APPENDIX A

Live Capture and File Format Reference

This appendix lists video formats, audio formats, recommended settings for audio and video codec parameters and capture card settings, and file formats.

When you define a live-capture program, you must set the video format, audio format, data rate, and frame rate parameters to values appropriate to the video capture card and codec (compression/decompression) used by the IP/TV Server that will multicast the program.

Video Formats

Table A-1 lists common live-capture video formats, their approximate bandwidth requirements, application usage, and RTP payload.

Table A-1 Video Formats

Video Format	Bandwidth	Usage	RTP Payload
MPEG4	28 kbps-768 kbps	Good image quality and optimized for low data rates.	Dynamically mapped
H.261	128-1000 kbps	For low motion applications such as video conferencing.	31
MPEG1	500-1500 kbps	Motion picture or comparable VHS-quality video applications.	32
Indeo 4.1	1000-1500 kbps	Picture quality video applications. [1]	Dynamically mapped

Table A-1 Video Formats (continued)

Video Format	Bandwidth	Usage	RTP Payload
MPEG2 Half D1	2-3.5 Mbps	Half D1 offers better quality than MPEG2 Full D1.	32 plus mapped
MPEG2 Full D1	3-6 Mbps	DVD-quality video and optimized for higher data rates.	32 plus mapped

1 This codec only allows you to set a few parameters and ignores any parameter that limits or reduces quality.

Audio Formats

Table A-2 lists available audio formats and their approximate bandwidth requirements and RTP payloads.

Table A-2 Audio Formats

Format	Bandwidth (kbps/sec)	RTP Payload
TrueSpeech 8000 Hz mono	8	Dynamically mapped; 96 or greater
GSM 8000 Hz mono	17	3
DVI 8000 Hz mono	34	5
PCM (μ-law) 8000 Hz mono	66	0
MPEG Layer II	64-384	14
8-bit linear, 8000 Hz mono	66	Dynamically mapped; 96 or greater
8-bit linear, 8000 Hz stereo	132	Dynamically mapped; 96 or greater
8-bit linear 11,025 Hz mono	91	Dynamically mapped; 96 or greater
8-bit linear 11,025 Hz stereo	182	Dynamically mapped; 96 or greater
8-bit linear 22,050 Hz mono	182	Dynamically mapped; 96 or greater
8-bit linear 22,050 Hz stereo	364	Dynamically mapped; 96 or greater
16-bit linear 11,025 Hz mono	182	Dynamically mapped; 96 or greater
16-bit linear 11,025 Hz stereo	364	Dynamically mapped; 96 or greater
16-bit linear 22,050 Hz mono	364	Dynamically mapped; 96 or greater

Table A-2 Audio Formats (continued)

Format	Bandwidth (kbps/sec)	RTP Payload
16-bit linear 22,050 Hz stereo	728	Dynamically mapped; 96 or greater
16-bit linear 44,100 Hz mono	728	11
16-bit linear 44,100 Hz stereo	1456	10

Table A-3 maps several Microsoft ACM codec formats to the corresponding RTP audio payload types transmitted by the IP/TV Server.

Table A-3 Microsoft ACM Codecs

Microsoft ACM Codec	RTP Audio Payload Type
MA ADPCM	DVI4
Microsoft GSM 6.10	GSM
CCITT u-Law	PCM u-Law

Live Capture Parameters

Table A-3 lists the preferred audio format, data rate, video frame rate, and compression of common codecs. These settings are configurable from the Content Manager. Also listed are the preferred source video format and video size, which are set locally on the capture device.

Note These settings are recommendations. The actual frame rate varies depending on system resources and the video source. You may need to adjust the settings slightly for best performance in your environment.

Table A-4 Live Capture Parameters

Codec	Preferred Audio Format	Data Rate (kbps)	Video Frame Rate (FPS)	Compression	Source Video Format	Source Video Size
MPEG4	Truespeech, 8,000 Hz mono	28	10	—	RGB 16 or 24[1]	176x144 or smaller.
	Truespeech, 8,000 Hz mono	56	15	—	RGB 16 or 24[1]	176x144 or smaller.
	GSM	128	15	—	RGB 16 or 24[1]	320x240
	DVI or PCM	256	15	—	RGB 16 or 24[1]	320x 240
	PCM or 8-Bit Linear, 11025 mono	512	30	—	RGB 16 or 24[1]	320x240
	PCM or 8-Bit Linear, 11025 mono	768	30	—	RGB 16 or 24[1]	320x240
H.261	GSM (MBone compatible)	128	10	7	YVU 9 or RGB 15, 16, or 24[1]	176x144 or smaller
	DVI or PCM	256	15	8	YVU 9 or RGB 15, 16, or 24[1]	176x144 or smaller
	PCM or 8-Bit Linear, 11025 Hz, mono	512	30	8	YVU 9 or RGB 15, 16, or 24[1]	176x144 or smaller
	PCM or 8-Bit Linear, 11025 Hz, mono	768	30	8	YVU 9 or RGB 15, 16, or 24[1]	320x240
	PCM or 8-Bit Linear, 11025 Hz, mono	1,000	30	8	YVU 9 or RGB 15, 16, or 24[1]	320x240

Table A-4 Live Capture Parameters (continued)

Codec	Preferred Audio Format	Data Rate (kbps)	Video Frame Rate (FPS)	Compression	Source Video Format	Source Video Size
Indeo 4.1	8-bit linear, 11025 Hz, mono	1500	30	On IP/TV Server, add the following entry to the file iptvserv.ini: `[ServerOptions]: "Compressor=IV41"`	YUV 9 (This codec only works if the capture card supports YUV 9).	320x240
MPEG1	MPEG (64 kbps)[2]	512	24	—	—	352x240[3]
	MPEG (64 kbps)[2]	750	24	—	—	352x240[3]
	MPEG (192 kbps)[2]	1000	30	—	—	352x240[3]
	MPEG	1250	30	—	—	352x240[3]
	MPEG	1500	30	—	—	352x240[3]
MPEG2 Half D1	MPEG	2000, 2500, 3000, or 3500	30	—	—	352 x480[3]
MPEG2 Full D1	MPEG	3000, 3500, 4000, 4500, 5000, 5500, or 6000	30	—	—	704x480[3]

1 Setting the video format to RGB 24 will increase the data rate.

2 To configure the data rate of the MPEG audio format, you must locally reset the capture device. Refer to the "MPEG1 Capture Devices" section in "Administering IP/TV Server" chapter.

3 For NTSC video input only. If the video input is PAL, MPEG1 will be 352 x 288, MPEG2 Full D1 will be 704 x 576, and MPEG2 Half D1 will be 352 x 576.

File Formats

In prerecorded file server mode, IP/TV Server reads from a prerecorded media files and multicasts the audio and video streams over the network. Table A-5 lists and describes these file formats.

Table A-5 File Formats

File Format	Description
.asf[1]	The .asf version 1 format is a container for media streams. Basic.asf includes video, audio, the URL script type for web presentation and marker information. Refer to the "IP/TV and Windows Media Technologies" appendix for more information on ASF files.
.avi[1]	The .avi format can contain video compressed with any Video for Windows codec (such as H.261 Cinepak or Indeo). It can also contain audio compressed with any ACM codec.
.dat	The .dat format contains CD Interactive (CD-I) content which can be video or audio.
mp3	The MP3 format contains audio-only content compressed in the MPEG audio layer III codec.
.mpg	The .mpg format encompasses a family of compression technologies. MPEG1 video produces high quality CD-ROM video, while MPEG2 video, at both half D1 and full D1 resolutions, produces higher quality DVD video at high-bit rates. MPEG audio layers I-III produce high quality audio. Note that Dolby's AC3 audio is not currently supported.
.rtp	The .rtp format includes headers and timing information as well as RTP packet content. It was created by IP/TV to facilitate real-time delivery of audio, video, and SlideCast streams over IP networks.
.wav	The .wav format contains audio-only content compression in any ACM codec.

1 Video streams that require color tables or palettes are not supported.