Technical Note
Ship Tracking FW 6.30

BOSCH
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This technical note describes how to track ships using Intelligent Video Analytics, how to configure this and what the limitations are.

Applications
- Harbour & canal surveillance
- Perimeter protection on coastlines
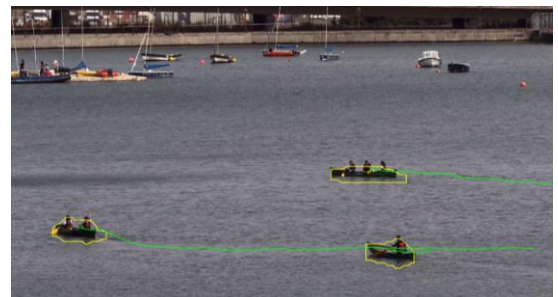
Common product platform (CPP)

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
- Only available with Intelligent Video Analytics on Bosch cameras of CPP6 &CPP7 with FW 6.10 or higher
- The camera needs to be mounted at the shore in a fixed position.
- It is not possible to track ships or other objects from a camera mounted on a moving boat, as the whole shore would be detected as moving objects.
- No detection of swimmers possible. Of swimmers, usually only the head is visible, which is mostly smaller than the surrounding waves and thus too small to be detected.
- Detection of ships is faster and more reliable
  - o the faster the ships are
  - o the larger the ships are
  - o the more the ships appearance differs from the water
  - o the calmer the water is
- Detection / tracking in water gates will not be possible if the water flushes through them so fast and turbulent that extensive foam formation occurs.
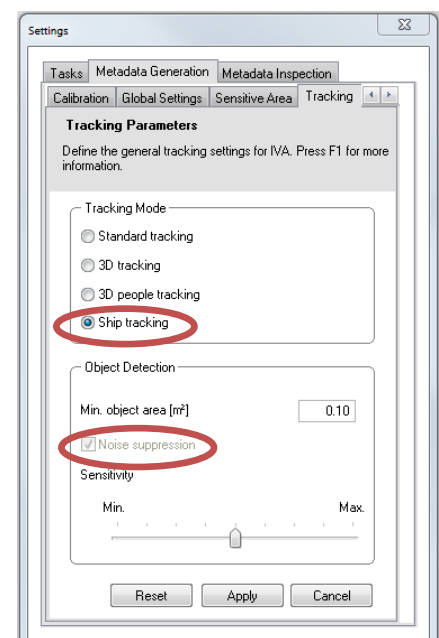
Configuration

If the water body to be monitored is calm with small waves only, the default settings of Intelligent Video Analytics on the listed cameras will already work quite well. However, in windy environments and at coasts, the waves and white crests need to be compensated for, and the ship needs to be well separated from its

Tracking slow ships on calm water is possible with default IVA settings on the listed cameras.

In most real-world conditions water is full of waves and the special "ship tracking" mode is needed

bow wave, in order to minimize false alerts while still correctly detecting the ships. For this, the tracking mode "Ship tracking" needs to be enabled. It can be found under "Metadata Generation" -> "Tracking". As soon as "Ship tracking" is enabled, "Noise suppression" is automatically enabled as well and becomes non-configurable.
Note that "Ship tracking" is the tracking mode with maximal noise suppression, and thus also the least sensitive. Therefore it should not be used for surveillance on land.

The ship tracking mode itself does not benefit from calibration information. However, if you want to filter objects by real size and speed, or get the geolocation of the ships, you need to add a calibration.