

Video Quality Setting

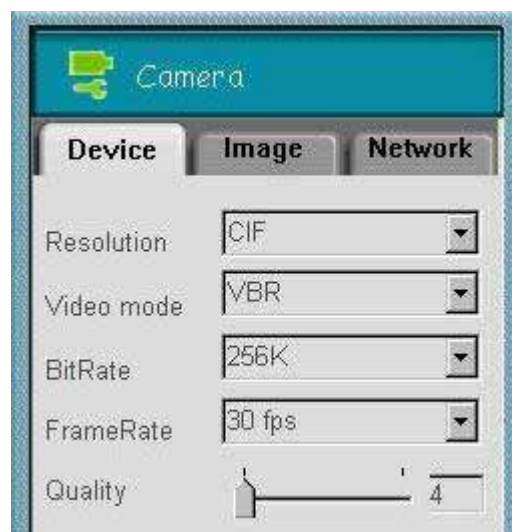
Category : SMC / Configuration / General

Q: How can I configure the IPCAM to get the best of video quality?
What factors may dominate the video quality of IPCAM performance?

The following configurable parameters have dominant effects on user video quality feeling:

- i) Video Resolution
- ii) Video Mode
- iii) Bit Rate
- iv) Frame Rate
- v) Quality

Those parameters are closely linked and there is a tradeoff between settings of each parameter. For example, there is no guaranteed setting to satisfy user (Bit Rate, Frame Rate, and Quality) setting under desired video resolution. The final effect also needs to take complexity of live image coding into account. For example, a big scene change will take more bitstream to reconstruct the image frame and thus more network bandwidth is required.



1) Video Resolution:

The actual video resolution configured determines the viewable image delivered by the surveillance camera.

CIF : 352 x 288

QCIF : 176 x 144

VGA : 640 x 480

QVGA : 320 x 240

D1 : 702 x 480

The higher resolution configuration makes surveillance camera codec engine to pump out more bitstream data for reconstruction of image frame in Windows client.

2) Video Mode

Leadtek surveillance camera supports 2 video modes for rate control, i.e. Variable Bit Rate (VBR) and Constant Bit Rate (CBR). The VBR setting honors the frame rate and quality setting and thus pump out as much as bitstream to satisfy those 2 parameter setting (frame rate , quality). As dramatic scene change in surveillance camera side, you will observe the running video bit-rate is going up (mostly out of user bit rate control) to maintain the better frame rate and quality setting. The CBR setting honors the bit rate setting and thus frame rate and quality setting are sacrificed to maintain the consistent network bandwidth usage.

3) Video Bit Rate

The video bit rate describes / places an upper bound limit on how much video bitstream will be generated by codec engine. This parameter is cross-related to video mode setting. Please also refer to video mode setting for details.

4) Frame Rate

The frame rate parameter describes / places an upper bound limit on how much video frame per second are generated by surveillance codec engine. The actual frames received in Windows

side may be lower than user's configuration due to network packet loss, congestion, computing power of PC and etc.

5) Video Quality

The quality parameter describes the quantization level of MPEG-4 macro block. User may observe the block / mosaic effect of video image if the parameter setting is high. The lower the video quality value the finer block will be observed on image reconstruction.

Configuration Setting:

Video Resolution / Video Mode / Bit Rate / Frame Rate / Video Quality
Scene without moving object

● CIF / VBR / 256 k / 30fps / 4

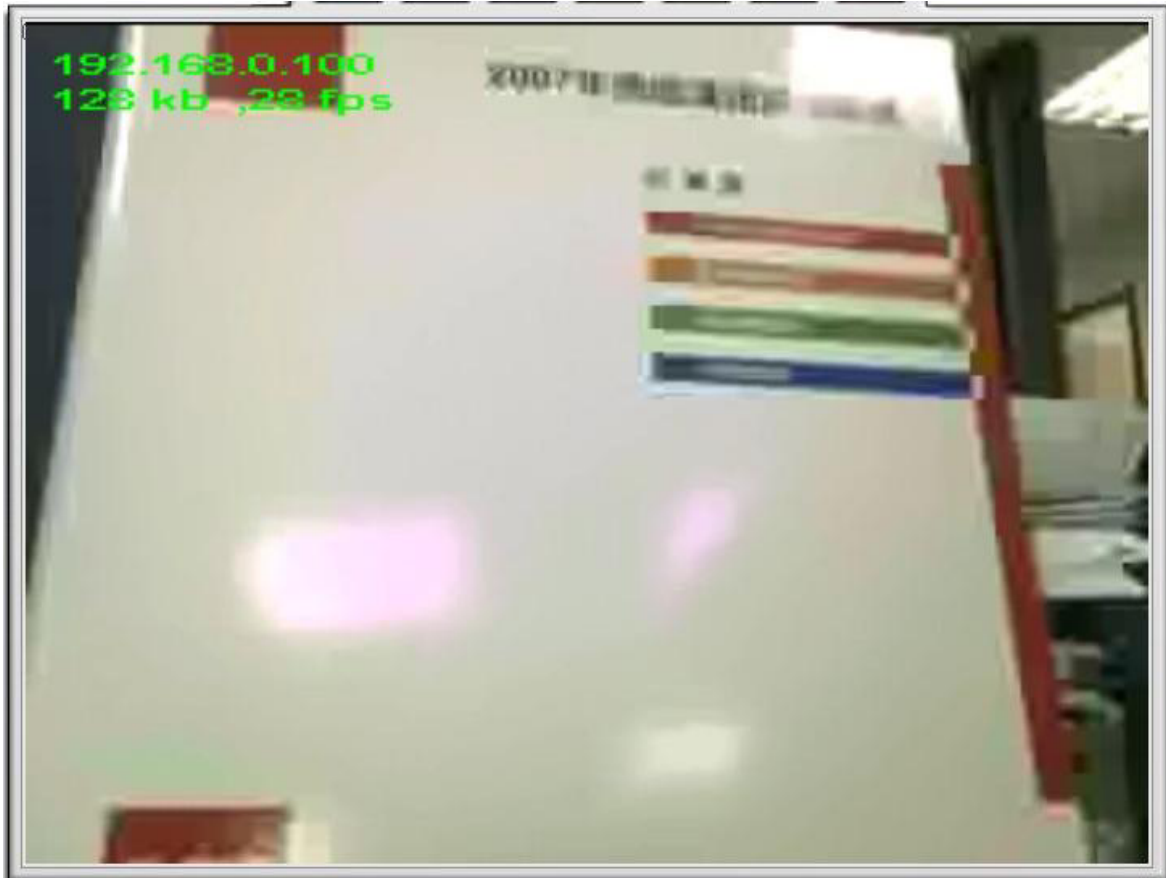
Running bitrate 214 k/ 28 fps



- CIF / VBR / 256 k / 30fps / 31

Running bit rate 138k / 28 fps

The blocked image will be observed on the image.



Scene with moving object

- CIF / CBR / 256 k / 30fps / 4

Running bit rate 284k / 8fps

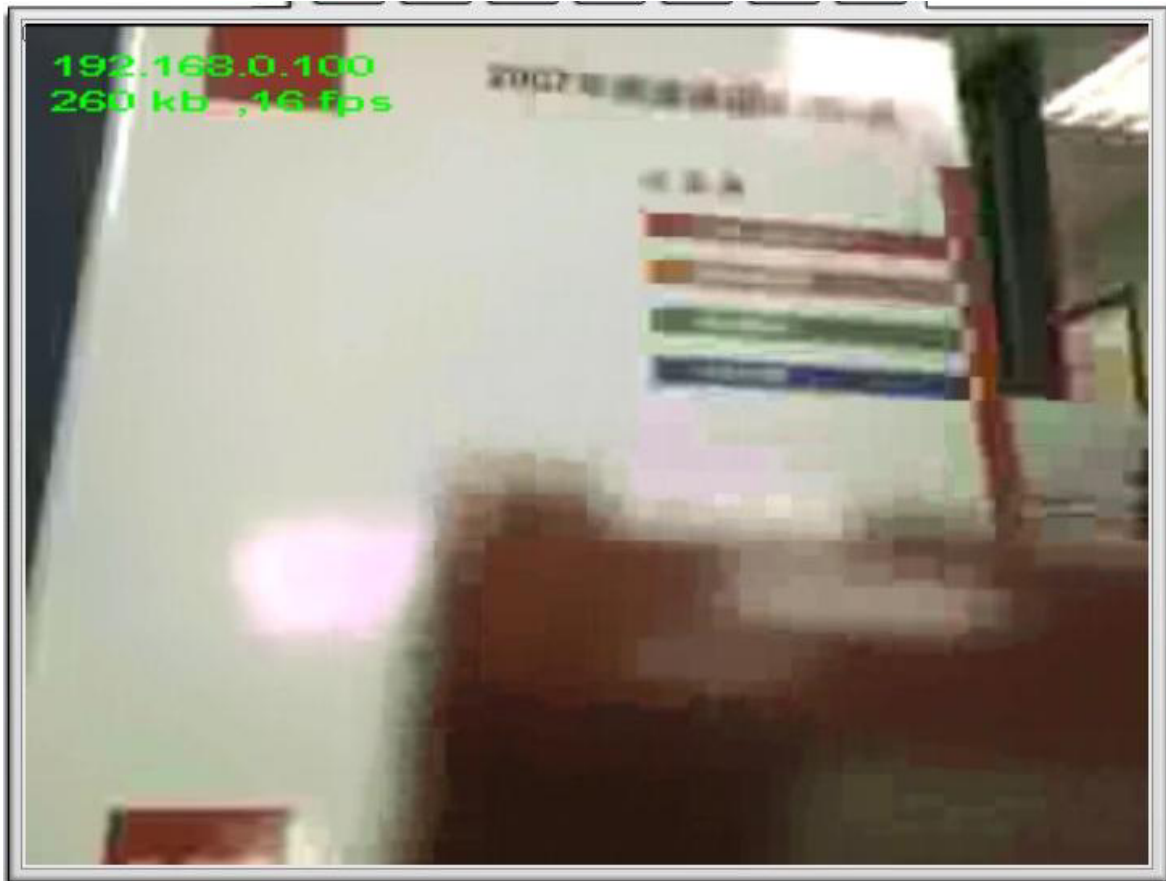
The actual running frame rate is lower than 30 fps due to the constraint of available network bandwidth.



- CIF / CBR / 256 k / 30fps / 31

Running bit rate 260 k / 16 fps

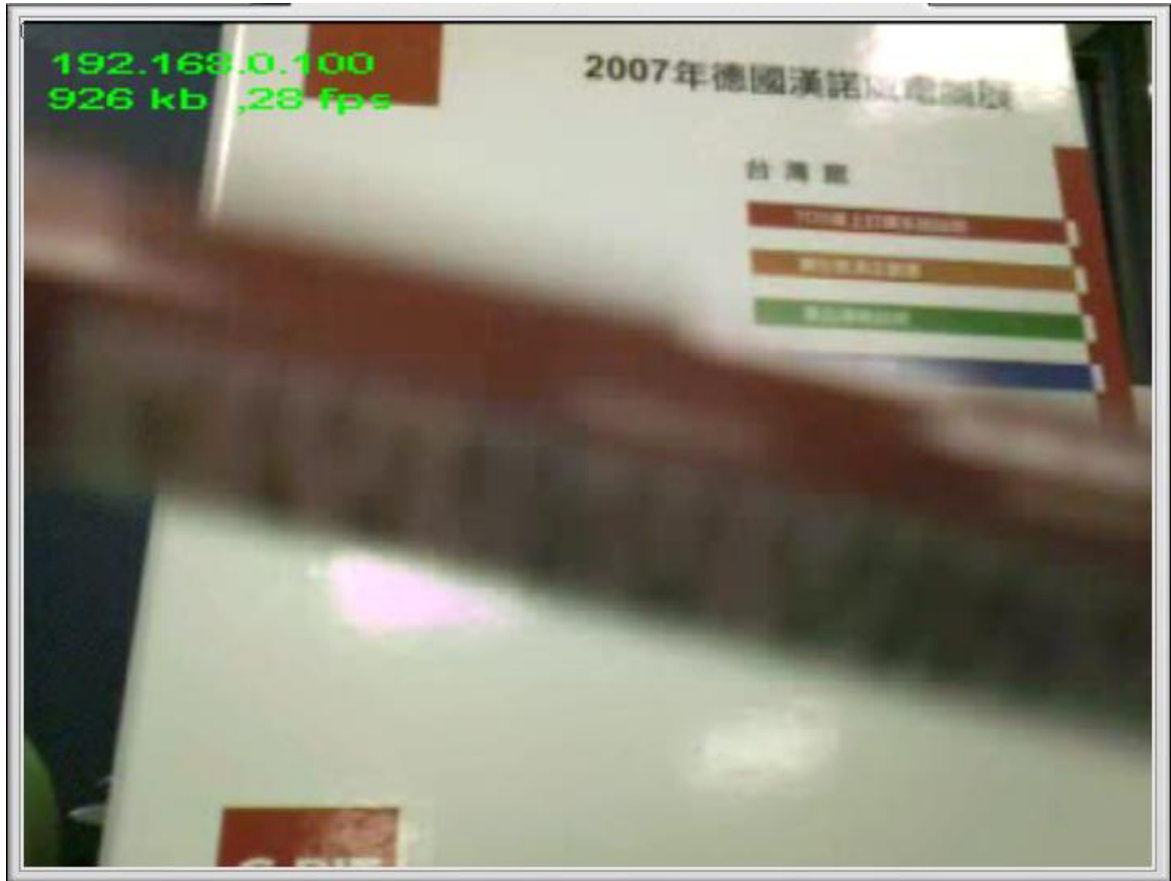
The video quality is lower and thus the network bandwidth requirement is less. The side effect of this is the poor video quality (mosaic effect on moving object)



- CIF / VBR / 256 k / 30fps / 4

Running bit rate 926 k / 28 fps

The VBR setting ensures a better video quality and thus over bandwidth traffic is the result.



- QCIF / CBR / 256 K / 30fps / 4

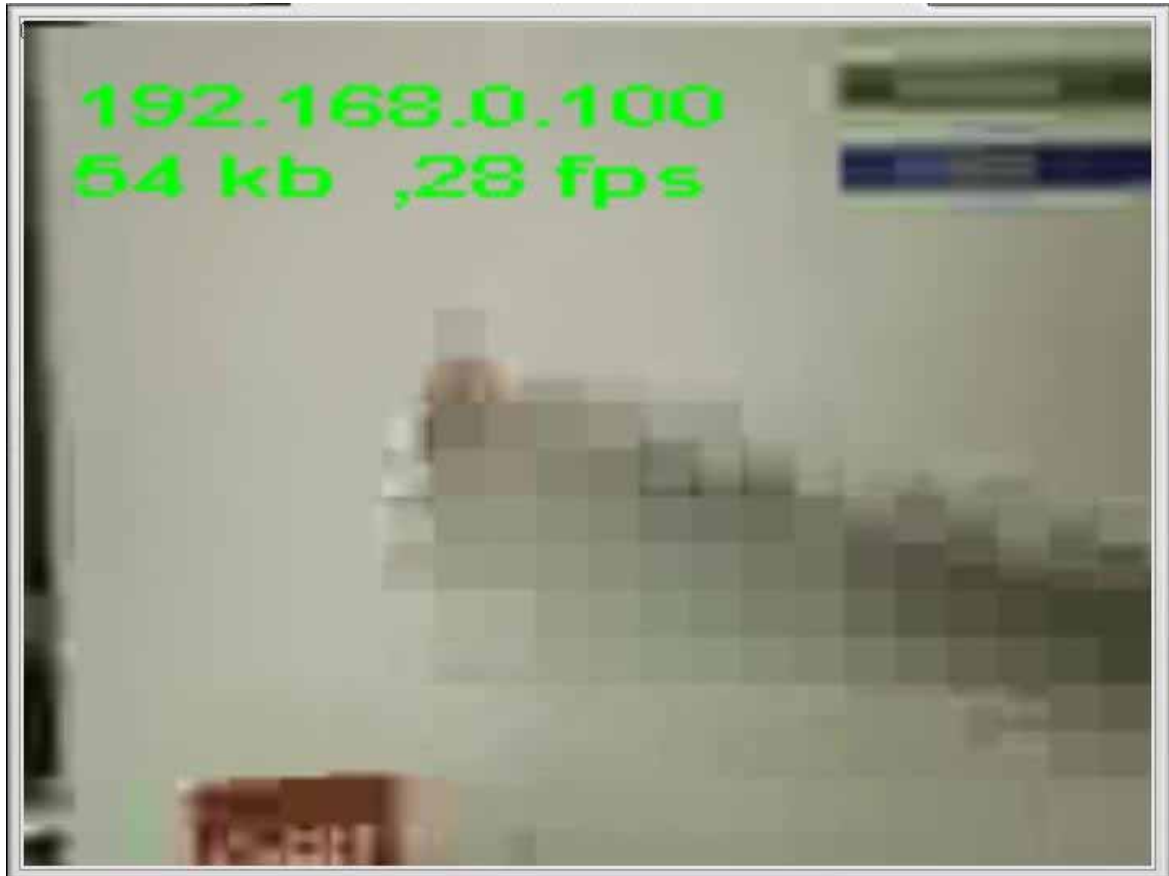
Running bit rate 231 k / 23 fps

The viewable region is less than CIF and network usage is also less.



- QCIF / CBR / 256 K / 30fps / 31

Running bit rate 54 k / 28 fps



- QCIF / VBR / 256 K / 30fps / 4

Running bit rate 50 k / 28 fps

The actual network bandwidth usage is less due to QCIF resolution.



- QCIF / VBR / 256 K / 30fps / 31

Running bit rate 59 k / 28 fps

The poor video quality setting makes the text a little fuzzy.

