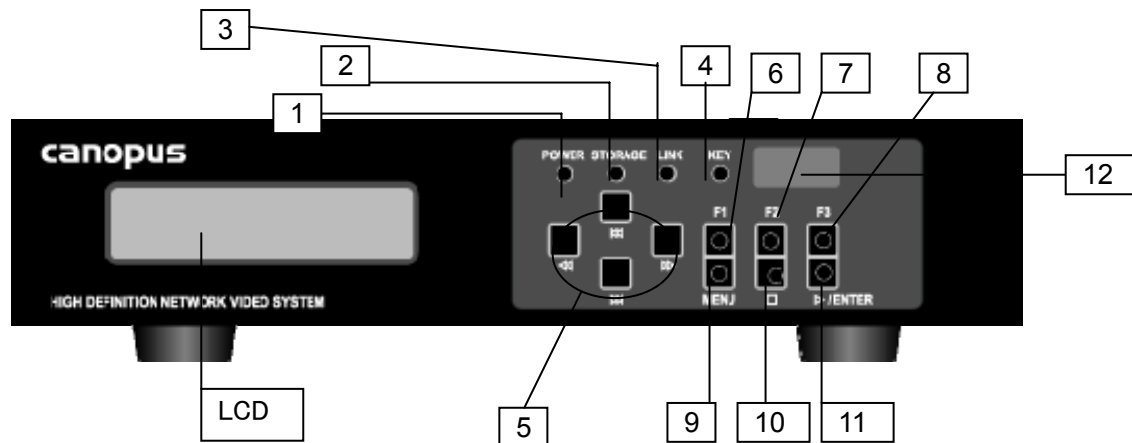
Specification		
Voltage	AC adaptor	Input: AC 100V - 240V (50Hz/60Hz) Output: DC 12V 3A (max)
	Unit	Input: DC 12V 2.9A (max)
Temperature condition	Operating temperature	5 - 40 degrees C

Storage (Standard model)	
Installed device	2.5 inch, 80GB, 4200rpm
Recording time	Approximately 6 hours for HD content (25Mbps)
Suggested time for HDD replacement	While the lifespan of an HDD varies according to its usage environment, HDDs are devices that deteriorate over time. When used in an environment with an ambient temperature of 25 degrees C, problems, such as writing errors, may occur within the first 20,000 hours of use. Running the HDD for more than 30,000 hours will degrade the head or motor, causing the HDD to fail. Considering the purpose of this device, the recommended replacement time for HDDs is after about 8,000 hours of use. (Please note that these time values are rough indications. They do not guarantee HDD durability.)

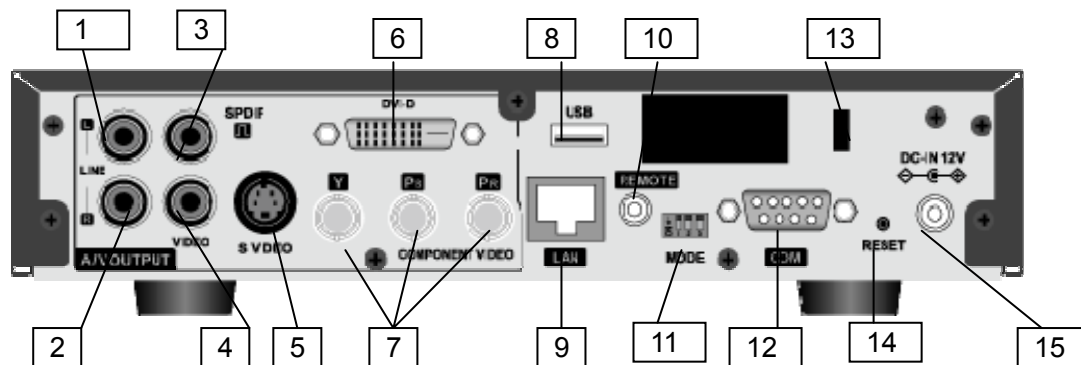
Storage (Silicon disk model)	
Installed device	1GB/2GB/4GB/8GB/16GB, Silicon disk
Recording time	For HD content (25Mbps) <ul style="list-style-type: none"> • 1GB Approximately 5 minutes • 2GB Approximately 10 minutes • 4GB Approximately 20 minutes • 8GB Approximately 40 minutes • 16GB Approximately 1 hour and 20 minutes
Condition of usage	Supports operations 24 hours a day
Number of rewritable times	2 million times

Others	
Dimensions	W 215.5 x D 246.4 x H 44 mm (Projecting parts not included)
Weight	2kg approximately

Front/Rear

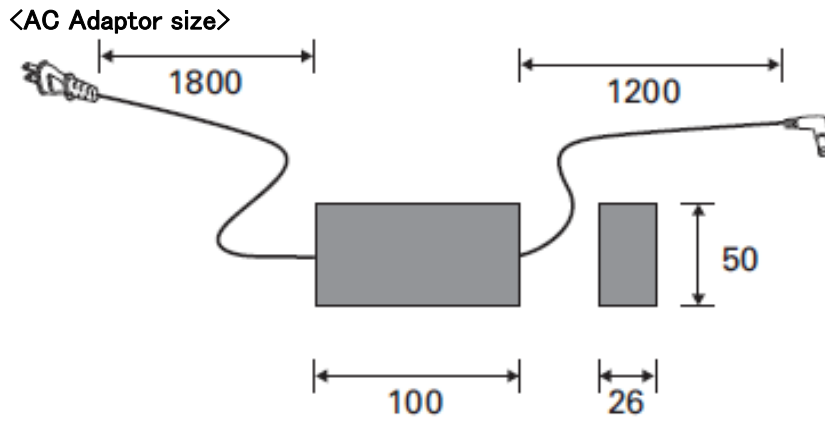
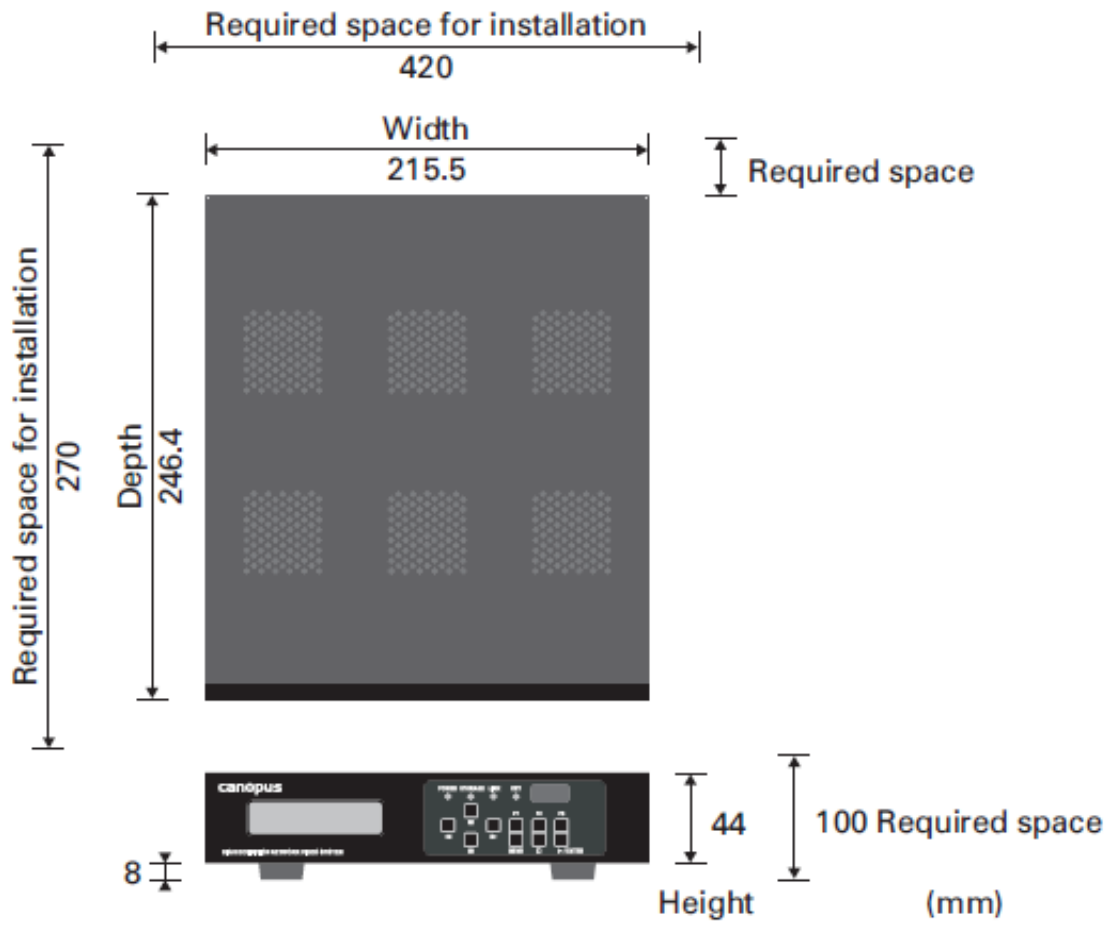


1	POWER LED	7	F2 Key
2	STORAGE LED	8	F3 Key
3	LINK LED	9	MENU Key
4	KEY LED	10	STOP Key
5	Select Key	11	PLAY/ENTER Key
6	F1 Key	12	Infrared receiver



1	AUDIO OUT (L)	9	LAN
2	AUDIO OUT (R)	10	REMOTE terminal
3	SPDIF	11	DIP Switch
4	VIDEO OUT	12	COM Port
5	S VIDEO OUT	13	Theft prevention slot
6	DVI-D	14	RESET Switch
7	COMPONENT VIDEO OUT	15	Power terminal
8	USB Port		

Dimensions



■ I-1-4. MEDIAEDGE-SWT3

■ Features

- ◆ Supports HD video (MPEG2-HD), MPEG1, and MPEG2 reception and playback.
- ◆ Configured as ActiveX components, MEDIAEDGE-SWT3 can easily be built into other applications.
- ◆ Provides two authentication methods: dongle method and network method.
- ◆ Provides playback control by means of the redirect function.

■ Specifications

Operating environment	
Operating System	Windows 2000 Professional Service Pack 4 or later, Windows XP Home/Professional Service Pack 2 or later, Windows Vista
CPU	Intel Pentium4 3.2GHz or higher
Memory	256MB or more
CD-ROM drive	Required for software installation
Network	100Base-TX or faster
Sound system	Stereo output
Graphic system	Graphics card with YUV overlay support
USB port	Required to set Dongle (Not required for the network authentication model)

■ I-1-5. MEDIAEDGE-SWT3-DS

■ Features

- ◆ Supports HD video (MPEG2-HD), MPEG1, MPEG2 reception and playback.
- ◆ Outputs video through the display adapter on a PC.
- ◆ Displays video on the desktop.
- ◆ Supports streaming playback sent from the MEDIAEDGE-SVS3.
- ◆ Supports playback of the file contents on the local storage (controlled by Schedule.txt).
- ◆ Cannot be installed on a PC where an SWT3 is installed.
- ◆ Provides two authentication methods: dongle and network.
- ◆ Provides playback control by the redirect function.

■ Specifications

Operating environment	
Operating system	Windows XP Professional Service Pack 3 or later Windows Vista Ultimate/Business Service Pack 1 or later * To use the software on Windows Vista, the Windows Aero function must be turned on. * Using Internet Explorer 7 or later is recommended.
CPU	Intel Core2Duo 2GHz or higher
Memory	1GB (2GB for Windows Vista) RAM or more
CD-ROM drive	Required for software installation
Network	100Base-TX or higher
Hard-disk	40GB HDD or more
Sound system	Sound board is required
Graphic system	Graphic card with DirectX9.0 support
USB port	Required for Hardware key (dongle). (Not required for the network authentication model.)

* Playback performance depends on various factors such as CPU and graphic system.

* To play back FLASH, you must install Adobe Flash Player.

* HTML Playback depends on Internet Explorer.

■ I-1-6. MEDIAEDGE-LSB

■ Features

- ◆ Provides streaming delivery of the HD video (MPEG2-HD) input through IEEE1394.
- ◆ Enables switching between multicast and unicast.
- ◆ Delivers contents automatically to a specific multicast group at startup.
- ◆ Provides a built-in Web server for modifying various settings via a browser.
- ◆ Enables remote control of serial-connection devices by means of serial passthrough.
- ◆ Enables the bit rate to be adjusted by means of ADVC-HDM1.
- ◆ Supports SNMP.

■ Specifications

Hardware Specifications		
Network Interface	Format	100BaseTX Fast Ethernet IEEE802.3 frame format Auto negotiation supported Full-duplex supported
	Connector	RJ45 modular connector x1
Infrared wireless remote control		Infrared receiver x1
Wired remote control	Remote control terminal	Mini-jack for remote control x1 Switched automatically by inserting plug (Exclusive use with Infrared wireless remote control)
Serial port	Format	EIA-232
	Connector	DSUB 9 pin (male) x1
IEEE1394 port	Format	IEEE1394
	Connector	IEEE1394 4 pin x2
USB port	Format	USB2.0
	Connector	USB type A x1
Dimensions		215.5(W)×246.4(D)×44.0(H)mm (Projecting parts not included)
Weight		2Kg approximately
Voltage	AC adaptor	Input: AC100V - 240V(50Hz/60Hz) Output: DV12V 3A
	Unit	Input: DC12V 2.2A (Maximum)
Operating temperature		5 – 40 degrees C (No condensation)

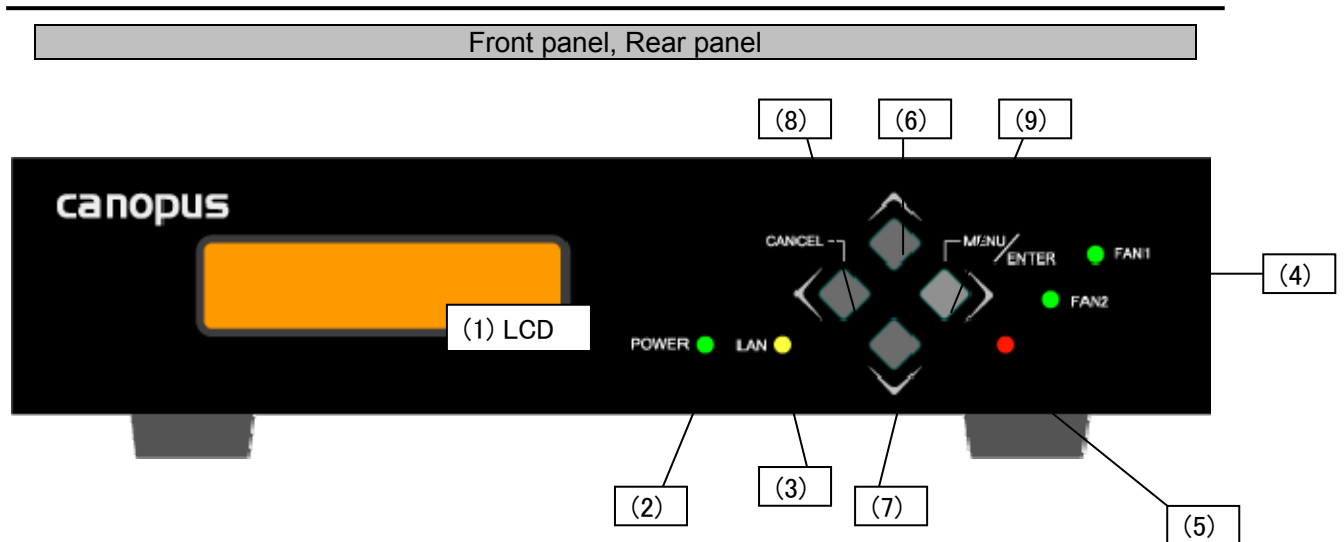
■ I-1-7. MEDIAEDGE-LEB60

■ Features

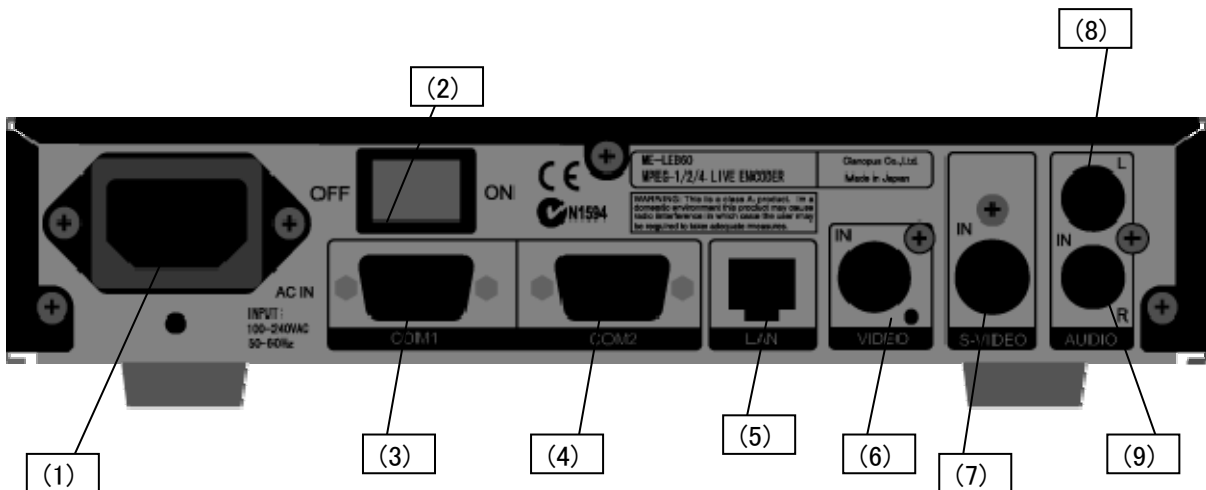
- ◆ Converts analog video signal to MPEG1 and MPEG2 in real time, and performs streaming delivery.
- ◆ Enables switching between multicast and unicast.
- ◆ Delivers contents automatically to a specific multicast group at startup.
- ◆ Provides on-demand delivery by request from the STB units or the relay servers.
- ◆ Provides serial ports for passthrough.
- ◆ Provides a built-in Web server for modifying various settings via a browser.
- ◆ Provides a frame skip function, which prevents video quality from deteriorating.
- ◆ Can display date/time and titles on the streaming video.

■ Specifications

Hardware Specifications			
Input/Output	Network I/F	Format	100Base-TX Fast Ethernet Auto negotiation supported Full-duplex supported
		Connector	RJ45 modular connector
	Video Input	Format	NTSC/PAL
		Connector	BNC Connector 4pin mini-DIN (for S cable connection)
		Input impedance	75 Ohm
	Audio Input	Format	Stereo line input
		Connector	RCA pin jack (red/white)
		Input impedance	20k Ohm
	General input/output	Format	EIA-232 serial port
		Connector	D-SUB9 x 2
Specification	Voltage	Unit	Input: AC100 - 240V (50 - 60Hz)
	Max Power Consumption	Operating	24W
		Waiting	6W
	Temperature	0 – 60 degrees C	
Dimensions	W215.5mm x D245mm x H46mm (Projecting parts not included)		
Weight	1730g approximately (w/o attachments)		
LCD	Used to display current status and setting menus.		
Stream Format	Video Compression	MPEG2: MP@ML MPEG1	
	Audio Compression	MPEG1 Layer1, Layer 2 16 bit stereo Sampling frequency 32K/44.1K/48K	
	Transmission	MPEG1/2 : RTSP/RTP (TS)	
	Video bitrate	MPEG2 D1/VGA = 3.0Mbps - 15Mbps MPEG2 Half D1 = 2.0Mbps - 8Mbps MPEG2 SIF = 1.0Mbps - 4Mbps MPEG2 QCIF = 256kbps - 2Mbps MPEG1 SIF = 1.0Mbps - 1.856Mbps	

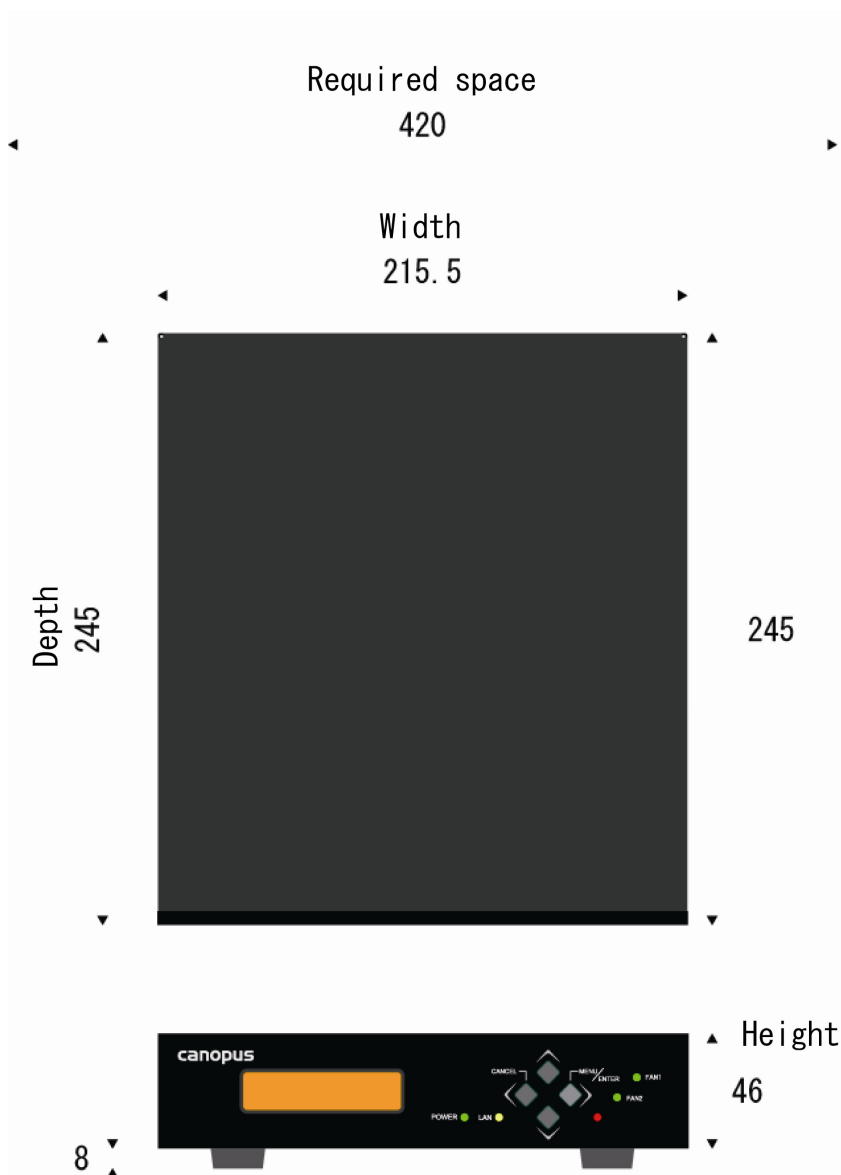


1	LCD: Displays the setting menus.	5	OVERTEMP: Lights up when exceeding the rated temperature.
2	POWER LED	6/7	Operational buttons: Up/Down
3	LAN LED: Displays the network status.	8/9	Operational buttons: Left/Right
4	FAN1/2: Displays the status of the fan.		

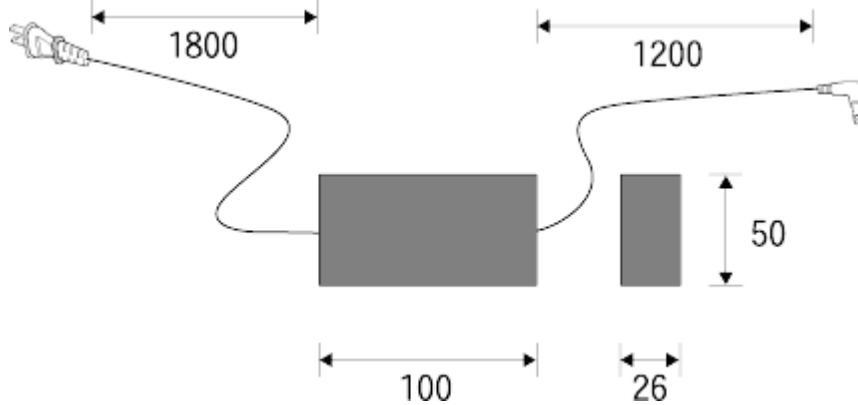


1	POWER CABLE	6	VIDEO IN
2	POWER SWITCH	7	S-VIDEO IN
3	SERIAL INTERFACE (COM1)	8	AUDIO IN (L)
4	SERIAL INTERFACE (COM2)	9	AUDIO IN (R)
5	LAN		

Dimensions/Required installation space



<AC adaptor size>



I-2. Supported Contents

I-2-1. Supported contents on each player

Supported contents

Device name	Video	Audio	Image	Flash	HTML	Ticker	SMIL	Clock
STB3	○	○	○	○	○	○	○	○
SWT3	○	×	×	×	×	×	×	×
SWT3-DS	○	○	○	○	○	○	○	×
HDMA-4000	○	○	○	○	○	○	○	○

* To play back FLASH on SWT3-DS, you must install Adobe Flash Player.

* When video, image, or Flash content is played alone, the content is displayed in the center with the aspect ratio retained, and zoomed so that the entire picture is displayed in the maximum size. According to the aspect ratio of the content, a black bar may be displayed at the edges (top and bottom/left and right).

Content playback method

Device name	HTML menu	Redirect	Schedule playback	Local file playback
STB3	○	○	△ (Video only)	×
SWT3	○	○	△ (Video only)	×
SWT3-DS	×	○	○	○
HDMA-4000	×	○	○	○

* On the HTML menu, you can choose an HTML link with the remote controller and play back each content. For details on the link and the available URL, see URL section in "I-9 Redirect function."

* For the HTML menu of the SWT3, you can open the SWT3 menu with a Web browser. It supports only video playback.

* The scheduled playback of HDMA-4000 and SWT3-DS are according to the schedule specified by the "Schedule.txt" stored in the playback client unit. You can describe only video and SMIL as contents. For details, see the HDMA-4000 manual.

I-2-2. Video

The recommended values for the video for MEDIAEDGE are below:

Stream format	MPEG2			MPEG1
	MP@ML	MP@HL	MP@H14	
Video bitrate	Full-D1	4Mbps - 15Mbps	15Mbps - 30Mbps	1Mbps - 1.8Mbps
	Half-D1 SIF	2Mbps - 8Mbps		
Format	Full-D1, Half-D1, SIF	1080/60i, 1080/50i, 720/60p, 720/50p, 720/30p, 720/25p	1080/60i, 1080/50i, 720/60p, 720/50p, 720/30p, 720/25p	SIF
Aspect ratio	4:3, 16:9			
Audio format	MPEG Layer2			
Audio bitrate	128Kbps - 384Kbps			
Sampling frequency	32KHz, 44.1KHz, 48KHz			
Audio mode	Stereo, Monaural			
Others	Sequence header is added to each GOP.			

- * Depending on the load of the STB3/HDMA-4000, video may not be played properly even when the values are as recommended. Especially when video is displayed together with tickers, we recommend that you use a value somewhere around 18Mbps.
- * The supported system formats are MPEG2 transport stream (MPEG2-TS), MPEG2 program stream (MPEG2-PS), and MPEG1 system stream.

■ I-2-3. Audio

MP3, WAV (Microsoft 8/16/24bit PCM;1ch/2ch/5.1ch; 32KHz/44.1KHz/48KHz)

The recommended values for the MP3 files used in MEDIAEDGE are below:

Channels	1ch (Monaural)	2ch (Stereo)
Bitrate	112Kbps - 192Kbps	112Kbps - 320Kbps
Sampling frequency	32KHz, 44.1KHz, 48KHz	

■ I-2-4. Image

JPEG, GIF, PNG, BMP

- * Maximum size is 2000×2000.
- * Transparency with alpha channel is available.
- * Animation GIF and PNG are displayed as still images. To make them work as animation, create an HTML where images are pasted, and display it as HTML content.

■ I-2-5. FLASH

SWF(FLASH7)

- * Operations to FLASH contents are not available.
- * Audio is not supported.
- * Maximum size is 640×480.
- * Some content may cause a heavy load and may not be displayed properly.
- * Flash playback is not available on some STB3/HDMA-4000 units. For details on how to check the availability, see "■ I-14-9 Checking the availability of the Flash and Ticker."

■ I-2-6. HTML

HTML

- * For STB and the HDMA-4000 browser specifications, see "■ I-8-1 STB3/HDMA-4000 Browser Specifications."

■ I-2-7. Ticker

txt, RSS

- * With regard to character codes, only ASCII is supported.
- * Ticker playback is not available on some STB3/HDMA-4000 units. For details on how to check the availability, see "■ I-14-9 Checking the availability of the Flash and Ticker."

■ I-2-8. SMIL

SMIL file (Character code: utf-8)

SMIL file that uses the players listed above. This is the subset of SMIL2.0 Basic Profile, and the text file with the character code of utf-8.

I-3. Port Numbers

•ME-SVS3 <- ME-STB3

Service	Protocol	Reception Port ID	Notes
DNS	TCP/UDP	53	Only when used
DHCP	TCP/UDP	67	Only when used
HTTP	TCP	80	Menu screen (Only when used)
NTP	TCP/UDP	123	Time adjust
RTSP	TCP	554	Requests video delivery
SNMP	UDP	162	FOR TRAP
MEDIAEDGE-STB3 Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Specified in "Host port" in STB3 settings)

•ME-SVS3 -> ME-STB3

Service	Protocol	Reception Port ID	Notes
RTP	UDP	Unspecified	Video data (1052,1054,1056,1058 for STB3)
RTSP	TCP	554	Redirect/Various statuses
HTTP	TCP	80	STB3-specific setting
SNMP	UDP	161	Only when used
MEDIAEDGE-STB3 Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Specified in "Listening port" in STB3 settings)

•Network PC -> ME-STB3

Service	Protocol	Reception Port ID	Notes
SSH	TCP	22	Only when used
Telnet	TCP	23	Only when used
HTTP	TCP	80	For Web Console
SNMP	UDP	161	Only when used

•Network PC <- ME-STB3

Service	Protocol	Reception Port ID	Notes
SSH	TCP	22	Only when used
Telnet	TCP	23	Only when used
SNMP	UDP	162	FOR TRAP

•ME-SVS3 <- ME-SWT3

Service	Protocol	Reception Port ID	Notes
DNS	TCP/UDP	53	Only when used
HTTP	TCP	80	Menu screen
RTSP	TCP	554	Requests video delivery

•ME-DAS3 <- ME-SWT3

Service	Protocol	Reception Port ID	Notes
DAS Authentication	UDP	51002	Can be changed with the options of DAS service

●ME-SVS3 -> ME-SWT3

Service	Protocol	Reception Port ID	Notes
RTSP	TCP	554	Redirect/Various statuses
RTP	UDP	Unspecified	Video data (Range 1025 - 5000)

●HDMA-4000 -> HDMA-4000

Service	Protocol	Reception Port ID	Notes
HDMA-4000Sync Control Port	UDP	Any port number	Sync playback
UPS	UDP	49400	Only when used
UPnP	TCP	1900	Only when used

●Network PC -> HDMA-4000

Service	Protocol	Reception Port ID	Notes
SSH	TCP	22	Only when used
Telnet	TCP	23	Only when used
HTTP	TCP	80	For Web Console
SNMP	UDP	161	Only when used
Samba	UDP	137,138	Material file transfer
	TCP	139,445	
HDMA-4000 Network Serial Control (RS-232C)	TCP	Any port number	Only when used (Default 12000)

●Network PC <- HDMA-4000

Service	Protocol	Reception Port ID	Notes
SSH	TCP	22	Only when used
Telnet	TCP	23	Only when used
SNMP	UDP	161	Listen
		162	TRAP
UPnP	UDP	1900	Only when used
	TCP	49152,49153	
HDMA-4000 Network Serial Control(RS-232C)	TCP	Unspecified	Only when used

●ME-SVS3 (Relay) <- ME-LEB/LEB60

Service	Protocol	Reception Port ID	Notes
RTP	UDP	Unspecified	Video data
HTTP	TCP	80	For firmware update
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C COM1)	TCP/UDP	Any port number	Only when used (Host port number for LEB)
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C COM2)	TCP/UDP	Any port number	Only when used (Host port number for LEB)

●ME-SVS3 (Relay) -> ME-LEB/LEB60

Service	Protocol	Reception Port ID	Notes
RTSP	TCP	554	Requests video delivery
HTTP	TCP	80	Changes LEB settings
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C COM1)	TCP/UDP	Any port number	Only when used (Listening port for LEB)
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C COM2)	TCP/UDP	Any port number	Only when used (Listening port for LEB)

●ME-SVS (Relay) <- ME-LSB

Service	Protocol	Reception Port ID	Notes
RTP	UDP	Unspecified	Video data
SNMP	UDP	162	FOR TRAP
MEDIAEDGE-LSB Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Host port number for LEB)

●ME-SVS (Relay) -> ME-LSB

Service	Protocol	Reception Port ID	Notes
RTSP	TCP	554	Requests video delivery
HTTP	TCP	80	Changes LEB settings
SNMP	UDP	161	Only when used
MEDIAEDGE-LSB Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Listening port for LEB)

●ME-LEB/LEB60 <- ME-STB3

Service	Protocol	Reception Port ID	Notes
HTTP	TCP	80	Menu screen
RTSP	TCP	554	Requests video delivery
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Listening port for LEB/Host port for STB3)

●ME-LEB/LEB60 -> ME-STB3

Service	Protocol	Reception Port ID	Notes
RTP	UDP	Unspecified	Video data (1052,1054,1056,1058 for STB3)
MEDIAEDGE-STB3 Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Host port number for LEB/Listening port number for STB3)

•ME-LSB <- ME-STB3

Service	Protocol	Reception Port ID	Notes
HTTP	TCP	80	Menu screen
RTSP	TCP	554	Requests video delivery
MEDIAEDGE-LSB Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Listening port number for LSB/Host port number for STB3)

•ME-LSB -> ME-STB3

Service	Protocol	Reception Port ID	Notes
RTP	UDP	Unspecified	Video data (1052,1054,1056,1058 for STB3)
MEDIAEDGE-LSB Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Host port number for LSB/Listening port for STB3)

•Network PC -> ME-LEB/LEB60

Service	Protocol	Reception Port ID	Notes
HTTP	TCP	80	For Web Console
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Port number for LEB)

•Network PC <- ME-LEB/LEB60

Service	Protocol	Reception Port ID	Notes
MEDIAEDGE-LEB/LEB60 Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Host port number for LEB)

•Network PC -> ME-LSB

Service	Protocol	Reception Port ID	Notes
SSH	TCP	22	Only when used
Telnet	TCP	23	Only when used
HTTP	TCP	80	For Web Console
SNMP	UDP	161	Only when used
MEDIAEDGE-LSB Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Listening port number for LSB)

•Network PC <- ME-LSB

Service	Protocol	Reception Port ID	Notes
SSH	TCP	22	Only when used
Telnet	TCP	23	Only when used
SNMP	UDP	162	FOR TRAP
MEDIAEDGE-LSB Serial Port(RS-232C)	TCP/UDP	Any port number	Only when used (Host port number for LSB)

I-4. Database Specifications

■ I-4-1. Table list

■ Server table

Table name	Description
T_Server	Registers a stream server.

■ Channel table

Table name	Description
T_ChannelCategory	Registers a channel category.
T_Channel	Registers a channel.
T_ChannelStatistic	Not used.
T_ChannelDestPort	Registers a port for a channel.

■ Content table

Table name	Description
T_ContentCategory	Registers a content category.
T_Content	Registers a content.
T_ContentStatistic	Not used.

■ Content definition table

Table name	Description
T_ContentDefinition	Registers a component for a content.
T_ContentDefintionStatistic	Not used.
T_ContentCommandType	Registers a type of component.
T_MpegFileContent	Registers the path and the duration of an MPEG file.

■ Schedule table

Table name	Description
T_ScheduleCategory	Registers a schedule category.
T_MasterSchedule	Registers a schedule to use as a recurring schedule.
T_MasterScheduleStatistic	Not used.
T_Schedule	Registers a schedule.
T_ScheduleStatistic	Not used.

■ Client table

Table name	Description
T_ClientCategory	Registers a client category.
T_Client	Registers a client.
T_ClientStatistic	Not used.

■ Version table

Table name	Description
T_Version	Registers the MEDIAEDGE version.

■ Event table

Table name	Description
T_EventLog	Registers events that occurred on the MEDIAEDGE Server.

■ Relay content table

Table name	Description
T_RlyContentCategory	Registers a relay content category.
T_Rlycontent	Registers a relay content.
T_RlyDestination	Registers a destination for a relay content.

■ Relay record table

Table name	Description
T_RlyRecordCategory	Registers a relay record category.
T_RlyMasterRecord	Registers settings on relay record.
T_RlyRecord	Registers information on relay record.

* MEDIAEDGE database is case-insensitive.

■ I-4-2. Server Table

T_Server

Key	Field	Type	Size	Definition
Primary	ServerID	Int	4	Server ID
	ServerName	nvarchar	64	Server Name
	ServerTitle	nvarchar	255	Server Title
	ServerComment	nvarchar	1024	Server Comments
	ServerSystemFlag	Int	4	Server System Flag
	ServerTimeStamp	datetime	8	Record Time Stamp
	ServerAddress	varchar	64	Server IP address

■ I-4-3. Channel Table

■ T_ChannelCategory

Key	Field	Type	Size	Definition
Primary	ChannelCategoryID	int	4	Channel Category ID
	ChannelCategoryName	nvarchar	64	Channel Category Name
	ChannelCategoryTitle	nvarchar	255	Channel Category Title
	ChannelCategoryComment	nvarchar	1024	Channel Category Comments
	ChannelCategorySystemFlag	int	4	Channel Category System Flag
	ChannelCategoryTimeStamp	datetime	8	Record Time Stamp

■ T_Channel

Key	Field	Type	Size	Definition
Primary	ChannelID	int	4	Channel ID
	ServerName	nvarchar	64	Server Name
	ChannelName	nvarchar	64	Channel Name
	ChannelTitle	nvarchar	255	Channel Title
	ChannelComment	nvarchar	1024	Channel Comments
	ChannelType	smallint	2	Channel Type (must be 0)
	ChannelDest Addr	varchar	64	Multicast Destination IP address
	ChannelDestPort	int	4	Multicast Destination port number *1
	ChannelCategoryName	nvarchar	64	Channel Category Name
	ChannelSystemFlag	int	4	Channel System Flag
	ChannelTimeStamp	datetime	8	Record Time Stamp
	ChannelInterfaceAddr	varchar	64	Multicast Interface IP address *2

*1 ChannelDestPort

It is set to "ChannelDestPort=-1" for MPEG4 channels. Port number for the server and channel names is registered in T_ChannelDestPort.

*2 ChannelInterfaceAddr

NIC values used in channel editing:

Selection	ChannelInterfaceAddr	Definition
Default	default	Default NIC for stream server
All	all	All NIC
IP address	xx.xx.xx.xx	Setting value

*All letters of "All" and "Default" must be lower-case.

■ **T_ChannelStatistic (Not used)**

Key	Field	Type	Size	Definition
Primary	ChannelID	int	4	Channel ID
	ChannelExecution	int	4	Numbers of channel executions
	ChannelLastExecutionDateTime	datetime	8	Date and time for last execution of channel
	ChannelLastExecutionClientId	Int	4	Client ID for last execution of channel

■ **T_ChannelDestPort**

Port number for MPEG 4 channel will be registered.

Key	Field	Type	Size	Definition
Primary	ChannelDestPortID	int	4	Channel destination port ID
	ServerName	nvarchar	64	Server name
	ChannelName	nvarchar	64	Channel name
	ChannelDestPort	int	4	Port number *1
	ChannelDestPortSystemFlag	int	4	Channel destination port system flag
	ChannelDestPortTimeStamp	datetime	8	Record Time Stamp

*1 ChannelDestPort

When the value of ChannelDestPort is -1, specify up to 4 RTP delivery port numbers for MPEG4 (including FEC).

When the value of ChannelDestPort is not -1, specify a port for FEC.

■ I-4-4. Content Table

■ T_ContentCategory

Key	Field	Type	Size	Definition
Primary	ContentCategoryID	int	4	Content category ID
	ContentCategoryName	nvarchar	64	Content category name
	ContentCategoryTitle	nvarchar	255	Content category title
	ContentCategoryComment	nvarchar	1024	Content category comments
	ContentCategorySystemFlag	int	4	Content category system flag
	ContentCategoryTimeStamp	datetime	8	Record Time Stamp

■ T_Content

Key	Field	Type	Size	Definition
Primary	ContentID	int	4	Content ID
	ServerName	nvarchar	64	Server name
	ContentName	nvarchar	64	Content name
	ContentTitle	nvarchar	255	Content title
	ContentComment	nvarchar	1024	Content comments
	ContentCategoryName	nvarchar	64	Content category name
	ContentSystemFlag	int	4	Content system flag
	ContentTimeStamp	datetime	8	Record Time Stamp

■ T_ContentStatistic (Not used)

Key	Field	Type	Size	Definition
Primary	ContentID	int	4	Content ID
	ContentExecutionCount	int	4	Number of executed contents
	ContentLastExecutionDateTime	datetime	8	Time for last execution of contents
	ContentLastExecutionClientId	int	4	Client ID for last execution of contents

■ I-4-5. Content Definition Table

■ T_ContentDefinition

Information on components making up the contents is registered.

Key	Field	Type	Size	Definition
Primary	ContentDefinitionID	Int	4	Content definition ID
	ServerName	nvarchar	64	Server name
	ContentName	nvarchar	64	Content name
	ContentDefinitionIndex	Int	4	Content definition index *1
	CommandType	Int	4	Command type *2
	CommandParameter1	nvarchar	255	Command parameters 1 *3
	CommandParameter2	Int	4	Command parameters 2 *3
	CommandParameter3	Int	4	Command parameters 3 *3
	CommandParameter4	Int	4	Command parameters 4 *3
	CommandOption	nvarchar	255	Command options *4
	ContentDefinitionSystemFlag	Int	4	System flag
	ContentDefinitionTimeStamp	datetime	8	Record Time Stamp

*1 ContentDefinitionIndex

Index for components included in the contents is stored.

When a content is made up of 1 component, then it will be set to 1.

When another content is made up of multiple components, records are registered on each component and are numbered in sequence from 1 based on the order it was configured.

*2. CommandType

Component defined in the T_ContentCommandType table will be registered by the command types.

Command Type	Component Type
2	MPEG1/2 Live Video (MVR-D2000/2200)
3	MPEG1/2 file
4	MPEG4 Live Video (MVR-D4000)
5	MPEG4 file
6	MPEG1/2 Live Video (MVR-D4000)
8	HDV Live Video
12	Contents (Either a different or the same MPEG 1/2 contents already registered)
13	Contents (Either a different of the same MPEG 4 contents already registered)
14	Relay content (MPEG1/2 relay content already registered)
15	Relay content (MPEG4 relay content already registered)

***3 CommandParameters1-4**

Parameters for the component will be set. Usage of each field differs depending on the values of the Command Type as shown below.

Command Type	Command Parameter1	Command Parameter2	Command Parameter3	Command Parameter4
2, 4, 6 (LiveVideo)	None	Board number for MVR-D2000/2200 or MVR-D4000 board	Number of playbacks (must be 1)	Encoding time (length of contents)
8 (HDV LiveVideo)	None	Number for the IEEE1394 device connected	Number of playbacks (must be 1)	Encoding time (length of contents)
3, 5 (MPEG file)	Full path of an MPEG file	Starting position for playing back MPEG file (msec)	Number of playbacks	Playback time from the starting position (msec)
12, 13 (Contents)	Content name	None	Number of playbacks	None
14, 15 (Relay contents)	Relay contents name	None	Number of playbacks (must be 1)	Delivery time (length of contents)

***4 CommandOption**

Used only when the Command Type is 3 (MPEG1/2 file), specifying the starting position for playing back MPEG files.

Format will be stored as a character string, made up of 5 numerical values which are separated by "#" as in 99#99#99#99#99.

Definitions of the 5 numerical values

Position	Definition
1	Starting position from the top of the MPEG file (msec)
2	Offset value of PES packet from the top of the MPEG file
3	Offset value of GOP or sequence header from the top of the MPEG file
4	Starting position of pack header from the top of the MPEG file
5	Playback time of the whole MPEG file (msec)

*Character string of actual values can be called up by the ...method (MeSrv.MeSrcCtrl).

Also, in the style of "?param1=xx¶m2=xx&..." following the number above, detailed parameter can be specified.

Available Parameters

Name	Definition				
audio	Specifies the audio format. Available values are: <table border="1" style="margin-left: 20px;"> <tr> <td>MPA</td> <td>MPEG Audio</td> </tr> <tr> <td>AC3</td> <td>AC3 Audio</td> </tr> </table>	MPA	MPEG Audio	AC3	AC3 Audio
MPA	MPEG Audio				
AC3	AC3 Audio				
mpvsid	Video stream ID. Specify in a decimal number.				
mpasid	Audio (MPEG Audio) stream. Specify in a decimal number.				
ac3ssid	Audio (DolbyDigital) sub-stream ID. Specify in a decimal number.				
mpvpid	Video PID. Specify in a decimal number.				
mpapid	Audio (MPEG Audio) PID. Specify in a decimal number.				
ac3pid	Audio (DolbyDigital) PID. Specify in a decimal number.				

■ **T_ContentDefinitionStatistic (Not used)**

Key	Field	Type	Size	Definition
Primary	ContentDefinitionID	int	4	Content ID
	ContentDefinitionIndex	int	4	Index
	ContentExecutionCount	int	4	Number of times contents were played back
	ContentLastExecutionDateTime	datetime	8	Date for last execution of contents
	ContentDefinitionLastExecutionClientID	int	4	Client ID for last execution of content definitions

■ **T_ContentCommandType**

Defines types of components included in the contents.

Key	Field	Type	Size	Definition
	CommandType	int	4	Command type *1
	CommandTypeName	nvarchar	64	Command type name *1
	CommandTypeSystemFlag	int	4	System flag

*1 CommandType and CommandTypeName

Command Type	CommandType Name	Component Type
2	LiveVideo	MPEG1/2 LiveVideo (MVR-D2000/2200)
3	MpegFile	MPEG1/2 file
4	LiveVideo4	MPEG4 LiveVideo (MVR-D4000)
5	MpegFile4	MPEG4 file
6	LiveVideo2	MPEG1/2 LiveVideo (MVR-D4000)
8	HDVLiveVideo	HDV LiveVideo
12	Content	Contents (Either a different or the same MPEG 1/2 contents already registered)
13	Content4	Contents (Either a different or the same MPEG 4 contents already registered)
14	RelayContent	Relay contents (MPEG1/2)
15	RelayContent4	Relay contents (MPEG4)

■ **T_MpegFileContent**

Defines the path and the length of the MPEG files.

Key	Field	Type	Size	Definition
Primary	MpegFileContent ID	int	4	ID
	ServerName	nvarchar	64	Name of the server on which the contents reside in
	MpegFileContentName	nvarchar	64	MPEG file content name
	MpegFileContentTitle	nvarchar	255	MPEG file content title
	MpegFileContentComment	nvarchar	1024	MPEG file content comments
	MpegFileContentPath	nvarchar	255	Full path (including file name)
	MpegFileContentLength	int	4	File length (msec)
	MpegFileContentSystemFlag	int	4	System flag
	MpegFileContentTimeStamp	datetime	8	Record Time Stamp

■ I-4-6. Schedule Table

■ T_ScheduleCategory

Key	Field	Type	Size	Definition
Primary	ScheduleCategoryID	int	4	Schedule category ID
	ScheduleCategoryName	nvarchar	64	Schedule category name
	ScheduleCategoryTitle	nvarchar	255	Schedule category title
	ScheduleCategoryComment	nvarchar	1024	Schedule category comments
	ScheduleCategorySystemFlag	int	4	Schedule category system flag
	ScheduleCategoryTimeStamp	datetime	8	Record Time Stamp

■ T_MasterSchedule

Used in setting recurring schedules, which are first entered in this table, then in the T_Schedule table.

Key	Field	Type	Size	Definition
Primary	MasterScheduleID	int	4	Master schedule ID
	ServerName	nvarchar	64	Server name
	ChannelName	nvarchar	64	Channel name
	MasterScheduleName	nvarchar	64	Master schedule name
	MasterScheduleTitle	nvarchar	255	Master schedule title
	MasterScheduleComment	nvarchar	1024	Master schedule comments
	ContentName	nvarchar	64	Content name
	ScheduleCategoryName	nvarchar	64	Schedule category name
	ClientCategoryName	nvarchar	64	Client category name
	MasterScheduleType	int	4	Type of recurring schedule *1
	MasterScheduleParam1	int	4	Parameter *1
	MasterScheduleParam2	int	4	Parameter *1
	MasterScheduleParam3	int	4	Parameter *1
	MasterScheduleStartValidDateFrom	datetime	8	Date & time the recurring schedule becomes valid *2
	MasterScheduleStartValidDateTo	datetime	8	Date & time the recurring schedule expires *2
	MasterScheduleStartTime	datetime	8	Time schedule starts
	MasterScheduleLength	int	4	Specify length of each schedule (max 24days)
	MasterScheduleRepeatFlag	int	4	Repeat flag *3
	MasterScheduleSystemFlag	int	4	Schedule system flag
	MasterScheduleTimeStamp	datetime	8	Record Time Stamp
	MasterScheduleScheduleTypeFlag	int	4	Live distribution settings *4
	MasterScheduleRegisterFlag	int	4	ON/OFF flag for registering auto-recording
	MasterScheduleRegisterMpegFileContentName	nvarchar	64	MPEG file content name to be registered
	MasterScheduleRegisterContentName	nvarchar	64	Content name to be registered
	MasterScheduleRegisterContentTitle	nvarchar	255	Content title to be registered
	MasterScheduleRegisterContentCategoryName	nvarchar	64	Content category name to be registered

*1 MasterScheduleType and MasterScheduleParam1-3

Pattern of the recurring schedules will be registered.

First, the below categorization methods are registered in Master Schedule Type.

Type	Definition
0	Specify date, every x-days
1	Specify date, weekdays
2	Specify week, every x-weeks, x-day of the week
3	Specify month, every x-months, y-date
4	Specify month, every x-month, week-y, z-date

Depending on the MasterScheduleType value, definitions for MasterScheduleType Param1-3 will change.

Below are the correspondents of MasterScheduleType and MasterScheduleParam1-3.

Type	MasterScheduleParam		
	1	2	3
0	Intervals	-	-
1	-	-	-
2	Intervals	Day of the week	-
3	Intervals	-	Date
4	Intervals	Day of the week	Number

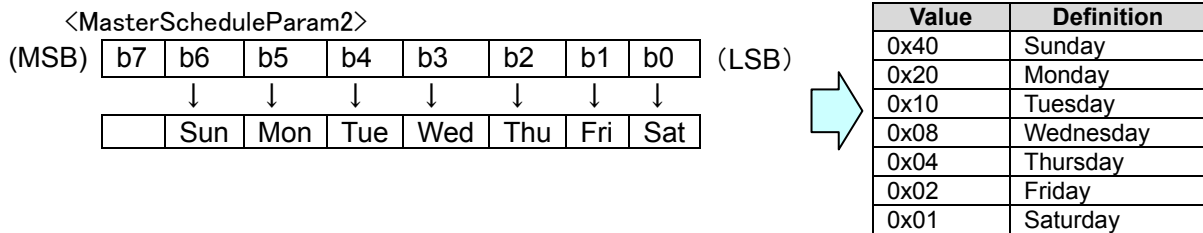
• MasterScheduleParam1

MasterScheduleParam1 is used to specify the intervals, which in turn specifies the schedule definitions, i.e. every x-weeks and every y-months.

For example, when intervals are set at 3 and day at 6 in type 3, the schedule will be defined as every 3 months on the 6th.

• MasterScheduleParam2

MasterScheduleParam2 specifies the days of the week. Day of the week is specified by the sum of bits.



- For weekdays (Monday – Friday), the value will be 0x3e
- For weekends (Saturday & Sunday), the value will be 0x41

When Master Schedule Type = 2, the schedule will be defined on the specified day of the week.

When Master Schedule Type = 4, the schedule will be defined on the "Param3"-th day from the 1st of the month, within the days of the week specified by Param2.

• MasterScheduleParam3

Used to specify date or number.

"Date" is the scheduled date.

For example, when the specified parameters are Type = 3, Intervals = 3, and Date =6, the scheduled date will be every 3 months on the 6th.

"Number" is for x-th date of the day of the week specified by Param2.

Ex) Setting:

Type = 4 (Specifies the month, x day of the week of y-th week, every z months)

Param1=1 (Every month)

Param2=0x41 (Saturday & Sunday)

Param3=3 (3rd)

For September 2004, Saturdays and Sundays = 4, 5, 11, 12, 18, 19, 25, 26
3rd number of the above = 11th

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

*2 MasterScheduleStartValidDateFrom and MasterScheduleStartValidDateTo

Recurring schedule will be set between the 1st valid date & time to the expiration date & time and recorded in the T_Schedule table.

*3 MasterScheduleRepeatFlag

Repeatedly playback the contents when the actual playback time is shorter than the scheduled time.

Set 0 for playback only once and 1 for repeated playback during the scheduled time.

*4 MasterScheduleScheduleTypeFlag

Settings for live distribution via MVR-D2000/2200/4000 or IEEE1394 devices. Contents are valid only during live distribution.

Value	Definition
1	Distribution only
2	Record only, no distribution
3	Distribute & record

■ T_MasterScheduleStatistic (Not used)

Key	Field	Type	Size	Definition
Primary	MasterScheduleID	int	4	Master schedule ID
	MasterScheduleExecutionCount	int	4	Number of times the schedule will be executed
	MasterScheduleLastExecutionDateTime	datetime	8	Final Execution date & time of the schedule
	MasterScheduleLastExecutionClientID	int	4	Client ID for final execution of the schedule

■ **T_Schedule**

T_Schedule will be activated and saved on the "Server Console" when the master schedule is updated from the console. Stream server will refer to T_Schedule. When a part of the schedule is changed to include an irregular schedule, only T_Schedule will be changed.

Key	Field	Type	Size	Definition
Primary	ScheduleID	int	4	Schedule ID
	ServerName	nvarchar	64	Server name
	ChannelName	nvarchar	64	Channel name
	MasterScheduleName	nvarchar	64	Master schedule name
	ScheduleNo	int	4	Schedule number *1
	ScheduleTitle	nvarchar	255	Schedule title
	ScheduleComment	nvarchar	1024	Schedule comments
	ContentName	nvarchar	64	Content name
	ScheduleCategoryName	nvarchar	64	Schedule category name
	ClientCategoryName	nvarchar	64	Client category name
	ScheduleStartDateTime	datetime	8	Starting time of schedule
	ScheduleEndDateTime	datetime	8	Completion time of schedule *2
	ScheduleRepeatFlag	int	4	Repeat flag *3
	ScheduleSystemFlag	int	4	Schedule system flag
	ScheduleTimeStamp	datetime	8	Record Time Stamp
	ScheduleTypeFlag	int	4	Live distribution settings *4
	ScheduleRegisterFlag	int	4	ON/OFF flag for auto-recording registration
	ScheduleRegisterMpegFileName	nvarchar	64	MPEG file content name to be registered
	ScheduleRegisterContentName	nvarchar	64	Content name to be registered
	ScheduleRegisterContentTitle	nvarchar	255	Content title to be registered
	ScheduleRegisterContentCategoryName	nvarchar	64	Content category to be registered

*1 ScheduleNo

Schedule number is by default set to 0, but when a recurring schedule has been set, it will be numbered in the scheduled order.

*2 ScheduleEndDateTime

Termination time of the schedule is set. For recurring schedules, Server Console does not ask for the "Termination time", but automatically calculates it from the starting time (Schedule Start Date Time) and length (Schedule Length).

*3 ScheduleRepeatFlag

Repeatedly playback the contents when the actual playback time is shorter than the scheduled time.

Set at 0 for playback only once and at 1 for repeated playback during the scheduled time.

*4 ScheduleTypeFlag

Live distribution setup via MVR-D2000/2200/4000 or IEEE1394 device. Valid only for the contents for live distribution.

Value	Definition
1	Distribution only
2	Record only, no distribution
3	Distribute & record

■ T_ScheduleStatistic (Not used)

Key	Field	Type	Size	Definition
Primary	ScheduleID	int	4	Schedule ID
	ScheduleConnectionCount	int	4	Numbers of clients connected to the schedule
	ScheduleLastExecutionDateTime	datetime	8	Last execution date & time of schedule
	ScheduleLastExecutionClientID	int	4	Client ID of the last execution of the schedule

■ I-4-7. Client Table

■ T_ClientCategory

Key	Field	Type	Size	Definition
Primary	ClientCategoryID	int	4	Client category ID
	ClientCategoryName	nvarchar	64	Client category name
	ClientCategoryTitle	nvarchar	255	Client category title
	ClientCategoryComment	nvarchar	1024	Client category comments
	ClientCategorySystemFlag	int	4	Client category system flag
	ClientCategoryTimeStamp	datetime	8	Record Time Stamp
	ClientCategoryDefaultURL	nvarchar	255	Default URL for redirection *1

*1 ClientCategoryDefaultURL

Default URL for redirection using "Server Console" client control.

■ T_Client

Key	Field	Type	Size	Definition
Primary	ClientID	int	4	Client ID
	ClientName	nvarchar	64	Client name
	ClientTitle	nvarchar	255	Client title
	ClientComment	nvarchar	1024	Client comments
	ClientCategoryName	nvarchar	64	Client category name
	ClientType	int	4	Client type (never been used)
	ClientAddress	varchar	64	Client IP address (xx.xx.xx.xx)
	ClientInitialRequestCode	binary	256	Client initial request code (never been used)
	ClientSystemFlag	int	4	Client system flag
	ClientTimeStamp	datetime	8	Record Time Stamp

■ T_ClientStatistic (Not used)

Key	Field	Type	Size	Definition
Primary	ClientID	int	4	Client ID
	ClientConnectionCount	int	4	Number of client connections
	ClientConnectionTime	int	4	Client connection time
	ClientLastConnectionDateTime	datetime	8	Time of last client connection
	ClientLastConnectionTime	int	4	Length of last client connection
	ClientRequestCount	int	4	Number of client requests
	ClientLastRequestDateTime	datetime	8	Time of last request by client
	ClientLastRequestCode	binary	256	Code for last request of client

■ I-4-8. Version Table

T_Version is used for managing version information of the MEDIAEDGE database.

■ T_Version

Key	Field	Type	Size	Definition
	Version	nvarchar	8	Version information of database

■ I-4-9. Event Table

T_EventLog records start/stop of schedules and contents. Limits can be placed on inputs in items that are frequently output via registry settings.

■ T_EventLog

Key	Field	Type	Size	Definition
	EventServerName	nvarchar	64	Server that generated the event
	EventType1	int	4	Event type 1 *1
	EventType2	int	4	Event type 2 *2
	EventTimeStamp	datetime	8	Date & time event is generated
	EventSubjectName	nvarchar	64	Subject name *3
	EventObjectName	nvarchar	64	Object name *4
	EventOption	nvarchar	255	Option *5
	EventDescriptor	int	4	Event type *6
	EventLogTimeStamp	datetime	8	Record Time Stamp

*1 EventType1

Type of event:

Value	Definition
1	Error
2	Warning
3	Information 1 (event generated by operator. i.e. start/stop channel)
4	Information 2 (event generated by the client. i.e. start/stop of playing back)
5	Information 3 (defined event)

*2 EventType2

Client or channel event is specified:

Value	Definition
1	Client event
2	Channel event
3	Content event
4	Schedule event
5	Stream server event
6	Relay event

*3 EventSubjectName

Channel name of the event or the client's IP address will be specified.

*4 EventObjectName

Contents or channel name is specified.

*5 EventOption

Details on event information (i.e. MPEG file path), if any, are specified.

*6 EventDescriptor

Event type:

Value	Definition
1	Playback started by client (VOD and schedule playback)
2	Playback was stopped / terminated by client
21	Channel was started
22	Channel stopped
23	Error in starting channel
31	Schedule playback started
32	Schedule playback stopped
41	File / live playback of contents started
42	File / live playback of contents stopped
43	Error in playing back contents
51	Relay was started
52	Relay stopped
53	Error in relay
54	Discontinuous relay stream
61	Relay recording was started
62	Relay recording stopped
63	Error in relay recording
64	Generating relay recording file

* 31, 32, 41, 42, 54, 64 will not be output unless "Verbose logging" option is checked. (Default is unchecked)

■ I-4-10. Relay Content Table

■ T_RlyContentCategory

Key	Field	Type	Size	Definition
Primary	RlyContentCategoryID	int	4	Relay content category ID
	ContentCategoryName	nvarchar	64	Server name
	ContentCategoryTitle	nvarchar	255	Relay content category name
	ContentCategoryComment	nvarchar	1024	Relay content category title
	RlyContentCategorySystemFlag	int	4	Relay content category comment
	RlyContentCategoryTimeStamp	datetime	8	Record Time Stamp

■ T_RlyContent

Key	Field	Type	Size	Definition
Primary	RlyContentID	int	4	Relay content ID
	ServerName	nvarchar	64	Server name
	ContentName	nvarchar	64	Relay content name *1
	ContentTitle	nvarchar	255	Relay content title
	ContentComment	nvarchar	1024	Relay content comment
	SourceName	nvarchar	255	Source stream RTSP URL *2
	ContentCategoryName	nvarchar	64	Relay content category name
	RlyContentSystemFlag	int	4	Relay content system flag
	RlyContentTimeStamp	datetime	8	Record Time Stamp

Defines relay contents.

*1 ContentName

The request URL to relay server is rtsp://ServerName/ContentName. Note that the contents in specified by T_Content table are prioritized if ContentName has already been registered to T_Content table.

*2 SourceName

Receives the relay stream from the URL specified by SourceName.

■ T_RlyDestination

Key	Field	Type	Size	Definition
Primary	RlyDestinationID	int	4	Relay content destination ID
	ServerName	nvarchar	64	Server name *1
	ContentName	nvarchar	64	Relay content name *1
	InterfaceAddress	nvarchar	64	Interface to use for delivery *2
	DestinationAddress	nvarchar	64	Address for Multicast destination
	DestinationPort	int	4	Delivery port number *3
	MulticastTTL	int	4	Multicast TTL (TimeToLive)
	RlyDestinationSystemFlag	int	4	Destination system flag
	RlyDestinationTimeStamp	datetime	8	Record Time Stamp

Defines the multicast destination to which the relay content is delivered.

*1 ServerName,ContentName

Linked to T_RlyContent by ServerName and ContentName.

*2 InterfaceAddress

Executes Multicast delivery from the interface specified by InterfaceAddress to DestinationAddress, DestinationPort.

*3 DestinationPort

If multiple ports are used for receiving the stream, register multiple records whose DestinationPort are changed with the other settings the same. If the number of records is less than the number of requested ports, the Multicast delivery will not be executed.

The stream will be duplicated and delivered in unicast to the client who sent a request from an interface that is not executing Multicast delivery.

■ I-4-11. Relay Recording Table

■ T_RlyRecordCategory

Key	Field	Type	Size	Definition
Primary	RlyRecordCategoryID	int	4	Relay recording category ID
	RecordCategoryName	nvarchar	64	Relay recording category title name
	RecordCategoryTitle	nvarchar	255	Relay recording category title
	RecordCategoryComment	nvarchar	1024	Relay recording category comment
	RlyRecordCategorySystemFlag	int	4	Relay recording category system flag
	RlyRecordCategoryTimeStamp	datetime	8	Record Time Stamp

■ T_RlyMasterRecord

Used in scheduled relay recording settings. Scheduled relay recording will be first stored in this table, and then moved to the "T_RlyRecord" table.

Key	Field	Type	Size	Definition
Primary	RlyMasterRecordID	int	4	Relay recording master ID
	ServerName	nvarchar	64	Server name
	ContentName	nvarchar	64	Relay content name
	MasterRecordName	nvarchar	64	Relay recording master name
	MasterRecordTitle	nvarchar	255	Relay recording master title
	MasterRecordComment	nvarchar	1024	Relay recording master comment
	RecordCategoryName	nvarchar	64	Relay recording category name
	MasterRecordFileName	nvarchar	255	Relay recording master recording file name
	MasterRecordType	int	4	Relay recording master type *1
	MasterRecordParam1	int	4	Relay recording master parameter *1
	MasterRecordParam2	int	4	Relay recording master parameter *1
	MasterRecordParam3	int	4	Relay recording master parameter *1
	MasterRecordStartValidDateFrom	datetime	8	Relay recording date (Start) *2
	MasterRecordStartValidDateTo	datetime	8	Relay recording date (End) *2
	MasterRecordStartTime	datetime	8	Relay recording start time
	MasterRecordLength	int	4	Relay recording length
	MasterRecordRegisterFlag	int	4	On/OFF flag for registering auto-recording
	MasterRecordRegisterMpegFileName	nvarchar	64	MPEG file content name to be registered
	MasterRecordRegisterContentName	nvarchar	64	Content name to be registered
	MasterRecordRegisterContentTitle	nvarchar	255	Content title to be registered
	MasterRecordRegisterContentCategoryName	nvarchar	64	Content category name to be registered
	RlyMasterRecordSystemFlag	int	4	Relay recording master system flag
	RlyMasterRecordTimeStamp	datetime	8	Record Time Stamp

*1 MasterRecordType and MasterRecordParam1 - 3

Pattern of the recurring schedules will be registered.

First, the below categorization methods are registered in MasterRecordType.

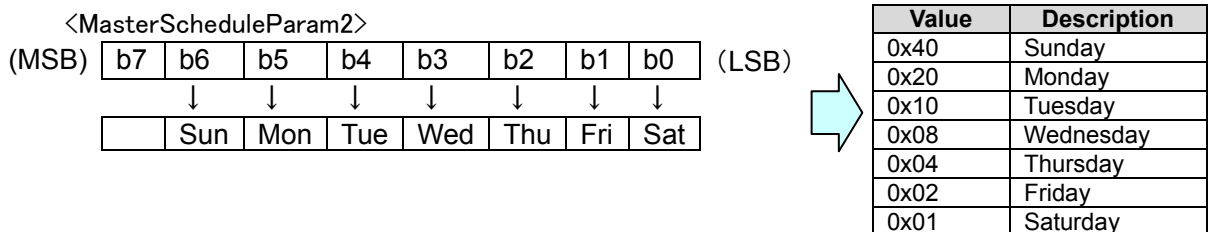
Type	Description
0	Specify date, every x-days
1	Specify date, weekdays
2	Specify week, every x-weeks, x-day of the week
3	Specify month, every x-months, y-date
4	Specify month, every x-month, week-y, z-date

Depending on the MasterRecordType value, definitions for MasterRecordParam1 – 3 will change.

Below are the correspondents of MasterRecordType and MasterRecordParam 1 – 3.

Type	MasterRecordParam		
	1	2	3
0	Intervals	-	-
1	-	-	-
2	Intervals	Day of the week	-
3	Intervals	-	Date
4	Intervals	Day of the week	Number

- MasterRecordParam1**
 Master Schedule Param1 is used to specify the intervals, which in turn specifies the schedule definitions, i.e., every x-weeks and every y-months.
 For example, when intervals are set at 3 and day at 6 in type 3, the schedule will be defined as every 3 months on the 6th day.
- MasterRecordParam2**
 Master Schedule Param2 specifies the days of the week. Day of the week is specified by the sum of bits.



- For weekdays (Monday – Friday), the value will be 0x3e
- For weekends (Saturday & Sunday), the value will be 0x41

When Master Schedule Type = 2, the schedule will be defined on the specified day of the week.

When Master Schedule Type = 4, the schedule will be defined on the "Param3"-th day from the 1st of the month, within the days of the week specified by Param2.

- MasterScheduleParam3**
 Used to specify date or number.
 "Date" is the scheduled date.
 For example, when the specified parameters are Type = 3, Intervals = 3, and Date = 6, the scheduled date will be every 3 months on the 6th.
 "Number" is for x-th date of the day of the week specified by Param2.

Ex) Setting:

Type = 4 (Specifies the month, x day of the week of y-th week, every z months)

Param1=1 (Every month)

Param2=0x41 (Saturday & Sunday)

Param3=3 (3rd)

For September 2004, Saturdays and Sundays = 4, 5, 11, 12, 18, 19, 25, 26

3rd number of the above = 11th

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

*2 MasterScheduleStartValidDateFrom and MasterScheduleStartValidDateTo

Recurring schedule will be set between the 1st valid date & time to the expiration date & time and recorded in the T_Schedule table.

■ T_RlyRecord

Key	Field	Type	Size	Description
Primary	RlyRecordID	int	4	Relay recording ID
	ServerName	nvarchar	64	Server name
	ContentName	nvarchar	64	Relay content name
	RecordIndex	int	4	Relay recording index *1
	RecordName	nvarchar	64	Relay recording name
	RecordTitle	nvarchar	255	Relay recording title
	RecordComment	nvarchar	1024	Relay recording comment
	RecordCategoryName	nvarchar	64	Relay recording category name
	RecordFileName	nvarchar	255	Relay recording file name *2
	RecordStartDateTime	datetime	8	Relay recording start date
	RecordEndDateTime	datetime	8	Relay recording end date *3
	RegisterFlag	int	4	On/OFF flag for registering auto-recording *4
	RegisterMpegFileContentName	nvarchar	64	Mpeg file content name to be registered
	RegisterContentName	nvarchar	64	Content name to be registered
	RegisterContentTitle	nvarchar	255	Content title to be registered
	RegisterContentCategoryName	nvarchar	64	Content category to be registered
	RlyRecordSystemFlag	int	4	Destinationn system flag
	RlyRecordTimeStamp	datetime	8	Record Time Stamp

*1 RecordIndex

0 is normally specified as the Relay Recording index. For the schedules where scheduled relay recordings are set, the values are automatically assigned starting from 0.

*2 RecordFileName

Generates the RecordFileName file from the data received from the source stream between RecordStartDateTime and RecordEndDateTime. When the source stream becomes discrete, the file will be divided, and serial numbers are assigned to the the file names.

*3 RecordEndDateTime

Specifies the end time of relay recording. For scheduled relay recording, though the server console does not have the setting item for relay recording end time, the end time will be calculated by relay recording start time (MasterRecordStartTime) and Length (MasterRecordLength), and set.

*4 RegisterFlag

When RegisterFlag is set to 1, it executes registration to T_Content, T_ContentDefinition, T_MpegFileContent.
If the file is divided, content is defined across the files.

I-5. MEDIAEDGE Server ActiveX Specifications

■ I-5-1. ActiveX Methods list

ActiveX control "MeSrv.MeSrvCtrl" contains multiple interfaces.
The default interface is "IMeSrvCtrl5" and its method is as follows:

■ Client Methods

Method	Description
GetClientStatusVBS	Acquires Client status.
RedirectByName	Executes Redirect.
Reboot	Sends Reboot command to STB.
GetClientStatusExByAddr	Acquires the information about the MPEG file the client is playing.
RedirectByAddr	Executes Redirect.
SetParameterByAddr	Issues RTSP SET_PARAMETER to STB.
GetParameterByAddr	Issues RTSP GET_PARAMETER to STB.

■ Channel Methods

Method	Description
StartChannelByName	Starts Channel.
StopChannelByName	Stops Channel.
GetChannelStatusByName	Acquires Channel status.

■ Recording Methods

Method	Description
StartRecording	Starts recording.
StopRecording	Stops recording.
GetRecordingInfo	Acquires the recording information.

■ Relay Content Methods

Method	Description
GetRelayContentStatus	Acquires the relay content status.
StartRelayContent	Starts the relay content.
StopRelayContent	Stops the relay content.
GetRelayRecordingInfo	Acquires the relay content recording information.
StartRelayRecording	Starts the relay content recording.
StopRelayRecording	Stops the relay content recording.

■ Others

Method	Description
GetLiveDeviceStatus	Acquires the MVR-D2x00, MVR-D4400/D4000 status.
MvrSeek	Acquires playback time and actual starting position, by the MPEG file name and starting position specified.
MpegSeek	Acquires the length of the MPEG file. For MPEG1/2, the function is the same as MvrSeek.

■ **GetClientStatusVBS**

Acquires Client status.

Syntax

```
HRESULT GetClientStatusVBS (
    [in] VARIANT* pvarIpAddress,
    [out] VARIANT* pvarOn,
    [out] VARIANT* pvarRtspConnection,
    [out] VARIANT* pvarRequest,
    [out] VARIANT* pvarPlayState,
    [out] VARIANT* pvarRecRequest,
    [out] VARIANT* pvarRecStat
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarIpAddress	Client IP address
out	VARIANT*(VT_BSTR)	pvarOn	"On" or "Off"
out	VARIANT*(VT_BSTR)	pvarRtspConnection	"On" or "Off"
out	VARIANT*(VT_BSTR)	pvarRequest	RTSP playback session URL
out	VARIANT*(VT_BSTR)	pvarPlayState	"Init," "Ready," or "Playing"
out	VARIANT*(VT_BSTR)	pvarRecRequest	Not used. Always returns a null character string.
out	VARIANT*(VT_BSTR)	pvarRecStat	Not used. Always returns a null character string.

Return Value

Always returns S_OK.

Comments

This Method is used in "Server console" – "Client surveillance" for acquiring the status of connection and playback, and information for the content being played back for the client.

■ **RedirectByName**

Sends redirect message to all the clients, or to specific clients by specifying the client name or client category name.

Syntax

```
HRESULT RedirectByName (
    [in] VARIANT* pvarName,
    [in] VARIANT* pvarURL,
    [in] VARIANT* pvarIsClientName
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarName	Client name, Client category name, or ""(All clients)
in	VARIANT*(VT_BSTR)	pvarURL	RTSP URL or ""(default URL)
in	VARIANT*(VT_I4)	pvarIsClientName	When 1 is specified, pvarName represents the client name. Otherwise, specify 0.

Return Value

Always returns S_OK.

Comments

This method is used in "Server console" – "Client control" for switching video to be played back by the client.

■ **Reboot**

Delivers reboot command to all the clients or to specific clients by specifying the client name or client category name.

Note that the only valid client is MEDIAEDGE-STB3.

Syntax

```
HRESULT Reboot (
    [in] VARIANT* pvarName,
    [in] VARIANT* pvarIsClientName
);
```

Arguments

Flow	Type	ParameterName	Meaning
In	VARIANT*(VT_BSTR)	pvarName	Client name, Client category name, or "" (All clients)
In	VARIANT*(VT_I4)	pvarIsClientName	When 1 is specified, pvarName represents the client name. Otherwise, specify 0.

Return Value

Always returns S_OK.

Comments

This method is used in "Server console" – "Client reboot" for rebooting each STB.

■ **GetClientStatusExByAddr**

Acquires the information about the MPEG file the client is playing, by specifying its address.

Syntax

```
HRESULT GetClientStatusExByAddr (
    [in] VARIANT* pvarIpAddress,
    [out] VARIANT* pvarPlaybackName,
    [out] VARIANT* pvarPlaybackTime,
    [out] VARIANT* pvarPlaybackOffset
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarIpAddress	Client IP address
out	VARIANT*(VT_BSTR)	pvarPlaybackName	Full path of playing MPEG file
out	VARIANT*(VT_BSTR)	pvarPlaybackTime	Length [ms] of playing MPEG file
out	VARIANT*(VT_BSTR)	pvarPlaybackOffset	Content's starting position [ms] in the MPEG file component that is playing.

Return Value

Always returns S_OK.

■ **RedirectByAddr**

Executes Redirect by specifying the IP address.

Syntax

```
HRESULT RedirectByAddr (
    [in] VARIANT* pvarAddr,
    [in] VARIANT* pvarTimeout,
    [in] VARIANT* pvarLocation,
    [out] VARIANT* pvarStatus,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarAddr	Target IP address (xxx.xxx.xxx.xxx)
in	VARIANT*(VT_I4)	pvarTimeout	Time out period [millisec]
in	VARIANT*(VT_BSTR)	pvarLocation	Location of redirect (URL)
out	VARIANT*(VT_I4)	pvarStatus	Status (*1)
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

(*1) Returns the following value as status

Value	Description	
0	Internal error	
1	MEDIAEDGE-SVS3 is unavailable	
2	Type of Argument is invalid	
3	Connection failed	
4	Connection timed out	
5	Sending rtsp request failed	
6	Receiving rtsp reply timed out	
7	Receiving rtsp reply failed	
8	Received rtsp reply is invalid	
≥100	Status code of rtsp reply	
	1xx	Informational
	2xx	Success
	3xx	Redirection
	4xx	Client Error
	5xx	Server Error

■ **SetParameterByAddr**

Executes RTSP SET_PARAMETER by specifying the IP address.

Syntax

```
HRESULT SetParameterByAddr (
    [in] VARIANT* pvarAddr,
    [in] VARIANT* pvarTimeout,
    [in,out] VARIANT* pvarBody,
    [out] VARIANT* pvarStatus,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarAddr	Target IP address (xxx.xxx.xxx.xxx)
in	VARIANT*(VT_I4)	pvarTimeout	Time out period [millisec]
in,out	VARIANT*(VT_BSTR)	pvarBody	Describes the message body of SET_PARAMETER. Returns the message body of SET_PARAMETER reply.
out	VARIANT*(VT_I4)	pvarStatus	Status (*1)
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

(*1) Returns the following value as status

Value	Description	
0	Internal error	
1	MEDIAEDGE-SVS3 is unavailable	
2	Type of Argument is invalid	
3	Connection failed	
4	Connection timed out	
5	Sending rtsp request failed	
6	Receiving rtsp reply timed out	
7	Receiving rtsp reply failed	
8	Received rtsp reply is invalid	
>=100	Status code of rtsp reply	
	1xx	Informational
	2xx	Success
	3xx	Redirection
	4xx	Client Error
	5xx	Server Error

■ **GetParameterByAddr**

Executes RTSP GET_PARAMETER by specifying the IP address.

Syntax

```
HRESULT GetParameterByAddr (
    [in] VARIANT* pvarAddr,
    [in] VARIANT* pvarTimeout,
    [in,out] VARIANT* pvarBody,
    [out] VARIANT* pvarStatus,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarAddr	Target IP address (xxx.xxx.xxx.xxx)
in	VARIANT*(VT_I4)	pvarTimeout	Time out period [millisec]
in,out	VARIANT*(VT_BSTR)	pvarBody	Describes the message body of GET_PARAMETER request. Returns the message body of GET_PARAMETER reply.
out	VARIANT*(VT_I4)	pvarStatus	Status (*1)
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

(*1) Returns the following value as status

Value	Description	
0	Internal error	
1	MEDIAEDGE-SVS3 is unavailable	
2	Type of Argument is invalid	
3	Connection failed	
4	Connection timed out	
5	Sending rtsp request failed	
6	Receiving rtsp reply timed out	
7	Receiving rtsp reply failed	
8	Received rtsp reply is invalid	
≥100	Status code of rtsp reply	
	1xx	Informational
	2xx	Success
	3xx	Redirection
	4xx	Client Error
	5xx	Server Error

■ **StartChannelByName**

Starts Channel by specifying the channel name.

Syntax

```
HRESULT StartChannelByName (
    [in] VARIANT* pvarChannelName
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarChannelName	Name of the channel to start

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Channel surveillance" for starting the channel.

■ **StopChannelByName**

Stops Channel by specifying the channel name.

Syntax

```
HRESULT StopChannelByName (
    [in] VARIANT* pvarChannelName
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarChannelName	Name of the channel to stop

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Channel surveillance" for stopping the channel.

■ **GetChannelStatusByName**

Acquires the channel status by specifying the channel name.

Syntax

```
HRESULT GetChannelStatusByName (
    [in] VARIANT* pvarChannelName,
    [out] VARIANT* pvarChannelStatus,
    [out] VARIANT* pvarCurScheduleName,
    [out] VARIANT* pvarCurScheduleTime,
    [out] VARIANT* pvarNextScheduleName,
    [out] VARIANT* pvarNextScheduleTime,
    [out] VARIANT* pvarCurPlaybackName,
    [out] VARIANT* pvarCurPlaybackTime
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarChannelName	Name of the channel to acquire status
out	VARIANT*(VT_BSTR)	pvarChannelStatus	"Running" or "Stopped"
out	VARIANT*(VT_BSTR)	pvarCurScheduleName	Name of the current schedule
out	VARIANT*(VT_BSTR)	pvarCurScheduleTime	Start time of the current schedule (yyyy-mm-dd hh:mm:ss) or ""
out	VARIANT*(VT_BSTR)	pvarNextScheduleName	Name of the next schedule
out	VARIANT*(VT_BSTR)	pvarNextScheduleTime	Starting time of the next schedule or ""
out	VARIANT*(VT_BSTR)	pvarCurPlaybackName	Full path for the MPEG file currently being played back (Not specified if no content is being played)
out	VARIANT*(VT_BSTR)	pvarCurPlaybackTime	Not used

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Channel surveillance" for collecting the channel status.

■ **StartRecording**

Starts recording using the MVR board or the IEEE1394 devices.

Syntax

```
HRESULT StartRecording (
    [in] VARIANT* pvarEnclIndex,
    [in] VARIANT* pvarRecFileName,
    [out] VARIANT* pvarRet
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_I4)	pvarEnclIndex	Specify MPEG1/2 or MPEG4 or HDV by the upper word, and the live device by the lower word
in	VARIANT*(VT_BSTR)	pvarRecFileName	Full path for the recording file
out	VARIANT*(VT_I4)	pvarRet	Returns 0 if successful, -1 if failed

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Recording" for starting recording. Once recording starts, a recording ID will be assigned which will be used for related operations that follow.

- Set the upper word of pvarEnclIndex to 0:
Records in MPEG1/2 using MVR-D2200V/D2200/D2000.
- Set the upper word of pvarEnclIndex to 2:
Records in MPEG1/2 using MVR-D4400/D4000.
- Set the upper word of pvarEnclIndex to 4:
Records in MPEG4 using MVR-D4400/D4000.
- Set the upper word of pvarEnclIndex to 8:
Records in HDV using IEEE1394 devices.

■ **StopRecording**

Stops recording.

Syntax

```
HRESULT StopRecording (
    [in] VARIANT* pvarReclIndex
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_I4)	pvarReclIndex	Index of the recording to stop

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Recording" for stopping recording. To retrieve a recording ID from the MVR, call up GetRecordingInfo () while changing the recording ID from 0 to 9 and look for the one which matches pvarReclIndex and MVR ID.

■ **GetRecordingInfo**

Acquires the recording information.

Syntax

```
HRESULT GetRecordingInfo (
    [in] VARIANT* pvarRecIndex,
    [out] VARIANT* pvarRecOn,
    [out] VARIANT* pvarRecError,
    [out] VARIANT* pvarMvrIndex,
    [out] VARIANT* pvarFileName,
    [out] VARIANT* pvarRecStartTime
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_I4)	pvarRecIndex	Index of the recording to acquire information
out	VARIANT*(VT_I4)	pvarRecOn	FALSE (Not recording) or TRUE (Recording)
out	VARIANT*(VT_I4)	pvarRecError	0 (no error) or -1(error)
out	VARIANT*(VT_I4)	pvarMvrIndex	Index of MVR used for recording
out	VARIANT*(VT_BSTR)	pvarFileName	Full path for the recording file or ""
out	VARIANT*(VT_BSTR)	pvarRecStartTime	Time that the recording started (yyyy-mm-dd hh:mm:ss) or ""

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Recording" for collecting recording status. The maximum number of recordings is five for both MPEG1/2(including HDV) and MPEG4.

Follow the process below to collect all recording information:

```
for (i = 0; i < 9; i++)
{
    objName.GetRecordingInfo (i, ...);
    /* Display the info */
}
```

■ **GetRelayContentStatus**

Acquires relay content status.

Syntax

```
HRESULT GetRelayContentStatus (
    [in] VARIANT* pvarContentName,
    [out] VARIANT* pvarSourceUrl,
    [out] VARIANT* pvarStatus,
    [out] VARIANT* pvarReceivedKBytes
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarContentName	Name of the relay content
out	VARIANT*(VT_BSTR)	pvarSourceUrl	rtsp url of the source
out	VARIANT*(VT_BSTR)	pvarStatus	"cannot load library" "not exist" "invalid source specified" "source access failure" "not found" "bad request" "internal server error" "start receive" "stop receive" "created" "unknown error" (*1)
out	VARIANT*(VT_I4)	pvarReceivedKBytes	Total amount of data received [KBytes]

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Relay contents surveillance" for collecting relay content status.

(*1) Each status means:

Value	Description
cannot load library	Unable to load MeRlyDll
not exist	Specified relay content does not exist
invalid source specified	rtsp url of source is invalid
source access failure	Unable to access to the source server
not found	Source server returns "not found"
bad request	Source server returns the other error (400 -499) than "not found"
internal server error	Source server returns the error (500 - 599).
start receive	Starts receiving
stop receive	Stops receiving
created	Standing by to receive
unknown error	Unknown error

■ **StartRelayContent**

Starts relay content.

Syntax

```
HRESULT StartRelayContent (
    [in] VARIANT* pvarContentName,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarContentName	Name of the relay content to start
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Relay contents surveillance" for starting relay content.

■ **StopRelayContent**

Stops relay content.

Syntax

```
HRESULT StopRelayContent (
    [in] VARIANT* pvarContentName,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarContentName	Name of the relay content to stop
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Relay contents surveillance" for stopping relay content.

■ **GetRelayRecordingInfo**

Acquires the relay content recording information.

Syntax

```
HRESULT GetRelayRecordingInfo (
    [in] VARIANT* pvarSlot,
    [out] VARIANT* pvarContentName,
    [out] VARIANT* pvarRecFileName,
    [out] VARIANT* pvarRecStartTime,
    [out] VARIANT* pvarStatus,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_I4 or VT_BSTR)	pvarSlot	Recording slot number or the name of the relay record.
out	VARIANT*(VT_BSTR)	pvarContentName	Name of the content being recorded
out	VARIANT*(VT_BSTR)	pvarRecFileName	Name of the file to be recorded
out	VARIANT*(VT_BSTR)	pvarRecStartTime	Time that the recording started (yyyy-mm-dd hh:mm:ss)
out	VARIANT*(VT_BSTR)	pvarStatus	"not recording", "recording", "recording discrete=xx", "error" (*1)
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Relay contents surveillance" for collecting starting relay content recording information.

(*1) Each status means:

Value	Description
not recording	Not recording
recording	Recording (the file is not divided)
recording discrete=xx	Recording (File is divided xx times)
error	No source stream, or cannot write to the disk

■ **StartRelayRecording**

Starts relay content recording.

Syntax

```
HRESULT StartRelayRecording (
    [in] VARIANT* pvarContentName,
    [in] VARIANT* pvarRecFileName,
    [in,out] VARIANT* pvarSlot,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarContentName	Name of the content to start recording
in	VARIANT*(VT_BSTR)	pvarRecFileName	Name of the file to record
in,out	VARIANT*(VT_I4)	pvarSlot	Specifies the slot to use for recording. Specify the negative value to look for an empty slot. Returns the slot ID to use for recording. Returns -1 if the recording failed to start.
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

■ **StopRelayRecording**

Stops relay content recording.

Syntax

```
HRESULT StopRelayRecording (
    [in] VARIANT* pvarSlot,
    [in,out] VARIANT* pvarReserved
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_I4)	pvarSlot	Recording slot ID
in,out	VARIANT*(VT_EMPTY)	pvarReserved	Reserved

Return Value

Always returns S_OK.

■ **GetLiveDeviceStatus**

Acquires the status of MVR-D2200V/D2200/D2000/D4400/D4000 and IEEE1394 devices.

Syntax

```
HRESULT GetLiveDeviceStatus (
    [in] VARIANT* pvarLiveDeviceID,
    [out] VARIANT* pvarCurrStatus,
    [out] VARIANT* pvarLastStartTime,
    [out] VARIANT* pvarEncodeTime,
    [out] VARIANT* pvarStartCount
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_I4)	pvarLiveDeviceID	ID for the Live Device
out	VARIANT*(VT_BSTR)	pvarCurrStatus	"ERROR" "STOPPED" "ENC START PENDING" "ENCODING" "CANNOT LOAD LIBRARY" "CANNOT HANDLE" "NOT USED"
out	VARIANT*(VT_BSTR)	pvarLastStartTime	Time that the encode started (yyyy-mm-dd hh:mm:ss)
out	VARIANT*(VT_BSTR)	pvarEncodeTime	Duration of encode [ms]
out	VARIANT*(VT_BSTR)	pvarStartCount	Number of times that encode started (Number of times it's been restarted)

Return Value

Always returns S_OK.

Comments

Specify 0 for the upper word of LiveDeviceID to acquire the status of MVR-D2200V/D2200/D2000 whose ID matches the lower word.
 Specify 2 for the upper word of LiveDeviceID to acquire the status of MVR-D4400/D4000 whose ID matches the lower word that is executing MPEG1/2 encoding.
 Specify 4 for the upper word of LiveDeviceID to acquire the status of MVR-D4400/D4000 whose ID matches the lower word that is executing MPEG4 encoding.
 Specify 8 for the upper word of LiveDeviceID to acquire the status of IEEE1394 device whose ID matches the lower word that is executing HDV recording.

■ **MvrSeek**

Acquires the information on the MPEG1/2 file.

Syntax

```
HRESULT MvrSeek (
    [in] VARIANT* pvarFileName,
    [in] VARIANT* pvarStartTime,
    [out] VARIANT* pvarFileLength,
    [out] VARIANT* pvarRealStartTime,
    [out] VARIANT* pvarSeekPositions
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarFileName	Full path for a MPEG1/2 file
in	VARIANT*(VT_BSTR)	pvarStartTime	Specifies the starting position of the file [ms]
out	VARIANT*(VT_I4)	pvarFileLength	File length [ms]
out	VARIANT*(VT_I4)	pvarRealStartTime	Actual position from which it can be started
out	VARIANT*(VT_BSTR)	pvarSeekPositions	Some values that help to seek, which are specific to MPEG files. (*1)

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Content component wizard" for acquiring the value of the CommandOption field in the T_ContentDefinition table.

*1 Returns a character string in the style of "NUM1#NUM2#NUM3#NUM4#NUM5?PARAM1=value&PARAM2=value..."
 NUMx is integer number in 64 bit.

Value	Description
NUM1	Relative position from the top of the file where the playback starts. [ms]
NUM2	Relative position of the PES packet from the top of the file where the playback starts. [Byte]
NUM3	Relative position of the GOP or the sequence header from the top of the file where the playback starts. [Byte]
NUM4	Relative position of the pack header from the top of the file where the playback starts. [Byte]
NUM5	Total playback time of the MPEG file. [ms]

PARAMx is substituted with the following value:

Value	Description
audio	DolbyDigital if the value is AC3, MPEG Audio if it's MPA.
mpvsid	Video stream ID
mpasid	Audio stream ID
ac3ssid	DolbyDigital sub-stream ID
mpvpid	Video PID
mpapid	Audio PID
ac3pid	DolbyDigital PID

■ **MpegSeek**

Acquires the information on the MPEG file.
Works in the same way as MvrSeek for MPEG1/2 files.

Syntax

```
HRESULT MpegSeek(
    [in] VARIANT* pvarFileName,
    [in] VARIANT* pvarStartTime,
    [out] VARIANT* pvarFileLength,
    [out] VARIANT* pvarRealStartTime,
    [out] VARIANT* pvarSeekPositions
);
```

Arguments

Flow	Type	ParameterName	Meaning
in	VARIANT*(VT_BSTR)	pvarFileName	Full path for a MPEG1/2 file
in	VARIANT*(VT_BSTR)	pvarStartTime	Specifies the starting position of the file [ms]
out	VARIANT*(VT_I4)	pvarFileLength	File length [ms]
out	VARIANT*(VT_I4)	pvarRealStartTime	Actual position from which it can be started
out	VARIANT*(VT_BSTR)	pvarSeekPositions	Some values that help to seek, which are specific to MPEG files. (*1)

Return Value

Always returns S_OK.

Comments

This method is used in the "Server console" – "Content component wizard" for acquiring the value of the CommandOption field in the T_ContentDefinition table.

*1 Returns a character string in the style of "NUM1#NUM2#NUM3#NUM4#NUM5?PARAM1=value&PARAM2=value..."
NUMx is integer number in 64 bit.

Value	Description
NUM1	Relative position from the top of the file where the playback starts. [ms]
NUM2	Relative position of the PES packet from the top of the file where the playback starts. [Byte]
NUM3	Relative position of the GOP or the sequence header from the top of the file where N the playback starts. [Byte]
NUM4	Relative position of the pack header from the top of the file where the playback starts. [Byte]
NUM5	Total playback time of the MPEG file. [ms]

PARAMx is substituted with the following value:

Value	Description
audio	DolbyDigital if the value is AC3, MPEG Audio if it's MPA.
mpvsid	Video stream ID
mpasid	Audio stream ID
ac3ssid	DolbyDigital sub-stream ID
mpvpid	Video PID
mpapid	Audio PID
ac3pid	DolbyDigital PID

■ I-5-2. How to use ActiveX components on Visual Studio 2005 / 2008

■ Using C++(MFC)

- [1] Open the Solution Explorer and select the C++(MFC) project to which to add ActiveX components.
- [2] From the menu, choose [Project] > [Add class].
- [3] When the [Add class] dialog opens, choose [MFC] for the category and [MFC class from TypeLib] for the template. Then press the [Add] button.
- [4] When the [Add TypeLib Wizard] dialog opens, specify the source of the class to [registry] and choose [MeSrv 1.0 type library<1.0>] for the available type library. If the type library can not be found, choose [file] instead of [registry], and specify [MeSrv.exe] to [location].
(Default: C:\Program Files\Canopus\MEDIAEDGE\MEDIAEDGE-SVS3\MeSrv.exe)
- [5] When a type library is selected, the list of the interface is displayed. Choose an interface and press the [>] button to create the class. Then press the [Finish] button.
- [6] A header file of the class wrapped with the ActiveX component is added.

■ Using C++/CLI

- [1] Open the Solution Explorer and select the C++/CLI project to which to add ActiveX components.
- [2] From the main menu, choose [Project] > [Reference].
- [3] When the Properties dialog of the project opens, press [Add new reference].
- [4] When the [Add reference] dialog opens, open the [COM] tab, choose [MeSrv 1.0 type library], and press the [OK] button.
- [5] [Interop.MESRVLib.1.0] is added as a reference for the project and MESRVLib.MeSrvCtrlClass, a class wrapped with the ActiveX component, is generated.

■ Using C#

- [1] Open the Solution Explorer and select the C# project to which to add ActiveX components.
- [2] From the main menu, choose [Project] > [Add reference].
- [3] When the [Add reference] dialog opens, open the [COM] tab, choose [MeSrv 1.0 type library], and press the [OK] button.
- [4] [MESRVLib] is added as a reference for the project, and MESRVLib.MeSrvCtrlClass, a class wrapped with the ActiveX component, is generated.

■ Using Visual Basic

- [1] Open the Solution Explorer and select the Visual Basic project to which to add ActiveX components.
- [2] From the main menu, choose [Project] > [Add reference].
- [3] When the [Add reference] dialog opens, open the [COM] tab, choose [MeSrv 1.0 type library], and press the [OK] button.
- [4] [MeSrv 1.0 type library] is added as a reference for the project and MESRVLib.MeSrvCtrlClass, a class wrapped with the ActiveX component, is generated.

I-6. MEDIAEDGE-SWT3 ActiveX Specifications

■ I-6-1. Description on Property, Method, Event

■ Properties

Playback properties

Property	Default	Description
DOUBLE ElapsedTime	0	Acquires the elapsed playback time. (Second time scale)
DOUBLE PlayingTime	0	Acquires the content duration. (Second time scale)
VARIANT_BOOL Seekable	FALSE	Acquires the information if seek is enabled. TRUE: Seek enabled, FALSE: Seek disabled
LONG JumpLength	10	Acquires/Specifies the length for Forward/Backward Jump. (Second time scale)
VARIANT_BOOL ErrorCorrection	TRUE	Acquires the information if FEC is enabled. TRUE: FEC enabled, FALSE: FEC disabled
USHORT BufferingTime	200	Acquires/Specifies buffering time. (Milli-second time scale)

Audio properties

Property	Default	Description
SHORT VolumeRight	255	Acquires/Specifies the Volume (Right). Range: 0 – 255
SHORT VolumeLeft	255	Acquires/Specifies the Volume (Left). Range: 0 – 255
VARIANT_BOOL VolumeLRLink	TRUE	Acquires/Specifies if the Right and Left volumes are linked. TRUE: Linked, FALSE: Not linked
VARIANT_BOOL VolumeMute	FALSE	Acquires/Specifies if the audio is muted. TRUE: Mute, FALSE: Audio enabled

Video quality properties

Property	Default	Description
SHORT Brightness	Varies	Acquires/Specifies the Brightness. Range: 0 - 10,000
SHORT Contrast	Varies	Acquires/Specifies the Contrast. Range: 0 - 20,000
SHORT Saturation	Varies	Acquires/Specifies the Saturation. Range: 0 - 20,000
VARIANT_BOOL Flipping	FALSE	Acquires/Specifies the Flipping setting. TRUE: ON, FALSE: OFF
VARIANT_BOOL Progressive	FALSE	Acquires/Specifies the Progressive setting. TRUE: ON, FALSE: OFF
VARIANT_BOOL KeepAspectRatio	FALSE	Acquires/Specifies the aspect ratio. TRUE: Preserve, FALSE: Does not preserve
VARIANT_BOOL FullScreen	FALSE	Acquires/Specifies the Full Screen setting. TRUE: Full screen, FALSE: Standard window
VARIANT_BOOL ContextMenu	TRUE	Acquires/Specifies the setting of the right-click sub-menu. TRUE: Displayed, FALSE: Not displayed
SHORT SafeArea	90	Acquires/Specifies the display area. Range: 1 - 100 (%)
SHORT GraphicsMode	1	Acquires/Specifies the video renderer mode settings. 0: Not initialized, 1: Overlay, 2: DirectDraw, 3: GDI
ULONG MovieWidth	0	Acquires the video width of the playing content.
ULONG MovieHeight	0	Acquires the video height of the playing content.

MEDIAEDGE-DAS3 properties

Property	Default	Description
BSTR ChkSvrName	""	Acquires/Specifies the host name and the IP address of MEDIAEDGE-DAS3.
LONG ChkSvrPort	0	Acquires/Specifies the port number of MEDIAEDGE-DAS3. Range: 0 - 65,535

■ **Method**

Method	Description
VARIANT_BOOL Play(BSTR url)	Requests content playback. Argument "url" is the Content URL (rtsp://server name/content name).
VARIANT_BOOL Pause()	Requests content pause. During pause, the still picture is displayed.
VARIANT_BOOL Resume()	Requests re-start of the paused content.
VARIANT_BOOL Stop()	Requests stop of the playing content.
VARIANT_BOOL Jump(DOUBLE time)	Requests playback from the specified position. Argument "time" is the time-code to start playing from (second).
VARIANT_BOOL ForwardJump()	Requests forward jump by the set length (PropertyJumpLength).
VARIANT_BOOL BackwardJump()	Requests backward jump by the set length (PropertyJumpLength).

■ Events

Event	Description																
Play	Playback started.																
Stop	Playback stopped.																
Jump	Jump completed.																
BJump	Backward Jump completed.																
FJump	Forward Jump completed.																
EndOfContent	Content comes to an end.																
ItemChange	Content changed. (Redirect, Content selection)																
Pause	Playback paused.																
Resume	Resumed from pause.																
DecodeError(long Code)	Failed to decode. Argument Code is the error ID. <table border="1" data-bbox="619 696 1315 902"> <tr> <td data-bbox="619 696 810 728">2</td> <td data-bbox="810 696 1315 728">System error</td> </tr> <tr> <td data-bbox="619 728 810 759">5</td> <td data-bbox="810 728 1315 759">Unsupported format</td> </tr> <tr> <td data-bbox="619 759 810 790">16</td> <td data-bbox="810 759 1315 790">Buffer error</td> </tr> <tr> <td data-bbox="619 790 810 822">28</td> <td data-bbox="810 790 1315 822">Format error</td> </tr> <tr> <td data-bbox="619 822 810 853">35</td> <td data-bbox="810 822 1315 853">Stream analyze error</td> </tr> </table>	2	System error	5	Unsupported format	16	Buffer error	28	Format error	35	Stream analyze error						
2	System error																
5	Unsupported format																
16	Buffer error																
28	Format error																
35	Stream analyze error																
StreamControlError(long Code)	Failed to communicate with the stream server. Argument Code is the error ID. <table border="1" data-bbox="619 992 1315 1323"> <tr> <td data-bbox="619 992 810 1023">0</td> <td data-bbox="810 992 1315 1023">Unknown error</td> </tr> <tr> <td data-bbox="619 1023 810 1055">1</td> <td data-bbox="810 1023 1315 1055">Invalid URL</td> </tr> <tr> <td data-bbox="619 1055 810 1086">2</td> <td data-bbox="810 1055 1315 1086">Internal error</td> </tr> <tr> <td data-bbox="619 1086 810 1117">3</td> <td data-bbox="810 1086 1315 1117">Connection failed</td> </tr> <tr> <td data-bbox="619 1117 810 1149">4</td> <td data-bbox="810 1117 1315 1149">Server not found</td> </tr> <tr> <td data-bbox="619 1149 810 1180">5</td> <td data-bbox="810 1149 1315 1180">Initialization failed</td> </tr> <tr> <td data-bbox="619 1180 810 1211">6</td> <td data-bbox="810 1180 1315 1211">Communication to MeSwtSver failed</td> </tr> <tr> <td data-bbox="619 1211 810 1243">Other value</td> <td data-bbox="810 1211 1315 1243">RTSP status code (*1)</td> </tr> </table>	0	Unknown error	1	Invalid URL	2	Internal error	3	Connection failed	4	Server not found	5	Initialization failed	6	Communication to MeSwtSver failed	Other value	RTSP status code (*1)
0	Unknown error																
1	Invalid URL																
2	Internal error																
3	Connection failed																
4	Server not found																
5	Initialization failed																
6	Communication to MeSwtSver failed																
Other value	RTSP status code (*1)																
DongleError	Authentication failed. <table border="1" data-bbox="619 1391 1399 1590"> <tr> <td data-bbox="619 1391 810 1507">0</td> <td data-bbox="810 1391 1399 1507"> Dongle not found. Failed to communicate with the License Server. </td> </tr> <tr> <td data-bbox="619 1507 810 1590">1</td> <td data-bbox="810 1507 1399 1590">Authentication denied due to excessive clients</td> </tr> </table>	0	Dongle not found. Failed to communicate with the License Server.	1	Authentication denied due to excessive clients												
0	Dongle not found. Failed to communicate with the License Server.																
1	Authentication denied due to excessive clients																

* RTSP status codes:

Status code	Description
400	Bad Request
401	Unauthorized
402	Payment Required
403	Forbidden
404	Not Found
405	Method Not Allowed
406	Not Acceptable
407	Proxy Authentication Required
408	Request Timeout
410	Gone
411	Length Required
412	Precondition Failed
413	Request Entity Too Large
414	Request-URI Too Large
415	Unsupported Media Type
451	Parameter not Understood
452	Conference Not Found
453	Not Enough Bandwidth
454	Session Not Found
455	Method Not Valid in This State
456	Header Field Not Valid for Resource
457	Invalid Range
458	Parameter Is Read-Only
459	Aggregate operatoion not allowed
460	Only aggregate operation allowed
461	Unsupported transport
462	Destination unreachable
500	Internal Server Error
501	Not Implemented
502	Bad Geteway
503	Service Unavailable
504	Geteway Timeout
505	RTSP Version not supported
551	Option not supported

■ I-6-2. How to use ActiveX components on Visual Studio 2005 / 2008

■ Using C++(MFC)

- [1] Open the Solution Explorer and select the C++(MFC) project to which to add ActiveX components.
- [2] From the menu, choose [Project] > [Add class].
- [3] When the [Add class] dialog opens, choose [MFC] for the category and [MFC class from TypeLib] for the template. Then press the [Add] button.
- [4] When the [Add TypeLib Wizard] dialog opens, specify the source of the class to [Registry] and choose [MediaEdgeSw2 ActiveX Control module<1.0>] for the available type library.
If the type library can not be found, choose [file] instead of [registry], and specify [MediaEdgeSw2.ocx] to [location].
(Default: C:\Program Files\Canopus\MEDIAEDGE\MEDIAEDGE-SWT3\MediaEdgeSw2.ocx)
- [5] When a type library is selected, the list of interfaces is displayed. Choose an interface and press the [>] button to create the class. Then press the [Finish] button.
- [6] A header file of the class wrapped with the ActiveX component is added.

■ Using C++/CLI

- [1] Open the Solution Explorer and select the C++/CLI project to which to add ActiveX components.
- [2] From the main menu, choose [Project] > [Reference].
- [3] When the Properties dialog of the project opens, press [Add new reference].
- [4] When the [Add reference] dialog opens, open the [COM] tab, choose [MediaEdgeSw2 ActiveX Control module], and press the [OK] button.
- [5] [Interop.MediaEdgeSw2Lib.1.0] is added as a reference for the project and MediaEdgeSw2Lib.MediaEdgeSw2Class, a class wrapped with the ActiveX component, is generated.

■ Using C#

- [1] Open the Solution Explorer and select the C# project to which to add ActiveX components.
- [2] From the main menu, choose [Project] > [Add reference].
- [3] When the [Add reference] dialog opens, open the [COM] tab, choose [MediaEdgeSw2 ActiveX Control module], and press the [OK] button.
- [4] [MediaEdgeSw2Lib] is added as a reference for the project and MediaEdgeSw2Lib.MediaEdgeSw2Class, a class wrapped with the ActiveX component, is generated.

■ Using Visual Basic

- [1] Open the Solution Explorer and select the Visual Basic project to which to add ActiveX controls.
- [2] From the main menu, choose [Project] > [Add reference].
- [3] When the [Add reference] dialog opens, open the [COM] tab, choose [MediaEdgeSw2 ActiveX Control module], and press the [OK] button.
- [4] [MediaEdgeSw2 ActiveX Control module] is added as a reference for the project and MediaEdgeSw2Lib.MediaEdgeSw2Class, a class wrapped with the ActiveX component, is generated.

I-7. Adjusting the Delivered Video

■ I-7-1. FEC mode

"FEC" (Forward Error Correction) is available on the MEDIAEDGE-SVS3. The stream is delivered with the redundant packets, which are generated by FEC parameters (Number, Interval). When an error occurs in delivered packets, the receiver can restore it to the correct data.

■ Features on FEC mode

Below are the advantages and drawbacks of FEC mode.

Advantage

- When packet loss occurs, the lost packet can be restored (*) by the FEC packet, thus preventing the stopping of audio and video.

Drawback

- As the FEC packets are added, the bitrate will be higher.
- Playback delay will increase.

In the FEC mode, the server will send the redundant packets for error correction along with the original delivery packets.

Therefore, the total bitrate actually delivered will increase.

* Lost packets can be restored, but not in all occasions.

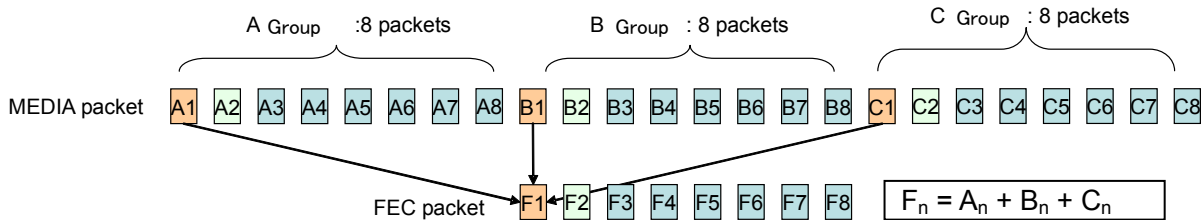


FEC mode enables restore of packet loss when it occurs. As the redundant packets for error correction are generated, the total bitrate actually delivered will increase.

■ I-7-2. Principles of FEC

■ **Generating FEC packets**

FEC packets will be generated as follows, when Number is set to 3, and Interval is set to 8. A₁ and B₁ which is 8th from A₁, C₁ which is 8th from B₁, and F₁ which is generated from 3 RTP packets, will be generated. These are called FEC packets. FEC packets, F₂-F₈, will be similarly generated.



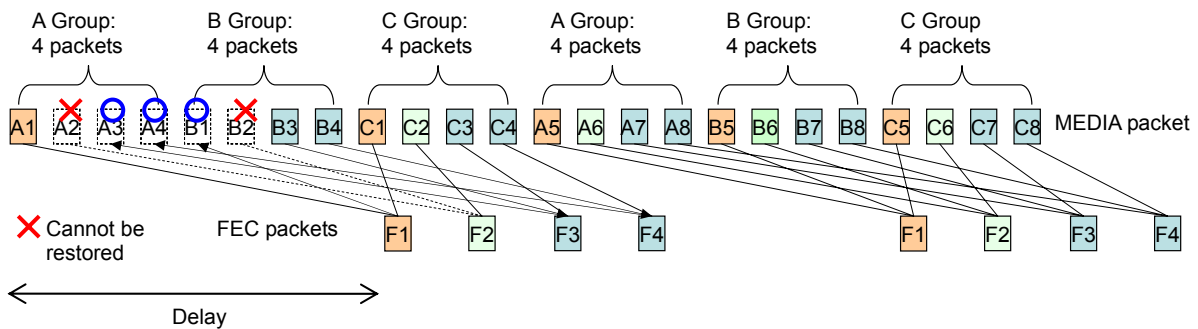
Example of FEC packets (FEC parameter: (3, 8))

■ **Interval**

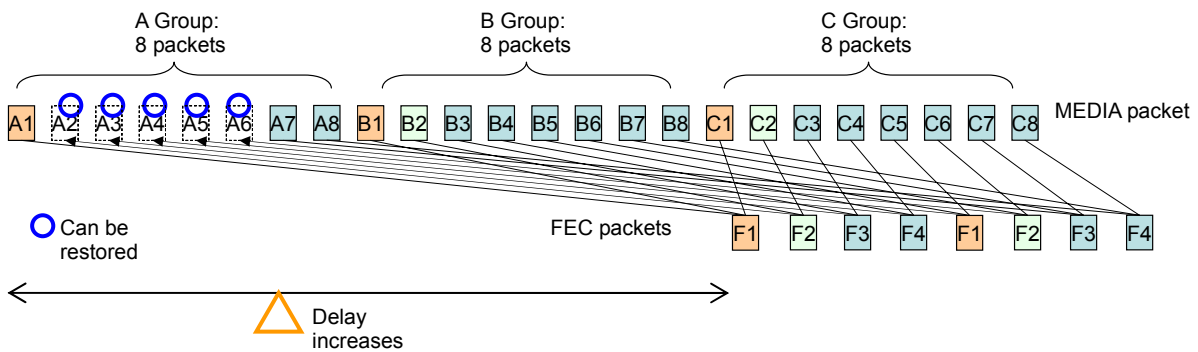
Generally, when a packet occurs, multiple packet losses tends to occur as well. If the FEC packets have been generated from the consecutive MEDIA packets, the packet cannot be restored when multiple packet losses happen consecutively.

Therefore, by having an interval between MEDIA packets, the consecutive packet losses could be fixed if the following packets do not have any losses. INTERVAL is the parameter which specifies the time gap (interval).

Increasing the INTERVAL value will strengthen against packet losses. However, if the interval to generate FEC packets is longer, the playback delay will increase.



Where Number=3, Interval=4, there are 5 consecutive packet losses

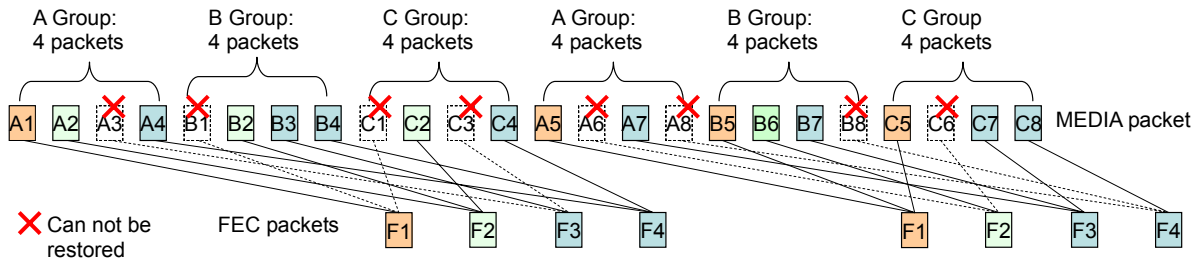


Where Number=3, Interval=8, there are 5 consecutive packet losses

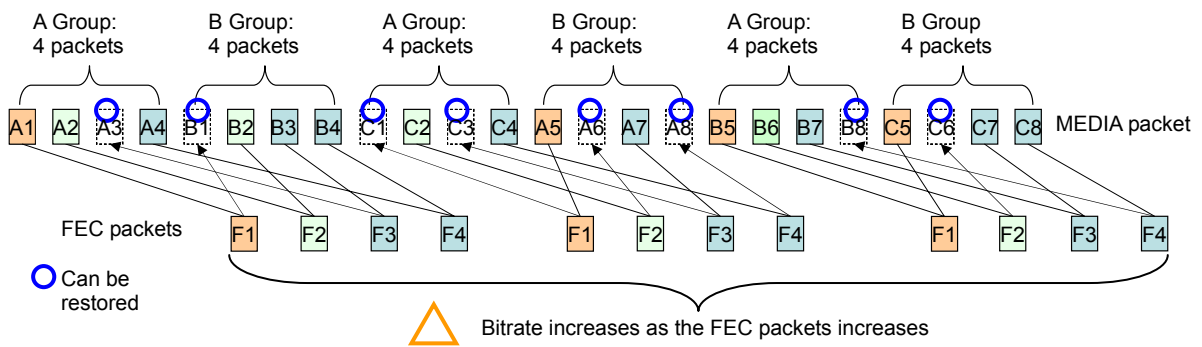
■ **Number**

NUMBER is the parameter to specify the number of packets that consist of a group of FEC packets.

Decreasing the Number will decrease the number of the MEDIA packets which are covered by a group of FEC packets, therefore restoring force against the intermittent packet errors. However, if the ratio of FEC packets to MEDIA packets is high, the bitrate will increase.



Where Number=3, Interval=4, intermittent packet losses



Where Number=2, Interval=4, intermittent packet losses

■ I-7-3. FEC settings

■ How to set FEC parameters

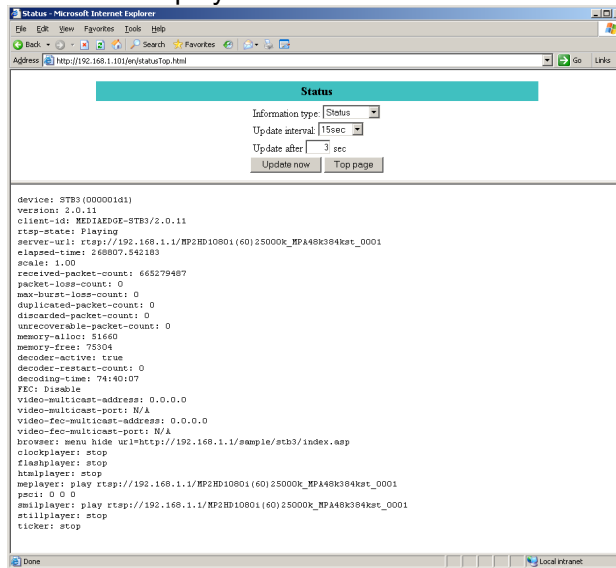
Follow the steps below to set the FEC parameters:

1. Adjust the MTU according to the network.
2. Check how many packet losses happen with the FEC mode set to off.
3. According to the result, set the FEC parameters and review the effect.

Firstly, if VPN is used, adjust the MTU according to the network. (Refer to "■ I-7-4. Maximum size of TS Packets and RTP Packets to send at a time")

Secondly, with the FEC mode set to off, check how many packet losses occur. Test with various bitrate, TS packets (for MPEG2), RTP packets size ((for MPEG4) combinations.

While testing, record the value displayed on the "Status" screen of the STB3 Web console.



STB3 status screen

When a WAN line is used, note that its maximum transmission speed may not be executed. Consider it as a rough estimate.

In a business district, the traffic will be heavy in the daytime on weekdays, and will be light on weekends. In a residential district, the traffic will be heavy at night and weekends. Therefore, checking at similar times and days of the week is preferable to acquire proper results.

Then, based on the results, check the performance with the FEC mode set to on. The following items should be referenced to configure the FEC parameters.

Setting Item	Description
received-packet-count	Total packets received
packet-loss-count	Total packets failed to receive ¹
max-burst-loss-count	The biggest consecutive packet losses ¹
unrecoverable-packet-count	Number of packets that could not be restored even with FEC.

Set INTERVAL to a larger value than the max-burst-loss-count value. When a smaller value is set, packets cannot be restored when the biggest consecutive losses occur.

Lastly, check the performance with the FEC mode set to on. If the unrecoverable-packet-count is less than what it used to be, that means the FEC mode is functioning properly.

¹ As the sequence number (SEQNo) of max-burst-loss-count is in 16 bit, if the packets arrive in the wrong order, it returns the value, [65536 – packets]. Check the log to find how the sequence number is skipped.

■ I-7-4. Maximum size of TS Packets and RTP Packets to send at a time

When the quality of the network line is poor (for example, in VPN via internet), setting the maximum value of TS packets (188Byte), which are to be added to the RTP packets, may reduce the distortion of the video.

However, setting it too low is inefficient, and may cause problems such as a big load on STB.

How to calculate the maximum size of TS packets and RTP packets:

- [1] Use the ping command, and check the MTU (Maximum Transmission Unit).
If the system is constructed using a MEDIAEDGE server, ping from a server to STB3/LEB. If LEB and STB3 are connected directly, connect a PC to either network and ping to the other terminal.

```
ping -f -l (size) (Destination IP address)
Ping several times at various sizes. The value calculated by adding 28 to the largest successful size is the max MTU.
```

(Ex) In the fiber-access network that NTT provides in Japan, size is 1368. Therefore, 1396 (1368 +28) is the MTU.

- [2] When the system is constructed using a MEDIAEDGE server, use a tool such as "NetTune" to adjust the MTU of the MEDIAEDGE server.
In LEB construction, open the Web console, and adjust the [Path MTU] in [Local Settings].

- [3] To use the FEC mode, check the FEC Header Size.

```
FEC Header Size =
When FEC mode is not used
0 Byte
In ( Number - 1 ) x Interval + 1 ≤ 24
12 Byte (RFC 2733 compatible)
Others
28 Byte (Expanded)
```

- [4] Calculate the maximum size of TS packets and RTP packets with the following formula:
See "I-7-5. TS Packets (MPEG1/2) Optimal Value" and "I-7-6. Optimal Value for the Maximum Size of RTP Packet (MPEG4)" for the calculated values.

$$\text{TSPackets} = ((\text{MTU} - \text{IPHeader Size}[20]) \times n - \text{UDP Header Size}[8] - \text{RTP Header Size}[12] - \text{FEC Header Size}[0 \text{ or } 12 \text{ or } 28]) / 188$$

$$\text{RTP Packet Size} = (\text{MTU} - \text{IPHeader Size}[20]) \times n - \text{UDP Header Size}[8] - \text{FEC Header Size}[0 \text{ or } 12 \text{ or } 28]$$

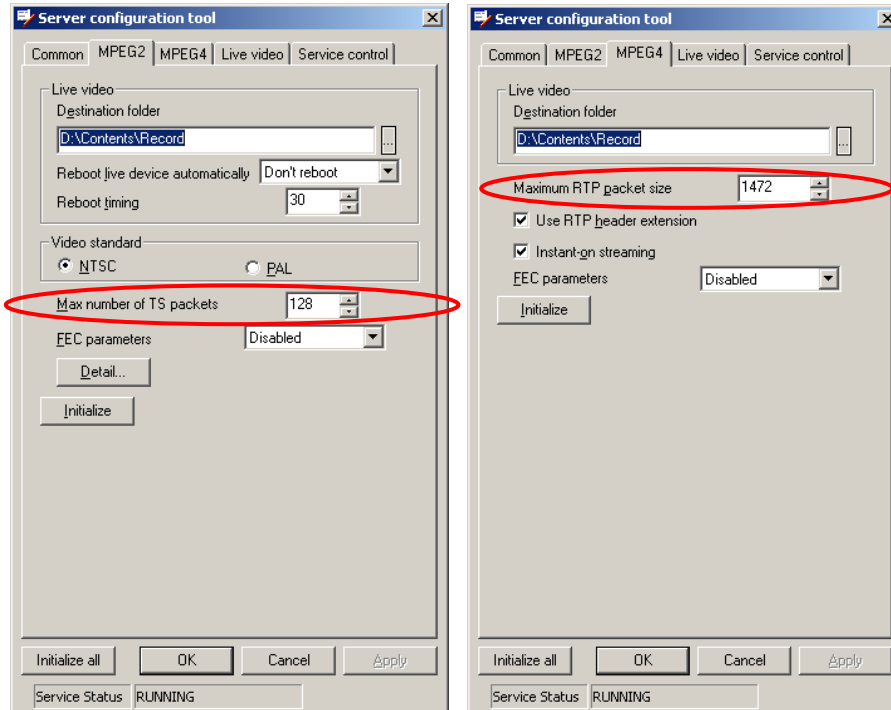
n = Ethernet packets

(Ex) In MTU=1396 and FEC Header Size=12, the value will be 7, 14, 21 or 29 (n = 1, 2, 3, 4).

- [5] Specify the max size of TS packets or RTP packets.
 MEDIAEDGE server settings:

Setup with Server configuration tool.

Parameter	Setting Item
Number of TS packets	[Max number of TS packets] in [MPEG2] tab
RTP packet max size	[Maximum RTP packet size] in [MPEG4] tab

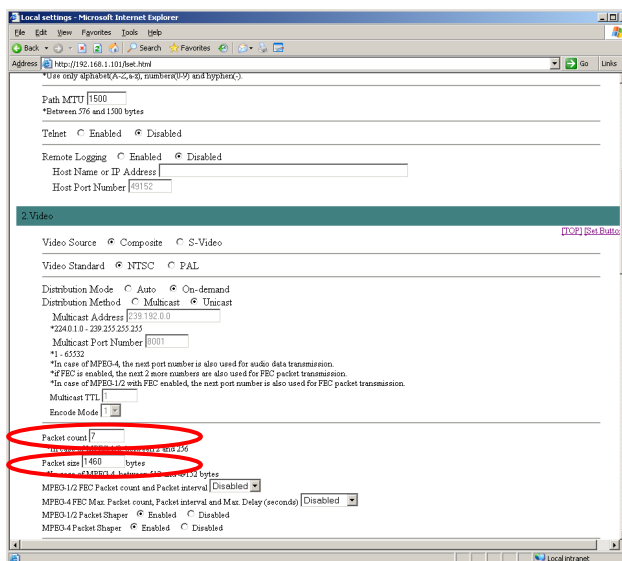


Max number of TS packets (Left) and Maximum RTP packet size (Right)

LEB60 settings:

Setup in Local Setting on the Web console.

Parameter	Setting Item
Number of TS packets	[Packet count] in [Video]
RTP packet max size	[Packet size] in [Video]



Packet count (upper line) and Packet size (lower line)

■ I-7-5. TS Packets (MPEG1/2) Optimal Value

Value drawn on by Ping command	MTU	Packets																							
		1			2			3			4			5			6			7			8		
		TS Packets			TS Packets			TS Packets			TS Packets			TS Packets			TS Packets			TS Packets			TS Packets		
	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	
1252	1280	6	6	6	13	13	13	20	19	19	26	26	26	33	33	33	40	40	39	46	46	46	53	53	53
1254	1282	6	6	6	13	13	13	20	19	19	26	26	26	33	33	33	40	40	40	46	46	46	53	53	53
1256	1284	6	6	6	13	13	13	20	20	19	26	26	26	33	33	33	40	40	40	46	46	46	53	53	53
1258	1286	6	6	6	13	13	13	20	20	19	26	26	26	33	33	33	40	40	40	47	46	46	53	53	53
1260	1288	6	6	6	13	13	13	20	20	19	26	26	26	33	33	33	40	40	40	47	47	46	53	53	53
1262	1290	6	6	6	13	13	13	20	20	20	26	26	26	33	33	33	40	40	40	47	47	47	53	53	53
1264	1292	6	6	6	13	13	13	20	20	20	26	26	26	33	33	33	40	40	40	47	47	47	54	53	53
1266	1294	6	6	6	13	13	13	20	20	20	27	26	26	33	33	33	40	40	40	47	47	47	54	54	53
1268	1296	6	6	6	13	13	13	20	20	20	27	26	26	33	33	33	40	40	40	47	47	47	54	54	54
1270	1298	6	6	6	13	13	13	20	20	20	27	27	26	33	33	33	40	40	40	47	47	47	54	54	54
1272	1300	6	6	6	13	13	13	20	20	20	27	27	26	33	33	33	40	40	40	47	47	47	54	54	54
1274	1302	6	6	6	13	13	13	20	20	20	27	27	27	33	33	33	40	40	40	47	47	47	54	54	54
1276	1304	6	6	6	13	13	13	20	20	20	27	27	27	34	33	33	40	40	40	47	47	47	54	54	54
1278	1306	6	6	6	13	13	13	20	20	20	27	27	27	34	34	33	40	40	40	47	47	47	54	54	54
1280	1308	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	40	40	47	47	47	54	54	54
1282	1310	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	40	47	47	47	54	54	54
1284	1312	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	40	48	47	47	54	54	54
1286	1314	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	47	54	54	54
1288	1316	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	54	54
1290	1318	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	54
1292	1320	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1294	1322	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1296	1324	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1298	1326	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1300	1328	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1302	1330	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1304	1332	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1306	1334	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1308	1336	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1310	1338	6	6	6	13	13	13	20	20	20	27	27	27	34	34	34	41	41	41	48	48	48	55	55	55
1312	1340	6	6	6	13	13	13	20	20	20	27	27	27	35	34	34	42	41	41	49	48	48	56	56	55
1314	1342	6	6	6	13	13	13	20	20	20	28	27	27	35	34	34	42	42	41	49	49	49	56	56	56
1316	1344	6	6	6	13	13	13	21	20	20	28	28	27	35	35	34	42	42	42	49	49	49	56	56	56
1318	1346	6	6	6	14	13	13	21	20	20	28	28	27	35	35	35	42	42	42	49	49	49	56	56	56
1320	1348	6	6	6	14	13	13	21	21	20	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1322	1350	6	6	6	14	13	13	21	21	20	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1324	1352	6	6	6	14	14	13	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1326	1354	6	6	6	14	14	13	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1328	1356	7	6	6	14	14	13	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1330	1358	7	6	6	14	14	13	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1332	1360	7	6	6	14	14	14	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	56	56	56
1334	1362	7	6	6	14	14	14	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	57	56	56
1336	1364	7	6	6	14	14	14	21	21	21	28	28	28	35	35	35	42	42	42	49	49	49	57	57	56
1338	1366	7	6	6	14	14	14	21	21	21	28	28	28	35	35	35	42	42	42	50	49	49	57	57	57

RFC 2733 Compatible

In case (Number - 1) x Interval + 1 ≤ 24

- (2, 1), (2, 2), (2, 4), (2, 8), (2, 16), (3, 1), (3, 2), (3, 4), (3, 8), (4, 1), (4, 2), (4, 4), (5, 1), (5, 2), (5, 4), (10, 1), (10, 2)

Extended Specification

In case (Number - 1) x Interval + 1 > 24

- (2, 32), (2, 64), (2, 127), (3, 16), (3, 32), (3, 63), (4, 8), (4, 16), (4, 32), (4, 42), (5, 8), (5, 16), (5, 25), (10, 4), (10, 10)

■ I-7-6. Optimal Value for the Maximum Size of RTP Packet (MPEG4)

Value drawn on by Ping command	MTU	Packets											
		1			2			3			4		
		Maximum size of RTP packet			Maximum size of RTP packet			Maximum size of RTP packet			Maximum size of RTP packet		
	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	
1252	1280	1252	1240	1224	2512	2500	2484	3772	3760	3744	5032	5020	5004
1254	1282	1254	1242	1226	2516	2504	2488	3778	3766	3750	5040	5028	5012
1256	1284	1256	1244	1228	2520	2508	2492	3784	3772	3756	5048	5036	5020
1258	1286	1258	1246	1230	2524	2512	2496	3790	3778	3762	5056	5044	5028
1260	1288	1260	1248	1232	2528	2516	2500	3796	3784	3768	5064	5052	5036
1262	1290	1262	1250	1234	2532	2520	2504	3802	3790	3774	5072	5060	5044
1264	1292	1264	1252	1236	2536	2524	2508	3808	3796	3780	5080	5068	5052
1266	1294	1266	1254	1238	2540	2528	2512	3814	3802	3786	5088	5076	5060
1268	1296	1268	1256	1240	2544	2532	2516	3820	3808	3792	5096	5084	5068
1270	1298	1270	1258	1242	2548	2536	2520	3826	3814	3798	5104	5092	5076
1272	1300	1272	1260	1244	2552	2540	2524	3832	3820	3804	5112	5100	5084
1274	1302	1274	1262	1246	2556	2544	2528	3838	3826	3810	5120	5108	5092
1276	1304	1276	1264	1248	2560	2548	2532	3844	3832	3816	5128	5116	5100
1278	1306	1278	1266	1250	2564	2552	2536	3850	3838	3822	5136	5124	5108
1280	1308	1280	1268	1252	2568	2556	2540	3856	3844	3828	5144	5132	5116
1282	1310	1282	1270	1254	2572	2560	2544	3862	3850	3834	5152	5140	5124
1284	1312	1284	1272	1256	2576	2564	2548	3868	3856	3840	5160	5148	5132
1286	1314	1286	1274	1258	2580	2568	2552	3874	3862	3846	5168	5156	5140
1288	1316	1288	1276	1260	2584	2572	2556	3880	3868	3852	5176	5164	5148
1290	1318	1290	1278	1262	2588	2576	2560	3886	3874	3858	5184	5172	5156
1292	1320	1292	1280	1264	2592	2580	2564	3892	3880	3864	5192	5180	5164
1294	1322	1294	1282	1266	2596	2584	2568	3898	3886	3870	5200	5188	5172
1296	1324	1296	1284	1268	2600	2588	2572	3904	3892	3876	5208	5196	5180
1298	1326	1298	1286	1270	2604	2592	2576	3910	3898	3882	5216	5204	5188
1300	1328	1300	1288	1272	2608	2596	2580	3916	3904	3888	5224	5212	5196
1302	1330	1302	1290	1274	2612	2600	2584	3922	3910	3894	5232	5220	5204
1304	1332	1304	1292	1276	2616	2604	2588	3928	3916	3900	5240	5228	5212
1306	1334	1306	1294	1278	2620	2608	2592	3934	3922	3906	5248	5236	5220
1308	1336	1308	1296	1280	2624	2612	2596	3940	3928	3912	5256	5244	5228
1310	1338	1310	1298	1282	2628	2616	2600	3946	3934	3918	5264	5252	5236
1312	1340	1312	1300	1284	2632	2620	2604	3952	3940	3924	5272	5260	5244
1314	1342	1314	1302	1286	2636	2624	2608	3958	3946	3930	5280	5268	5252
1316	1344	1316	1304	1288	2640	2628	2612	3964	3952	3936	5288	5276	5260
1318	1346	1318	1306	1290	2644	2632	2616	3970	3958	3942	5296	5284	5268
1320	1348	1320	1308	1292	2648	2636	2620	3976	3964	3948	5304	5292	5276
1322	1350	1322	1310	1294	2652	2640	2624	3982	3970	3954	5312	5300	5284
1324	1352	1324	1312	1296	2656	2644	2628	3988	3976	3960	5320	5308	5292
1326	1354	1326	1314	1298	2660	2648	2632	3994	3982	3966	5328	5316	5300
1328	1356	1328	1316	1300	2664	2652	2636	4000	3988	3972	5336	5324	5308
1330	1358	1330	1318	1302	2668	2656	2640	4006	3994	3978	5344	5332	5316
1332	1360	1332	1320	1304	2672	2660	2644	4012	4000	3984	5352	5340	5324
1334	1362	1334	1322	1306	2676	2664	2648	4018	4006	3990	5360	5348	5332

RFC 2733 Compatible

In case (Number - 1) x Interval + 1 ≤ 24

- (2, 23, 0.5), (2, 23, 1), (2, 23, 4), (4, 7, 0.5), (4, 7, 1), (4, 7, 4), (6, 4, 0.5), (6, 4, 1), (6, 4, 4), (8, 3, 0.5), (8, 3, 1), (8, 3, 4), (10, 2, 0.5), (10, 2, 1), (10, 2, 4)

Extended Specification

In case (Number - 1) x Interval + 1 > 24

- (2, 127, 2), (2, 127, 4), (2, 127, 16), (4, 42, 2), (4, 42, 4), (4, 42, 16), (6, 25, 2), (6, 25, 4), (6, 25, 16), (8, 18, 2), (8, 18, 4), (8, 18, 16), (10, 14, 2), (10, 14, 4), (10, 14, 16)

Value drawn on by Ping command	MTU	Packets											
		1			2			3			4		
		Max size of RTP packet			Max size of RTP packet			Max size of RTP packet			Max size of RTP packet		
	FEC disabled	RFc compatible	Extended	FEC disabled	RFc compatible	Extended	FEC disabled	RFc compatible	Extended	FEC disabled	RFc compatible	Extended	
1336	1364	1336	1324	1308	2680	2668	2652	4024	4012	3996	5368	5356	5340
1338	1366	1338	1326	1310	2684	2672	2656	4030	4018	4002	5376	5364	5348
1340	1368	1340	1328	1312	2688	2676	2660	4036	4024	4008	5384	5372	5356
1342	1370	1342	1330	1314	2692	2680	2664	4042	4030	4014	5392	5380	5364
1344	1372	1344	1332	1316	2696	2684	2668	4048	4036	4020	5400	5388	5372
1346	1374	1346	1334	1318	2700	2688	2672	4054	4042	4026	5408	5396	5380
1348	1376	1348	1336	1320	2704	2692	2676	4060	4048	4032	5416	5404	5388
1350	1378	1350	1338	1322	2708	2696	2680	4066	4054	4038	5424	5412	5396
1352	1380	1352	1340	1324	2712	2700	2684	4072	4060	4044	5432	5420	5404
1354	1382	1354	1342	1326	2716	2704	2688	4078	4066	4050	5440	5428	5412
1356	1384	1356	1344	1328	2720	2708	2692	4084	4072	4056	5448	5436	5420
1358	1386	1358	1346	1330	2724	2712	2696	4090	4078	4062	5456	5444	5428
1360	1388	1360	1348	1332	2728	2716	2700	4096	4084	4068	5464	5452	5436
1362	1390	1362	1350	1334	2732	2720	2704	4102	4090	4074	5472	5460	5444
1364	1392	1364	1352	1336	2736	2724	2708	4108	4096	4080	5480	5468	5452
1366	1394	1366	1354	1338	2740	2728	2712	4114	4102	4086	5488	5476	5460
1368	1396	1368	1356	1340	2744	2732	2716	4120	4108	4092	5496	5484	5468
1370	1398	1370	1358	1342	2748	2736	2720	4126	4114	4098	5504	5492	5476
1372	1400	1372	1360	1344	2752	2740	2724	4132	4120	4104	5512	5500	5484
1374	1402	1374	1362	1346	2756	2744	2728	4138	4126	4110	5520	5508	5492
1376	1404	1376	1364	1348	2760	2748	2732	4144	4132	4116	5528	5516	5500
1378	1406	1378	1366	1350	2764	2752	2736	4150	4138	4122	5536	5524	5508
1380	1408	1380	1368	1352	2768	2756	2740	4156	4144	4128	5544	5532	5516
1382	1410	1382	1370	1354	2772	2760	2744	4162	4150	4134	5552	5540	5524
1384	1412	1384	1372	1356	2776	2764	2748	4168	4156	4140	5560	5548	5532
1386	1414	1386	1374	1358	2780	2768	2752	4174	4162	4146	5568	5556	5540
1388	1416	1388	1376	1360	2784	2772	2756	4180	4168	4152	5576	5564	5548
1390	1418	1390	1378	1362	2788	2776	2760	4186	4174	4158	5584	5572	5556
1392	1420	1392	1380	1364	2792	2780	2764	4192	4180	4164	5592	5580	5564
1394	1422	1394	1382	1366	2796	2784	2768	4198	4186	4170	5600	5588	5572
1396	1424	1396	1384	1368	2800	2788	2772	4204	4192	4176	5608	5596	5580
1398	1426	1398	1386	1370	2804	2792	2776	4210	4198	4182	5616	5604	5588
1400	1428	1400	1388	1372	2808	2796	2780	4216	4204	4188	5624	5612	5596
1402	1430	1402	1390	1374	2812	2800	2784	4222	4210	4194	5632	5620	5604
1404	1432	1404	1392	1376	2816	2804	2788	4228	4216	4200	5640	5628	5612
1406	1434	1406	1394	1378	2820	2808	2792	4234	4222	4206	5648	5636	5620
1408	1436	1408	1396	1380	2824	2812	2796	4240	4228	4212	5656	5644	5628
1410	1438	1410	1398	1382	2828	2816	2800	4246	4234	4218	5664	5652	5636
1412	1440	1412	1400	1384	2832	2820	2804	4252	4240	4224	5672	5660	5644
1414	1442	1414	1402	1386	2836	2824	2808	4258	4246	4230	5680	5668	5652
1416	1444	1416	1404	1388	2840	2828	2812	4264	4252	4236	5688	5676	5660
1418	1446	1418	1406	1390	2844	2832	2816	4270	4258	4242	5696	5684	5668
1420	1448	1420	1408	1392	2848	2836	2820	4276	4264	4248	5704	5692	5676
1422	1450	1422	1410	1394	2852	2840	2824	4282	4270	4254	5712	5700	5684
1424	1452	1424	1412	1396	2856	2844	2828	4288	4276	4260	5720	5708	5692
1426	1454	1426	1414	1398	2860	2848	2832	4294	4282	4266	5728	5716	5700
1428	1456	1428	1416	1400	2864	2852	2836	4300	4288	4272	5736	5724	5708
1430	1458	1430	1418	1402	2868	2856	2840	4306	4294	4278	5744	5732	5716
1432	1460	1432	1420	1404	2872	2860	2844	4312	4300	4284	5752	5740	5724
1434	1462	1434	1422	1406	2876	2864	2848	4318	4306	4290	5760	5748	5732
1436	1464	1436	1424	1408	2880	2868	2852	4324	4312	4296	5768	5756	5740
1438	1466	1438	1426	1410	2884	2872	2856	4330	4318	4302	5776	5764	5748
1440	1468	1440	1428	1412	2888	2876	2860	4336	4324	4308	5784	5772	5756
1442	1470	1442	1430	1414	2892	2880	2864	4342	4330	4314	5792	5780	5764
1444	1472	1444	1432	1416	2896	2884	2868	4348	4336	4320	5800	5788	5772
1446	1474	1446	1434	1418	2900	2888	2872	4354	4342	4326	5808	5796	5780
1448	1476	1448	1436	1420	2904	2892	2876	4360	4348	4332	5816	5804	5788
1450	1478	1450	1438	1422	2908	2896	2880	4366	4354	4338	5824	5812	5796
1452	1480	1452	1440	1424	2912	2900	2884	4372	4360	4344	5832	5820	5804
1454	1482	1454	1442	1426	2916	2904	2888	4378	4366	4350	5840	5828	5812
1456	1484	1456	1444	1428	2920	2908	2892	4384	4372	4356	5848	5836	5820
1458	1486	1458	1446	1430	2924	2912	2896	4390	4378	4362	5856	5844	5828
1460	1488	1460	1448	1432	2928	2916	2900	4396	4384	4368	5864	5852	5836
1462	1490	1462	1450	1434	2932	2920	2904	4402	4390	4374	5872	5860	5844
1464	1492	1464	1452	1436	2936	2924	2908	4408	4396	4380	5880	5868	5852
1466	1494	1466	1454	1438	2940	2928	2912	4414	4402	4386	5888	5876	5860
1468	1496	1468	1456	1440	2944	2932	2916	4420	4408	4392	5896	5884	5868
1470	1498	1470	1458	1442	2948	2936	2920	4426	4414	4398	5904	5892	5876
1472	1500	1472	1460	1444	2952	2940	2924	4432	4420	4404	5912	5900	5884

Value drawn on by Ping command	MTU	Packets											
		5			6			7			8		
		Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	
	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	
1252	1280	6292	6280	6264	7552	7540	7524	8812	8800	8784	10072	10060	10044
1254	1282	6302	6290	6274	7564	7552	7536	8826	8814	8798	10088	10076	10060
1256	1284	6312	6300	6284	7576	7564	7548	8840	8828	8812	10104	10092	10076
1258	1286	6322	6310	6294	7588	7576	7560	8854	8842	8826	10120	10108	10092
1260	1288	6332	6320	6304	7600	7588	7572	8868	8856	8840	10136	10124	10108
1262	1290	6342	6330	6314	7612	7600	7584	8882	8870	8854	10152	10140	10124
1264	1292	6352	6340	6324	7624	7612	7596	8896	8884	8868	10168	10156	10140
1266	1294	6362	6350	6334	7636	7624	7608	8910	8898	8882	10184	10172	10156
1268	1296	6372	6360	6344	7648	7636	7620	8924	8912	8896	10200	10188	10172
1270	1298	6382	6370	6354	7660	7648	7632	8938	8926	8910	10216	10204	10188
1272	1300	6392	6380	6364	7672	7660	7644	8952	8940	8924	10232	10220	10204
1274	1302	6402	6390	6374	7684	7672	7656	8966	8954	8938	10248	10236	10220
1276	1304	6412	6400	6384	7696	7684	7668	8980	8968	8952	10264	10252	10236
1278	1306	6422	6410	6394	7708	7696	7680	8994	8982	8966	10280	10268	10252
1280	1308	6432	6420	6404	7720	7708	7692	9008	8996	8980	10296	10284	10268
1282	1310	6442	6430	6414	7732	7720	7704	9022	9010	8994	10312	10300	10284
1284	1312	6452	6440	6424	7744	7732	7716	9036	9024	9008	10328	10316	10300
1286	1314	6462	6450	6434	7756	7744	7728	9050	9038	9022	10344	10332	10316
1288	1316	6472	6460	6444	7768	7756	7740	9064	9052	9036	10360	10348	10332
1290	1318	6482	6470	6454	7780	7768	7752	9078	9066	9050	10376	10364	10348
1292	1320	6492	6480	6464	7792	7780	7764	9092	9080	9064	10392	10380	10364
1294	1322	6502	6490	6474	7804	7792	7776	9106	9094	9078	10408	10396	10380
1296	1324	6512	6500	6484	7816	7804	7788	9120	9108	9092	10424	10412	10396
1298	1326	6522	6510	6494	7828	7816	7800	9134	9122	9106	10440	10428	10412
1300	1328	6532	6520	6504	7840	7828	7812	9148	9136	9120	10456	10444	10428
1302	1330	6542	6530	6514	7852	7840	7824	9162	9150	9134	10472	10460	10444
1304	1332	6552	6540	6524	7864	7852	7836	9176	9164	9148	10488	10476	10460
1306	1334	6562	6550	6534	7876	7864	7848	9190	9178	9162	10504	10492	10476
1308	1336	6572	6560	6544	7888	7876	7860	9204	9192	9176	10520	10508	10492
1310	1338	6582	6570	6554	7900	7888	7872	9218	9206	9190	10536	10524	10508
1312	1340	6592	6580	6564	7912	7900	7884	9232	9220	9204	10552	10540	10524
1314	1342	6602	6590	6574	7924	7912	7896	9246	9234	9218	10568	10556	10540
1316	1344	6612	6600	6584	7936	7924	7908	9260	9248	9232	10584	10572	10556
1318	1346	6622	6610	6594	7948	7936	7920	9274	9262	9246	10600	10588	10572
1320	1348	6632	6620	6604	7960	7948	7932	9288	9276	9260	10616	10604	10588
1322	1350	6642	6630	6614	7972	7960	7944	9302	9290	9274	10632	10620	10604
1324	1352	6652	6640	6624	7984	7972	7956	9316	9304	9288	10648	10636	10620
1326	1354	6662	6650	6634	7996	7984	7968	9330	9318	9302	10664	10652	10636
1328	1356	6672	6660	6644	8008	7996	7980	9344	9332	9316	10680	10668	10652
1330	1358	6682	6670	6654	8020	8008	7992	9358	9346	9330	10696	10684	10668
1332	1360	6692	6680	6664	8032	8020	8004	9372	9360	9344	10712	10700	10684
1334	1362	6702	6690	6674	8044	8032	8016	9386	9374	9358	10728	10716	10700
1336	1364	6712	6700	6684	8056	8044	8028	9400	9388	9372	10744	10732	10716
1338	1366	6722	6710	6694	8068	8056	8040	9414	9402	9386	10760	10748	10732
1340	1368	6732	6720	6704	8080	8068	8052	9428	9416	9400	10776	10764	10748
1342	1370	6742	6730	6714	8092	8080	8064	9442	9430	9414	10792	10780	10764
1344	1372	6752	6740	6724	8104	8092	8076	9456	9444	9428	10808	10796	10780
1346	1374	6762	6750	6734	8116	8104	8088	9470	9458	9442	10824	10812	10796
1348	1376	6772	6760	6744	8128	8116	8100	9484	9472	9456	10840	10828	10812
1350	1378	6782	6770	6754	8140	8128	8112	9498	9486	9470	10856	10844	10828
1352	1380	6792	6780	6764	8152	8140	8124	9512	9500	9484	10872	10860	10844
1354	1382	6802	6790	6774	8164	8152	8136	9526	9514	9498	10888	10876	10860
1356	1384	6812	6800	6784	8176	8164	8148	9540	9528	9512	10904	10892	10876
1358	1386	6822	6810	6794	8188	8176	8160	9554	9542	9526	10920	10908	10892
1360	1388	6832	6820	6804	8200	8188	8172	9568	9556	9540	10936	10924	10908
1362	1390	6842	6830	6814	8212	8200	8184	9582	9570	9554	10952	10940	10924
1364	1392	6852	6840	6824	8224	8212	8196	9596	9584	9568	10968	10956	10940
1366	1394	6862	6850	6834	8236	8224	8208	9610	9598	9582	10984	10972	10956
1368	1396	6872	6860	6844	8248	8236	8220	9624	9612	9596	11000	10988	10972
1370	1398	6882	6870	6854	8260	8248	8232	9638	9626	9610	11016	11004	10988
1372	1400	6892	6880	6864	8272	8260	8244	9652	9640	9624	11032	11020	11004
1374	1402	6902	6890	6874	8284	8272	8256	9666	9654	9638	11048	11036	11020
1376	1404	6912	6900	6884	8296	8284	8268	9680	9668	9652	11064	11052	11036
1378	1406	6922	6910	6894	8308	8296	8280	9694	9682	9666	11080	11068	11052
1380	1408	6932	6920	6904	8320	8308	8292	9708	9696	9680	11096	11084	11068
1382	1410	6942	6930	6914	8332	8320	8304	9722	9710	9694	11112	11100	11084
1384	1412	6952	6940	6924	8344	8332	8316	9736	9724	9708	11128	11116	11100
1386	1414	6962	6950	6934	8356	8344	8328	9750	9738	9722	11144	11132	11116
1388	1416	6972	6960	6944	8368	8356	8340	9764	9752	9736	11160	11148	11132

Value drawn on by Ping command	MTU	Packets											
		5			6			7			8		
		Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	Packet Size	
	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	FEC disabled	RFC compatible	Extended	
1390	1418	6982	6970	6954	8380	8368	8352	9778	9766	9750	11176	11164	11148
1392	1420	6992	6980	6964	8392	8380	8364	9792	9780	9764	11192	11180	11164
1394	1422	7002	6990	6974	8404	8392	8376	9806	9794	9778	11208	11196	11180
1396	1424	7012	7000	6984	8416	8404	8388	9820	9808	9792	11224	11212	11196
1398	1426	7022	7010	6994	8428	8416	8400	9834	9822	9806	11240	11228	11212
1400	1428	7032	7020	7004	8440	8428	8412	9848	9836	9820	11256	11244	11228
1402	1430	7042	7030	7014	8452	8440	8424	9862	9850	9834	11272	11260	11244
1404	1432	7052	7040	7024	8464	8452	8436	9876	9864	9848	11288	11276	11260
1406	1434	7062	7050	7034	8476	8464	8448	9890	9878	9862	11304	11292	11276
1408	1436	7072	7060	7044	8488	8476	8460	9904	9892	9876	11320	11308	11292
1410	1438	7082	7070	7054	8500	8488	8472	9918	9906	9890	11336	11324	11308
1412	1440	7092	7080	7064	8512	8500	8484	9932	9920	9904	11352	11340	11324
1414	1442	7102	7090	7074	8524	8512	8496	9946	9934	9918	11368	11356	11340
1416	1444	7112	7100	7084	8536	8524	8508	9960	9948	9932	11384	11372	11356
1418	1446	7122	7110	7094	8548	8536	8520	9974	9962	9946	11400	11388	11372
1420	1448	7132	7120	7104	8560	8548	8532	9988	9976	9960	11416	11404	11388
1422	1450	7142	7130	7114	8572	8560	8544	10002	9990	9974	11432	11420	11404
1424	1452	7152	7140	7124	8584	8572	8556	10016	10004	9988	11448	11436	11420
1426	1454	7162	7150	7134	8596	8584	8568	10030	10018	10002	11464	11452	11436
1428	1456	7172	7160	7144	8608	8596	8580	10044	10032	10016	11480	11468	11452
1430	1458	7182	7170	7154	8620	8608	8592	10058	10046	10030	11496	11484	11468
1432	1460	7192	7180	7164	8632	8620	8604	10072	10060	10044	11512	11500	11484
1434	1462	7202	7190	7174	8644	8632	8616	10086	10074	10058	11528	11516	11500
1436	1464	7212	7200	7184	8656	8644	8628	10100	10088	10072	11544	11532	11516
1438	1466	7222	7210	7194	8668	8656	8640	10114	10102	10086	11560	11548	11532
1440	1468	7232	7220	7204	8680	8668	8652	10128	10116	10100	11576	11564	11548
1442	1470	7242	7230	7214	8692	8680	8664	10142	10130	10114	11592	11580	11564
1444	1472	7252	7240	7224	8704	8692	8676	10156	10144	10128	11608	11596	11580
1446	1474	7262	7250	7234	8716	8704	8688	10170	10158	10142	11624	11612	11596
1448	1476	7272	7260	7244	8728	8716	8700	10184	10172	10156	11640	11628	11612
1450	1478	7282	7270	7254	8740	8728	8712	10198	10186	10170	11656	11644	11628
1452	1480	7292	7280	7264	8752	8740	8724	10212	10200	10184	11672	11660	11644
1454	1482	7302	7290	7274	8764	8752	8736	10226	10214	10198	11688	11676	11660
1456	1484	7312	7300	7284	8776	8764	8748	10240	10228	10212	11704	11692	11676
1458	1486	7322	7310	7294	8788	8776	8760	10254	10242	10226	11720	11708	11692
1460	1488	7332	7320	7304	8800	8788	8772	10268	10256	10240	11736	11724	11708
1462	1490	7342	7330	7314	8812	8800	8784	10282	10270	10254	11752	11740	11724
1464	1492	7352	7340	7324	8824	8812	8796	10296	10284	10268	11768	11756	11740
1466	1494	7362	7350	7334	8836	8824	8808	10310	10298	10282	11784	11772	11756
1468	1496	7372	7360	7344	8848	8836	8820	10324	10312	10296	11800	11788	11772
1470	1498	7382	7370	7354	8860	8848	8832	10338	10326	10310	11816	11804	11788
1472	1500	7392	7380	7364	8872	8860	8844	10352	10340	10324	11832	11820	11804

I-8. STB3/HDMA-4000 Browser Specifications

This section describes the browser specifications for STB3 and HDMA-4000. The HTML menus are different between STB3 and HDMA-4000, but all other browser specifications are same.

I-8-1. Supported functions

HTML 4.01, XHTML 1.0, XHTML Basic, Compact HTML
 Style Sheet CSS Level 1 (sub set), CSS Level 2 (sub set)
 JavaScript 1.5

I-8-2. Supported HTML tags

Category	Element	Attribute	Notes	
Structure	html			
	head			
	title			
	meta		Only supports http-equiv="refresh"	
	body	id		
		class		
		style		
		background		
		bgcolor		
		text		
		link		
		vlink		
		marginewidth		
		margineheight		
	div	id		
		class		
		style		
		align		Only supports left,center,right.
	span	id		
		class		
style				
h1,h2,h3,h4,h5,h6	id			
	class			
	style			
	align		Only supports left,center,right.	
address	id			
	class			
	style			
Text	em	id		
		class		
		style		
	strong	id		
		class		
		style		
	dfn	id		
		class		
		style		

Category	Element	Attribute	Notes
Text	code	id	
		class	
		style	
	samp	id	
		class	
		style	
	kbd	id	
		class	
		style	
	var	id	
		class	
		style	
	cite	id	
		class	
		style	
	abbr	id	
		class	
		style	
	acronym	id	
		class	
		style	
	blockquote	id	
		class	
		style	
	q	id	
		class	
		style	
sub	id		
	class		
	style		
sup	id		
	class		
	style		
p	id		
	class		
	style		
	align	Only supports left,center,right.	
br	clear		
pre	id		
	class		
	style		
ins	id		
	class		
	style		
del	id		
	class		
	style		
Lists	ul	id	
		class	
		style	
		type	

Category	Element	Attribute	Notes
Lists	ol	id	
		class	
		style	
		type	
		start	
	li	id	
		class	
		style	
		type	
		value	
	dl	id	
		class	
		style	
	dt	id	
		class	
		style	
	dd	id	
		class	
		style	
	dir	id	
		class	
style			
menu	id		
	class		
	style		
Tables	table	id	
		class	
		style	
		width	
		border	
		frame	
		cellspacing	
		cellpadding	
		align	
		bgcolor	
		background	
		bordercolor	
	height		
	caption	id	
		class	
		style	
		align	Only supports top,bottom.
	thead	id	
		class	
		style	
		align	Only supports left,center,right.
valign		Only supports top,middle,bottom.	

Category	Element	Attribute	Notes
Tables	tfoot	id	
		class	
		style	
		align	Only supports left,center,right/
		valign	Only supports top,middle,bottom.
	tbody	id	
		class	
		style	
		align	Only supports left,center,right.
		valign	Only supports top,middle,bottom.
	colgroup	id	
		class	
		style	
		span	
		width	
		align	Only supports left,center,right.
		valign	Only supports top,middle,bottom.
	col	id	
		class	
		style	
		span	
width			
align		Only supports left,center,right.	
valign		Only supports to,middle,bottom.	
tr	id		
	class		
	style		
	align	Only supports left,center,right.	
	valign	Only supports top,middle,bottom.	
	bgcolor		
	height		

Category	Element	Attribute	Notes
Tables	th	id	
		class	
		style	
		rowspan	
		colspan	
		align	Only supports left,center,right.
		valign	Only supports top,middle,bottom.
		nowrap	
		bgcolor	
		width	
		height	
		background	
		td	id
	class		
	style		
	rowspan		
	colspan		
	align		Only supports left,center,right.
	valign		Only supports top,middle,bottom.
	nowrap		
bgcolor			
width			
height			
background			
Links	a		id
		class	
		style	
		name	
		href	
		target	
		accesskey	
		shape	
		coords	
		link	href
	type		Only text/css are valid.
	rel		Only stylesheet is valid.
	media		Loads stylesheet when it's screen, tv, handheld, all.
	base	href	
		target	

Category	Element	Attribute	Notes
Images	img	id	
		class	
		style	
		src	
		alt	
		name	
		height	
		width	
		usemap	
		ismap	
		align	
		border	
		hspace	
vspace			
Objects	object	id	
		class	
		style	
		data	Only supports image/jpeg,image/gif, image/png.
		type	Only supports image/jpeg,image/gif, image/png.
		height	
		width	
		usemap	
		align	
		border	
		hspace	
vspace			
Image Maps	map	name	
	area	shape	
		coords	
		href	
		target	
Style Sheets	style	type	Only supports text/css.
	center	id	
		class	
style			
Fonts	tt	id	
		class	
		style	
	big	id	
		class	
		style	
	small	id	
		class	
		style	
	strike	id	
		class	
		style	
	s	id	
		class	
		style	

Category	Element	Attribute	Notes
Fonts	u	id	
		class	
		style	
	font	id	
		class	
		style	
		size	
	basefont	color	
		size	
	Rules	hr	id
class			
style			
align			
noshade			
size			
width			
color			
Frames	frameset	rows	
		cols	
		border	
		bordercolor	
		frameborder	
	frame	name	
		src	
		marginwidth	
		marginheight	
	noframes		
	iframe	id	
		class	
		style	
		name	
		src	
frameborder			
marginwidth			
marginheight			
align			
height			
width			
hspace			
vspace			
Forms	form	id	
		class	
		style	
		action	
		method	
		enctype	
		target	

Category	Element	Attribute	Notes
Forms	input	id	
		class	
		style	
		type	If type is text or password, only 0-9 can be input.
		name	
		value	
		checked	
		disabled	
		readonly	
		size	
		maxlength	
		src	
	accesskey		
	button	id	
		class	
		style	
		name	
		value	
		type	
		disabled	
		accesskey	
	select	id	
		class	
		style	
		name	
		size	
		disabled	
	option	selected	
		value	
	textarea		0-9 can be input.
		id	
		class	
		style	
name			
rows			
cols			
disabled			
readonly			
label	id		
	class		
	style		
fieldset	id		
	class		
	style		
legend	id		
	class		
	style		

Category	Element	Attribute	Notes
Script	script	type	
		language	
		src	
		charset	
	noscript		
Vender Extensions	blink	id	
		class	
		style	
	marquee	id	
		class	
		style	
		behavior	
		bgcolor	
		direction	Only left,right are valid.
		height	
		loop	
		width	
	nobr	id	
		class	
style			

■ I-8-3. Supported stylesheet

Category	Property	Notes
Box model	margin-top	
	margin-right	
	margin-bottom	
	margin-left	
	margin	
	padding-top	
	padding-right	
	padding-bottom	
	padding-left	
	padding	
	border-top-width	
	border-right-width	
	border-bottom-width	
	border-left-width	
	border-width	
	border-top-color	
	border-right-color	
	border-bottom-color	
	border-left-color	
	border-color	
	border-top-style	
	border-right-style	
	border-bottom-style	
	border-left-style	
	border-style	
	border-top	
	border-right	
	border-bottom	
	border-left	
	border	
Visual formatting model	display	
	position	
	top	
	left	
	right	
	float	
	clear	
	width	
	height	
	vertical-align	
Visual effects	visibility	
Generated contents, automatic numbering, and lists	list-style-type	
	list-style-image	
	list-style-position	
	list-style	

Category	Property	Notes
Colors and Backgrounds	color	
	background-color	
	background-image	
	background-repeat	
	background-position	
	background	
Fonts	font-size	
	font	Only supports font-size.
Text	text-indent	
	text-align	
	text-decoration	
Selector	universal	
	descendant	
	child	
	adjacent sibling	
	@Rules	@import

■ I-8-4. Supported JavaScript

Category	Object	Property, Method
Core	Global	NaN
		Infinity
		undefined
		eval(x)
		parseInt(string,radix)
		parseFloat(string)
		isNaN(number)
		isFinite(number)
		decodeURI(encodeURI)
		decodeURIComponent(encodeURIComponent)
		encodeURIComponent(uri)
		encodeURIComponent(encodeURIComponent)
		escape("string")
		unescape(string)
	Object	Object([value])
		new Object([value])
		prototype
		constructor
		toString()
		toLocaleString()
	Function	valueOf()
		Function(p1,p2,...pn,body)
		new Function(p1,p2,...pn,body)
		prototype
		constructor
		length
		arguments
		arguments.length
		toString()
		apply(thisArg,argArray)
		call(thisArg[,arg1[,arg2,...]])
	valueOf()	

Category	Object	Property, Method
Core	Array	Array([item0,[item1,[...]])
		new Array([item0,[item1,[...]])
		new Array(len)
		prototype
		constructor
		length
		index
		input
		toString()
		toLocaleString()
		concat([item1,[item2,[...]])
		join(separator)
		pop()
		push([item1,[item2,[...]])
		reverse()
		shift()
		slice(start,end)
		sort(comparefn)
		splice(start,deleteContent,[item1,[item2,[...]])
		unshift([item1,[item2,[...]])
		valueOf()
	String	String([value])
		new String([value])
		prototype
		constructor
		length
		fromCharCode([char0,[char1,[...]])
		toString()
		valueOf()
		charAt(pos)
		charCodeAt(pos)
		concat([string1,[string2,[...]])
		indexOf(searchString,position)
		lastIndexOf(searchString,position)
		localCompare(that)
		match(regex)
		replace(searchValue,replaceValue)
		search(regex)
		slice(start,end)
		split(separator,limit)
		substring(start,end)
		toLowerCase()
		toLocaleLowerCase()
		toUpperCase()
		toLocaleUpperCase()
		substr(start,length)

Category	Object	Property, Method
Core	Boolean	Boolean(value)
		new Boolean(value)
		prototype
		constructor
		toString()
		valueOf()
	Math	E
		LN10
		LN2
		LOG2E
		LOG10E
		PI
		SQRT1_2
		SQRT2
		abs(x)
		acos(x)
		asin(x)
		atan(x)
		atan2(y,x)
		ceil(x)
		cos(x)
		exp(x)
		floor(x)
		log(x)
		max([value1[,value2[,...]])
		min([value1[,value2[,...]])
		pow(x,y)
		random()
		round(x)
		sin(x)
		sqrt(x)
		tan(x)
	Date	Date(year[,month[,date[,hours[,minutes[,seconds[,ms]]]]])
		new Date(year[,month[,date[,hours[,minutes[,seconds[,ms]]]]])
		new Date(value)
		new Date()
		prototype
		constructor
		parse(string)
		UTC(year[,month[,date[,hours[,minutes[,seconds[,ms]]]]])

■ I-8-5. Available font size

Size	pt	px
1	10	12
2	11	14
3	12	16
4	15	19
5	17	22
6	20	26
7	24	31

Bold, italic settings are ignored.

If you specify a size other than those listed above, the system uses the next smaller available size.

If you specify a size smaller than the minimum size, the system uses the minimum size.

■ I-8-6. Transparency

On STB3, if you specify the value below as the color for an HTML, the value is treated as the "24bitARGB" value listed in the tables below.

Value	24bitARGB value	Value	24bitARGB value
#000001	00000000	#000106	40ffff00
#000002	40555555	#000107	40ffffff
#000003	40aaaaaa	#000200	80000000
#000004	80555555	#000201	800000ff
#000005	80aaaaaa	#000202	8000ff00
#000006	c0555555	#000203	8000ffff
#000007	c0aaaaaa	#000204	80ff0000
#000100	40000000	#000205	80ff00ff
#000101	400000ff	#000206	80ffff00
#000102	4000ff00	#000207	80ffffff
#000103	4000ffff	#000300	c0000000
#000104	40ff0000	#000301	c00000ff
#000105	40ff00ff	#000302	c000ff00

■ I-8-7. HTML menu (STB3 only)

On the STB3 menu mode, HTML is used as a menu. On the HTML menu, with operations from the remote controller, you can move HTML pages and display contents. Once playback finishes, the previous screen (before playback) is displayed again. (Ticker and clock are displayed on the foreground of the HTML display.)

HTML can be used as a menu only when it is displayed in full screen. The HTML in a SMIL cannot work as a menu. While this function is available only in STB3 menu mode, it is also available when an HTML is displayed by redirect. This function cannot be used in the channel mode of STB3 or HDMA-4000.

■ I-8-8. Text input (HTML menu only)

The HTML menu allows you to input with <input type=text> or <input type=password>. However, note that you can input only numeric letters (0 – 9).

When the text input on the HTML menu is focused, pressing the numeric buttons (0-9) on the remote controller adds the letter at the end of the text. Pressing the CANCEL button on the remote controller deletes the last letter of the text.

■ I-8-9. Access key (HTML menu only)

On the HTML menu, you can allocate the 0-9, *, # keys to each form as the access keys. However, when the text input is focused, and as 0 – 9 keys are used for text input, they cannot work as the access keys.

I-9. Redirect Function

On STB3, HDMA-4000, SWT3-DS and SWT3, you can use the redirect function to send commands such as stop, pause, resume playback or jump to another start time. To send commands to each terminal, use the ActiveX method of MEDIAEDGE-SVS3, RedirectByName, or RedirectByAddr.

Below are the available commands:

Command	Description
"URL"	Plays the contents specified by a URL.
x-cmd:play	Displays contents.
x-cmd:stop	Stops playback.
x-cmd:pause	Pauses playback.
x-cmd:resume	Resumes playback.
x-cmd:forwardjump	Jumps forward.
x-cmd:backwardjump	Jumps backward.
x-cmd:jump?starttime="START TIME"	Jumps to a specified Start Time.

On STB3, HDMA-4000 and SWT3-DS, you can add "#" at the end of a command to specify its parameter. To specify multiple parameters, delimit each parameter with "&." Unavailable parameters are ignored.

When no parameter is specified, the default value is applied.

* SWT3-DS does not support x-cmd other than x-cmd:stop. SWT3 does not support the redirect function with the parameters specified.

■ I-9-1. "URL"

■ "URL"

Plays the contents specified by a URL.

Supported parameter

Parameter name	Default value		Description
x	Video	0	x-coordinate of the top-left corner of the display region. The left edge is 0 (240 for 4:3) and the right edge is 1919(1679 for 4:3).
	Image	0	
	FLASH	0	
	Ticker	0	
	HTML	0	
y	Video	0	y-coordinate of the top-left corner of the display region. The top of the region is 0 and the bottom is 1079.
	Image	0	
	FLASH	0	
	Ticker	940	
	HTML	0	
width	Video	1920	Width of the display region. The maximum value is 1920 (1440 for 4:3).
	Image	1920	
	FLASH	1920	
	Ticker	1920	
	HTML	1920	
height	Video	1080	Height of the display region. The maximum value is 1080.
	Image	1080	
	FLASH	1080	
	Ticker	90	
	HTML	1080	
repeat	1		Number of repeats. Specify 0 or leave blank to repeat playback infinitely.
reload	0		Whether or not the file is downloaded again when repeated playback of a ticker starts. 0: Is not downloaded again. 1: Is downloaded again.
speed	10		Scrolling speed of the ticker text. Specify the number of pixels for the ticker to move for 1/60 seconds. The minimum value is 2.
direction	left		Scrolling method of the ticker text. Choose either left, right, up, or down.
fontsize	80		Size (height pixel) of the ticker text.
color	0xFFFFFFFF		Font color (RGB) of the ticker text.
bgcolor	0x80000000		Background color (ARGB) of the ticker text.
rotate	Image	0	Rotation of the font of the ticker or the image. Choose either 0, 90, 180, or 270.
	Ticker	0	
stretch	0		Whether or not the image is enlarged to fill the region to display. 0: Is not enlarged (preserves the original aspect ratio). 1: Is enlarged (to match the region).
quality	2		Quality of FLASH. Choose either 0 (low), 1 (medium), or 2 (high).

Parameter name	Default value	Description
volume	50	Adjusts the left/right volume. Specify a value between 0 and 74. 50 corresponds to 0dB. The unit of measurement is dB. The specified value is saved.
volume_l	50	Adjusts the left volume. The range of the valid value is the same as that of "volume." The specified value is saved.
volume_r	50	Adjusts the right volume. The range of the valid value is the same as that of "volume." The specified value is saved.
tvolume	50	Adjusts the left/right volume. Plays back only contents that have been redirected in the specified volume. When playback finishes, the volume returns to the original value.
region	None	ID of the layout that is targeted by commands.

* Coordinates in the list such as x, y, width, height are the values of STB3 and HDMA-4000. Those of SWT3-DS vary depending on the PC resolution.

Based on the type of contents to redirect, available parameters differ. Invalid parameters are ignored.

Below are the types of contents and valid parameters.

Parameter name	Video	Image	FLASH	Audio	Ticker	HTML	SMIL
x	○	○	○	×	○	○*	×
y	○	○	○	×	○	○*	×
width	○	○	○	×	○	○*	×
height	○	○	○	×	○	○*	×
repeat	○	×	×	○	○	×	×
reload	×	×	×	×	○	×	×
speed	×	×	×	×	○	×	×
direction	×	×	×	×	○	×	×
fontsize	×	×	×	×	○	×	×
color	×	×	×	×	○	×	×
bgcolor	×	×	×	×	○	×	×
rotate	×	○	×	×	○	×	×
stretch	×	○	×	×	×	×	×
quality	×	×	○	×	×	×	×
volume	○	×	×	○	×	×	×
volume_l	○	×	×	○	×	×	×
volume_r	○	×	×	○	×	×	×
tvolume	○	×	×	○	×	×	×
region	○	○	○	○	○	○	×

* These parameters are ignored in Menu Mode of STB3.

When a display region is specified, the aspect ratio is preserved. (The content is scaled down so that it can be displayed in the region.)

The supported schemes are rtsp:~, http:~, file:~ (HDMA-4000, SWT3-DS only). file:~ is used to play back local files stored in the HDD of HDMA-4000 or SWT3-DS.

As SWT3 plays only videos, it does not support "http:~."

The general principles to identify content type are:

- ◆ The content type identifies as a video if the URL scheme is rtsp.
- ◆ The content type identifies according to the extension if the URL scheme is not rtsp.

Content type	Extension
Video	any (use rtsp scheme)
Image	jpg, jpeg, png, gif, bmp
FLASH	swf
Audio	wav, mp3
Ticker	text, txt, RSS, xml
HTML	html, htm, asp
SMIL	smil

Example)

To play "Content01" stored on the mediaedge-svr server.

rtsp://mediaedge-svr/Content01

To display "test.txt" stored on the mediaedge-svr as a ticker, in the region (0, 400, 960, 140).

http://mediaedge-svr/sample/telop/test.txt#x=0&y=400&width=960&height=140

■ I-9-2. x-cmd:play

■ x-cmd:play

Executes the DISPLAY procedures on the object specified by "player-id." Currently displays only clock.

Supported parameters

Parameter name	Default value	Description
player-id	Cannot be omitted.	Application ID for the target of the commands. Only "clock" can be specified.
x	910	x-coordinate of the top-left corner of the display region. The left edge is 0 (240 for 4:3) and the right edge is 1919(1679 for 4:3).
y	80	y-coordinate of the top-left corner of the display region. The top of the region is 0 and the bottom is 1079.
width	730	Width of the display region. The maximum value is 1920 (1440 for 4:3).
height	80	Height of the display region. The maximum value is 1080.
fixwidth	30	Character width.
fontsize	60	Font size (Height)
color	0xffffffff	Font color (ARGB)
bgcolor	0x90000000	Background color (ARGB)
datefmt	2	Style of date. Valid only when "clock" is set to "player-id." Specify any of the following. 0: None 1: Not available 2: "yyyy/mm/dd" 3: "mm/dd/yy" 4: "mm/dd/yy"
wdnamefmt	2	Style of the day of week. Valid only when "clock" is set to "player-id." Specify any of the following. 0: None 1: Not available 2: Display in abbreviation. Example: "Tue"
timefmt	2	Style of time. Specify any of the following. 0: None 1: "hh:mm:ss" 2: "hh:mm:ss"

NOTES

If "player-id" does not exist or if a value other than "clock" is specified, this command is ignored.
 Not available on SWT3 or SWT3-DS.

Example)

To display clock in the region (100, 100, 500, 50).

x-cmd:play#player-id=clock&x=100&y=100&width=500&height=50

■ I-9-3. x-cmd:stop

■ **x-cmd:stop**

Executes STOP procedures on the object specified by "player-id." This command stops contents that have been played by the redirect function, hides the clock, and stops the ticker.

Supported parameters

Parameter name	Default value	Description
player-id	None	Object ID for the target of the commands. Specify either of the following. clock: clock ticker: ticker
region	None	Specifies the layout ID for the target of the commands. When not specified, the entire screen is regarded as a target.

NOTES

Leaving "player-id" unspecified stops the contents that have been played by the redirect function.
 Because tickers and clocks are displayed independently of other contents, if you want to hide them, you must issue individual commands.
 The SWT3 supports stopping only content playback that has been redirected.

■ I-9-4. x-cmd:pause

■ **x-cmd:pause**

Executes the PAUSE procedures on the object specified by "player-id." Available for contents and tickers that have been played by using the redirect function.

Supported parameters

Parameter name	Default value	Description
player-id	None	Object ID for the target of the commands. Only "ticker" can be specified.

NOTES

Leaving "player-id" unspecified pauses the contents that have been played by the redirect function. Not available for content that has been played in a region with layout.
 The SWT3 supports pausing only content playback that has been redirected.
 Not available on SWT3-DS.

■ I-9-5. x-cmd:resume

■ **x-cmd:resume**

Executes the RESUME PLAYBACK procedures on the object specified by "player-id." Available for the contents and tickers that have been played by using the redirect function.

Supported parameters

Parameter name	Default value	Description
player-id	None	Object ID for the target of the commands. Only "ticker" can be specified.

NOTES

Leaving "player-id" unspecified resumes playback of the contents that have been played by the redirect function. Not available for content that has been played in a region with layout. The SWT3 supports resuming only content playback that has been redirected. Not available on SWT3-DS.

■ I-9-6. x-cmd:forwardjump

■ **x-cmd:forwardjump**

Jumps forward by the specified duration. Not available on SWT3-DS.

■ I-9-7. x-cmd:backwardjump

■ **x-cmd:backwardjump**

Jumps backward by the specified duration. Not available on SWT3-DS.

■ I-9-8. x-cmd:jump?starttime="START TIME"

■ **x-cmd:jump?starttime="START TIME"**

Jumps to a specified start time. Specify "seconds" for a start time that consists of an integer number and decimal number. Not available on SWT3-DS.

I-10. SMIL Specifications

■ I-10-1. Understanding SMIL

MEDIAEDGE-STB3/HDMA-4000/MEDIAEDGE-SWT3 DS supports an XML-compliant tag language called SMIL (Synchronized Multimedia Integration Language). Prepare an SMIL file where each layout and associated playback schedule are described. Playing the SMIL file on the STB3 causes the multiple contents to be displayed.

The SMIL file that MEDIAEDGE supports is the subset of SMIL2.0 Basic Profile, and is the text file with the character code of utf-8.

■ I-10-2. SMIL file configuration

Below are the configuration of the SMIL file.

```
<smil xmlns="http://www.w3.org/2001/SMIL20/Language">
  <!--Describe the layout to use.-->
  <head>
    <layout>
      <root-layout width="1920" height="1080" />
      <region id="rgn_1" top="200" left="100" width="1024" height="768" z-index="1" />
      <region id="rgn_2" top="100" left="1000" width="640" height="480" z-index="2" />
      <region id="rgn_3" top="500" left="1100" width="600" height="400" z-index="2" />
      <region id="rgn_4" top="900" left="100" width="1800" height="100" z-index="1" />
    </layout>
  </head>
  <!--Specify media objects to play.-->
  <body>
    <par>
      <!--Region 1-->
      <seq>
        <video src="video_sample_01.m2t" region="rgn_1" begin="00:00:00" end="02:00:00" />
        <video src="video_sample_02.m2t" region="rgn_1" begin="00:00:00" end="03:00:00" />
        
      </seq>
      <!--Region 2-->
      <seq>
        
        
        <video src="video_sample_03.m2t" region="rgn_2" begin="00:00:00" end="05:00:00" />
      </seq>
      <!--Region 3-->
      <animation src="flash_sample.swf" region="rgn_3" begin="01:00:00" end="03:30:00" />
      <!--Region 4-->
      <seq>
        <textstream src="ticker_sample_01.txt" region="rgn_4" begin="00:00:00" end="02:30:00" />
        <textstream src="ticker_sample_02.txt" region="rgn_4" begin="02:00:00" end="05:00:00" />
      </seq>
    </par>
  </body>
</smil>
```

Generally, a SMIL file consists of a header part and a body part.

On the header part, information on the layout to display is described, with the tags categorized in "Layout" category.

On the body part, information on the media displayed on the layout specified in the "Header" part and the timing and method of the display are described with the tags categorized in "Timing and Synchronization" or "Media Object" categories.

■ I-10-3. Redirect to each layout

Normally, each layout defined in the layout section in an SMIL file displays the media according to the description in the body part. However, the redirect function allows you to control the media to display on each layout, from the external devices.

To perform the redirect function on the layout defined in an SMIL file, add the target layout ID to the end of the redirect URL.

Example)

To perform redirect on the video playback on a layout whose ID is "rgn_1."
 rtsp://mediaedge-svr/content01#region=rgn_1

To stop the media display on the layout whose ID is "rgn_1."
 x-cmd:stop#region=rgn_1

Once the display of the media that has been redirected finishes, the system returns to execution of the content display defined in the body part in an SMIL file.

■ I-10-4. Simultaneous content playback on each player

Supported contents

Device name	Video	Audio	Image	Flash	HTML	Ticker
STB3	Either 1 of them		1	1	1	1
SWT3	Not supported					
SWT3-DS	4	4	16	4	4	2
HDMA-4000	Either 1 of them		1	1	1	1

■ I-10-5. Limitations on Z order

On SWT3-DS, contents are displayed in the Z order specified.

The following limitations apply to STB3 and HDMA-4000.

- Video is always displayed in the background.
- Ticker is always displayed in the foreground.

■ I-10-6. Layout

On SWT3-DS, contents are displayed dot-by-dot with the upper-left corner used as the origin point. Therefore, when a value different from the resolution of the PC is specified to the root layout of SMIL, the whole screen may not be displayed or part of the screen may be displayed in black. The root layout for STB3 and HDMA-4000 is a fixed value of 1920 x 1080.

■ I-10-7. Supported SMIL tags

Category	Element	Attribute	Description
Structure	smil		Declares an SMIL file.
		xmlns	Defines XML namespace. Specify a fixed value "http://www.w3.org/2001/SMIL20Language."
	head		Defines a layout. Elements of the Layout category are used.
	body		Defines the playback and synchronization method of the media objects. Tags of "Timing and Synchronization" category and "Media Object" category are used.
Layout	layout		Defines a layout. <root-layout> and <region> are used under <layout>.
	root-layout		Defines the entire display screen.
		id	Specify a unique ID with a string to specify the entire screen as a region.
		height	Specify the height of the region of the entire screen in pixels.
		width	Specify the width of the region of the entire screen in pixels.
	region		Defines the region to configure layouts.
		id	Specify a unique ID with a string to specify a region.
		height	Specify the height of the region in pixels.
		width	Specify the width of the region in pixels.
		left	Specify the left edge of the region in pixels.
		top	Specify the top edge of the region in pixels.
		z-index	Specify the z-order of the region in natural number.
Timing and Synchronization	seq		Defines a group to play multiple objects in order (of the description).
	par		Defines a group to play multiple objects simultaneously.
Media Object	animation		Defines the playback information on FLASH.
		region	Specify a region to display. Describe a region ID defined in <layout> elements.
		src	Specifies the URI for FLASH to play.
		dur	Specifies the playback duration. *1
		begin	Specifies the playback start time. *1 *2
		end	Specifies the playback end time. *1 *2
		repeatCount	Specifies the number of repeats. *3
		repeatDur	Specifies the duration of the loop playback. *3

Category	Element	Attribute	NOTES
Media Object	audio		Defines the playback information on audio clip.
		region	Specify a region to display. Describe a region ID defined in <layout> elements.
		src	Defines the URI for the audio clip.
		dur	Specifies the playback duration. *1
		begin	Specifies the playback start time. *1 *2
		end	Specifies the playback end time. *1 *2
		repeatCount	Specifies the number of repeats. *3
		repeatDur	Specifies the duration of the loop playback. *3
	img		Defines the playback information on image.
		region	Specify a region to display. Describe a region ID defined in <layout> elements.
		src	Defines the URI for the image.
		dur	Specifies the playback duration. *1
		begin	Specifies the playback start time. *1 *2
		end	Specifies the playback end time. *1 *2
		repeatCount	Specifies the number of repeats. *3
		repeatDur	Specifies the duration of the loop playback. *3
	text		Defines the playback information on HTML file.
		region	Specify a region to display. Describe a region ID defined in <layout> elements.
		src	Specifies the URI for the HTML file.
		dur	Specifies the playback duration. *1
		begin	Specifies the playback start time. *1 *2
		end	Specifies the playback end time. *1 *2
		repeatCount	Specifies the number of repeats. *3
		repeatDur	Specifies the duration of the loop playback. *3
	textstream		Defines the playback information on ticker text.
		region	Specify a region to display. Describe a region ID defined in <layout> elements.
		src	Defines the URI for the ticker text.
		dur	Specifies the playback duration. *1
		begin	Specifies the playback start time. *1 *2
		end	Specifies the playback end time. *1 *2
		repeatCount	Specifies the number of repeats. *3
		repeatDur	Specifies the duration of the loop playback. *3
	video		Defines the playback information on video clip.
region		Specify a region to display. Describe a region ID defined in <layout> elements.	
src		Defines the URI for the video clip.	
dur		Specifies the playback duration. *1	
begin		Specifies the playback start time. *1 *2	
end		Specifies the playback end time. *1 *2	
repeatCount		Specifies the number of repeats. *3	
repeatDur		Specifies the duration of the loop playback. *3	

- *1 The accuracy of [dur], [begin], and [end] is to 1 second. The style of time is "00:00:00", "0.0h", "0.0min", or "0.0s." "indefinite" is not supported. Also note that when both [dur] and [end] are specified, the one that happens earlier has precedence, and its attribute value is used. (The other value is ignored.)
- *2 [begin] is the elapsed time from the end time of the previous media object (not necessarily a material). [end] is the elapsed time from [begin].
- *3 The accuracy of [repeatDur] is to 1 second. The style of time is "00:00:00", "0.0h", "0.0min", or "0.0s." "indefinite" is not supported. Also note that when both [repeatCount] and [repeatDur] are specified, the one that happens earlier has precedence, and its attribute value is used. (The other value is ignored.) When [end] is specified, both [repeatCount] and [repeatDur] are ignored.

I-11. SNMP Information

MEDIAEDGE-STB3, MEDIAEDGE-LSB and HDMA-4000 support SNMP. (MEDIAEDGE-LEB60 does not support SNMP.) Below are the expansion MIBs for each product:

■ I-11-1. MEDIAEDGE-STB3 expansion MIB

Expansion MIB structures for MEDIAEDGE-STB3 are as follows:

```

+--enterprises(1) - canopus(26095) - canopusplr(1) - mediaedge-stb3(1)
|
+--plrTraps(0)
| |
| | +--plrTrapBoot(1)
| | +--plrTrapShutdown(2)
| | +--plrTrapBrowserHttpError(3)
| | +--plrTrapBrowserErrorPage(4)
| | +--plrTrapNoPacketsRecv(5)
| | +--plrTrapDecoderReset(6)
| | +--plrTrapLateRtpPacket(7)
| | +--plrTrapExcessPacketLoss(8)
|
+--plrObjects(1)
| |
| | +--plrShutdown(1)
| | |
| | | +-- -RW- EnumVal   plrShutdownPoweroff(1)
| | | |           Textual Convention: TruthValue
| | | |           Values: true(1), false(2)
| | | +-- -RW- EnumVal   plrShutdownReboot(2)
| | | |           Textual Convention: TruthValue
| | | |           Values: true(1), false(2)
| |
| | +--plrFirmware(2)
| | |
| | | +-- -RW- String    plrFirmwareUri(1)
| | | |           Textual Convention: DisplayString
| | | |           Size: 0..255
| | | +-- -R-- String    plrFirmwareStatus(2)
| | | |           Textual Convention: DisplayString
| | | |           Size: 0..255
| | | +-- -RW- EnumVal   plrFirmwareAllowDowngrade(3)
| | | |           Textual Convention: TruthValue
| | | |           Values: true(1), false(2)
| |
| | +--plrInfo(3)
| | |
| | | +--plrSystem(1)
| | | |
| | | | +-- -R-- String    plrSystemType(1)
| | | | |           Textual Convention: DisplayString
| | | | |           Size: 0..255
| | | | +-- -R-- String    plrSystemVersion(1)
| | | | |           Textual Convention: DisplayString
| | | | |           Size: 0..255
| | | | +-- -R-- IpAddr    plrSystemIP(3)
| | | | +-- -R-- String    plrSystemMAC(4)
| | | | |           Textual Convention: DisplayString
| | | | |           Size: 0..255
| | | | +-- -R-- IpAddr    plrSystemSubnet(5)

```

```

| | +-- -R-- IpAddr   plriSystemGateway(6)
| | +-- -R-- IpAddr   plriSystemDNS1(7)
| | +-- -R-- IpAddr   plriSystemDNS2(8)
| |
| | +--plriPlayer(20)
| | |
| | | +-- -R-- String   plriPlayerVideo(1)
| | | |           Textual Convention: DisplayString
| | | |           Size: 0..255
| | | +-- -R-- String   plriPlayerVideoEDID(2)
| | | |           Size: 0..1280
| | |
| | | +--plriPlayerStatusTable(20)
| | | |
| | | | +--plriPlayerStatusEntry(1)
| | | | |           Index: plriPlayerStatusIndex
| | | | |
| | | | | +-- ---- Integer32 plriPlayerStatusIndex(1)
| | | | | |           Range: 0..65535
| | | | | +-- -R-- String   plriPlayerStatusName(2)
| | | | | |           Textual Convention: DisplayString
| | | | | |           Size: 0..255
| | | | | +-- -R-- String   plriPlayerStatusValue(3)
| | | | | |           Textual Convention: DisplayString
| | | | | |           Size: 0..255
| | | |
| | | +-- -R-- Integer32 plriPlayerStatusCount(21)
| |
| | +--plrConfig(4)
| | |
| | | +--plrConfigTable(1)
| | | |
| | | | +--plrConfigEntry(1)
| | | | |           Index: plrConfigIndex
| | | | |
| | | | | +-- ---- Integer32 plrConfigIndex(1)
| | | | | |           Range: 0..65535
| | | | | +-- -R-- String   plrConfigName(2)
| | | | | |           Textual Convention: DisplayString
| | | | | |           Size: 0..255
| | | | | +-- -RW- String   plrConfigValue(3)
| | | | | |           Textual Convention: DisplayString
| | | | | |           Size: 0..255
| | | | | +-- -R-- Integer32 plrConfigFlag(4)
| | | |
| | | | +-- -R-- Integer32 plrConfigCount(2)
| | | | +-- -RW- EnumVal   plrConfigNeedSave(3)
| | | | |           Textual Convention: TruthValue
| | | | |           Values: true(1), false(2)
| | | | +-- -R-- EnumVal   plrConfigNeedReboot(4)
| | | | |           Textual Convention: TruthValue
| | | | |           Values: true(1), false(2)
| | |
| | | +--plrAction(5)
| | | |
| | | | +-- -RW- String   plrActionVolume(1)
| | | | |           Textual Convention: DisplayString
| | | | |           Size: 0..255
| | | | +-- -RW- String   plrActionRedirect(2)
| | | | |           Textual Convention: DisplayString
| | | | |           Size: 0..255

```



```

+-- -RW- EnumVal   plrConfigNeedSave(3)
|   Textual Convention: TruthValue
|   Values: true(1), false(2)
+-- -R-- EnumVal   plrConfigNeedReboot(4)
|   Textual Convention: TruthValue
|   Values: true(1), false(2)

```

■ I-11-3. HDMA-4000 expansion MIB

Expansion MIB structures for HDMA-4000 (firmware version 3.1.3) are as follows:

```

+--enterprises(1) - canopus(26095) - canopusplr(1) - hdma-4000(2)
|
|--plrTraps(0)
| |
| | +--plrTrapBoot(1)
| | +--plrTrapShutdown(2)
| | +--plrTrapBrowserHttpError(3)
| | +--plrTrapBrowserErrorPage(4)
| | +--plrTrapNoPacketsRecv(5)
| | +--plrTrapDecoderReset(6)
| | +--plrTrapLateRtpPacket(7)
| | +--plrTrapExcessPacketLoss(8)
|
|--plrObjects(1)
| |
| | +--plrShutdown(1)
| | |
| | | +-- -RW- EnumVal   plrShutdownPoweroff(1)
| | | |   Textual Convention: TruthValue
| | | |   Values: true(1), false(2)
| | | +-- -RW- EnumVal   plrShutdownReboot(2)
| | | |   Textual Convention: TruthValue
| | | |   Values: true(1), false(2)
| |
| | +--plrFirmware(2)
| | |
| | | +-- -RW- String     plrFirmwareUrl(1)
| | | |   Textual Convention: DisplayString
| | | |   Size: 0..255
| | | +-- -R-- String     plrFirmwareStatus(2)
| | | |   Textual Convention: DisplayString
| | | |   Size: 0..255
| | | +-- -RW- EnumVal   plrFirmwareAllowDowngrade(3)
| | | |   Textual Convention: TruthValue
| | | |   Values: true(1), false(2)
| |
| | +--plrInfo(3)
| | |
| | | +--plrIriSystem(1)
| | | |
| | | | +-- -R-- String     plriSystemType(1)
| | | | |   Textual Convention: DisplayString
| | | | |   Size: 0..255
| | | | +-- -R-- String     plriSystemVersion(2)
| | | | |   Textual Convention: DisplayString
| | | | |   Size: 0..255
| | | | +-- -R-- IpAddr     plriSystemIP(3)
| | | | +-- -R-- String     plriSystemMAC(4)
| | | | |   Textual Convention: DisplayString
| | | | |   Size: 0..255
| | | | +-- -R-- IpAddr     plriSystemSubnet(5)

```

```

| | +-- -R-- IpAddr   plriSystemGateway(6)
| | +-- -R-- IpAddr   plriSystemDNS1(7)
| | +-- -R-- IpAddr   plriSystemDNS2(8)
| |
| | +--plriPlayer(20)
| | |
| | | +-- -R-- String   plriPlayerVideo(1)
| | | |           Textual Convention: DisplayString
| | | |           Size: 0..255
| | | +-- -R-- String   plriPlayerVideoEDID(2)
| | | |           Size: 0..1280
| | |
| | | +--plriPlayerStatusTable(20)
| | | |
| | | | +--plriPlayerStatusEntry(1)
| | | | |       Index: plriPlayerStatusIndex
| | | | |
| | | | | +-- ---- Integer32 plriPlayerStatusIndex(1)
| | | | | |       Range: 0..65535
| | | | | +-- -R-- String   plriPlayerStatusName(2)
| | | | | |       Textual Convention: DisplayString
| | | | | |       Size: 0..255
| | | | | +-- -R-- String   plriPlayerStatusValue(3)
| | | | | |       Textual Convention: DisplayString
| | | | | |       Size: 0..255
| | | |
| | | +-- -R-- Integer32 plriPlayerStatusCount(21)
| |
| | +--plrConfig(4)
| | |
| | | +--plrConfigTable(1)
| | | |
| | | | +--plrConfigEntry(1)
| | | | |       Index: plrConfigIndex
| | | | |
| | | | | +-- ---- Integer32 plrConfigIndex(1)
| | | | | |       Range: 0..65535
| | | | | +-- -R-- String   plrConfigName(2)
| | | | | |       Textual Convention: DisplayString
| | | | | |       Size: 0..255
| | | | | +-- -RW- String   plrConfigValue(3)
| | | | | |       Textual Convention: DisplayString
| | | | | |       Size: 0..255
| | | | | +-- -R-- Integer32 plrConfigFlag(4)
| | | |
| | | +-- -R-- Integer32 plrConfigCount(2)
| | | +-- -RW- EnumVal   plrConfigNeedSave(3)
| | | |       Textual Convention: TruthValue
| | | |       Values: true(1), false(2)
| | | +-- -R-- EnumVal   plrConfigNeedReboot(4)
| | | |       Textual Convention: TruthValue
| | | |       Values: true(1), false(2)
| |
| | +--plrAction(5)
| | |
| | | +-- -RW- String   plrActionVolume(1)
| | | |       Textual Convention: DisplayString
| | | |       Size: 0..255
| | | +-- -RW- String   plrActionRedirect(2)
| | | |       Textual Convention: DisplayString
| | | |       Size: 0..255

```

■ I-11-4. Description on expansion MIB items

Expansion MIB items are described below.

■ plrTraps

TRAP issued by a device.

Item	Description
plrTrapBoot	TRAP issued as soon as the device starts up.
plrTrapShutdown	TRAP issued when the device shuts down.
plrTrapBrowserHttpError	TRAP issued when the browser receives an HTTP status code 4xx or 5xx.
plrTrapBrowserErrorPage	TRAP issued when the browser displays the internal error page.
plrTrapNoPacketsRecv	TRAP issued when the incoming RTP packet breaks more than 1 second.
plrTrapDecoderReset	TRAP issued when the decoder is reset.
plrTrapLateRtpPacket	TRAP issued when an RTP packet is delayed.
plrTrapExcessPacketLoss	TRAP issued when the rate of packet loss surpasses the threshold.

Currently only SNMPv2 is available for TRAP.

■ plrShutdown

Category for shutdown and reboot of the devices.

Item	Description
plrShutdownPoweroff	When set to 1, the unit is powered off.
plrShutdownReboot	When set to 1, the unit is rebooted.

■ plrFirmware

Category for updating the firmware.

Item	Description
plrFirmwareUrl	Set a URL for the firmware to update. When a value is set, the firmware starts updating.
plrFirmwareAllowDowngrade	Set to 1 to downgrade.
plrFirmwareStatus	The update status of the firmware is set.

■ **plrInfo**

Category for the device information [plrSystem] and [plrPlayer].

◆ **plrSystem**

Item	Description
plrSystemType	Type of system
plrSystemVersion	System version
plrSystemIP	IP address
plrSystemMAC	MAC address
plrSystemSubnet	Subnet mask
plrSystemGateway	Gateway address
plrSystemDNS1	Primary DNS address
plrSystemDNS2	Secondary DNS address

◆ **plrPlayer**

Item	Description
plrPlayerVideo	Current video output mode
plrPlayerVideoEDID	EDID of the monitor connected
plrPlayerStatusTable	Table on the status of the device. Table items are as follows: plrPlayerStatusIndex: Index plrPlayerStatusName: Parameter name plrPlayerStatusValue: Parameter value
plrPlayerStatusCount	Number of the items in plrPlayerStatusTable.

■ **plrConfig**

Category for setting and acquiring various configurations.

Item	Description
plrConfigTable	Settings information. Table items are as follows: plrConfigIndex: Index plrConfigName: Setting item name plrConfigValue: Setting item value plrConfigFlag: Flag that indicates if rebooting is required
plrConfigCount	Number of the items in plrConfigTable.
plrConfigNeedSave	When the value of the setting item in plrConfigTable is modified, it is set to 1. When you change the value to 2, the settings take effect on the device.
plrConfigNeedReboot	Once the settings take effect on the device, if this device is set to 1, you must reboot the device.

■ **plrAction**

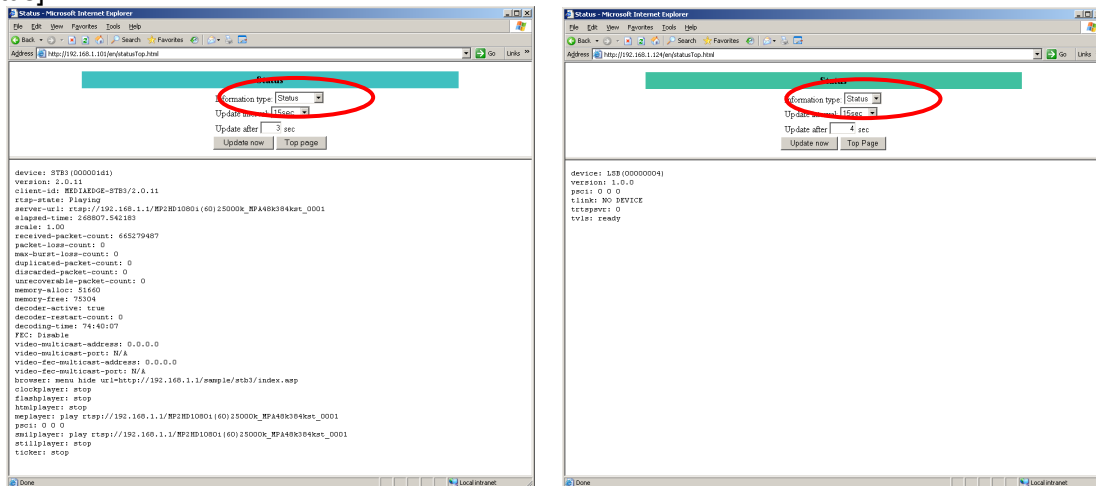
Category for the operations to the device.

Item	Description
plrActionVolume	Modifies the volume. Specify the left and right volumes (example: "50 50"). To change only one of the volumes, set the volume that you don't want to change to ".".
plrActionRedirect	Executes redirect.

I-12. Status Display of STB3 and LSB

On MEDIAEDGE-STB3 and MEDIAEDGE-LSB, you can display the operation status and versions of each device unit from the Web console.

To check the status on each device unit, open the Web console and set the [Information type] to [Status].



MEDIAEDGE-STB3(left) and MEDIAEDGE-LSB(right) Status screen

The status items that can be acquired are as follows:

■ I-12-1. MEDIAEDGE-STB3 Status list

Name	Description
device	Identifier for the device.
version	Firmware version.
client-id	Product name/Firmware version.
rtsp-state	Current RTSP status (Init, Ready, Playing). When an RTSP error occurs or when menu/JPEG is displayed, it says [Init].
server-url	URL that the player is currently playing.
elapsed-time	Current playback position, in seconds.
scale	Current playback speed.
received-packet-count	Total RTP packets received from the start of the RTSP session. Packet count of the RTP media (video and audio). FEC packets are not included. Up to $2^{32}-1$ (=4294967295) packets can be counted, after which the count returns to 0. The packet is not counted during PAUSE. When an RTSP session starts, the counter is reset.
packet-loss-count	Accumulated number of RTP packet losses from the start of the RTSP session. When a break in the sequence_number of RTP packets occurs, the number of RTP packets lost is counted. However, packet loss that continues beyond 65536 may not be properly counted. Up to $2^{32}-1$ (=4294967295) packets can be counted, after which the count returns to 0. The packet is not counted during PAUSE. When an RTSP session starts, the counter is reset.

Name	Description
max-burst-loss-count	The number of the longest burst loss of the RTP packets from the start of the RTSP session. The biggest number of the continual RTP packet losses. The maximum value is 65535. The packet is not counted during PAUSE. When an RTSP session starts, the counter is reset.
duplicated-packet-count	Accumulated number of redundant RTP packet from the start of the RTSP session. When the sequence_number of the RTP packets is redundant, a packet is counted. Up to $2^{32}-1$ (=4294967295) packets can be counted, after which the count returns to 0. The packet is not counted during PAUSE. When an RTSP session starts, the counter is reset.
discarded-packet-count	Accumulated number of refused RTP packets from the start of the RTSP session. It is counted when the sequence_number of the RTP packets moves backward, when RTP packets cannot be stored in the receive buffer, or when duplicated-packet-count is detected. Up to $2^{32}-1$ (=4294967295) packets can be counted, after which the count returns to 0. The packet is not counted during PAUSE. When an RTSP session starts, the counter is reset.
unrecoverable-packet-count	Accumulated number of RTP packet losses that cannot be recovered. When the FEC function is disabled, the value is the same as that of packet-loss-count. When a break in the sequence_number of RTP packets that have been processed with FEC occurs, the number of RTP packets lost is counted. However, packet loss that continues beyond 65536 may not be properly counted. Up to $2^{32}-1$ (=4294967295) packets can be counted, after which the count returns to 0. The packet is not counted during PAUSE. When an RTSP session starts, the counter is reset.
decoder-active	Decoder status. When the elapsed time from when the decoder process was last performed is less than 1 second, decoder is active (true).
decoder-restart-count	The number of the time decoder is restarted (STOP >PLAY). When an RTSP session starts, the counter is reset.
decoding-time	Elapsed time from when the decoder starts playing. When the decoder stops receiving RTP packets, the counter stops (remains the previous value).
FEC	FEC status at the previous play. When the FEC mode is set to "Enable" and the SETUP in the RTSP has FEC settings, the value is "Enable". Otherwise, it's "Disable". When it's Enable, "Number" and "Interval" acquired from the FEC packets are displayed. Until an FEC packet is received for the first time, the values are Number=N/A Interval=N/A. The value is not updated while playback is stopped. (The value is updated next time the playback starts.)
video-multicast-address	Multicast address of the stream. When the stream is stopped or when it is unicast, the value is "0.0.0.0".
video-multicast-port	Stream port number. When the stream is stopped or when it is unicast, the value is "N/A".

Name	Description
browser	String returned by the STATUS command of the browser.
clockplayer	Clock display status.
flashplayer	FLASH display status.
htmlplayer	HTML file display status.
meplayer	RTP media (video and audio) display status.
psci	Remote serial connection status. "Connection IP address", "Send connection status", and "Receive connection status" are displayed.
smilplayer	SMIL file display status.
stillplayer	Image display status.
ticker	Ticker display status.
cpu-load	CPU load status. (STB3 ver2.1.3 & HDMA-4000 ver3.1.3 or later)
memory-free	Current available memory. In KB.
memory-alloc	Current memory used. In KB.

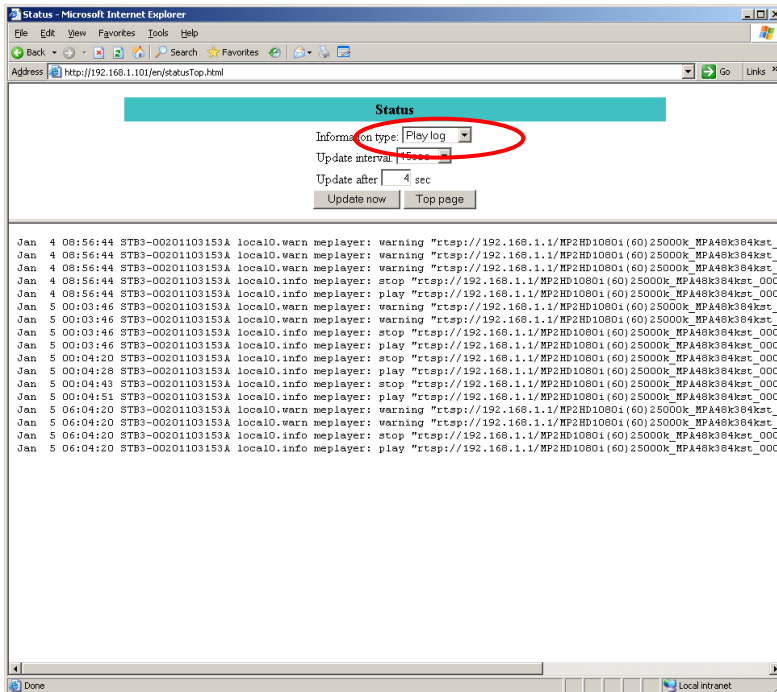
■ I-12-2. MEDIAEDGE-LSB Status list

Name	Description										
device	Identifier for the device.										
version	Firmware version.										
psci	Remote serial connection status. "Connection IP address", "Send connection status", and "Receive connection status" are displayed.										
tlink	IEEE1394 connection status. Status list is below: <table border="1" data-bbox="571 1041 1358 1305"> <tbody> <tr> <td>no device</td> <td>No device is connected with IEEE1394.</td> </tr> <tr> <td>ready</td> <td>IEEE1394 connection exists and is available to deliver.</td> </tr> <tr> <td>busy</td> <td>Delivering data.</td> </tr> <tr> <td>busy(no data)</td> <td>During delivery, data stopped arriving through IEEE1394.</td> </tr> <tr> <td>busy(no device)</td> <td>During delivery, IEEE1394 connection was lost.</td> </tr> </tbody> </table>	no device	No device is connected with IEEE1394.	ready	IEEE1394 connection exists and is available to deliver.	busy	Delivering data.	busy(no data)	During delivery, data stopped arriving through IEEE1394.	busy(no device)	During delivery, IEEE1394 connection was lost.
no device	No device is connected with IEEE1394.										
ready	IEEE1394 connection exists and is available to deliver.										
busy	Delivering data.										
busy(no data)	During delivery, data stopped arriving through IEEE1394.										
busy(no device)	During delivery, IEEE1394 connection was lost.										
trtspsvr	Number of clients in RTSP connection.										
tvls	Delivery status.										

I-13. MEDIAEDGE-STB3 Play Log

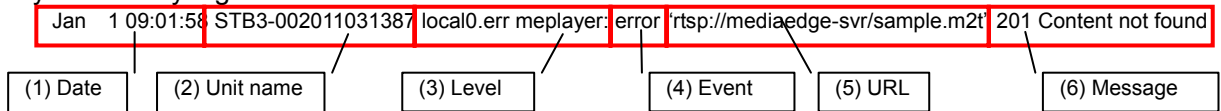
On the MEDIAEDGE-STB3, a log is available to check the playback status and find the cause of any troubles. Although the MEDIAEDGE-STB3 exports several kinds of logs, this section explains the Play log that you can use to check the player operations status.

To access the Play log, open the Status page of each STB and set the [Information type] to [Play log].



STB3 Play log

Style of a Play log is:



Item name	Description
(1) Date	Date and time when the log was recorded. The value of the STB3 internal clock is used for Date/Time.
(2) Unit name	STB3 unit name.
(3) Level	Log level (information, warning, error) and internal player name.
(4) Event	Event that occurred. There are seven events: play, continue (occurs when a seamless playback is performed), stop, pause, resume, error, warning.
(5) URL	URL for the content.
(6) Message	When an error or warning event occurs, error code and description.

Below are some of the error codes:

Error code	Description
100	Internal error
200	Content error
201	Content not found
202	Content not supported
220	Connection failed
221	Server error

I-14. Tips

■ I-14-1. Configuration on displaying SD in 4:3 mode on STB3/HDMA-4000

STB3 and HDMA-4000 operates with the root layout with a fixed value of 1920 x 1080 and with a pixel rate of 1:1.

On STB3 and HDMA-4000, you can connect SD monitors in NTSC/PAL output mode. However, when the content is output to 4:3 monitors, black bars may be displayed at the top and bottom of the screen, or the aspect ratio may be changed.

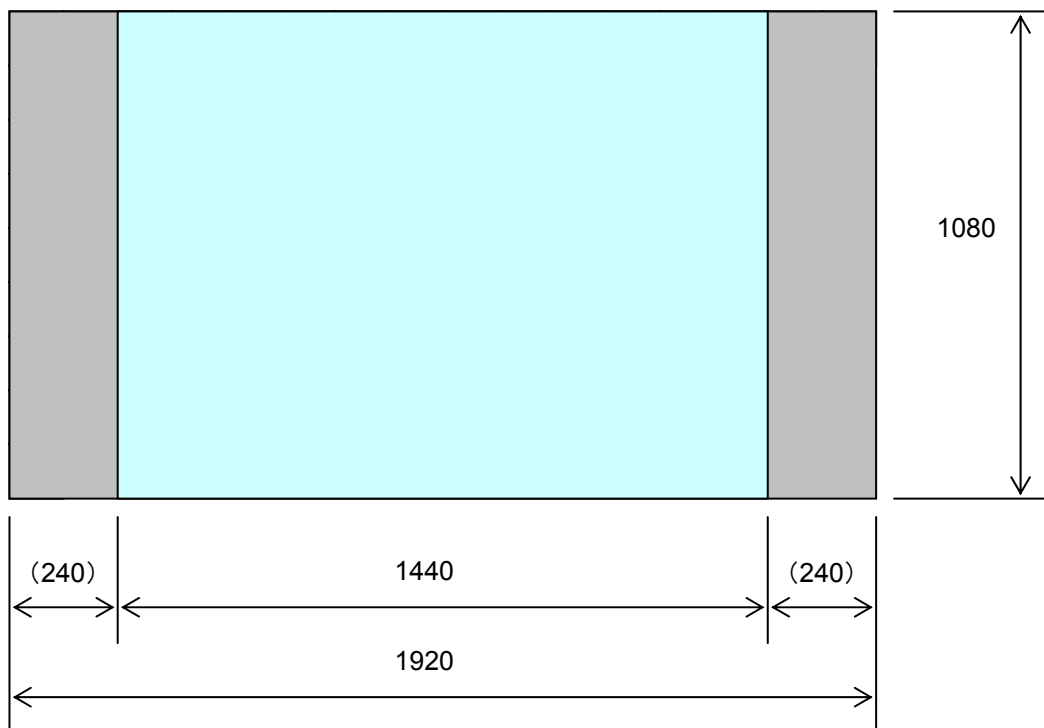
To display contents in full screen on a 4:3 monitor, modify the Monitor settings in the Local Settings of STB3 and HDMA-4000 as follows:

Display mode	SD (NTSC, PAL etc.)
Monitor aspect ratio	4:3
Mode for 4:3 monitor	Panscan

In the illustrations below, a 1440 x 1080 area in the center of the full screen is used to display images.

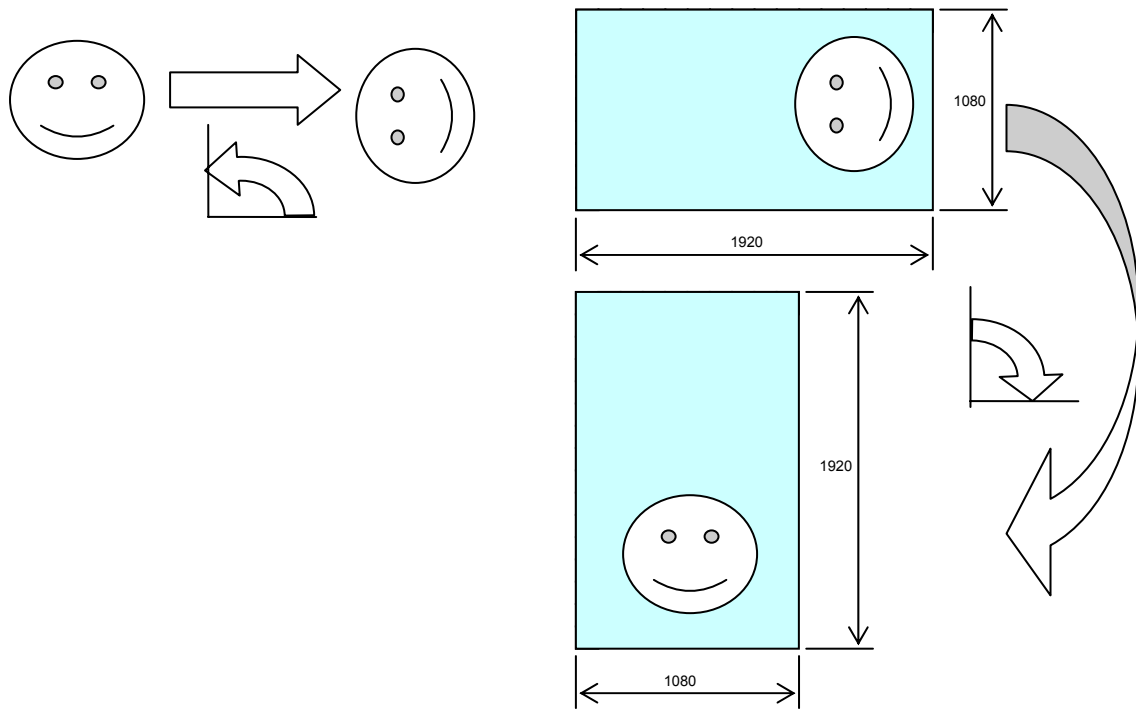
When you display contents without specifying layout, if the contents are video, image, or FLASH material with an aspect ratio of 4.3, they are displayed properly with black bars at the edges. To display other contents, the contents must have been created so as to display properly in the 1440 x 1080 area at the center of the screen.

To use SMIL, specify the region so that it is displayed in the 1440 x 1080 area at the center.



■ I-14-2. Portrait display layout

To use monitors in portrait rather than landscape mode, contents must have been created in the way they are rotated 90 degrees. All the contents must be rotated in the opposite direction of the orientation of the monitor. For tickers, specify the orientation of the tickers and the direction of the scrolling with the URL parameters. This also applies to SMIL.



■ I-14-3. Time (Clock) management

Playback clients for MEDIAEDGE (STB3/HDMA-4000/SWT3/SWT3-DS) have internal clocks. The following table shows how time is managed for each client.

STB3

Schedule playback	According to the MEDIAEDGE server clock (By the schedule delivery function of the MEDIAEDGE-SVS3)
Log	According to the internal clock
Clock display	According to the internal clock

HDMA-4000

Schedule playback	According to the internal clock (Schedule playback by Schedule.txt)
Log	According to the internal clock
Clock display	According to the internal clock

SWT3

Schedule playback	According to the MEDIAEDGE server clock (By the schedule delivery function of the MEDIAEDGE-SVS3)
Log	None
Clock display	None

SWT3-DS

Schedule playback	According to the internal clock (Schedule playback by Schedule.txt)
Log	According to the internal clock
Clock display	None

- * The internal clock of the STB3 is initialized when power to the STB3 is cut off or it is reset.
- * The internal clock of the HDMA-4000 is retained even when power to the HDMA-4000 is cut off, but only for approximately five days. If power is not supplied after that, the clock may be initialized.
- * For the internal clock of the SWT3 and SWT3-DS, the clock function of the PC is applied.

■ I-14-4. Configuring the NTP Server on Windows Server 2003

[How to set up NTP server on a Windows server]

- [1] Modify the registry as follows:
 - Set HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\AnnounceFlags to 5.
 - Set HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Config\AnnounceFlags to 1.
- [2] Restart the service "Windows Time."

Then specify a server IP address to [NTP server] in the Local Settings of STB3/HDMA-4000.

■ I-14-5. Redirecting tickers

■ **Playback of tickers without specifying regions**

Execute redirect, specifying the URI string for a ticker as a location. By specifying parameters, you can specify the position, character color, and speed.

Tickers that have been played are stopped, and the ticker that is redirected is displayed.

Other types of material that have been played are not stopped. When a ticker is played while a video is already playing, the ticker is displayed on the video.

When a SMIL is playing during a redirect playback, the tickers defined in the SMIL file are not played.

If the region of the ticker is not specified, playback of the ticker stops, either when playback of the ticker finishes, when another ticker is directed, or when the ticker is redirected to stop.

■ **During playback of a SMIL**

While a SMIL is played, by redirecting a ticker with RTSP, you can play back a ticker with the region specified.

The ticker is played with the region of the SMIL file currently being played specified. Execute a redirect, adding the string of a region after the URI of a file whose extension is ".txt" or ".xml".

(Ticker URI)#region=(Region name)

By specifying parameters, you can specify the character color and speed.

The tickers and the regions that have been played are stopped, and the ticker that is redirected is displayed. During a playback by redirect, tickers defined in a SMIL file and the region specified by the redirect are not played.

If the region of the ticker is specified, playback of the ticker stops, either when playback of the ticker finishes, when another ticker is redirected, when the ticker is redirected to stop, when a redirect with the same region specified is executed, or when the SMIL finishes.

■ **Stopping, Pausing, Resuming tickers**

To stop, pause, or resume tickers, execute the redirect specifying the following string as the location.

```
x-cmd:stop#player-id=ticker    Stop
x-cmd:pause#player-id=ticker  Pause
x-cmd:resume#player-id=ticker Resume
```

■ I-14-6. Redirecting materials other than tickers

■ Redirect with the region specified

The ticker is played with the region of the SMIL file currently played specified.

Execute a redirect, adding the string of a region after the URI of the materials other than a SMIL file.

(Material URI)#region=(Region name)

During a playback by redirect, the same type of the material defined in a SMIL file and the region specified by the redirect are not played.

If the region of the redirect is specified, playback of the redirect stops, either when playback of the material finishes, when a redirect of the same type of material is executed, when stop is redirected with the region specified, when a redirect with the same region specified is executed, or when the SMIL finishes.

■ Redirect without the region specified

Execute redirect, specifying the URI string for a material as a location.

Playback of the contents other than the ticker whose region is not specified is stopped, and the material that is redirected is displayed in full screen.

When the region is not specified, the content is displayed in full screen. When a SMIL is being played, playback of the SMIL stops and the contents specified by the redirect are played.

Playback stops, either when playback of the material finishes, when another direct is executed, or when stop is redirected.

■ Redirect to stop, pause, or resume playback

To stop, pause, or resume playback, execute the redirect specifying the following string as the location.

x-cmd:stop Stop

x-cmd:pause Pause

x-cmd:resume Resume

Pausing and resuming playback are available only on certain material types (video, audio).

■ I-14-7. Transparency of HTML/Image (STB3, HDMA-4000 only)

On STB3/HDMA-400, video is always displayed on the background. Even when a SMIL is used, video cannot be placed on the HTML or images. To work around this situation, you can create an image or an HTML that has a transparent area in order to show the video through the transparent part.

Transparency of HTML

Specific colors on the HTML can be treated as transparent colors. This function is available only on STB3 and HDMA-4000.

The HTML color codes and the supported colors that can be specified as transparent colors are in the HTML specifications.

Transparency of image

When alpha channel is specified for an image, the image becomes transparent so that the video plane in the background becomes visible."

■ I-14-8. Differences between STB3 and HDMA-4000

[Features of HDMA-4000]

Local playback

HDMA-4000 has a local storage.

Schedule.txt

Equivalent to the "Schedule.xml" on the server

-> Redirect services controls the STB3.

On HDMA-4000, operations are controlled internally.

Serial output supports only schedules.

When operating in redirect, Schedule operations stops.

Remote serial from the server is available on STB3.

■ I-14-9. Checking the availability of the Flash and Ticker

The availability of tickers and Flash varies depending on the models.

■ **To check the availability of tickers:**

Display the availability at "Status" on the Web console as follows.

V-Sync detection:Enable

If you cannot find "V-Sync detection" on the Web Console, the firmware may be outdated.

If the status says "Disable", the unit does not support ticker.

STB3 firmware ver 2.1.3 or later and HDMA-4000 firmware ver 3.1.3 or later support this feature.

■ **To check the availability of Flash:**

Display the availability at "Status" on the Web console as follows.

flash player:stop (Playback status other than "Disable")

If you cannot find "Flash Player" on the Web console, the firmware may be outdated.

If the status says "Disable," the unit does not support Flash.

Limitations

Layout

- Fixed size of 1920x1080 dots is available on HDMA-4000/STB3. Any size between 480x480 dots and 1920x1920 dots is available on SWT3-DS.

- Up to 20 regions are available to place on a layer.

On a layout, up to 1 video region can be placed on STB3 and HDMA-4000. Up to 4 video regions can be placed on SWT3-DS.

Playlist

The duration of a playlist can be between 15 seconds (minimum) and 23 hours 59 minutes 59 seconds (maximum).

Schedule

The duration of a schedule can be between 15 seconds (minimum) and 23 hours 59 minutes 59 seconds (maximum).

Up to 1000 items can be specified in a schedule for a day.

Up to 100 items can be specified in a command schedule for a day.