

AiDANT Queue User Guide



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1. Overview

The **AiDANT Queue** application developed by [AiDANT.ai](#) is an AXIS ACAP application that can be used to monitor a queue and notify the user if any of the following conditions arise:

- the queue is too long
- the queue is too slow
- the cashier is absent for too long
- the cashier is absent but customers are present in the queue

The application can monitor queues comprised of people and/or various vehicles, and optionally serviced by a cashier (or equivalent resource). Thus AiDANT Queue is suitable to monitor for example, queues of customers waiting to pay for retail purchases, persons waiting to be serviced by a bank teller, or queues of vehicles in drive-through restaurant.

This application can be installed into any supported AXIS camera with a DLPU processor, ARTPEC-7 or ARTPEC-8.

2. Glossary

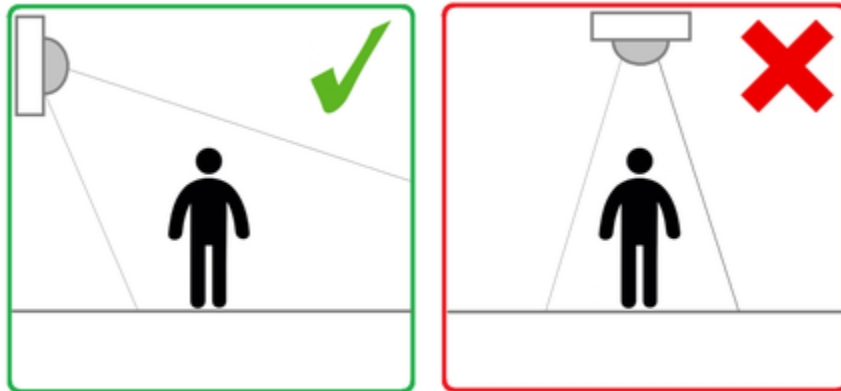
Queue Area	A user-defined area within the camera's viewport that defines where customers are expected to queue up.
Cashier Area	A user-defined area within the camera's viewport that defines where the cashier is expected to be present.
Report	A comma separated values (CSV) file containing historical information gathered by the camera.
Entrants	The number of persons/vehicles who have entered the queue.
Throughput	The number of entrants who have exited the queue.
Average Duration	The average amount of time each entrant has spent waiting in the queue.

Report Interval Time	How often to calculate a new entry in the report. See section “Report Interval and Compute Statistics”.
Compute Statistics Time	For user interface only: How far back to calculate Entries, Throughput and Average Duration. See section “Report Interval and Compute Statistics”.

3. Requirements

In order to run the AiDANT Queue application, you will need:

1. An AXIS camera with a DLPU chip and a non-fisheye lens.
2. The latest version of the AXIS camera firmware installed in the camera. Firmware 10.6 and later is required.
3. A valid software license key file for the AiDANT Queue application for the camera. Please contact AiDANT to obtain a software license key file.
4. A copy of the AiDANT Queue software application. Download and extract (unzip) the eap application file through the link <https://downloads.aidant.online/>.
5. The minimum Pixel Per Foot requirements are: 20 PPF.
6. **Important!** Camera positioning: The camera needs to be positioned in such a way that it can see as much of the human body/object as possible. The software is **not intended to be used in top-view** (ceiling mounted, facing straight down).

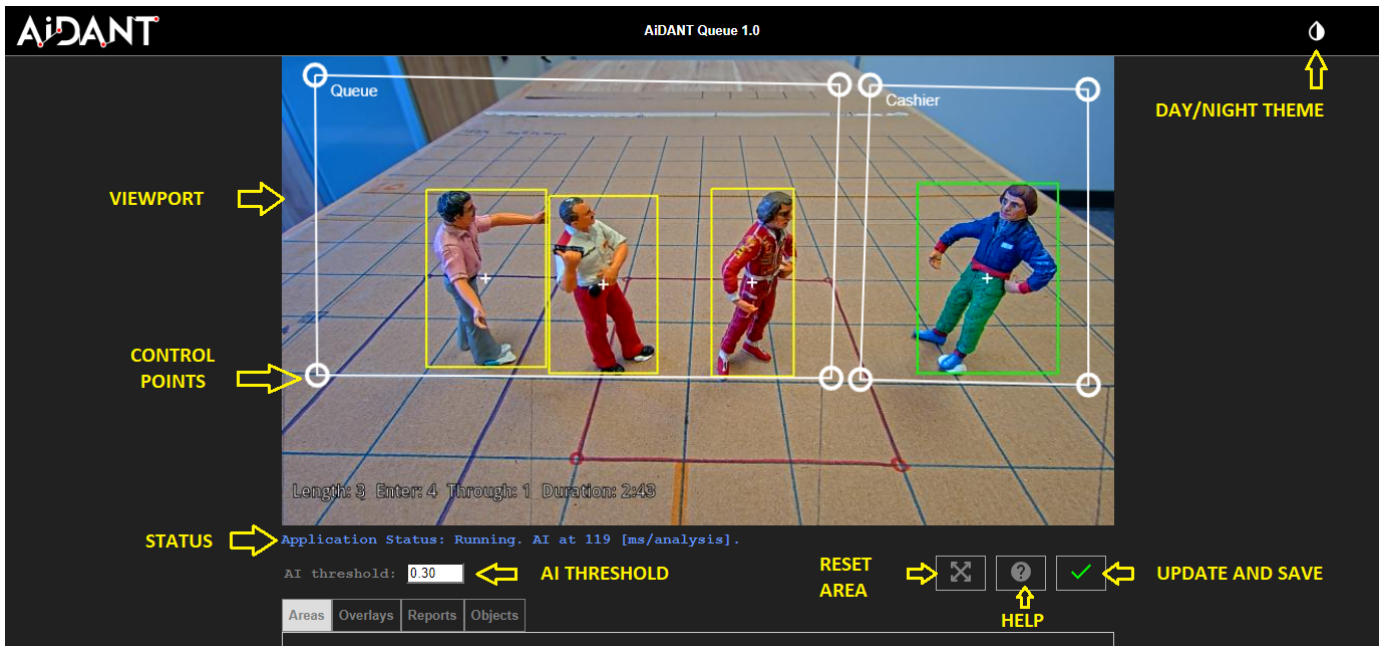


4. Installation

Once all the requirements are satisfied, please do the following:

1. Access the camera through any web browser.
2. Go to *Settings->Apps* .
3. Click on *Add* and install the .eap application file.
4. Click on *AiDANT Queue* and install the license key file provided to you.

5. Main Controls



- The 'AI Threshold' is a number between 0 and 1. It is used to specify how sensitive the AiDANT Queue application is in identifying a person /vehicle in the camera viewport. (i.e. the higher the AI Threshold the more selective the application is in identifying persons on the screen.). A value of 0.40 is the default as it generally provides good results. However every installation is different and you may have to adjust the value of the AI Threshold to obtain the best results for your environment.
- The 'Reset Area' button is used to restore the Queue and the Cashier areas to their default positions.
- The 'Help' button is used to open the user guide.
- The 'Update and Save' button is used to save your configuration changes.

6. Areas of Interest

- To configure the 'Queue' and 'Cashier' functionality, select an area to monitor by dragging the control points until the polygon shape covers the area of interest. The Areas of Interest can have 4, 6 or 8 control points.
- Queue: Indicate the minimum number of persons/vehicles in the queue needed to trigger the alarm by using the 'Notify only when queue count is at least' field. The user can also indicate the average duration of time needed for a person/vehicle to wait in the queue by using the "Notify when average duration is at least". The average is a running average, computed for the time specified in the "Compute statistics for previous minutes" field. eg: the last 60 minutes.
- Cashier: 'Enable Cashier' (optional) will turn on the cashier functionality. Use the "Notify when unattended for" functionality to trigger an event when cashier absent for a specific period of time. Use the "Notify when unattended but queued customers" to trigger an event when cashier absent for a specific period of time. Note: This functionality can be connected to an Axis loudspeaker through the Axis event system to summon a cashier when needed.
- Use 'Exclusion' zones to keep areas out of the analysis.
- The 'Maximum seconds a lost person/object is still tracked' value enables the user to configure what happens to the tracking mechanism once a person/object is not detected anymore. For example, if a person/object goes behind a pillar in the field of view.
- Remember to save your changes by pressing the 'Update and Save' button (the green checkmark).

Warning: If the value of 'Maximum seconds a lost person/object is still tracked' is too high, then a person/object exiting the camera field of view might 'transfer' the tracker to a different person/object entering the field of view within a few seconds, affecting accuracy. It is recommended to keep this value below three seconds.

When a target is detected, a bounding box will be shown on the stream in the application. The default color for the markers is green. If a target enters the area of interest, then the marker color changes from green to yellow.

7. Overlays

- You can chose to display the bounding boxes as an overlay in a camera video stream by clicking "Include detection overlays in this video stream" and selecting the desired stream.
- You can chose to anonymize the bounding boxes as an overlay in a camera video stream by clicking "Include anonymization overlays in this video stream" and selecting the desired stream.

8. Reports

- The 'Report Interval' value represents how often an entry (row) is added into the report file, in minutes. Default is sixty minutes.

- The 'Get Report' button will allow for the download of a report file in csv format. The data will include record for the past three months. The report file will contain the Date, Queue Length, Entrants, Throughput and Average Duration.
- Open the csv report file in you software of choice such as Excel or MS Power BI to create graphs and analysis from the raw data.
- The report data accessed programmatically by using Axis Vapix commands. Please refer to Appendix 'Vapix' for more details.

Important: Make sure to download your report periodically, as data prior to three months ago will not be kept.

9. Objects

The application can detect the following objects:

Persons, Motorcycles, Cars, Trucks, Buses, Bicycles, Trains, Boats, Airplanes.

10. Event Triggering

To setup event triggering:

1. Go to *System->Events*.
2. Click on + under *Rules* and select *the Condition* under the *Condition* field.
3. Fill in the *Name* field and select an *Action*.

If you wish to set up email notification, click on the *Recipients* tab. Press the + button and fill in the fields.

Once done, you can go back to *Actions* under the *Rules* tab and select the appropriate action you want that requires a recipient.

11. Appendix

Troubleshooting

- The application log can be accessed through the Apps/AiDANT Queue page.
- Please contact [AiDANT Technical Support](#) if you have any questions or comments.

VAPIX

If needed, the queue status, application status code and application status string can be polled through Axis VAPIX commands as follows:

Queue Status

http://[IP]/local/aidant_queue/cgi/work.cgi?action=get_queue_status

Result: JSON response, eg: { "queue": 5, "cashier": 1 }

Application Status String

http://[IP]/local/aidant_queue/cgi/work.cgi?action=get_status_string

Result: Running

Application Status Code

http://[IP]/local/aidant_queue/cgi/work.cgi?action=get_status_code

Result: 500

Report Interval and Compute Statistics

- Report Interval Time: How often to add a new entry to the report.
- Compute Statistics Time: For user interface only, how far back to calculate entries, throughput and average duration.

	User Interface	Report
Entries	The number of people entered the queue in the last Compute Statistics minutes	The number of people entered the queue in the last Report Interval minutes

Throughput	The number of people who exited the queue in the last Compute Statistics minutes	The number of people who exited the queue in the last Report Interval minutes
Average Duration	Average time waiting during last Compute Statistics minutes.	Average time waiting during last Report Interval minutes.
Queue Length	Length now.	Length when entry added to the report.

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