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VMD Guide for VND-970IP Cameras

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Guide for Configuring and Using Video Motion Detection on I-Onyx VND-970IP Series Cameras



This guide provides a step-by-step procedure for using the Video Motion Detection feature of I-Onyx® VND-970IP cameras with ViconNet (version 5.6 and higher). It assumes an understanding of ViconNet and the cameras. Refer to the ViconNet® and camera manuals for detailed information.

The Video Motion Detection (VMD) feature activates an alarm due to activity beyond specified sensitivities in preconfigured regions of interest (ROIs) in the camera view area. Since initial setup and configuration of VND-970IP cameras are not done through VNSetup software but through a Web Browser interface, the support for a VMD alarm event is generated by the camera and is defined and setup in the camera configuration. The VMD message is sent from the camera and received in ViconNet as an external alarm; it can then be used to trigger a macro.

These cameras support both open (video stream between the camera and PC must be established and kept open in order for alarm to be received) and closed (camera is capable of sending the alarm even if a video stream is not open) stream VMD. Cameras that support a closed stream of video for VMD do not have to be running to trigger the alarm. However, each camera that has VMD configured must be connected to be viewed or recorded at least once before the alarm mechanism will work. In this case, a “maintenance” macro must be configured to create this “handshake” and to ensure that the alarm will be re-activated and triggered even if the NVR reboots, shuts down or fails. The closed stream method saves storage but does not provide the prealarm option. An open stream video should be used if constant recording, prealarm or control of fps is required.

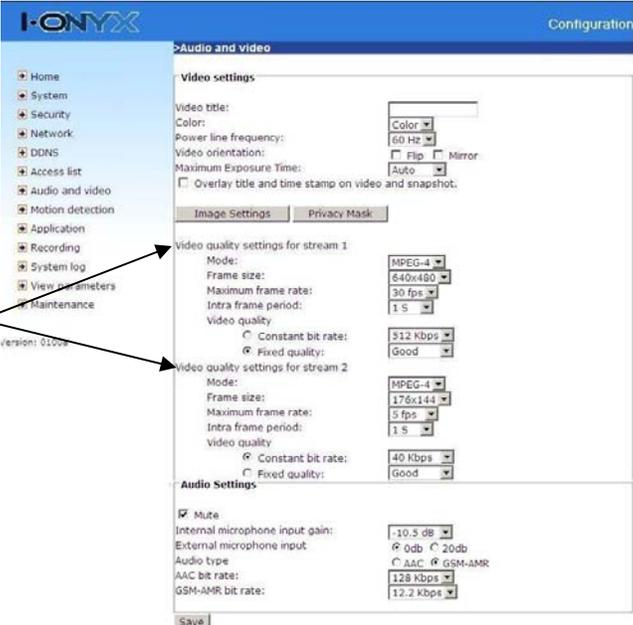
Camera Configuration

This section explains how to configure the Vicon I-Onyx VND-970IP cameras for video motion detection (VMD feature) to work properly. The ViconNet system and the camera should be setup and connected before beginning this procedure.

I-OnyxVND-970IP Series Cameras

These I-Onyx cameras can be configured with either open or closed stream video. Review the requirements for the particular installation to determine which way is best. Additionally, these cameras provide for using multi-stream configuration, which may be required for certain installations.

From the *Configuration* screen, select the *Audio and video* screen.



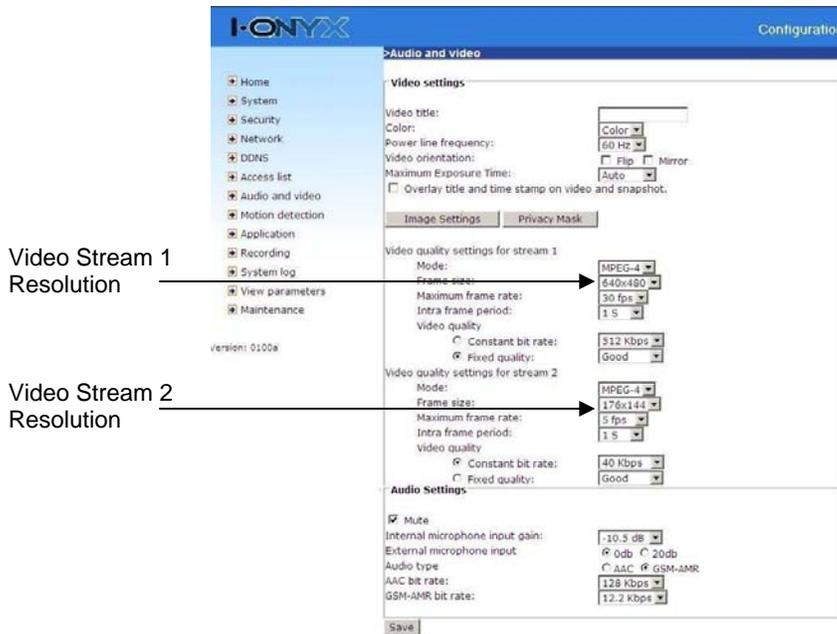
The screenshot displays the I-Onyx Configuration interface. The left sidebar contains a navigation menu with the following items: Home, System, Security, Network, DDNS, Access list, Audio and video, Motion detection, Application, Recording, System log, View parameters, and Maintenance. The 'Audio and video' option is selected. The main content area is titled 'Audio and video' and contains the following settings:

- Video settings:**
 - Video title: [Text input field]
 - Color: [Color dropdown menu]
 - Power line frequency: [60 Hz dropdown menu]
 - Video orientation: [Flip] [Mirror] (checkboxes)
 - Maximum Exposure Time: [Auto dropdown menu]
 - Overlay title and time stamp on video and snapshot.
- Image Settings** and **Privacy Mask** (tabs)
- Video quality settings for stream 1:**
 - Mode: [MPEG-4 dropdown menu]
 - Frame size: [640x480 dropdown menu]
 - Maximum frame rate: [30 fps dropdown menu]
 - Intra frame period: [1 S dropdown menu]
 - Video quality: Constant bit rate: [312 Kbps dropdown menu] Fixed quality: [Good dropdown menu]
- Video quality settings for stream 2:**
 - Mode: [MPEG-4 dropdown menu]
 - Frame size: [176x144 dropdown menu]
 - Maximum frame rate: [5 fps dropdown menu]
 - Intra frame period: [1 S dropdown menu]
 - Video quality: Constant bit rate: [40 Kbps dropdown menu] Fixed quality: [Good dropdown menu]
- Audio Settings:**
 - Mute
 - Internal microphone input gain: [-10.5 dB dropdown menu]
 - External microphone input: [0 dB] [20dB] (radio buttons)
 - Audio type: [AAC] [GSM-AMR] (radio buttons)
 - AAC bit rate: [128 Kbps dropdown menu]
 - GSM-AMR bit rate: [12.2 Kbps dropdown menu]

A 'Save' button is located at the bottom left of the configuration area. An annotation 'Select Video Stream' with two arrows points to the 'Video quality settings for stream 1' and 'Video quality settings for stream 2' sections.

Depending on the required operation, it may be necessary to configure more than one video stream. If recording is to be set to start only when motion is detected, it is only necessary to set up one stream with the desired parameters. However, if it is required to have the system record at a certain resolution/fps and quality all the time (usually lower rates), and switch to a different resolution/fps and quality on motion (usually a higher rate), at least two streams need to be configured with the different parameters. Note that when the ViconNet macro is set up, it distinguishes between the different streams from the camera by resolution; that is why each stream must be set to a different resolution. Refer to the camera manual for details.

Note that when using MPEG-4 compression, there may be up to a 2 second delay between the alarm and the stream change.



From the *Configuration* screen, select *Motion detection*. The following screen displays. Note that motion detection is set up *only* on the stream that will be associated with the VMD macro.



- Check *Enable motion detection*.
- Click on **New** to add a new window; up to three (3) windows can exist simultaneously.
- Use the mouse to click, hold, and drag the window frame to resize or the title bar to move the window. Click on the 'x' at the upper right-hand corner to delete the window. Click **Save**.
- A graphic bar rises or falls depending on the image variation. A green bar means the image variation is under monitoring level and a red bar means the image variation is over monitoring level. When the bar goes red, the detected window is also outlined in red. On the video, the monitored window is hidden but the red frame shows when motion is detected.



- Enter the parameters to define each window. "**Window Name**" text shows at the top of the window. "**Sensitivity**" sets the acceptable amount of change in motion before an alarm. "**Percentage**" sets the space ratio of moving objects in the monitoring window. Higher sensitivity and smaller percentage allow easier motion detection.

Refer to the section on Creating Macros for the next step.

Configuring ViconNet

Creating Macros

The next step in supporting VMD alarms is to create a macro that defines what happens when motion occurs. After the macro is defined it is then linked to the external alarm of the NVR/Workstation. Remember that recording is not available on a Workstation, only on an NVR or DVR. Below are three examples.

Examples of VMD Alarms

Example 1

- A camera is recorded at a low fps and switches to a higher fps upon motion.
 - Requires two video streams set up in the camera
 - The NVR is set to record the camera at Q7 on one video stream (lowest resolution stream)
 - The camera VMD is set to send an alarm on motion
 - On the NVR, the VMD alarm trigger runs a 2nd macro that will record at Q1 (on the second highest resolution video stream) for a predetermined time

Note: There is no higher fps pre-alarm option for this; any recording prior to the VMD alarm is at the set FPS on the low resolution stream.

Example 2

- A camera is recorded, and display is triggered by motion.
 - The NVR is set to record the camera at desired fps
 - The camera VMD is set to send an alarm on motion
 - On the NVR, the VMD alarm trigger runs a 2nd macro that will start display of the camera on the desired Workstation

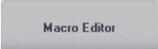
Example 3

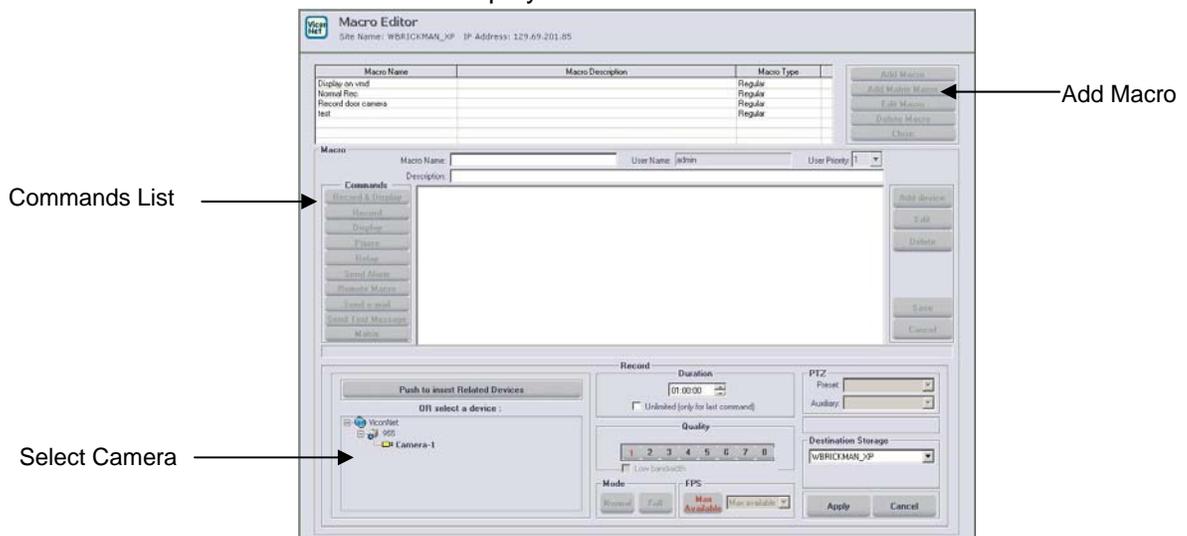
- A camera is only recorded by motion.
 - A Workstation is viewing the camera as needed
 - The camera VMD is set to send an alarm on motion to the NVR
 - On the NVR, the VMD alarm trigger runs a macro that will trigger recording on the NVR

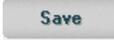
Note: There is no pre-alarm at all in this case.

When VMD is on a camera that is recording (open stream configuration), the recording macro is created first. The VMD trigger is a second macro.

To create a macro:

- From the ViconNet *Main* window, click . The *Setup Site Selection* window displays.
- Select the site (NVR/Workstation) for which the macro is being defined and click . The *System Settings* window displays.
- Click . The *Macro Editor* window displays. In examples 1 and 2, the camera is recording before the VMD trigger, so a recording macro must be created. Click . The middle section of the screen displays.



- Fill in a logical name for the macro and a description if desired.
- Select the camera that is being configured from the device list.
- Select the first command from the Commands list; in the example, select Record. The bottom portion of the screen displays.
- Fill in all pertinent fields for the command. The VND-970IP cameras will not allow fps selection and the user will define the quality requested (Q1 for highest available stream, Q8 for lowest). In example no. 1, define recording at Q7 being the lower rate stream and for example no.2, recording at Q1 for the higher rate stream; remember this must correspond with the camera stream setting.
- A macro can have multiple commands; repeat command selection if required for the macro. The macro executes in the command order.
- Click  and then .

A second macro is now configured to tell the NVR what to do in the case of a VMD alarm; in the examples, command the NVR to record the camera at a different quality or display video from the camera. The third example does not require the first macro; this alarm macro instructs it to record the camera upon a motion alarm.

- Follow the previous steps to create the macro.
- To setup example 1: From the Commands list, select Record. Select the higher recording stream (Q1) for the Record command.
- To setup example 2: From the Commands list, select Display. This allows the video to display on the local Workstation/NVR. If it is required that the video display on a different unit, create another macro using with the Send Alarm command and select the **Destination** of the video.
- To setup example 3: From the Commands list, select Record. Select the recording stream for the Record command (usually Q1).
- From the device list, select . This links the camera to the external alarm and uses the camera name as shown in the alarm for the macro to work (eliminating the need to specify which camera is for this macro).

Note: This method has one limitation. A macro that runs as a result of ANY alarm will always trigger the same response (for example display the alarmed camera) and does not allow launching different macros for different alarms. If there is a requirement to do so, you will need to utilize ViconNet Events Management (see ViconNet manual).

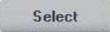
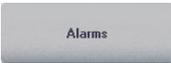
A camera that is running closed video requires a “maintenance” macro to assure the system recognizes the alarm. Running this macro on the camera for 15 seconds every hour will assure that the VMD will be triggered even if the NVR restarted or lost communication to the camera at some point. To create the “maintenance” macro:

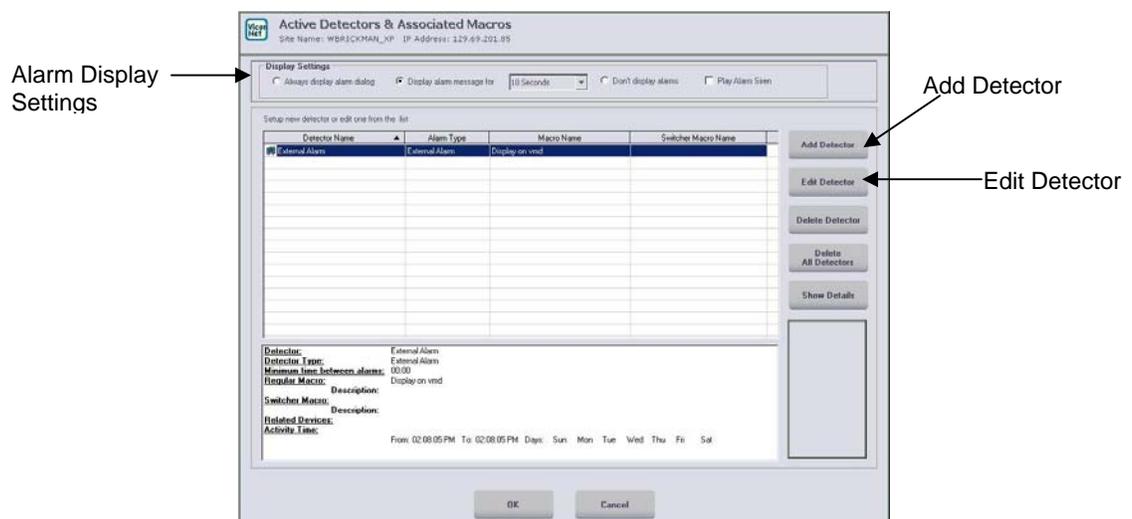
- Follow the previous steps to create the macro.
- Configure a macro to record the camera every hour for 15 seconds so that the system maintains recognition of the camera.

Configuring the External Alarm

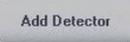
The final step is to configure the external alarm on the Workstation/NVR to activate the macro upon receiving the VMD alarm. Each NVR/Workstation has 1 default **External Alarm** that can be edited to receive the VMD alarm from the camera and execute the macro.

To define the external alarm:

- From the ViconNet Main window, click . The *Setup Site Selection* window displays.
- Select the site name (NVR/Workstation that has the ability to receive alarms) for which the alarm is to be defined and click . The *System Settings* window displays.
- Click . The *Active Detectors & Associated Macros* window displays.



- Select the alarm display settings at the top of the screen.
- From the displayed list, select *External Alarm*. Click . The *Alarm Setup Wizard* window displays.

Note: If the External Alarm has been previously deleted from the NVR/Workstation, click . From the *Alarm Setup Wizard*, select

External Alarm and . Proceed with the steps for **Edit Detector** that follow.

- Define the time schedule for the macro in the *Alarm Activity Time* area; the default is 24 hours a day, 7 days a week. Press **Next >>**.

- From this *Alarm Setup Wizard*, select the macro previously created to be activated when the motion alarm occurs. *Linked to related devices* should say **Yes**. If the macro was not created, or needs to be changed, it can be done by clicking **Macro Editor**. Follow the procedure for creating a macro. Click **Finish**.

- The external alarm setup link is displayed in the list in the *Active Detectors & Associated Macros* window. Click **Show Details** to see complete information on alarm setup.

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