

Technical Note

Museum Mode FW 6.30



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April 21th, 2016

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This technical note describes what the Intelligent Video Analytics and Essential Video Analytics tracking mode “museum mode” is, where to use it, how to configure and what the best practices are.

What is “museum mode”?

For perimeter protection, Intelligent Video Analytics and Essential Video Analytics detect and track objects. Alarms are typically generated for well-separated objects based on alarm fields or line crossings a line based on the object’s centre. Sometimes, however, an alarm is needed as soon as any part of the object, like a hand, comes into the alarm area. Combine this with a sterile zone directly

besides an area where lots of people move around, and then this is when you need the museum mode. The name is derived from one of the applications: Alarming whenever a museum visitor comes too close to an exhibit.



Typical „museum mode“ application: A sterile zone right in front and including the picture is next to an area where many people are expected. All areas outside the alarm field are masked out.

Applications

- Protect paintings and exhibits
- Protect barriers against climbing
- Protect sterile zones right next to crowded places
- ... and whenever you wonder why a person reaching with a hand into an alarm field does not trigger the alarm

Common product platform (CPP)

Bosch cameras can be clustered by their common product platform. As different platforms offer a different amount of processing power, this can make differences in the video content analysis (VCA) performance. For an overview of the different product platforms and the cameras belonging to them, see the tech note on VCA Capabilities per Device.

Limitations

General:

- Geolocations of tracked objects not available
- Difference in performance and configuration for Intelligent Video Analytics on CPP4 & Essential Video Analytics on the one hand and Intelligent Video Analytics on CPP6/7 on the other. Best performance available with Intelligent Video Analytics on CPP6/7.

Intelligent Video Analytics:

- Not available on the following Bosch IVA cameras with FW 6.10 – FW 6.20:
 - o DINION IP starlight 8000 MP
 - o DINION IP ultra 8000 MP
 - o FLEXIDOME IP panoramic 7000 MP
- For FW versions smaller than 6.10, configuration of the museum mode is available but hidden.
- Idle / removed objects not available on CPP6/7
- Object color filter not available on CPP6/7

- Shaking camera will not be compensated for

Configuration: Intelligent Video Analytics on CPP 6/7 with FW ≥ 6.30

- (1) Set the alarm area for the sterile zone to be protected.
- (2) Mask out all other areas.
- (3) Decrease the “debounce time” of the alarm area to get the alarm as fast as possible
- (4) Set the tracking mode to “museum mode”
- (5) In case of false alerts, use sensitivity, noise suppression and min object size as filters

Calibration is not required for or used by the museum mode.

Configuration: Intelligent Video Analytics on CPP4 with FW ≥ 6.10 or Essential Analytics with FW ≥ 6.30

- (1) Set the alarm area for the sterile zone to be protected.
- (2) Decrease the “debounce time” of the alarm area to get the alarm as fast as possible
- (3) Set the intersection trigger to “edge of box”. Thus every part of the object reaching into the alarm field will trigger the alarm. Note that false alarms may occur if the alarm field is sloped, as the object bounding box is used for the evaluation instead of the object shape. To display the object bounding box, right-click on the video image and select “Show”->”Object Bounding Boxes”
- (4) Set the tracking mode to “museum mode”. This means that the raw segmentation outline will be used in each frame. Though the raw segmentation looks very ragged, this is necessary as the hand of a person is very small in comparison to the person itself, and needs to be preserved in the object outline to correctly alarm on it. Furthermore, close objects will immediately be merged together, as any occlusion handling will be confused by too many objects anyway, and the shapes are estimated / smoothed during occlusion handling which again may cut the hand from the person outline.
- (5) Disable “noise suppression” for better sensitivity & faster detections.
- (6) Raise the stopped object debounce time so standing persons will not be regarded as idle and lost to the tracking.

In addition to, or even replacing the activation of the museum tracking mode, the area outside the alarm field can be masked out. This reduces the needed processing power and neatly avoids the potential crowded situations outside the sterile zone. If objects reach into the alarm area and out again very fast, then is better to add some distance between the alarm field and the VCA mask to support earlier detection of the objects.

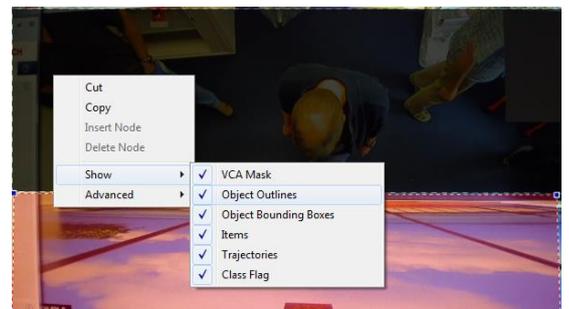
Calibration of the camera is not required for or used by the museum mode.



Intelligent Video Analytics on CPP4 & Essential Video Analytics museum mode: Ragged segmentation outlines but preservation of the hand. Alarming on edge of bounding box.



The field intersection trigger “edge of box” means the field alarms whenever any part of the object’s bounding box overlaps with the alarm field.



bounding boxes can be enabled.

The image displays three sequential screenshots of the 'Settings' application window, illustrating the configuration of tracking parameters for a field.

- First Screenshot:** The 'Define the Field' tab is active. The 'Intersection trigger' dropdown menu is open, showing options: 'Edge of box', 'Object center', 'Edge of box', and 'Complete box'. The 'Debounce time [s]' is set to 0.10.
- Second Screenshot:** The 'Tracking Parameters' tab is active. 'Museum mode' is selected under 'Tracking Mode'. Under 'Object Detection', 'Noise suppression' is unchecked. The 'Object area [m²]' is set with a minimum of 0.09 and a maximum of 576.00.
- Third Screenshot:** The 'Idle/Removed Objects' tab is active. The 'Debounce time [s]' for 'Tracked Objects' is set to 300. The 'Generate 'started/stopped' metadata' checkbox is unchecked.

Below each screenshot is a descriptive caption:

- Set the intersection trigger of the field to edge of box & decrease debounce time
- Set the tracking to museum mode and disable the noise suppression
- Increase the stopped object debounce time to track standing objects longer

Configuration: Intelligent Video Analytics with FW < 6.10

Most of the configuration, and all of the reasoning behind it, is the same as for CPP4 on FW ≥ 6.10. Therefore only the differences will be described here.

- Set the intersection trigger to “edge of box”. This needs to be done via the VCA task script language. Define the alarm task via the GUI, then right-click on the video and select Advanced -> VCA task script editor. A separate popup will appear, with text similar to the following, where you need to add the option marked in yellow here to the definition of your alarm field:

```
//Definition of task primitives
Resolution := { Min(-1, -1) Max(1, 1) };
Field #1 := { Point(-0.656, -0.700) Point(0.350, -0.767)
             Point(0.469, 0.644) Point(-0.694, 0.644)
             DebounceTime(0.10) ObjectSet(BoundingBox) };
//@Task T:1 V:0 I:1 "Detect any object" {
//[1.a=1;1.b=1;]
external ObjectState #1 := InsideField #1;
external Event #1 := OnSet ObjectState #1;
//@
```

- Set the tracking to museum mode. This equals the “standard tracking” mode with “enhanced separation” off and “smooth shapes” off. These configurations are found under “Global Settings” and “Tracking”.
- The “enhanced noise suppression” is off by default.
- Raise the “idle debounce time” in tab “Global Settings”. This will influence the time that standing objects are continued to be tracked even if idle object detection itself is off.