How to Configure the VCA Function

1. Introduction

In order to better use the VCA function and improve its accuracy, this document describes some recommended configurations, including the following parts:

(1) Basic configuration.
(2) Recommended configuration for each VCA function.
(3) Other recommended configurations.

Note:

(1) For V4x.7.0.74 or above, supporting the VCA function by default.
(2) For the firmware which below V4x.7.0.74, please upgrade the Network Camera to V4x.7.0.74 or above.

2. Basic configuration

For the VCA function, enter 'Advanced Settings' → 'VCA' → 'Settings' interface for basic configuration. You can refer to the meaning and recommended configuration of each option as shown below:

[Process FPS]: Five different periods are available(5, 10, 15, 20, 25, fps) for process fps. The default is 10 fps, The higher the Process FPS, the more frames are processed.

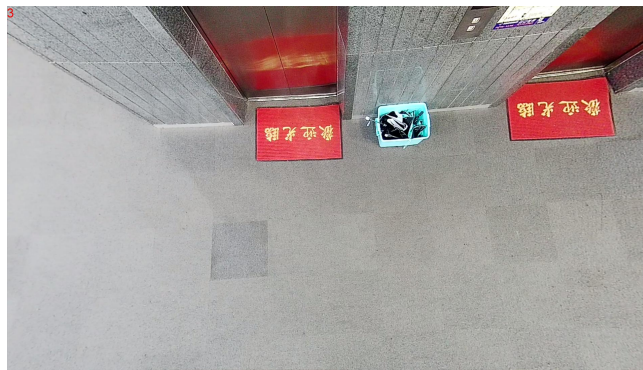**[Camera Installation]**: Select camera installation view, including:

① **Angle View** (Wall or Corner mount looking down).

② **Horizontal View** (Horizontal wall mount at lower height).

③ **Overhead View** (Vertical ceiling mount).

[Min.Size]: Draw the screen or input pixel number to set the minimum size of the detected object. When the object is smaller than this size, it will not be detected.

The default minimum size is 3*3, if one person is not detected, we recommend that you reduce the minimum size.

The recommended detection distance is 6m. If the detection distance is more than 6m, it is recommended to reduce the minimum size.

[Max.Size]: Draw the screen or input pixel number to set the maximum size of the detected object. When the object is larger than this size, it will not be detected. The default maximum size is 320*240.
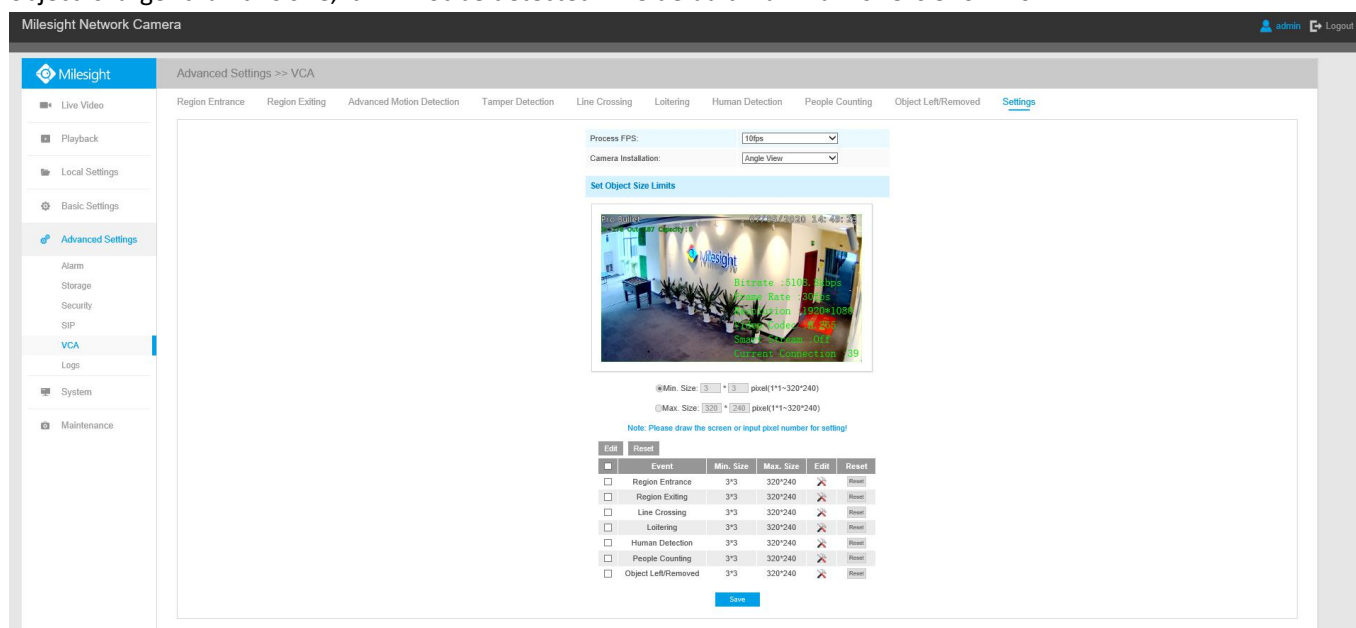
Note: VCA function supports setting the Min.Size and Max.Size of the detection object separately.

3. Recommended configuration for each VCA function

The following is the recommended configurations of each VCA function for your reference.

(1) People counting

① For People Counting, we recommend that camera be installed at the Angle View or Overhead view. If the camera is installed from the side at a low angle, then the counting accuracy will be lower.

② For the position of the line:

a. It is recommended to draw the line under the people, so that people could across the line

completely and trigger the function to get the results.

b. It is recommended to draw the line vertical to the camera as shown below, in order to make the person across the line completely.


c. Don't draw the line at the edge of the image.

③ The person size should be 10-20% of the whole screen, and should not be so large as to occupy 40-100% of the screen.

④ If one person is not detected, we recommend that you reduce the minimum size. In some cases, we have effectively improved the accuracy of detection by reducing the minimum size to 2*2. If it still fails to detect, try to reduce the minimize size to 1*1.
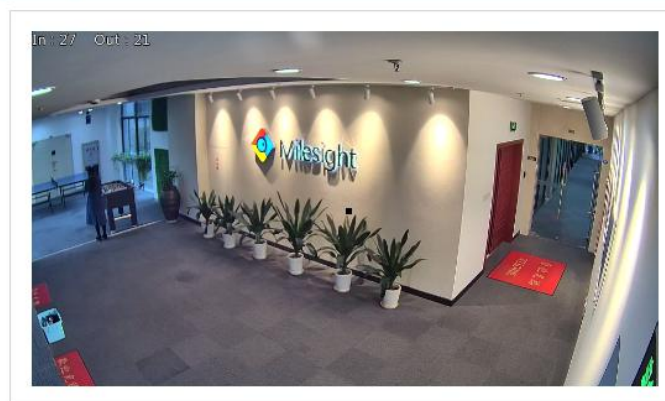
⑤ If two persons are detected as one. We recommend that you reduce the minimum.

(2) Line Crossing

① For Line Crossing, we recommend to install the camera at an Angle View or Overhead view. If the camera is installed from the side at a low angle, then the counting accuracy will be lower.

② For the position of the line:

a. It is recommended to draw the line under the people, so that people could across the line completely and trigger the function to get the results.

b. It is recommended to draw the line vertical to the camera as shown below, in order to make the person across the line completely.

c. Don't draw the line at the edge of the image.

(3) Region Entrance and Region Exiting

① For Region Entrance and Region Exiting, we recommend to install the camera at an Angle View or Overhead view.

② The area you draw cannot occupy the entire image, otherwise it will not detect anyone entering or exiting the area.
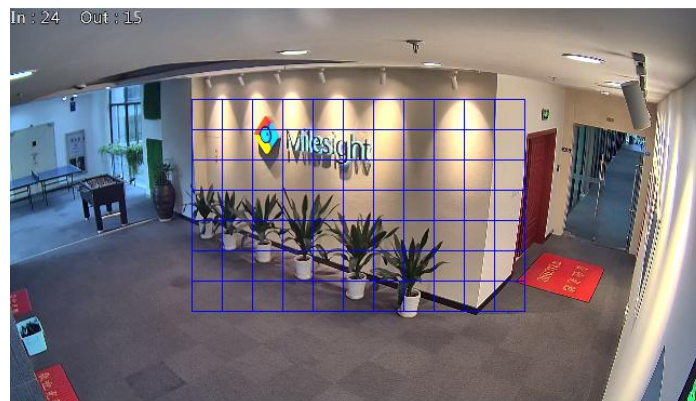
③ It is recommended that the size of object entering in the scene should not exceed 50% of the scene size.

(4) Others

Advanced Motion Detection

① For Advanced Motion Detection, the Camera can be located at any position; Either Overhead view, Angel View or Horizontal View.

② The default sensitivity value is 8. If the advanced motion detection is not triggered, we recommend that you increase the sensitivity value. If it has a false alarm, we recommend that you reduce the sensitivity value.

Tamper Detection

① For Tamper detection, the Camera can be located at any position; Either Overhead view, Angel View or Horizontal View.

② Tamper Detection is used to detect possible tampering. For example, the camera is obstructed or moved. The default sensitivity value is 6. If it is not triggered, we recommend that you increase the sensitivity value. If it has a false alarm, we recommend that you reduce the sensitivity value.

Sensitivity: 6
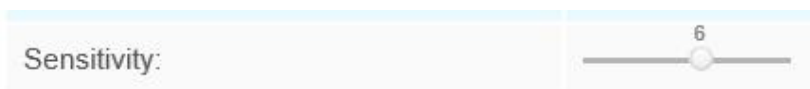
Loitering
For Loitering, we recommend to install the camera at an Angle View or Overhead view.

Human Detection
For Human Detection, we recommend to install the camera at Angle View or Overhead view.

Object Left/Removed
For Object Left/Removed, we recommend to install the camera at Angle View or Overhead view.

4. Other recommended configuration

Here are some other general recommendations for VCA functions.

Object Size
(1) Ensure that the object size is not too small. Object size should be at least 5-10% of the screen size.
(2) Ensure that the object size is not too large. Object size cannot exceed 40% of the screen size. The camera should not be too close to the objects being tracked.
(3) A typical rule of minimum and maximum sizes is to set the minimum size of an object to half the width and height of the average object, and the maximum size of an object to about 130% the width and height of the average object.

Set Object Size Limits

○Minimum Size : 1 x 1 pixel(1X1~320X240)
○Maximum Size : 320 x 240 pixel(1X1~320X240)
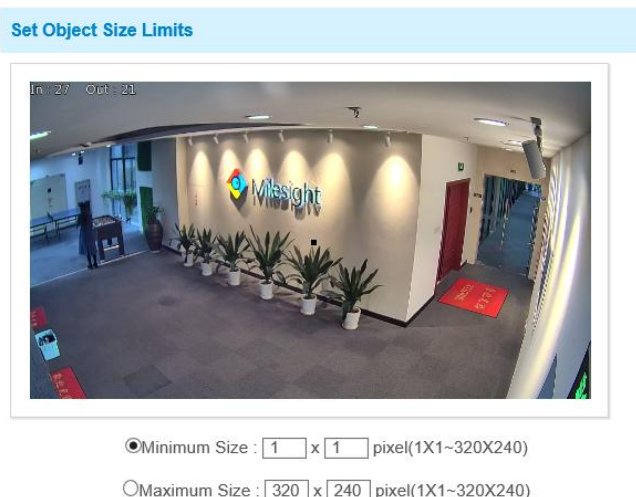
CPU Load Information
If the camera's response is slow, and the image is stuck or frozen, it will affect the accuracy of the VCA functions. You can take the following methods to reduce the CPU of camera.
(1) Reduce the parameters of the camera stream, such as resolution, bit rate, frame rate, etc.
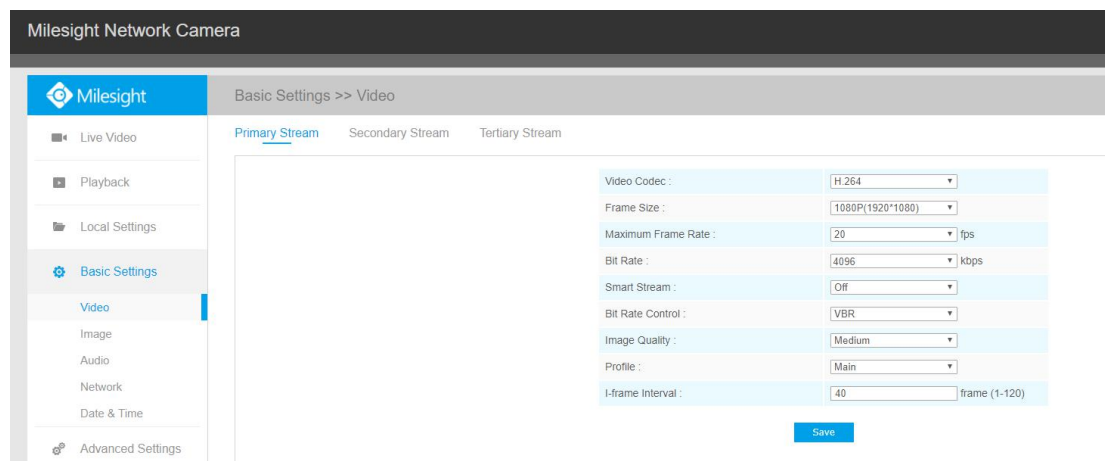
(2) Turn off some unnecessary features or reduce their configurations.

(3) Reduce Process FPS in the settings page.
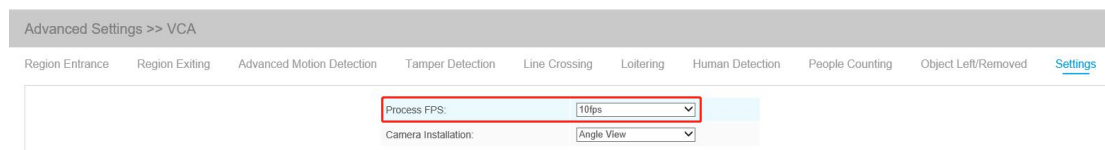
Lighting Conditions

(1) The scene should be well-lit.

(2) Lighting needs to be stable and consistent.

(3) Lighting should be uniformly distributed in the scene and also try to avoid the shadows.

(4) Avoid pointing the camera directly to light sources.

(5) If the camera is used during night time, the lighting reflections should be at a minimum to avoid bad detection.

(6) It is recommended to use the cameras with IR LEDs if the actual application scenarios could not provide enough lighting.

Scene

(1) Avoid an object in front of another object. This will break object tracks and will cause object disappearance and other related problems.

(2) If possible, avoid the presence of water areas – rivers, lakes, etc. in the camera's field of view. Water areas would cause reflections and ripples in the water would cause false alarms.

(3) If possible, avoid the presence of trees and other vegetation in the camera's field of view. Swaying or movement of trees and bushes in the wind would cause false alarms.

Other

Camera lens should be clean, and focused for best results.

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