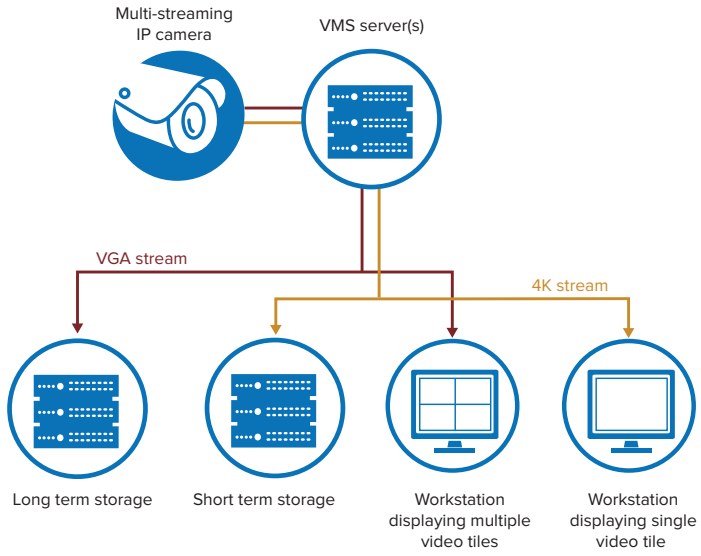
Benefits of Multi-Streaming

Reduce capital costs by optimizing video streams

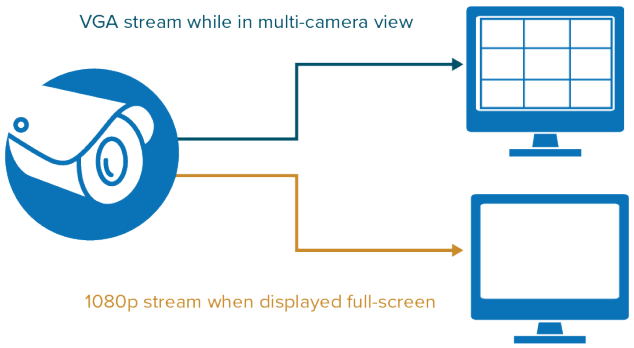
Multi-streaming (sometimes called “dual streaming”) refers to a camera streaming multiple independent video streams to the video management software (VMS) or network video recorder (NVR). Each stream has different settings, which may include any combination of frame rate, image quality and codecs.

Using multiple streams enables organizations to choose optimal video quality settings based on different use cases. For example, introducing a lower quality video stream can increase scalability and efficiency by reducing CPU and storage requirements.



Automatically selecting streams based on display resolution

One common use of multi-streaming is to improve client PC performance. Video decoding is CPU-intensive, so it makes sense to decode the video stream that most closely fits the video tile. For example, if an operator is displaying a 3x3 tiled display on a 1920x1080 monitor (with each tile being 640x360), most VMS's will automatically use the lower resolution stream, if available. When the operator switches to full screen, the higher quality stream is used.



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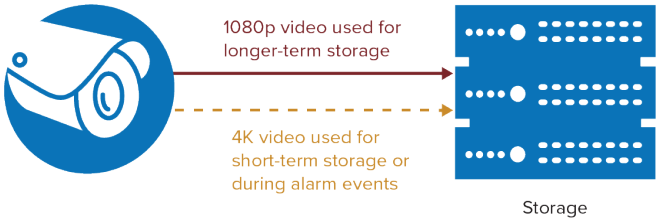
Recording independent streams for different retention periods

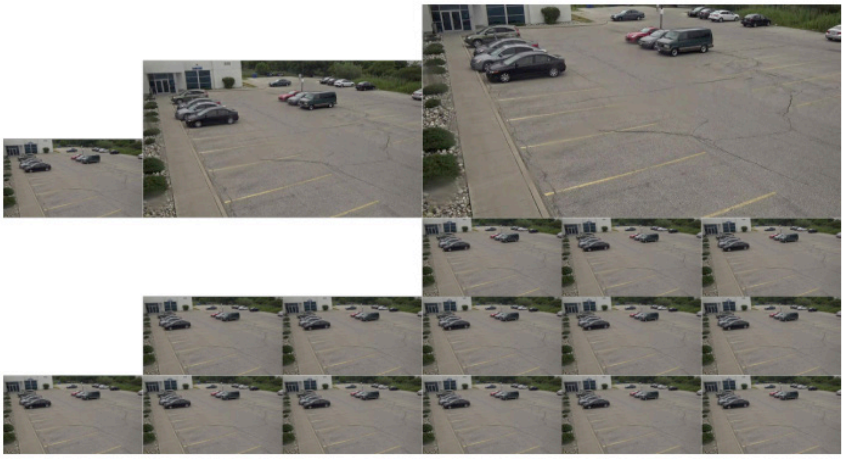
Another common application is to use different streams for different retention periods. Since recording high-quality video such as 4K is very resource-intensive, users may want to configure separate storage paths for higher and lower quality video. To minimize storage requirements, long-term retention can use lower quality video while higher quality video is kept for a shorter period of time. For example, one could store 4K for two days and 1080p video for 30 days. Another option is to record 4K video only during alarm events while continuously recording non-alarm video at a lower quality.



Using dedicated streams for video analytics

Using high-resolution video is desirable for richness of detail and accuracy, but it comes with a high price in terms of system resource utilization. Whenever PC-based video analytics are used, server costs are often a limiting factor. The CPU cost of decoding and analyzing a high-resolution stream such as 4K can be cost-prohibitive.

To minimize CPU requirements, the server could perform the video analytic processing on a lower quality stream instead. For example, running video analytics on a resolution of 1280x720 requires 4x the amount of processing compared to a 640x360 stream. Only in rare cases will there be any reduction in analytics accuracy when using a VGA or similar stream. When using PC-based analytics with a VMS, always configure a second lower-quality stream for use by video analytics processing (as well as by client PCs using multi-tile displays)*.

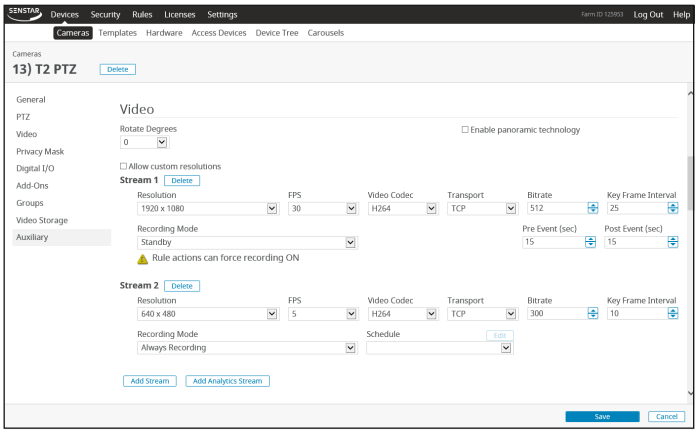


Resolution	Total Pixels	Relationship
640x360	230,400	1x
1280x720	921,600	4x
1920x1080	2,073,600	9x

Senstar's Symphony VMS includes market-leading adaptive analytic resolution technology that keeps the benefits of using analytics on high resolution streams while limiting hardware requirements.

Setting video stream options

A modern VMS's web-based configuration client offers an easy way for administrators to configure multiple video stream profiles. On each camera, you can configure each stream's resolution, codec, frame rate, and compression settings, and optionally configure independent recording parameters for each.



Multi-stream limitations

Multi-streaming provides many benefits but it still has potential limitations. First, multi-stream support differs depending on the camera. A VMS may impose limitations on the stream profiles based on camera capability. In addition, multi-streaming, by definition, generates several video streams per physical camera. In very rare cases, network bandwidth may become an issue.

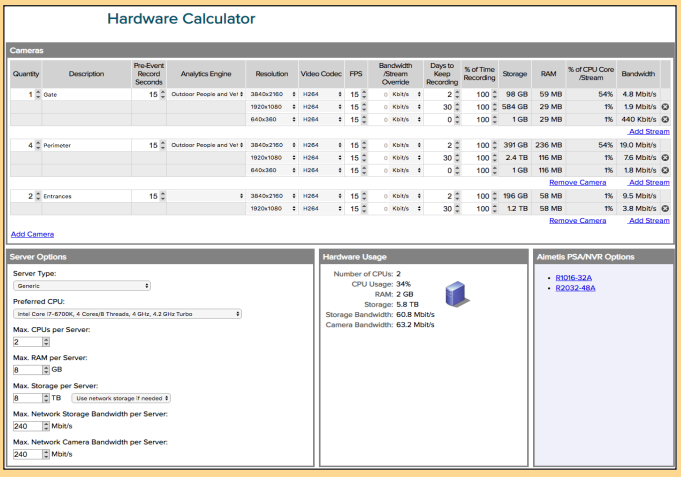
Summary

Using multi-streaming can be an invaluable way of reducing the capital costs of video deployments. Common use cases include:

- High-resolution stream (such as 4K): For full-screen live monitoring and short-term recording (i.e. less than 7 days)
- Lower resolution stream (such as VGA):
  - Multi-view displays, so the video client does not need to decode a large image
  - Longer retention (low resolution video has lower storage requirements than high resolution video)
  - PC-based video analytics (server is not unnecessarily analyzing high-resolution video which normally has no impact on accuracy)

Computing hardware requirements

To help plan your deployment, Senstar's online hardware calculator will easily help calculate the CPU and storage requirements based on the number of cameras and independent streams configured.



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