

FREQUENTLY ASKED QUESTIONS

AXIS Object Analytics



Frequently asked questions

Q: What is the main purpose of AXIS Object Analytics

A: AXIS Object Analytics is an edge-based video analytics application designed to detect and classify humans and vehicles in a camera's field of view. Because it can classify detected objects, you can select if you want to detect humans, vehicles, or both within the specified scenario that has been configured.

Q: Who is AXIS Object Analytics for?

A: AXIS Object Analytics is a suite of analytics that detects, classifies, tracks, and counts humans, vehicles, and types of vehicles. It is suitable for a wide range of use cases where users want to classify, track, and count selected objects. Designed to enable proactive monitoring you can quickly verify detected events or set up automatic responses and collect data to access actionable insights.

Q: How do I activate the license for AXIS Object Analytics?

A: When running AXIS Object Analytics for the first time, you won't be needing a license since it's value-added analytics. AXIS Object Analytics is free of charge and preinstalled in firmware on compatible cameras. Once the firmware has been upgraded, the analytics will be available to use. Cameras with a machine learning processing unit (MLPU) must have firmware 10.2 (or higher) and cameras with a deep learning processing unit (DLPU) must have firmware 10.3 (or higher).

Q: How do I get the latest version of AXIS Object Analytics?

A: To ensure that you have access to all the latest features and updates, we recommend you always have the latest firmware version installed on your camera. If your camera does not have the latest firmware, see [how to upgrade](#) the firmware, and then find the latest firmware for your camera [here](#).

Q: What is the difference between AXIS Object Analytics machine learning and deep learning?

A: Depending on if AXIS Object Analytics is running on a camera with a *machine learning* processing unit (MLPU) or a camera with a *deep learning* processing unit (DLPU), its detection and classification capabilities vary.

AXIS Object Analytics running on a camera with a *machine learning* processing unit (MLPU):

- Classifies humans and vehicles
- Considerations: Humans and vehicles should look like humans and vehicles

AXIS Object Analytics running on a camera with a *deep learning* processing unit (DLPU):

- Classifies humans, vehicles as well as different types of vehicles including cars, trucks, buses, and bikes (motorcycle/bicycle)
- Manages more challenging scenes (more crowded and busy scenes, objects in more challenging positions)

[Click here](#) to watch a short video

Q: Is it possible to run AXIS Object Analytics simultaneously with other AI based applications on a camera?

A: Running multiple ACAP applications simultaneously on a camera may affect performance. We, therefore, recommend only running AXIS Object Analytics with other preinstalled applications. If you post install an application the performance needs to be verified.

Q: How long does it take for the detection to initialize?

A: The object must initially be moving (depending on the scenario) within the camera's field of view (the scene) for the analytics to be able to detect and classify it. Depending on the scene, its conditions, and object visibility, the amount of time it takes for detection to initialize can vary. Although detection could initialize sooner, our general recommendation is that an object needs to be fully visible and moving for at least 2 seconds for more reliable detection. But in most cases it will only take 0.5 seconds.

Q: Does AXIS Object Analytics support older Axis products?

A: No, it relies on a specific hardware component that is built into certain cameras.

Q: Will I see the metadata overlay in the recorded and live screen of the analytics when there is a trigger?

A: Yes, you will see the burnt-in metadata overlay* provided that the following steps have been taken:

- The metadata overlay feature has been enabled within the application.
- The resolution in the video you are viewing matches the selected resolution in the metadata overlay. Ensure that the correct streaming profile has been selected, as per the above resolution, and that the adaptive stream resolution (or any other dynamic streaming profiles used) is turned off.
- You are using view areas.

When the Metadata overlay has been selected on desired resolution, a rectangle around triggering objects becomes visible. Their trajectories can also be manually enabled. If you are running the Crossline counting scenario, a counting table is also visible. The metadata overlays are only visible in live views and recordings of the selected resolution. This scenario applies red boxes for people and blue boxes for vehicles when they have triggered an event. Enabling the Time in area scenario applies yellow boxes along with a timer to the objects prior to triggering an event. Once they have triggered an event, this scenario applies red dotted boxes for people and blue dotted boxes for vehicles. In general, metadata overlay is only applied once selected objects have triggered an event. When running the Time in area scenario, the metadata overlay is applied as soon as a yellow box along with a timer has been applied. In other words, prior to an event being triggered. When running AXIS Object Analytics on DLPU cameras, this scenario also applies resemblance icons for each type of classified object.

Q: Do I have to choose between a video with or without metadata overlay using the same resolution?

A: No, you can run two streams with the same resolution on cameras that support view areas by creating a view area (since view areas don't support metadata overlay).

Q: Can I change the colors of objects and the alarming area?

A: No, today we have red for humans and blue for vehicles and the alarming area is outlined in red. Enabling Time in area will display dwelling objects with yellow boxes along with a timer until the condition has been fulfilled.

Q: How do I configure different scenarios?

A: Please read the [user manual](#) on how to configure different scenarios.

*Depending on the SoC, there will be a difference in graphics for the metadata.

Q: Why does AXIS Object Analytics trigger on unwanted small objects and can I minimize it?

A: If there are triggers on unrealistically small objects such as small animals, we recommend that you configure the perspective calibration within the application's settings.

Q: Can AXIS Object Analytics run on PTZ cameras, and does it support pre-sets?

A: Yes. If the PTZ cameras start to move, AXIS Object Analytics will suspend itself until the final position is reached and then wait 5 seconds until further detections take place. When using guard tour with AXIS Object Analytics, it is recommended that the timer between each position is extended to ensure enough time for everything to initialize and start detecting.

Q: Can AXIS Object Analytics run on multi-sensor cameras?

A: The number of channels AXIS Object Analytics can run on is camera dependent. For an up-to-date list of compatible cameras, please visit the [product page](#).

Q: Does AXIS Object Analytics have the same performance when running on a multi-sensor product?

A: Depending on number of channels/sensors per SoC, performance will be affected in regards to how quick initial detection is.

Q: Does AXIS Object Analytics work on fisheye cameras, and can I change the view?

A: Yes, AXIS Object Analytics works on supported fisheye cameras. There are some limitations with regards to blind spots directly underneath (top-down), installation height, and around the edges. For more information, please visit the specific camera's product manual.

Q: Can I train AXIS Object Analytics, or does it learn on its own?

A: No, AXIS Object Analytics is trained and maintained by Axis. This is done through firmware upgrades to cameras that are compatible with the analytics.

Q: How well will AXIS Object Analytics work in low light and dark scenes?

A: Each scene will require its own considerations as each has its own environmental or climatic challenges. Having a good contrast of the object and having the object look like a human and vehicle in low light scenes will allow the analytics to be more accurate.

Q: Can I create events based on the counting data?

A: Yes, it is possible to trigger actions based on the counting events generated by AXIS Object Analytics. A trigger condition is added to the action rule menu by default when creating a Crossline counting scenario within AXIS Object Analytics. This condition is triggered each time an object is counted by AXIS Object Analytics and can be used to trigger actions such as playing an audio clip on a network audio speaker.

In addition, a second trigger condition can be configured by enabling the Passthrough Threshold feature within the Crossline counting scenario. This condition is triggered each time X number of objects have passed the line according to the number that has been specified within the Passthrough Threshold field.

Q: Can AXIS Object Analytics measure occupancy?

A: Yes, using dedicated scenario Occupancy in area. AXIS Object Analytics does not measure occupancy levels using the Crossline counting scenario. This scenario will count objects that have crossed the virtual line configured within the application and generate events containing metadata about the type of object that was counted, as well as aggregated data of the objects that have been counted.

Q: What metadata does AXIS Object Analytics produce from the counting?

A: Each object that is counted by AXIS Object Analytics will generate a stateless event which can be used as part of the action rule engine on the camera to trigger actions when events are detected. For instance, the camera can trigger a network audio speaker to play an audio clip when the camera counts an object.

In addition, each generated event contains metadata about the type of object that was counted as well as aggregated counts for each of the selected object classes since the time of the last reset. This information can be used to visualize the object counting data produced by AXIS Object Analytics in AXIS Camera Station Pro, or on third-party systems.

An example payload produced by the Crossline counting scenario can be seen below.

```
{
  "topic": "axis:CameraApplicationPlatform/ObjectAnalytics/Device1Scenario1",
  "timestamp": 1670518346712,
  "serial": "ACCC8EF1E944",
  "message": {
    "source": {},
    "key": {},
    "data": {
      "startTime": "2022-12-06T22:01:25Z",
      "totalBus": "0",
      "total": "20960",
      "totalTruck": "2857",
      "totalCar": "18103",
      "totalUnknown": "0",
      "reason": "car",
      "totalMotorcycle/bicycle": "0",
      "totalHuman": "0"
    }
  }
}
```

Q: Can AXIS Object Analytics produce live and historic data from counting (can I get counting data at any given time without an event)?

A: There are currently two methods of obtaining the object counting data produced by AXIS Object Analytics:

1) The counting data can be observed in real-time by accessing the Crossline counting or Occupancy in area scenario that has been configured within AXIS Object Analytics, where it is presented in a table format displaying the accumulated counts for each of the selected object class types.

In addition, the counting data table can be burnt into the video stream as part of the metadata overlay to enable visualization of the data in a VMS.

2) Each object that is counted by AXIS Object Analytics contains metadata about the type of object that was counted as well as aggregated counts for each of the selected object classes since the time of the last reset. This information can be used to visualize the object counting data produced by AXIS Object Analytics in AXIS Camera Station Pro, or on third-party systems.

Q: Can I use 3rd party tools to access the counting data and how does it work?

A: Yes, it is possible to integrate the counting data produced by AXIS Object Analytics with third-party systems to visualize the statistics in a variety of formats. This can be accomplished by subscribing to the event stream of the Axis camera running AXIS Object Analytics which will generate an event containing metadata each time an object has been counted.

We have created an integration guide that provides important information such as suggested architecture, development examples, and recommended considerations when designing a solution that uses the counting data provided by AXIS Object Analytics. [Click here to visit the integration guide.](#)

Q: Do I need a VMS to run AXIS Object Analytics or does it work as a stand-alone application?

A: It is recommended to use the application with a VMS in most use cases. It is possible to run the Crossline counting scenario without a VMS. The application is compatible with AXIS Camera Station, Genetec, and Milestone VMS. In general, all VMS that can receive Axis events from cameras are compatible. Nevertheless, we do recommend running a test if the target VMS is not any of the three listed above. The application can be used without a VMS using the event engine function of the camera to take a snapshot, send an e-mail, etc.

Q: What is the minimum object size for human and vehicle detection?

A: For human detection: for a standing person to be detected at the recommended maximum detection distance, the pixel height of the object should be at least 8% of the total image height. For example, if the height of the video stream is 1080 pixels, the height of a person standing at the end of the detection zone should be at least 86 pixels for human detection. In optimal circumstances, the pixel height of the object could be at least 4% (at least 43 pixels if the video stream is 1080 pixels).

For vehicle detection: the pixel height of the object should be at least 6% of the total image height. For example, if the height of the video stream is 1080 pixels, the height of a vehicle at the end of the detection zone should be at least 64 pixels for vehicle detection. In optimal circumstances, the pixel height of the object could be at least 3% (at least 32 pixels if the video stream is 1080 pixels).

As of firmware 10.11, a minimum object size visualization tool is built into the application to help determine if live objects are large enough to be detected.

Maximum detection distance varies depending on the camera. The numbers above are for guidance only. To see what applies to specific cameras and plan camera placement and coverage with maps, visit [AXIS Site Designer](#).

Q: What is the minimum amount of light/lux level for AXIS Object Analytics?

A: Our minimum recommended light level is 50 lux.

Q: Which browsers will be supported in the configuration of AXIS Object Analytics?

A: Chrome, Firefox, and Edge (Chromium based).

Q: What cameras are compatible with AXIS Object Analytics?

A: For a complete list of compatible cameras, please [click here](#).