



## Feature Setup

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The Feature Setup windows let you configure a variety of IP camera features and functions. The following sections describe the Feature Setup windows in detail:

- [Streaming Window, page 4-1](#)
- [Camera Window, page 4-12](#)
- [Video Overlay Window, page 4-15](#)
- [IO Ports Window, page 4-17](#)
- [Alert Notification Window, page 4-18](#)

## Streaming Window

The Streaming window provides options for configuring audio and video streams from the IP camera. You can configure settings for the primary and an optional secondary video stream.

Configuring a secondary stream is useful for providing a video stream that is at a lower resolution than the primary stream to third-party devices or software.

Both streams support H.264 and MJPEG for video, and G.711 A-law and G.711 u-law for audio.

When configuring video streams, be aware of the following guidelines:

- The resolution of the primary stream must be higher than the resolution of the secondary stream.
- You cannot configure a maximum frame rate of 30 for the primary stream if the secondary stream is enabled.
- Multiple secondary frame rates are supported. [Table 4-1](#) shows the frame rate combinations of primary and secondary streams with a 16:9 aspect ratio, and [Table 4-2](#) shows the frame rate combinations of primary and secondary streams with a 4:3 aspect ratio. If a secondary frame rate that is not shown in this table is selected in Cisco Video Surveillance Manager, the IP camera uses the closest available frame rate.



### Note

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If you configure the camera for 768 x 432, 704 x 400, and 352 x 208 resolutions and then downgrade the firmware, the camera might reboot. Before downgrading, change the resolution back to an older resolution.

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Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate	
1280 x 800	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M, 6M, 8M, 10M	—	—	—	
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M, 6M	—	—	—	
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	1024 x 576	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M
				960 x 544	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M
					10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M
				768 x 432	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M
					10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				704 x 400	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
					10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				640 x 368	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
					10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				352 x 208	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
					10, 15	64K, 128K, 256K, 384K, 768K
				320 x 192	1, 3, 5, 6, 8	64K, 128K, 256K, 384K
					10, 15	64K, 128K, 256K, 384K, 768K
				192 x 112	1, 3, 5, 6, 8	64K, 128K, 256K, 384K
10, 15	64K, 128K, 256K					
160 x 96	1, 3, 5, 6, 8	64K, 128K				
	10, 15	64K, 128K, 256K				
				1, 3, 5, 6, 8	64K, 128K	

Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio (continued)

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate	
1280 x 720	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M, 6M, 8M, 10M				
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M, 6M				
	1, 3, 5, 6, 8		64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	1024 x 576	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M
				960 x 544	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M
				768 x 432	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				704 x 400	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				640 x 368	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				352 x 208	10, 15	64K, 128K, 256K, 384K, 768K
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K
				320 x 192	10, 15	64K, 128K, 256K, 384K, 768K
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K
				192 x 112	10, 15	64K, 128K, 256K
					1, 3, 5, 6, 8	64K, 128K
				160 x 96	10, 15	64K, 128K, 256K
					1, 3, 5, 6, 8	64K, 128K

Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio (continued)

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate	
1024 x 576	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M, 6M	1024 x 576	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M	
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M	64K, 128K, 256K, 384K, 768K, 1M, 2M	960 x 544	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M
				768 x 432	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				704 x 400	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				640 x 368	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				352 x 208	10, 15	64K, 128K, 256K, 384K, 768K
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K
				320 x 192	10, 15	64K, 128K, 256K, 384K, 768K
					1, 3, 5, 6, 8	64K, 128K, 256K, 384K
192 x 112	10, 15	64K, 128K, 256K				
	1, 3, 5, 6, 8	64K, 128K				
160 x 96	10, 15	64K, 128K, 256K				
	1, 3, 5, 6, 8	64K, 128K				

Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio (continued)

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate	
960 x 544	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M, 6M	960 x 544	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M	
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M	64K, 128K, 256K, 384K, 768K, 1M, 2M	768 x 432	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				704 x 400	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
					10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				640 x 368	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
					10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				352 x 208	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
					10, 15	64K, 128K, 256K, 384K, 768K
				320 x 192	1, 3, 5, 6, 8	64K, 128K, 256K, 384K
					10, 15	64K, 128K, 256K, 384K, 768K
				192 x 112	1, 3, 5, 6, 8	64K, 128K, 256K, 384K
10, 15	64K, 128K, 256K					
160 x 96	1, 3, 5, 6, 8	64K, 128K				
	10, 15	64K, 128K, 256K				
768 x 432	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	768 x 432	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M	
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	704 x 400	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M	
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	
				10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M	
640 x 368	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M				

Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio (continued)

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate
			352 x 208	1, 3, 5, 6, 8 10, 15 1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M 64K, 128K, 256K, 384K, 768K 64K, 128K, 256K, 384K
			320 x 192	10, 15 1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K 64K, 128K, 256K, 384K
			192 x 112	10, 15 1, 3, 5, 6, 8	64K, 128K, 256K 64K, 128K
			160 x 96	10, 15 1, 3, 5, 6, 8	64K, 128K, 256K 64K, 128K
704 x 400	20, 25, 30 10, 15 1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M 64K, 128K, 256K, 384K, 768K, 1M, 2M 64K, 128K, 256K, 384K, 768K, 1M	704 x 400 640 x 368 352 x 208 320 x 192 192 x 112 160 x 96	10, 15 1, 3, 5, 6, 8 10, 15 1, 3, 5, 6, 8 10, 15 1, 3, 5, 6, 8 10, 15 1, 3, 5, 6, 8 10, 15 1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M 64K, 128K, 256K, 384K, 768K, 1M 64K, 128K, 256K, 384K, 768K, 1M, 2M 64K, 128K, 256K, 384K, 768K, 1M 64K, 128K, 256K, 384K, 768K 64K, 128K, 256K, 384K 64K, 128K, 256K, 384K, 768K 64K, 128K, 256K, 384K 64K, 128K, 256K 64K, 128K 64K, 128K, 256K 64K, 128K
640 x 368	20, 25, 30 10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M 64K, 128K, 256K, 384K, 768K, 1M, 2M	640 x 368	10, 15 1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M 64K, 128K, 256K, 384K, 768K, 1M

Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio (continued)

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	352 x 208	10, 15	64K, 128K, 256K, 384K, 768K
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K
			320 x 192	10, 15	64K, 128K, 256K, 384K, 768K
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K
			192 x 112	10, 15	64K, 128K, 256K
				1, 3, 5, 6, 8	64K, 128K
			160 x 96	10, 15	64K, 128K, 256K
				1, 3, 5, 6, 8	64K, 128K
				10, 15	64K, 128K, 256K
				1, 3, 5, 6, 8	64K, 128K
				10, 15	64K, 128K, 256K
352 x 208	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M	352 x 208	10, 15	64K, 128K, 256K, 384K, 768K
	10, 15	64K, 128K, 256K, 384K, 768K		1, 3, 5, 6, 8	64K, 128K, 256K, 384K
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K	320 x 192	10, 15	64K, 128K, 256K, 384K, 768K
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K
			192 x 112	10, 15	64K, 128K, 256K
			160 x 96	10, 15	64K, 128K, 256K
320 x 192	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M	320 x 192	10, 15	64K, 128K, 256K, 384K, 768K
	10, 15	64K, 128K, 256K, 384K, 768K		1, 3, 5, 6, 8	64K, 128K, 256K, 384K
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K	192 x 112	10, 15	64K, 128K, 256K
				1, 3, 5, 6, 8	64K, 128K
			160 x 96	10, 15	64K, 128K, 256K
				1, 3, 5, 6, 8	64K, 128K
192 x 112	20, 25, 30	64K, 128K, 256K, 384K	192 x 112	10, 15	64K, 128K, 256K
	10, 15	64K, 128K, 256K		1, 3, 5, 6, 8	64K, 128K
	1, 3, 5, 6, 8	64K, 128K	160 x 96	10, 15	64K, 128K, 256K
160 x 96	20, 25, 30	64K, 128K, 256K, 384K	160 x 96	10, 15	64K, 128K
					64K, 128K

**Table 4-1 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 16:9 Aspect Ratio (continued)**

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate
	10, 15	64K, 128K, 256K			1, 3, 5, 6, 8
	1, 3, 5, 6, 8	64K, 128K			

**Table 4-2 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 4:3 Aspect Ratios**

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate
720 x 576	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	720 x 576	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	704 x 576	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				10, 15	64K, 128K, 256K, 384K, 768K, 1M
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K
704 x 576	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	704 x 576	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	352 x 288	10, 15	64K, 128K, 256K, 384K, 768K, 1M
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K
				10, 15	64K, 128K, 256K, 384K, 768K, 1M
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K
720 x 480	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	720 x 480	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	704 x 480	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
				10, 15	64K, 128K, 256K, 384K, 768K, 1M
				1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K



**Table 4-2 Cisco Video Surveillance 3000 Series IP Camera Video Stream Support for 4:3 Aspect Ratios**

Primary (H264)	FPS	Bit Rate	Secondary (H264 or MJPEG)	FPS	Bit Rate
704 x 480	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M, 4M	704 x 480	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M
	10, 15	64K, 128K, 256K, 384K, 768K, 1M, 2M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K, 1M	352 x 240	10, 15	64K, 128K, 256K, 384K, 768K, 1M
352 x 240	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M	352 x 240	10, 15	64K, 128K, 256K, 384K, 768K, 1M
	10, 15	64K, 128K, 256K, 384K, 768K, 1M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K			
352 x 288	20, 25, 30	64K, 128K, 256K, 384K, 768K, 1M, 2M	352 x 288	10, 15	64K, 128K, 256K, 384K, 768K, 1M
	10, 15	64K, 128K, 256K, 384K, 768K, 1M		1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K
	1, 3, 5, 6, 8	64K, 128K, 256K, 384K, 768K			

To display the Streaming window, perform the following steps:

#### Procedure

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- Step 1** From the IP camera user interface, click the **Setup** link.
  - Step 2** Click **Feature Setup** to expand the menu.
  - Step 3** From the Feature Setup menu, click **Streaming**.

The Streaming window appears. If you change any options in this window, you must click the **Save** button to save the changes. If you do not click this button, changes are not retained when you exit the window. The **Save** button appears at the bottom of the window. You might need to scroll down to it.

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Table 4-3 describes the options in the Streaming window.

**Table 4-3 Streaming Window Options**

Option	Description
<b>Current Stream Area</b>	
Stream	Choose the video stream (Stream 1 or Stream 2) to which the configuration settings in the Streaming window apply. Stream 1 is the primary stream, and Stream 2 is the secondary stream.
Enable Stream	Check this check box to cause the IP camera to send audio/video data on the selected stream.
<b>Streaming Area</b>	
<b>Note</b> Each video stream uses its own set of streaming options. The settings shown in the <b>Streaming Area</b> apply to the currently selected stream only.	
RTSP Port	<p>Transmission Control Protocol (TCP) port on which the IP camera receives Real-Time Streaming Protocol (RTSP) commands. You must configure this port if you want to allow third-party devices or software to access video streams from the IP camera.</p> <p>RTSP is a standard for connecting a client to control streaming data over the web.</p> <p>Valid values are 554 and 1024 through 65535. The default port is 554.</p>
Video Source Port	<p>Universal Datagram Protocol (UDP) port on which the IP camera transmits Video Real-Time Transport Protocol (RTP) data.</p> <p>Valid values are even numbers 1024 through 65534. The default port is 1024.</p>
Audio Source Port	<p>UDP port on which the IP camera transmits audio RTP data</p> <p>Valid values are even numbers 1024 through 65534. The default value is 1026.</p>
Max RTP Packet Size	<p>Maximum number of bytes per data packets that are sent in each RTP request.</p> <p>Configure a lower number if you are streaming video to a cell phone that requires smaller data packets.</p> <p>Valid values are 400 through 1400. The default value is 1400.</p>
Enable Multicast	<p>Check this check box to send video and audio data as a multicast stream.</p> <p>When multicast is enabled, the IP camera sends video and audio to the multicast addresses that you designate. Multicast enables several devices to receive the video signal from the IP camera simultaneously.</p>
Multicast Address	Enter the multicast IP address on which the IP camera sends a multicast audio/video stream.
Multicast Video Port	<p>Enter the port on which the IP camera sends a multicast video stream.</p> <p>Valid values are even numbers 1024 through 65532.</p>
Multicast Audio Port	<p>Enter the port on which the IP camera sends a multicast audio stream.</p> <p>Valid values are even numbers 1024 through 65532.</p>

**Table 4-3 Streaming Window Options (continued)**

Option	Description
Time to Live	Enter the number of hops, which specifies the number of network devices that an audio/video stream can pass before arriving at its destination or being dropped.  Valid values are 1 through 255.
<b>Video Area</b>	
<b>Note</b>	Each video stream uses its own set of video options. The settings shown in the <b>Video Area</b> apply to the currently selected stream only.
Video Standard	Choose the system for video transmission: NTSC or PAL.  The setting that you make affects each channel that is enabled.
Video Codec	Choose the codec for video transmission: H.264 or MJPEG. Both options are supported on the primary and secondary streams.
Video Resolution	Choose the resolution for video transmission. The resolutions in this drop-down list depend on the video standard that you selected.
Maximum Frame Rate	Choose the maximum frame rate of the video stream.
Video Quality Control	Choose an option for the video quality of the video stream from the IP camera: <ul style="list-style-type: none"> <li>• <b>Constant Bit Rate</b>—Available for the primary stream only. Specifies that the video stream is output at or close to the constant bit rate that you choose.  You can select one of the Mbps values in the drop-down menu. The default value is 4 Mbps. A higher bit rate provides better video quality but consumes more bandwidth.  You can also select the Customized option to enter a rate within the valid range, depending on resolution and frame rate.</li> <li>• <b>Fixed Quality</b>—Specifies that video is output at a fixed quality, which ranges from Very High to Low. The bit rate may vary to maintain this quality. The default fixed quality is Normal. A higher fixed quality provides better video quality but consumes more bandwidth.</li> </ul> <p>You can use these options to help manage bandwidth use in your network. For example, if the IP camera is focused on an area with little movement, such as an emergency exit, you can configure it with a low fixed quality.</p>
<b>Analog Video Area</b>	
<b>Note</b>	This option applies to the primary stream only.
Enable Analog Video Port	Check this check box if you want the IP camera to enable analog video for installation purposes. To enable analog video, the following settings are required: <ul style="list-style-type: none"> <li>• The primary video stream frame rate must be set to 15 fps or lower.</li> <li>• The secondary video stream must be disabled.</li> </ul>
<b>Audio Area</b>	
Enable Audio	Check this check box if you want to enable audio.

**Table 4-3 Streaming Window Options (continued)**

Option	Description
Audio Codec	<p>Choose the audio codec to use for encoding audio:</p> <ul style="list-style-type: none"> <li>• <b>G.711 A-Law</b>—Encodes 14-bit signed linear PCM samples to logarithmic 8-bit samples.</li> <li>• <b>G.711 u-Law</b>—Encodes 13-bit signed linear PCM samples to logarithmic 8-bit samples.</li> </ul> <p><b>Note</b> The G.711 A-law algorithm provides more quantization levels at lower signal levels whereas the G.711 <math>\mu</math>-law algorithm tends to give more resolution to higher range signals.</p>
Audio Sampling Rate	<i>Display only.</i> Indicates the sampling rate of the audio stream from the IP camera
Audio Resolution	<i>Display only.</i> Indicates the resolution for audio transmission from the IP camera.

## Camera Window

The Camera window provides options for selecting a microphone, making certain video adjustments, exposure control, and configuring the operation of the IP camera day and night filters.

A microphone captures audio at the camera location. This audio is sent to the PC that you use to view video from the IP camera. You can listen to the audio when viewing video in the Camera Video & Control window.

The IP camera day and night filters allow the IP camera to optimize its video image for various lighting conditions. When the IP camera uses its day filter, it is operating in *day mode*. In this mode, the camera displays video images in color. When the IP camera uses its night filter, it is in *night mode*. In this mode, the camera displays video images in black and white.

To display the Camera window, perform the following steps:

### Procedure

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- Step 1** From the IP camera user interface, click the **Setup** link.
  - Step 2** Click **Feature Setup** to expand the menu.
  - Step 3** From the Feature Setup menu, click **Camera**.

The Camera window appears. If you change any options in this window, you must click the **Save** button to save the changes. If you do not click this button, changes are not retained when you exit the window. The **Save** button appears at the bottom of the window. You might need to scroll down to it.

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Table 4-4 describes the options in the Camera window.

Table 4-4 Camera Window Options

Option	Description
<b>Microphone</b>	
Microphone Type	The Cisco IP camera supports only an external microphone. Audio is captured by an optional external microphone, available from third-parties.
<b>Day/Night Filter Area</b>	
<b>Note</b> Cisco 3421v cameras do not support this feature.	
Switch Mode	<p>Choose the day/night mode for the IP camera:</p> <ul style="list-style-type: none"> <li>• <b>Day</b>—IP camera always remains in day mode.</li> <li>• <b>Night</b>—IP camera always remains in night mode.</li> <li>• <b>Auto</b>—IP camera automatically switches between day and night mode based on the lighting condition threshold that you specify.</li> </ul> <p>When the IP camera is in Auto mode, it attempts to avoid frequent or unnecessary changes between day mode and night mode (such as can occur when an IP camera is set up on a street where car headlights could cause constant changes between these modes). When the IP camera detects that a switch from day to night mode might be necessary, it monitors the light level for 10 seconds. If the light level remains below or above the configured Day to Night Threshold for the entire 10 seconds, the IP camera switches modes. Otherwise, the IP camera remains in the current mode.</p> <p>If the IP camera goes through 3 day/night mode transitions within a 60 second period, the camera stops detecting and implementing day/night changes for a period of 5 minutes from the point of the third transition. During these 5 minutes, the IP camera remains in the current day or night mode.</p> <ul style="list-style-type: none"> <li>• <b>Night External</b>—IP camera switches to night mode based on external Input port. It switches to day mode when the external Input port is not in the triggered status. Check the external Input port of “Alarm I/O Ports.” Output port is optional and can be used to trigger devices connected externally.</li> <li>• <b>Night Schedule</b>—IP camera switches to and from Night mode based on the Start and End times. Start Time - Enter the time, in 24 hour format, when camera enters Night mode. End Time - Enter the time, in 24 hour format, when camera exists Night mode.</li> </ul> <p><b>Note</b> If you configure a Night Schedule, make sure that the time on the IP camera is set correctly.</p>
Day to Night Threshold	<p>The Day to Night Threshold option is available only when the Switch Mode is set to Auto. Choose a value that specifies the relative light threshold at which the IP camera switches from day to night mode. A lower value designates that the IP camera switches from day to night mode in brighter conditions. A higher value designated that the IP camera switches modes in darker conditions.</p> <p>The default value is 45.</p>

**Table 4-4 Camera Window Options (continued)**

<b>Option</b>	<b>Description</b>
Night to Day Threshold	<p>The Night to Day Threshold option is available only when the Switch Mode is set to Auto. Choose a value that specifies the relative light threshold at which the IP camera switches from night to day mode. A lower value designates that the IP camera switches from night to day mode in darker conditions. A higher value designated that the IP camera switches modes in lighter conditions.</p> <p>The default value is 85.</p>
Input	<p>The Input option is available only when the Switch Mode is set to Night External. Choose the Input port that is connected an external device that is to trigger the switch to night mode.</p>
Output	<p>Choose the Output port that is connected to an external device that is to be triggered.</p> <p>This option is not when the Switch Mode is set to Day.</p>
Start Time	<p>The Start Time option is available only when the Switch Mode is set to Night Schedule. Enter the time, in 24 hour format, when the camera enables its night filter.</p>
End Time	<p>The Start Time option is available only when the Switch Mode is set to Night Schedule. Enter the time, in 24 hour format, when the camera disables its night filter.</p>
<b>Camera Tamper Area</b>	
Enable camera tamper detection	<p>Check this check box to enable the camera tamper feature.</p> <p>When enabled, this feature causes the IP camera to generate alerts when any of the following events occur and persist for a designated period:</p> <ul style="list-style-type: none"> <li>• The IP camera view is changed</li> <li>• The IP camera view is blocked</li> <li>• The IP camera view is substantially out of focus</li> </ul>
Minimum duration	<p>Enter the minimum length of time that a tamper event persists before a tamper alert is generated. To prevent false alerts, the IP camera waits for this period after detecting a tamper event before it generates an alert. If the tamper event is resolved (the IP camera view is returned to its original setting, the IP camera view blockage is removed, or the IP camera is put back in focus), an alert is not generated.</p> <p>Valid values are 10 to 600 seconds.</p>
Enable Auto Clear Tamper Alert	<p>Check this option to cause the IP camera to clear a tamper alert automatically according to the value that is configured in the Auto Clear Tamper Duration field (see the next row in this table).</p>

**Table 4-4** Camera Window Options (continued)

Option	Description
Auto Clear Tamper Duration	<p>If the Enable Auto Clear Tamper Alert option is enabled, enter the number of minutes after the time that a tamper alert is generated at which the IP camera clears the alert.</p> <p>For example, if you check the Enable Auto Clear Tamper Alert check box and set this Auto Clear Tamper Duration option to 90, the IP camera clears a tamper alert 90 minutes after the alert is generated.</p> <p>Valid values are 5 to 1440 minutes (5 minutes to 24 hours).</p>
<b>Advanced Settings</b>	
Enable Profiling	<p>Check this check box to enable the profiling feature, which automatically applies a profile to the IP camera. A profile is the set of options that you configure in the Picture Adjustment, Exposure Controls, and Advanced Settings areas in the View Video window. You can create separate day and night profiles, which are applied when the camera is in day or night mode, respectively.</p> <p>For detailed information about configuring profiles, see the Camera Settings controls rows in <a href="#">Table 3-1</a>.</p>

## Video Overlay Window

The Video Overlay window provides options for configuring overlay text, an overlay image, or both that appear on the video image in the Camera Video & Control window.

To display the Video Overlay window, perform the following steps:

### Procedure

- 
- Step 1** From the IP camera user interface, click the **Setup** link.
  - Step 2** Click **Feature Setup** to expand the menu.
  - Step 3** From the Feature Setup menu, click **Video Overlay**.

The Video Overlay window appears. If you change any options in this window, you must click the **Save** button to save the changes. If you do not click this button, changes are not retained when you exit the window. The **Save** button appears at the bottom of the window. You might need to scroll down to it.

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[Table 4-5](#) describes the options in the Video Overlay window.

**Table 4-5 Video Overlay Window Options**

Option	Description
<b>Text Overlay Area</b>	
Overlay Placement	Choose whether the text overlay appears at the <b>Top of Image</b> or <b>Bottom of Image</b> . If you configure a placement that overlaps a privacy region, the part of the text that overlaps the privacy region does not appear on the video image.
Enable date/time display	Check this check box to display the time from the internal clock of the IP camera as an overlay on the video image from the IP camera.
Date/Time Alignment in Overlay	Appears if you enable date/time display. Choose whether the Date/Time is aligned to the <b>Left</b> , <b>Center</b> , or <b>Right</b> . If you configure a placement that overlaps a privacy region, the part of the text that overlaps the privacy region does not appear on the video image.
Enable text display	Check this check box to display the text that you enter in the Display Text field as an overlay on the video image from the IP camera. This option can be useful for identifying this IP camera in an installation with several IP cameras.
Text Alignment in Overlay	Appears if you enable text display. Choose whether the text is aligned to the <b>Left</b> , <b>Center</b> , or <b>Right</b> . If you configure a placement that overlaps a privacy region, the part of the text that overlaps the privacy region does not appear on the video image.
Text Format	Appears if you enable text display. Specifies the text format to use for the text overlay. Currently, English (ASCII) is the only available text format.
Display Text	Appears if you enable text display. If you check the Enable Text Display check box, the text that you enter in this field appears as an overlay on the video image from the IP camera. The text can contain up to 26 characters, which can include letters, numbers, spaces, and these characters: ! \$ % ( ) + , - . / : = @ ^ _ ` { } ~
<b>Image Overlay Area</b>	
Browse	Click this button and use the window that pops up to locate and select the image to be used as the overlay. The image must meet these requirements: <ul style="list-style-type: none"> <li>• File format—24-bit BMP</li> <li>• Maximum image file size—6 MB</li> <li>• Image width and height—The width in pixels and height in pixels must each be evenly divisible by 4</li> <li>• Maximum image size: <ul style="list-style-type: none"> <li>– Width—1920 pixels</li> <li>– Height—1080 pixels</li> </ul> </li> <li>• Resolution—An image with a resolution that is greater than 160 x 96 pixels is automatically reduced to a resolution of 160 x 96 pixels</li> </ul>
Upload	Click this button to upload the image that you selected to the IP camera.



**Table 4-5** Video Overlay Window Options (continued)

Option	Description
Enable Image Overlay	Check this check box to display the image that you uploaded as an overlay on the video image from the IP camera.
Image Overlay Placement	Appears if you enable image overlay. Choose whether the image overlay appears at the <b>Top of Image</b> or <b>Bottom of Image</b> . If you configure a placement that overlaps a privacy region, the part of the image that overlaps the privacy region does not appear on the video image.
Image Alignment in Overlay	Appears if you enable image overlay. Choose whether the image is aligned to the <b>Left</b> , <b>Center</b> , or <b>Right</b> . If you configure a placement that overlaps a privacy region, the part of the image that overlaps the privacy region does not appear on the video image.

## IO Ports Window

The IO Ports window lets you configure various options for the two input and two output ports on the IP camera. A state change of an input ports triggers a camera to take configured actions. Output ports send signals that can control external devices, such as alarms or door switches.

The IP camera can trigger an action only when the input that is received on an input port comes from a contact that is in a normally closed condition. The camera triggers the action when the contact changes to an open condition.

To display the IO Ports window, perform the following steps:

### Procedure

- 
- Step 1** From the IP camera user interface, click the **Setup** link.
  - Step 2** Click **Feature Setup** to expand the menu.
  - Step 3** From the Feature Setup menu, click **IO Ports**.

The IO Ports window appears. If you change any options in this window, you must click the **Save** button to save the changes. If you do not click this button, changes are not retained when you exit the window. The **Save** button appears at the bottom of the window. You might need to scroll down to it.

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[Table 4-6](#) describes the options in the IO Ports window.

**Table 4-6** IO Ports Window Options

Option	Description
<b>Input Ports Area</b>	
Port #	<i>Display only.</i> Indicates input port 1.
Current State	<i>Display only.</i> Indicates the current state (high or low) of the corresponding port.

Table 4-6 IO Ports Window Options (continued)

Option	Description
Event Trigger	Choose the state (Rising or Falling) that triggers designated camera actions. When an input port changes to the configured state, the camera determines that an event has occurred and takes the actions that you have configured.
<b>Output Ports</b>	
Port #	<i>Display only.</i> Indicates output port 1 and output port 2.
Current State	<i>Display only.</i> Indicates the current state (high or low) of the corresponding port.
Default State	Choose the state (low or high) to which the corresponding port is set when the IP camera powers on or resets. The port changes to this state when you click <b>Save</b> . The default setting is High.
Event Action	<i>Display only.</i> Indicates the current state (high or low) to which the output port changes when an event occurs.
Automatic Reset	Check this check box if you want the corresponding output port to go back to its default state after an event occurs.
Duration	If you checked the Automatic Reset check box, enter the amount of time, in milliseconds, that elapses before the port goes back to its default state after an event changes it from the default state.

## Alert Notification Window

Use the Alert Notification window to define the alert types that trigger actions, and to configure notification actions.

The following alert types can trigger actions:

- Health
- Audit
- Security

Actions include the following:

- Email notification—Send an email message to designated recipients. This message provides information about the alert.
- Output port state change—Changes the state of an IP camera output port from low to high or from high to low.
- Syslog server message—Sends a notification message to the designated Syslog server.
- HTTP notification—Sends notification to a remote system via HTTP. This message provides information about the alert.

### Procedure

- 
- Step 1** From the IP camera user interface, click the **Setup** link.
- Step 2** Click **Feature Setup** to expand the menu.

**Step 3** From the Feature Setup menu, click **Alert**.

The Alert Notification window appears. If you change any options in this window, you must click the **Save** button to save the changes. If you do not click this button, changes are not retained when you exit the window. The **Save** button appears at the bottom of the window. You may need to scroll down to it.

Table 4-7 describes the options in the Alert Notification window.

**Table 4-7 Alert Notification Window Options**

Option	Description
<b>Event Triggering</b>	
Triggered by	<p>Check the <b>Conditions</b> check box and then check one or more of the following check boxes to designate the alert types that generate actions:</p> <ul style="list-style-type: none"> <li>• <b>Health</b>—An action is generated when a Health alert occurs</li> <li>• <b>Audit</b>—An action is generated when an Audit alert occurs</li> <li>• <b>Security</b>—An action is generated when a Security event occurs</li> </ul> <p>See the “Alert Types” section on page 4-20 for a descriptions of these alerts.</p>
Actions	<p>Check the desired check boxes to designate that actions that the IP camera takes when the corresponding trigger occurs.</p> <ul style="list-style-type: none"> <li>• <b>Email</b>—Sends information about the alert in an email message to the designated recipient. You design the recipient and configure other email options in other fields in this window.</li> <li>• <b>Output 1</b>—Changes the state of the output 1 port on the IP camera as defined in the Port window.</li> <li>• <b>Syslog</b>—Sends information about the alert to a designated Syslog server.</li> <li>• <b>HTTP</b>—Sends information about the alert as an HTTP stream to a remote system.</li> </ul>
<b>HTTP Notification Area</b>	
HTTP Server	Identify the server to which HTTP messages are sent by choosing <b>IP Address</b> or <b>Hostname</b> from the drop-down list and entering the IP address or host name in the corresponding field.
URL Base	<p>Enter a string to be used as the prefix in the HTTP URL. The HTTP URL is sent in this format:</p> <p><code>http://&lt;IP address&gt;/&lt;URL Base&gt;?&lt;system-provided-name-value-pairs&gt;</code></p> <p>where <i>IP address</i> is the IP address of the destination server, <i>URL Base</i> is the string that you enter, and <i>system-provided-name-value-pairs</i> is information about the event.</p>
Port Number	Enter the port number that receives messages on the primary server to which HTTP messages are sent.
User Name	If authentication is required on the primary server to which HTTP messages are sent, enter the user name.

Table 4-7 Alert Notification Window Options (continued)

Option	Description
Password	If authentication is required on the primary server to which HTTP messages are sent, enter the password.  <b>Note</b> Blank characters and the following special characters are not valid: []\&!:";<>?./+*=*'%#
HTTP Authentication	If authentication is required on the primary server to which HTTP messages are sent, choose the authentication method from the drop-down list.
<b>Email Notification Area</b>	
SMTP Server	Identify the SMTP server that is used for sending email by choosing <b>IP Address</b> or <b>Hostname</b> from the drop-down list and entering the IP address or host name in the corresponding field.
SMTP Port	Enter the port number for the SMTP server. The default SMTP port number is 25.
POP Server	Identify the POP server that is used for sending email by choosing <b>IP Address</b> or <b>Hostname</b> from the drop-down list and entering the IP address or host name in the corresponding field.  This field is dimmed if you do not choose <b>Requires POP Before SMTP</b> in the Authentication field that follows.
Authentication	If the SMTP server requires authentication to send email, choose the appropriate authentication type from the drop-down list. The authentication type typically is the same as that for the POP3 server that you use to receive email.
Account Name	If the SMTP server requires authentication, enter the account name for the server.
Password	If the primary SMTP server requires authentication, enter the account password for the server.  <b>Note</b> Blank characters and the following special characters are not valid: []\&!:";<>?./+*=*'%#
Send To	Enter an email address to which an email message is sent when an event occurs.
Show From Address As	Enter the email address to be shown in the From field for the email message that is sent when an event occurs.
Subject	Enter the text to be shown in the Subject field for the email messages that the IP camera sends when events occur. The subject can contain up to 118 characters, including spaces.

## Alert Types

The following tables describe the types of alerts that can trigger actions:

- Health alerts—[Table 4-8](#)
- Audit alerts—[Table 4-9](#)
- Security alert—[Table 4-10](#)

**Table 4-8 Health Alerts**

Alert Name	Description	Severity	Category
Continuous Recording Failure	Continuous recording of IP camera video fails. This alert is generated only when continuous recording is enabled on the IP camera.	Critical/Info	Recording
Camera App Health	Any application that crashed frequently affects the IP camera health and is stopped.	Critical/Info	Software
SD Card-Not Read-Format Required	The SD card is not ready for recording, and formatting is required.	Critical/Info	Recording
SD Card-In Recovery Mode	The SD card recording details do not match the IP camera into which it has been inserted.  To start recording on the SD card, you must perform a format of the SD card.  <b>Note</b> Copy all required data before performing a format of the card.	Critical/Info	Recording

**Table 4-9 Audit Alerts**

Alert Name	Description	Severity	Category
SD Card State	The SD card is inserted or removed from the IP camera.	Info	Hardware
SD Card Formatted	The SD card is formatted successfully.	Info	Hardware
Camera Apps Status	Any application changes its status, for example, restarted, stopped, and so forth.	Info	Software

**Table 4-10 Security Alert**

Alert Name	Description	Severity	Category
Camera Tamper	Camera view is changed or blocked. This alert is generated only when the tamper detection is enabled on the IP camera as described the “ <a href="#">Camera Tamper Area</a> ” rows in <a href="#">Table 4-4</a> .  Camera Tamper alert is enabled automatically when security alert is enabled. [from release notes, but contradicts above.	Critical/Info	Hardware

