

NovoSun

CyeWeb

Extension Module

Violence Detector

User Manual ver. 1.0

Introduction

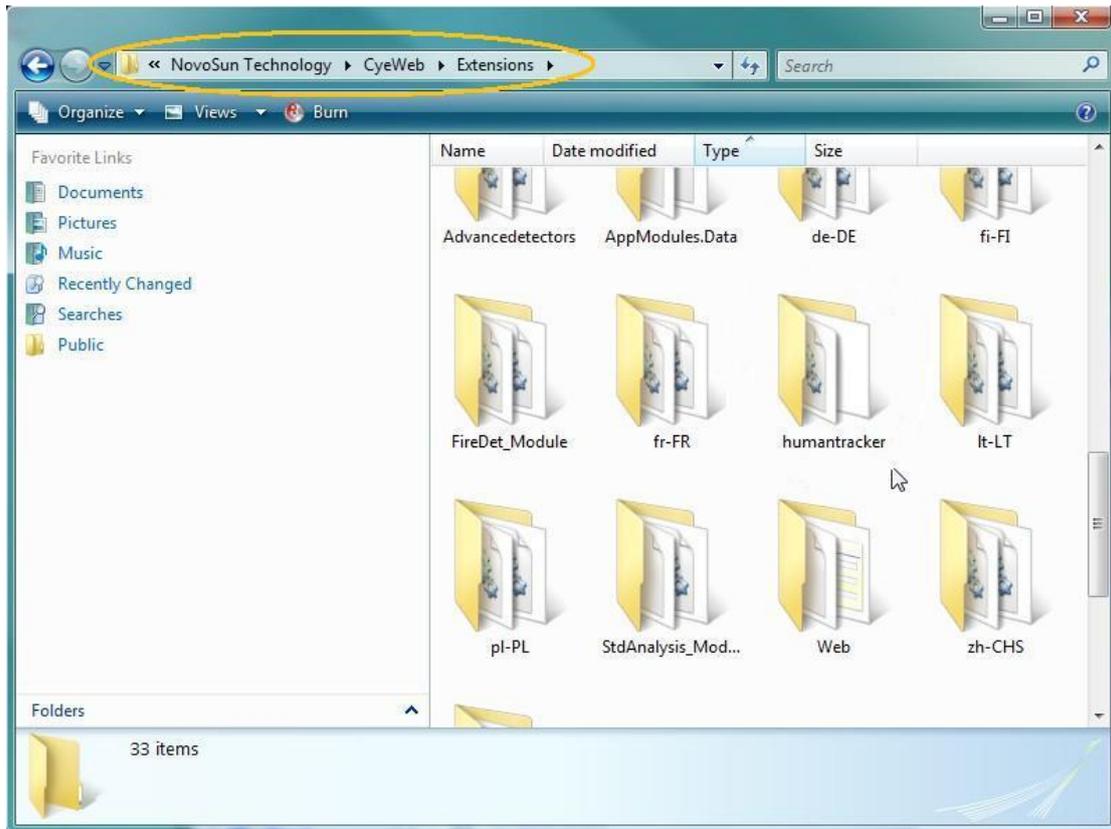
Violence Detection is an attractive function to surveillance agents for monitoring abnormal activities in public area, alley or prison. The detector will trigger an alarm signal if an event of fighting happens in user-specified area.



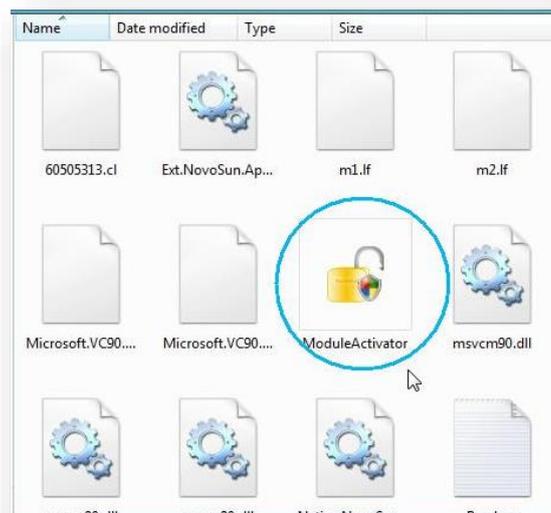
Module Activation

The Violence Detector is included in the “Advance Detectors” module.

To use the “Advance Detectors” module, first unzip the extension module “AdvanceDetectors_v20.zip” to “\NovoSun Technology\CyeWeb\Extensions\”

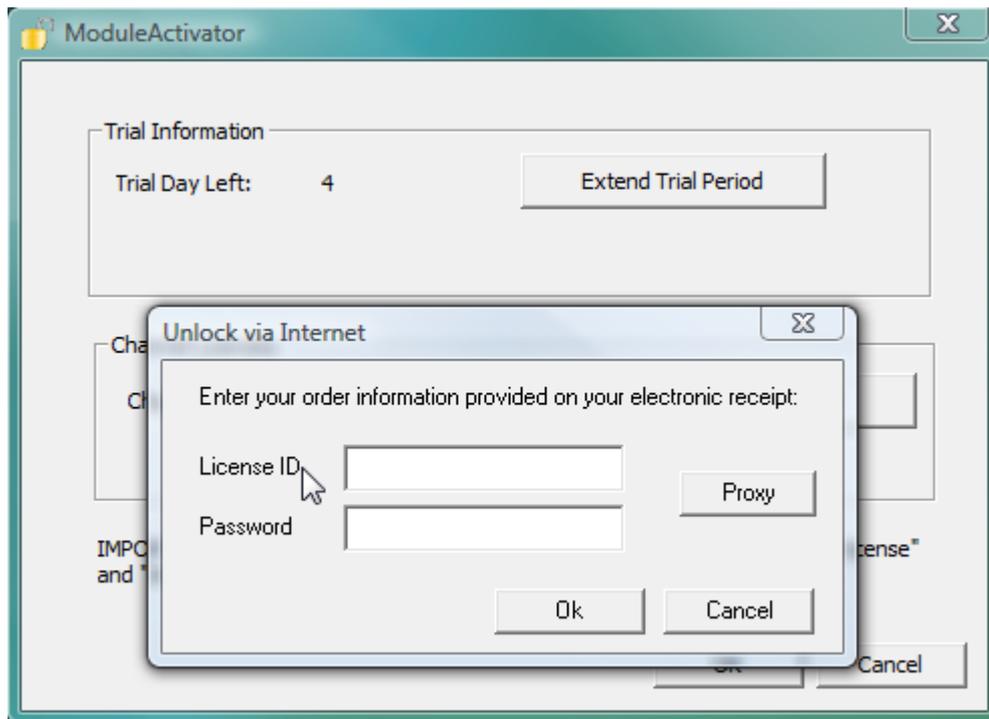


Under the “\CyWeb\Extensions\AdvanceDetectors_v20” folder, run “ModuleActivator.exe”



Input License ID and Password in the ModuleActivator. Please note that if your license is for trial extension, please press the “Extend Trial Period” to activate. Otherwise, press the “Add License” button to activate instead.

PLEASE NOTICE THAT YOU MUST CONNECT YOUR COMPUTER TO INTERNET DURING THE ACTIVATION PROCESS.





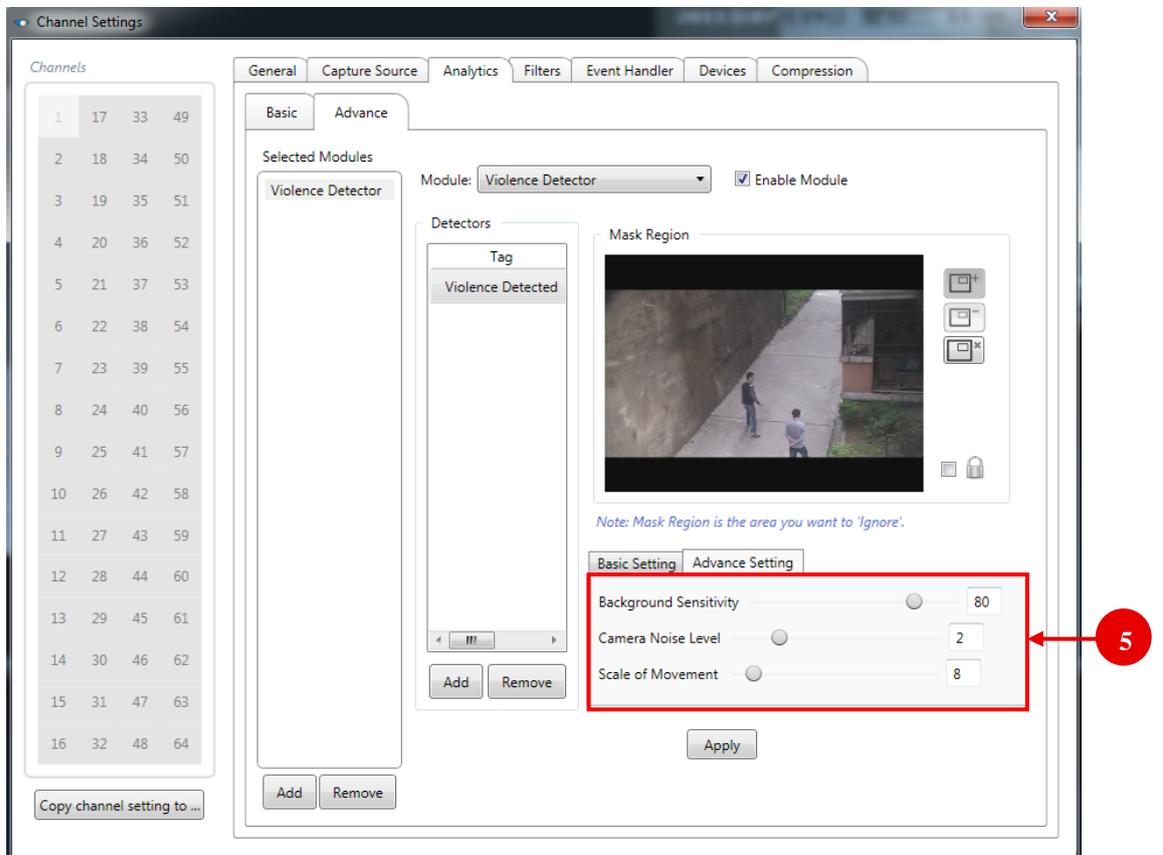
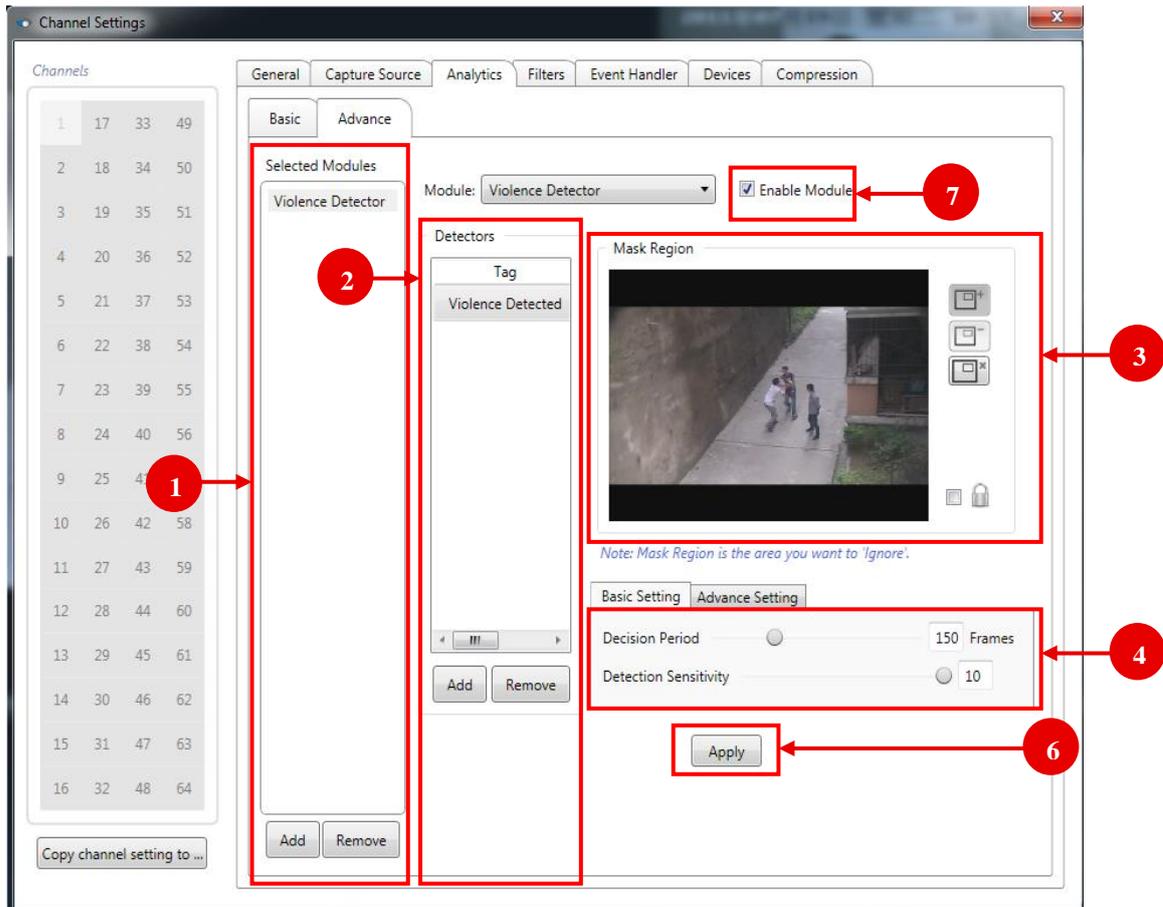
Settings

Before setting up the Violence Detector, please confirm that the following requirement is met beforehand in order to get satisfactory detection accuracy:

- 1) The camera position, angle and focal length have to be fixed.
- 2) Video source has to be kept as stable as possible, try to lower the effect of camera oscillation as much as possible.
- 3) Dramatic change of lighting condition may reduce the detection accuracy; mask those regions with severe light changing.
- 4) Reflection may have negative effect on the counting accuracy, it is recommended to mask regions with heavy reflection if they are not of interest.
- 5) The maximum detection distance is about 20m from the camera to an object.

Setting

In the setting dialog of Violence Detector, there are two kinds of settings: Basic Setting and Advance Setting. General settings can be configured in Basic Setting while other detailed settings can be configured in Advance Setting.





1.) Selected Modules

Here add the “Violence Detector” to current video channel.

2.) Detectors

Multiple Violence Detectors can be added to a single video channel, which can be used to detect violence events in different areas in combination with Mask Region.

3.) Mask Region

Mask those areas which are not of interest to save computation and reduce interference.

4.) Basic Setting

- **Decision Period:** The period for the detector to detect a violence event. Lower this value if the frame rate of the source video is low (the default value is for 25fps).
- **Detection Sensitivity:** The sensitivity level of the violence detector.

5.) Advance Setting

- **Background Sensitivity:** Specify the degree of the Detection Sensitivity adapted to background environment. If the lighting condition of the background changes dramatically, this parameter should be set low (the default value is good enough in most cases).
- **Camera Noise Level:** Specify the video quality of the input source. If the input video is noisy, this parameter should be set high.
- **Scale of Movement:** Define how large a movement should be considered as a violence action. Please note that this value also depends on the distance from the camera to target object.

6.) Apply

Click on this button to apply if any setting is changed.

7.) Enable Module

“Enable Module” button should be checked in order for the Violence Detector to work.



Parameter Tuning Guide

In order to optimize the performance of the violence detector, please follow the below steps in the parameter tuning process:

- 1.) Record 3 to 5 fight videos in the environment that would like to apply violence detection on. Note that the distances between the camera and the fighting people in these videos have to be similar.
- 2.) Start tuning **Scale of Movement** from the level which allows all violence events in the videos from Step 1 to be detected, and then increase the **Scale of Movement** value until any one of the violence events can't be detected any more, use the maximum **Scale of Movement** value which allows all the violence events to be detected as the correct parameter level.
- 3.) Use the **Detection Sensitivity** to fine tune the detector such that the false alarm rate is the lowest while at the same time all the violence events in the test videos can still be detected.
- 4.) If the performance of the detector is still not satisfactory after the above tuning steps, try to tune **Decision Period, Camera Noise Level, Background Sensitivity** according to the description in [Setting](#) section, and then go back to Step 1 - 3.