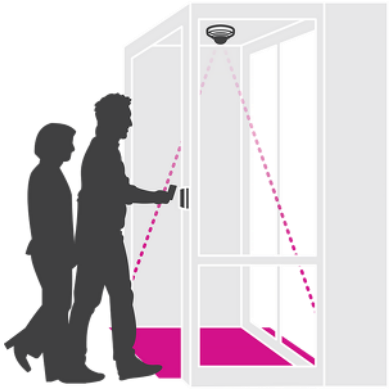
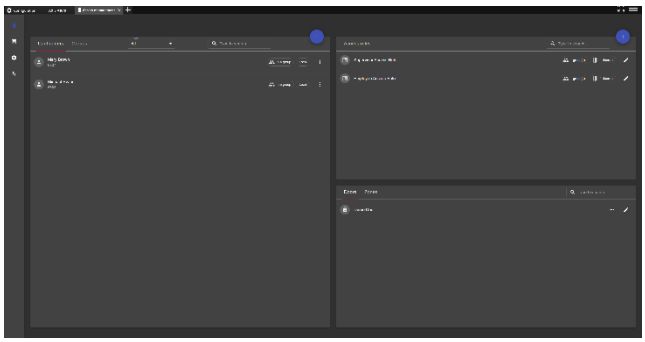
AXIS People Counting Application Tailgating Detector + Access Control

An integration guide





Contents

1 Introduction

This document how to integrate an Axis camera running the AXIS People Counting analytic into an access control system to assist with Tailgating. The purpose of the integration is to enforce badge in/out at an entrance/exit.

Normally AXIS People Counter (APC) will trigger only if two or more people cross the boundary within a set amount of time. With the access control integration, a valid credential read will allow one person to pass the boundary during a set amount of time, if another person badges in, the system will allow two people to pass, and so on.

This guide will show to configure this behaviour in AXIS Secure Entry and with a third party access control system (using assumed IO signals from that system).

The below sequence diagram shows how the shunting works:

Second	Allowed counts	Counts	Person walking in	Alarm	Bagde		Description	1st badge count down	2st badge count down	3st badge count down
1	0	0								
2	0	0								
3	1	0			1		1st badge, allowed count increases by one.	10		
4	1	0						9		
5	1	0						8		
6	0	1	passage				1st passage, allowed count used.	7		
7	0	1								
8	1	1			1		2nd badge, allowed count increases by one.		10	
9	1	1							9	
10	2	1			1		3rd badge, allowed count increases by one.		8	10
11	2	1							7	9
12	2	1							6	8
13	1	2	passage				2nd passage, one allowed count used.		5	7
14	1	2								6
15	1	2								5
16	1	2								4
17	1	2								3
18	1	2								2
19	1	2								1
20	0	2					Third badge timed out after 10 seconds.			0
21	0	2								
22	0	2								
23	0	2								
24	0	2								
25	0	3	passage	alarm			Passage when allowed counts = 0 (ALARM)			
26	0	3								
27	0	3								
28	0	3								
29	0	3								
30	0	3								

2 System Overview

Below is a list of components that were used for the example setup made when producing these instructions:

AXIS P3245-LV Camera (or any camera that can run APC)
AXIS A1610 Door Controller with badge reader (for Secure Entry Solution)
AXIS D3110 Connectivity Hub (for integration to third party access control)
AXIS C1310-E Network Horn Speaker

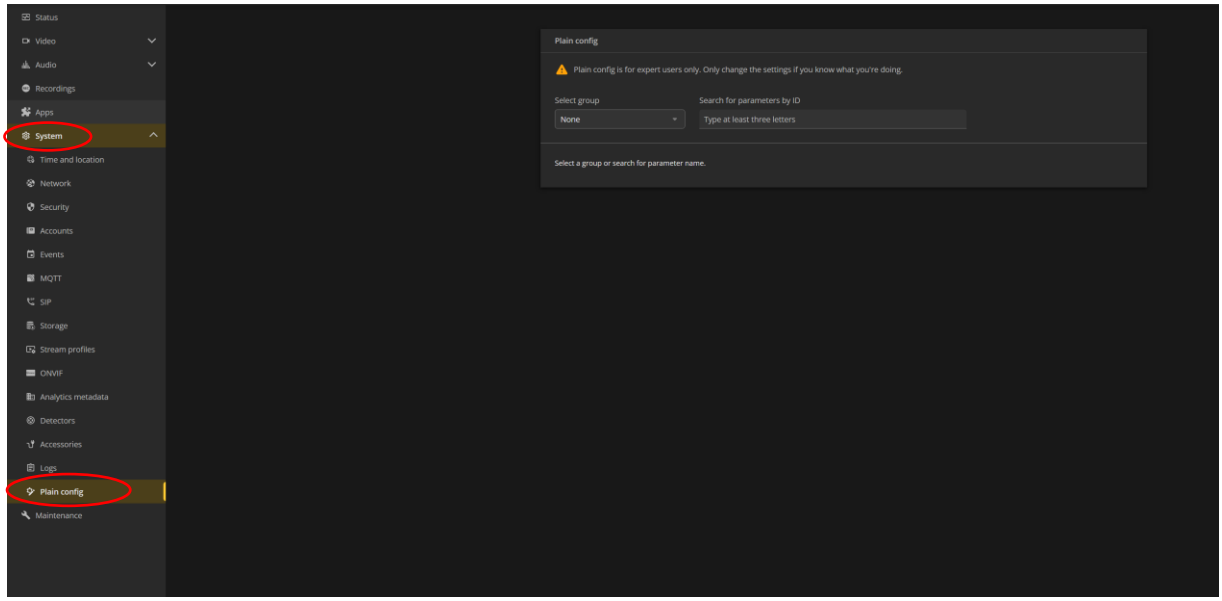
The P3245-LV camera is mounted above the entryway and triggers alarms when tailgating is detected. Alarm is displayed as an overlay message and an audible clip is played by the speaker device.
The A1610 relays information on valid badge reads to the P3245 camera to allow for temporary shunting of the alarm. In case of a third party access control system, the D3110 process physical inputs from the alarm system indicating valid badge reads. The P3245 will also toggle an output on the D3110 in case an alarm needs to be sent to the third party system upon a detected tailgating event.

The D3110 solution with a third party system supports detection in both directions (in/out) provided that the access control system can send card read information for both the entrance and exit reader. The Secure Entry solution only supports one direction and also “hijacks” the Alarm Log functionality (rarely used).

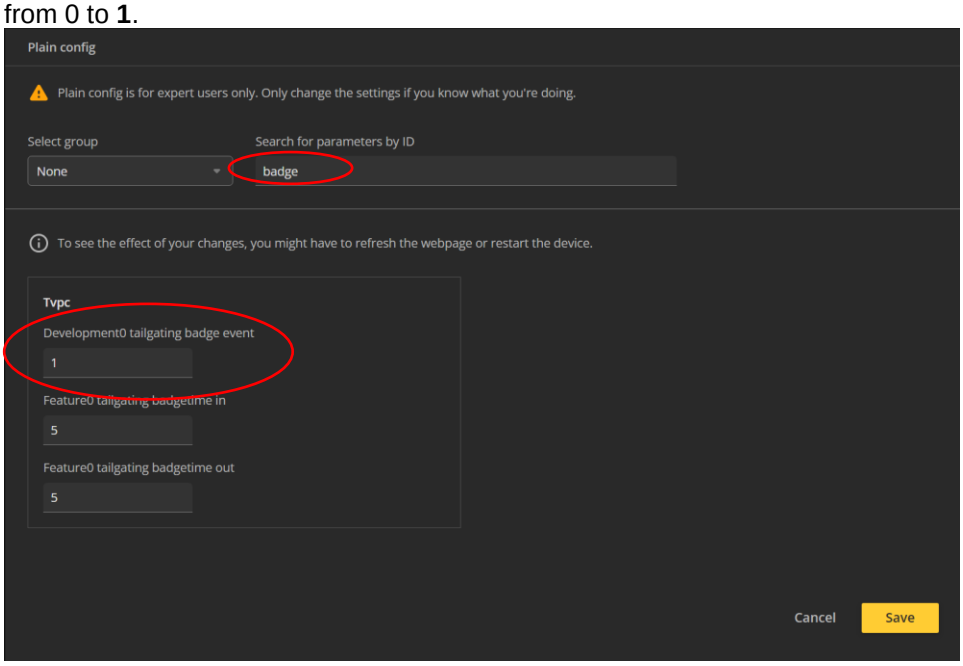
3 Enable Access Control integration in Camera

The very first step is to load APC on the camera and configure per best practices. This is out of the scope of this guide. Please refer to AXIS website for instructions on this.

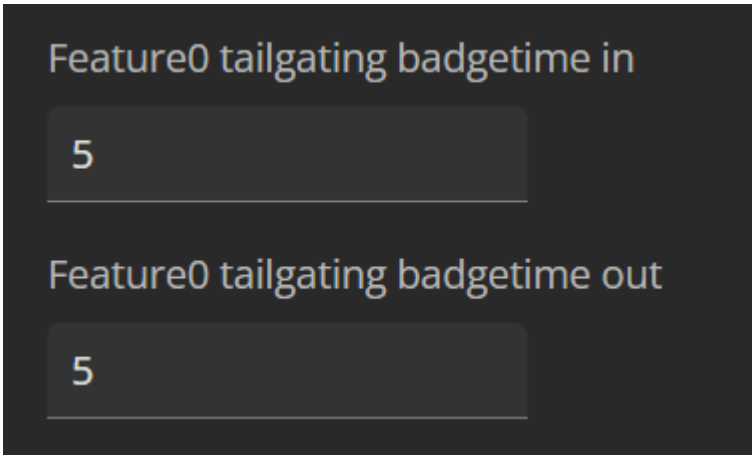
Install the ACAP and then navigate to **System → Plain Config** per below image:



Once in the settings page. Find the field “**Development0 people counter badge event**” and change it from 0 to **1**.



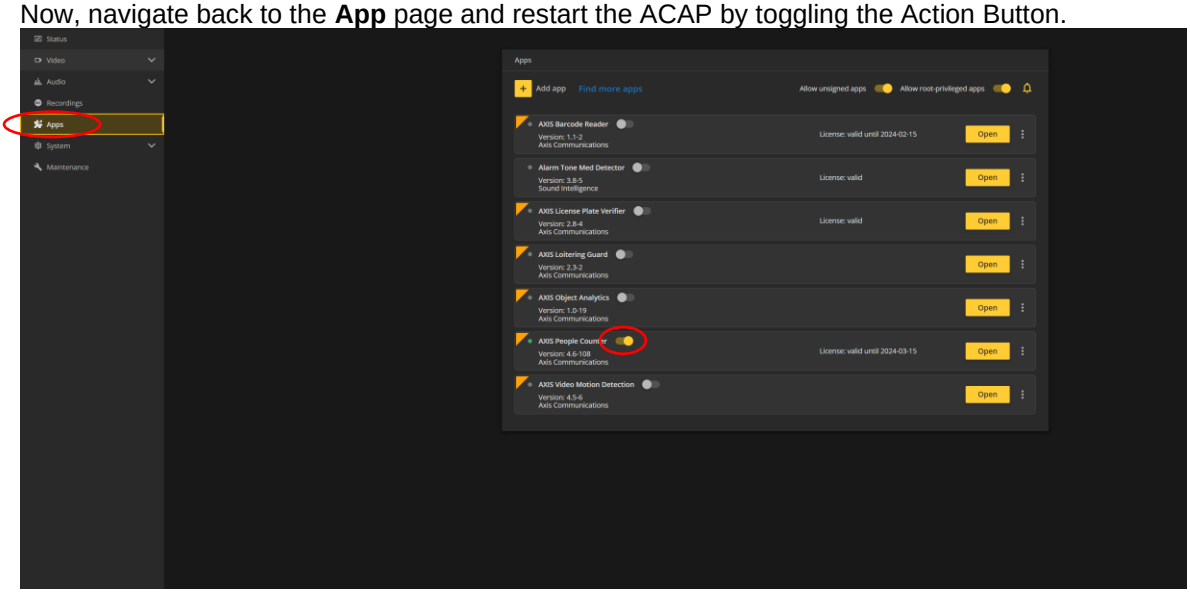
At this point, also locate the **Feature0 tailgating badgetime in/out** timer settings (see below). This is the time that each person that scans their badge will have to pass the boundary. If the time expires and the person passes the boundary, the alarm will trigger.

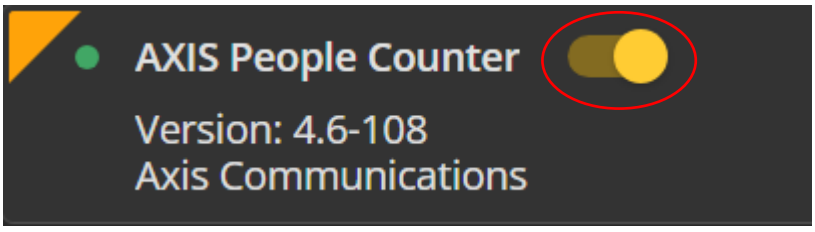


This value should be determined by observing the flow of people at the entrance.

After these settings have been changed, scroll down to the bottom of the page and hit “Save”.

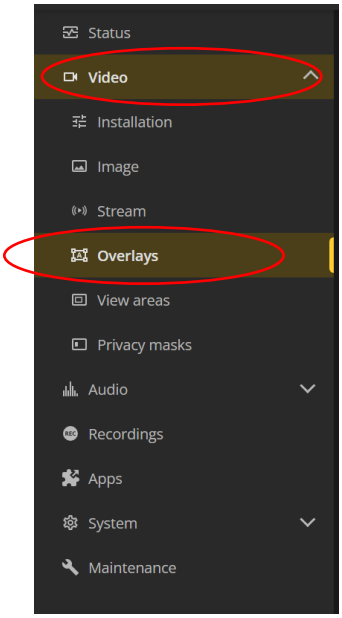
Now, navigate back to the **App** page and restart the ACAP by toggling the Action Button.

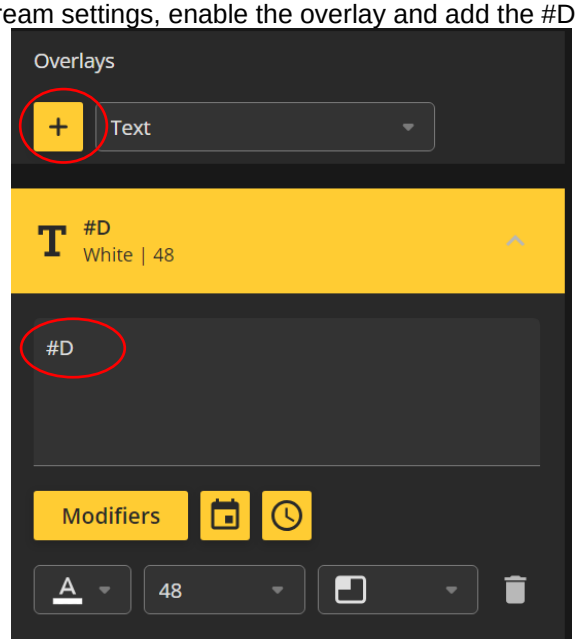




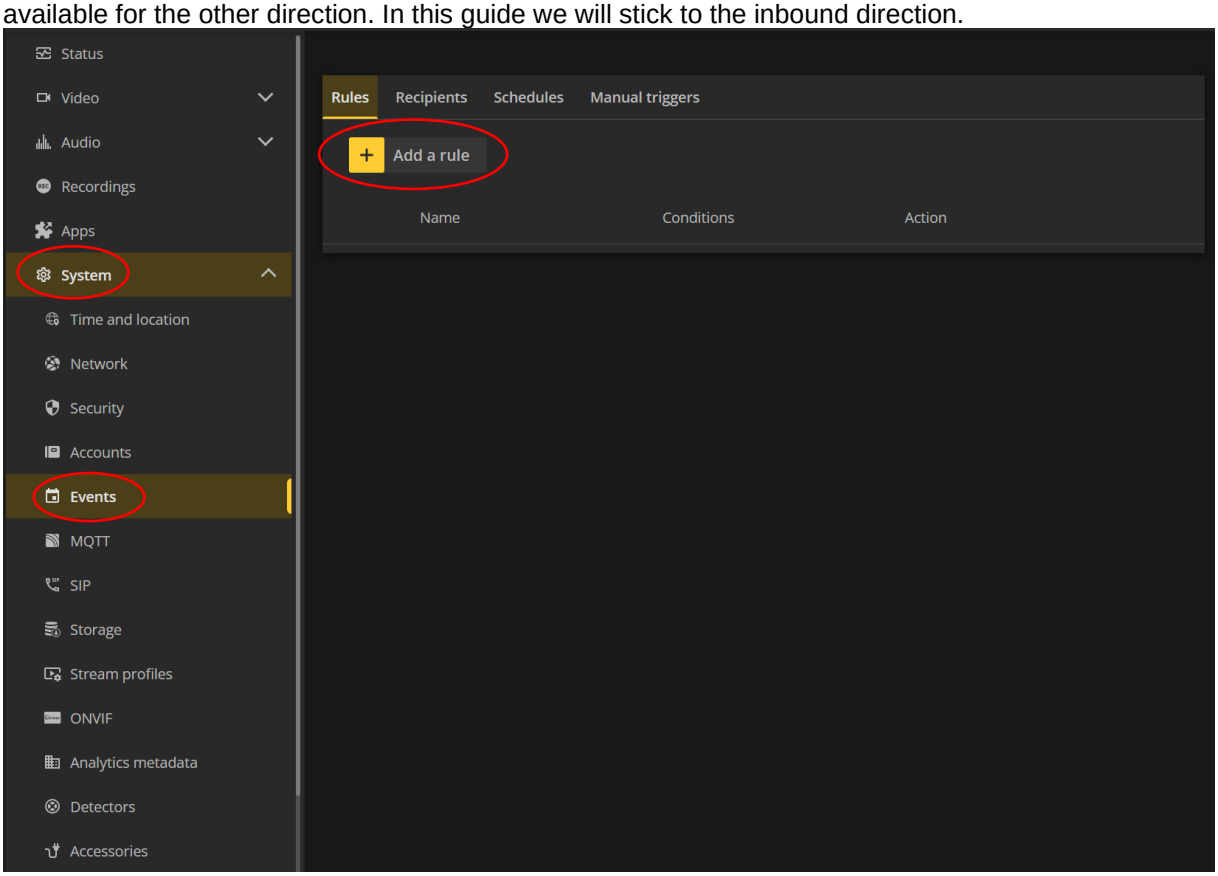
This will cause the settings to take effect.

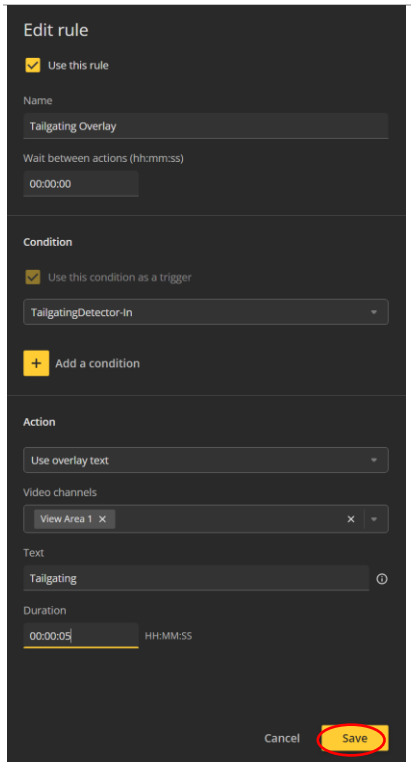
Now it is time to configure the alarms. For the overlay display, dynamic overlay text needs to be enabled. Go to **Video → Overlays** Stream settings, enable the overlay and add the #D modifier.





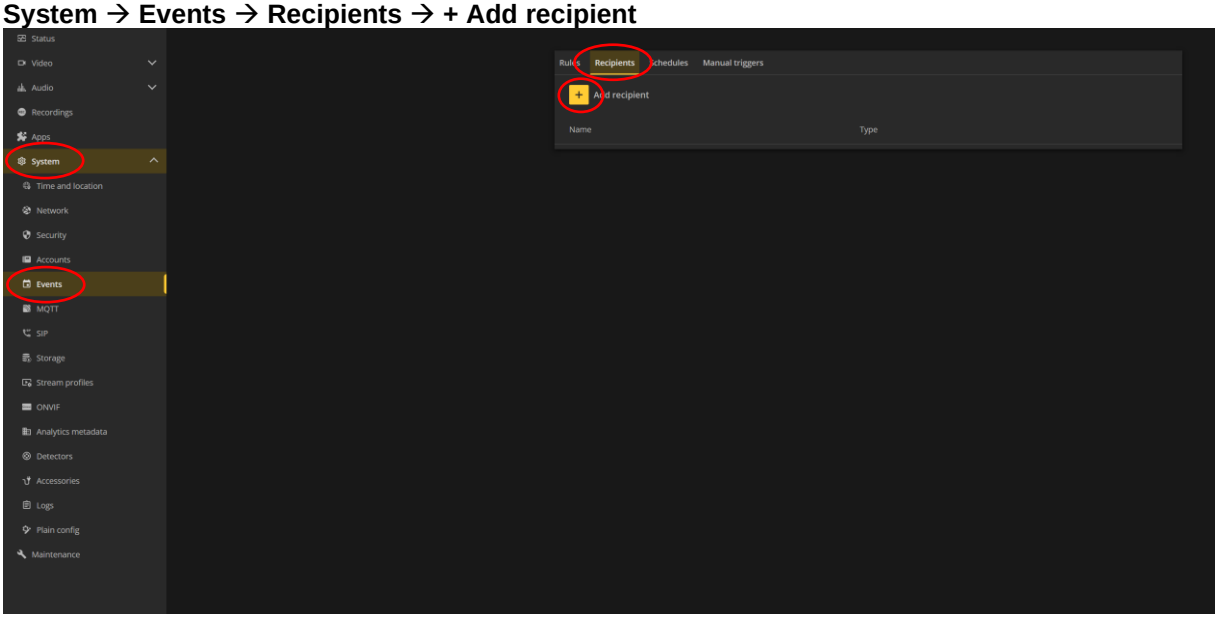
Next, go to **System → Events** tab and configure the overlay event per the below screenshot. Note that the event "**NoBadgeIn**" "**TailgatingDetector-In**" is used in this case. There is also a similar event available for the other direction. In this guide we will stick to the inbound direction.



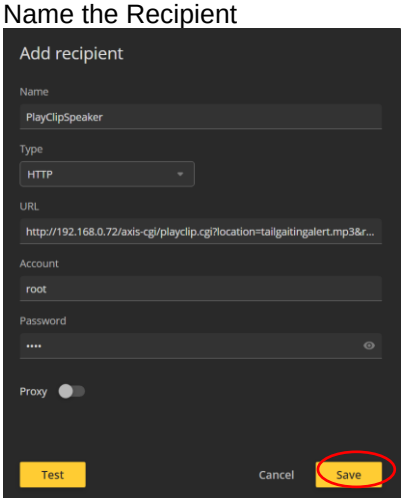


We also want to get an audible alert on the C1310-E speaker when a tailgating event occurs. First an HTTP recipient needs to be created:

System → Events → Recipients → + Add recipient



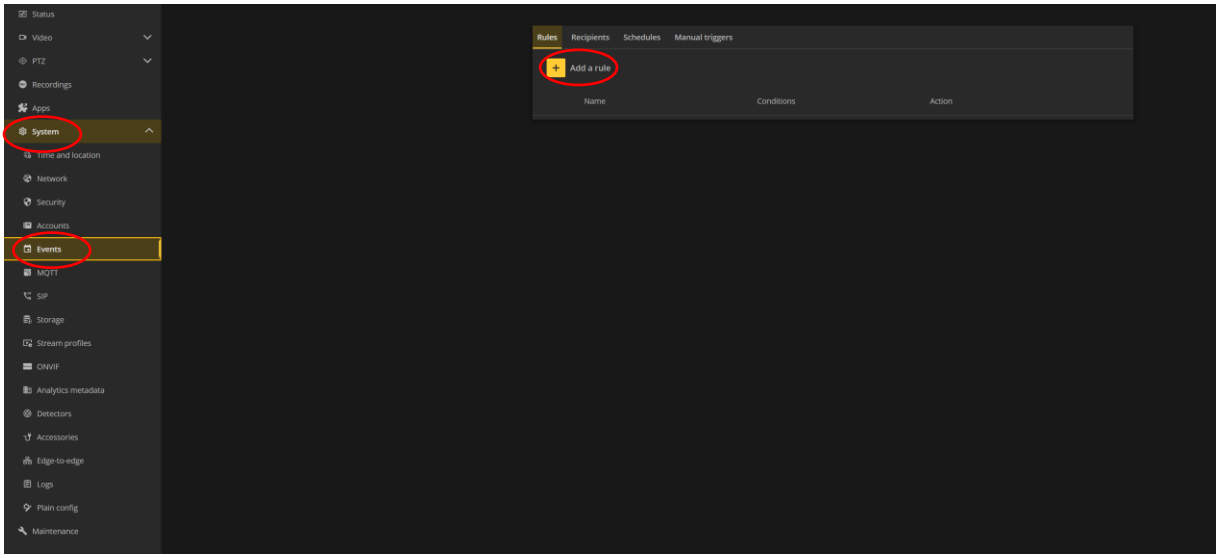
Name the Recipient



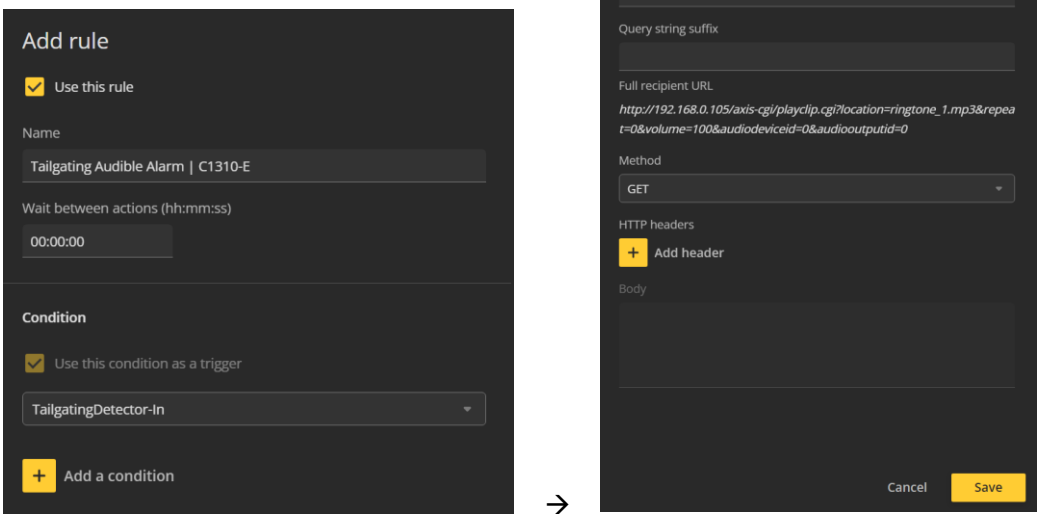
Here is the HTTP Command we used:
http://192.168.0.105/axis-cgi/playclip.cgi?location=ringtone_1.mp3&repeat=0&volume=65&audiodeviceid=0&audiooutputid=0
Key Points from HTTP String:

- ringtone_1.mp3 : Audio Clip from C1310-E that will Play
- repeat=0 : How many times the clip will repeat
- volume=65 : Volume Level that Speaker will play desired clip

With the recipient created, an action rule can now be created to play a specific clip on the speaker:
System → Events → Recipients → + Add a rule



Condition: **TailgatingDetector-In**
Action: **Send notification through HTTP**
Method: **Get**

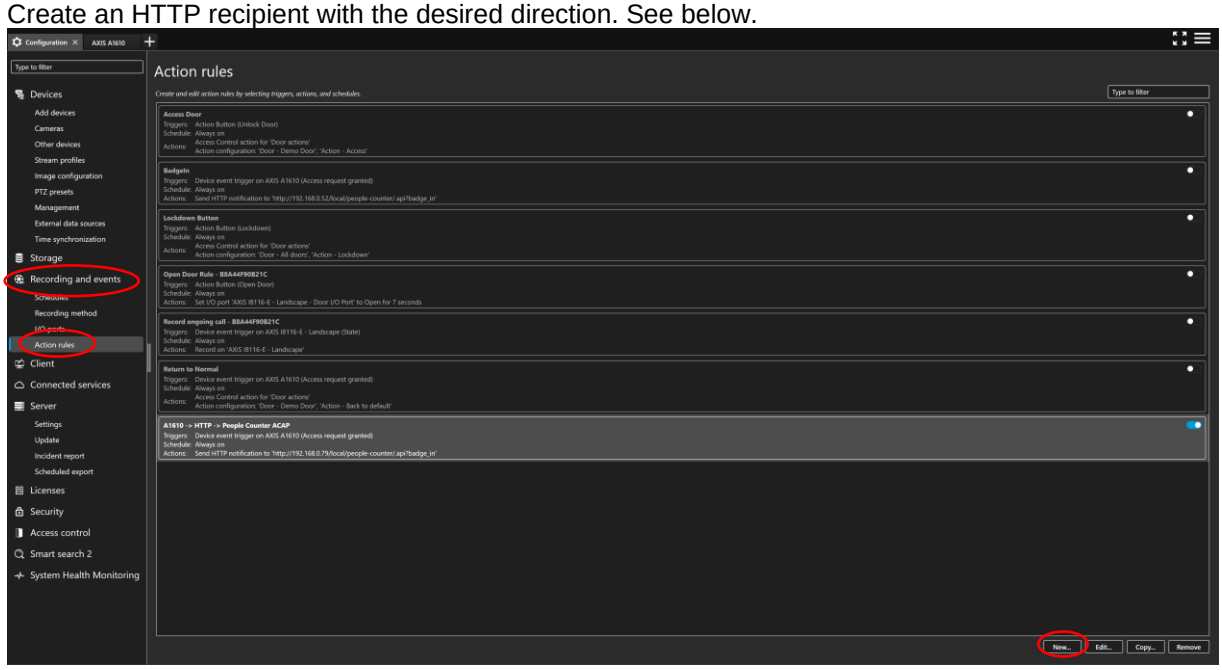


Now the camera setup is complete. The missing component is that the camera needs to receive information from the access control system about valid card reads. The setup is similar for the Secure Entry and third party integration. This is described in the following sections.

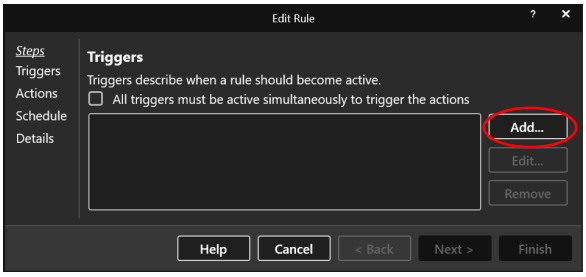
4 Access Control API recipient

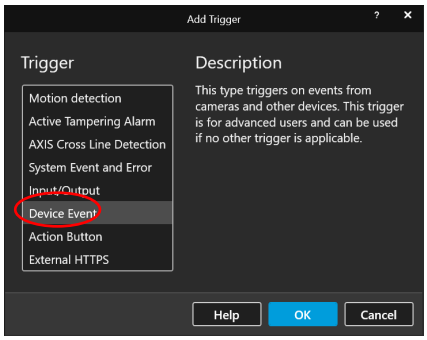
Regardless of solution, the API to talk to People Counters Tailgating Detector is the same. These are the URL:s required for shunting the alarm in either direction:
http://>IP>/local/people-counter/.api?badge_in
http://>IP>/local/people-counter/.api?badge_out

Create an HTTP recipient with the desired direction. See below.

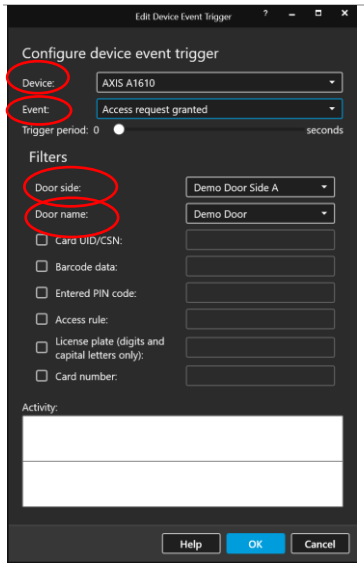


Select: **Add**
Trigger: **Device Event**

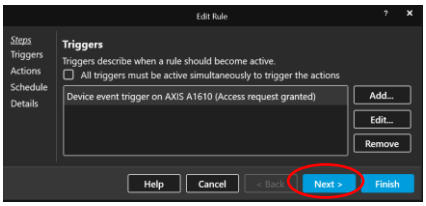




Device: **Axis A1610 (Door Controller)**
Event: **Access granted**
Select appropriate **Door Side & Door Name**

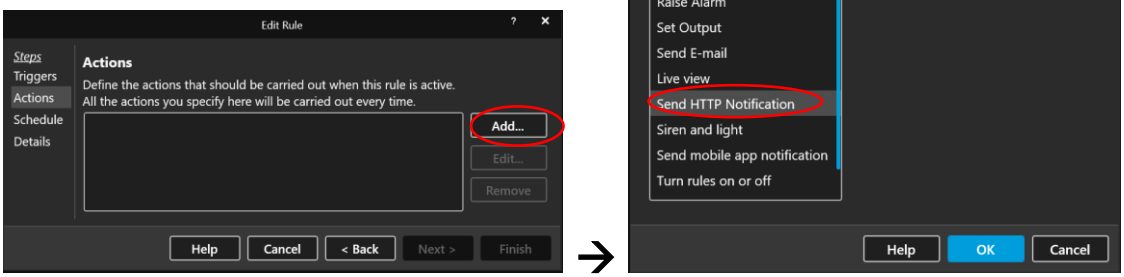


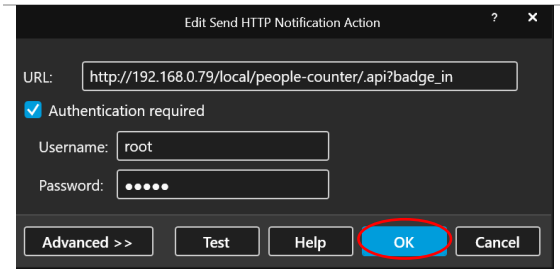
Select: **Next**



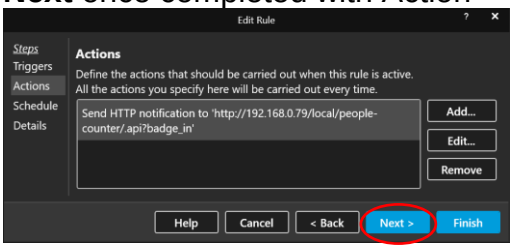
This Trigger will send a notification from the Door Controller to the People Counter Application to shunt the alarm.

Next we'll create the **Action** to **Send the HTTP Notification** to People Counting ACAP
Action: **Add → Send HTTP Notification**
URL: **http://>IP>/local/people-counter/.api?badge_in**

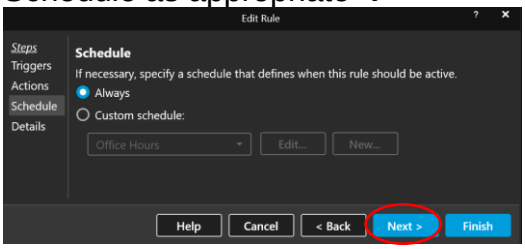




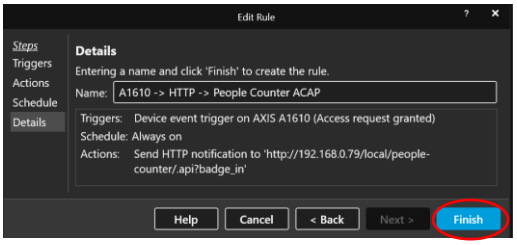
Next once completed with Action



Schedule as appropriate →



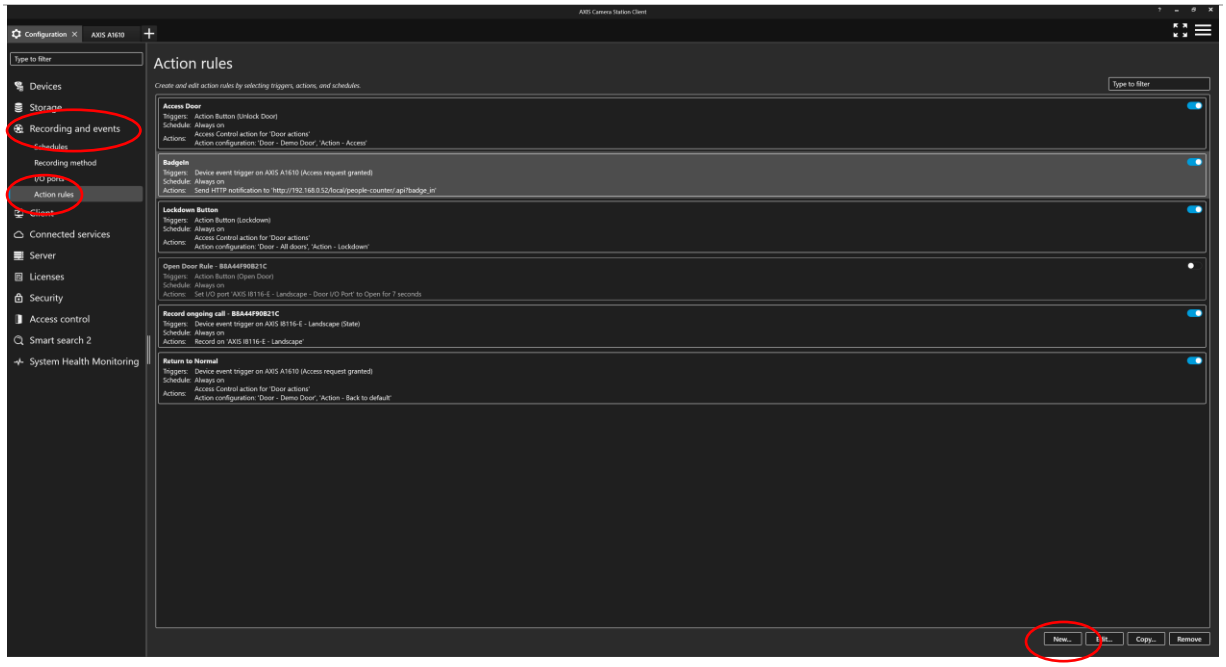
Name → Finish



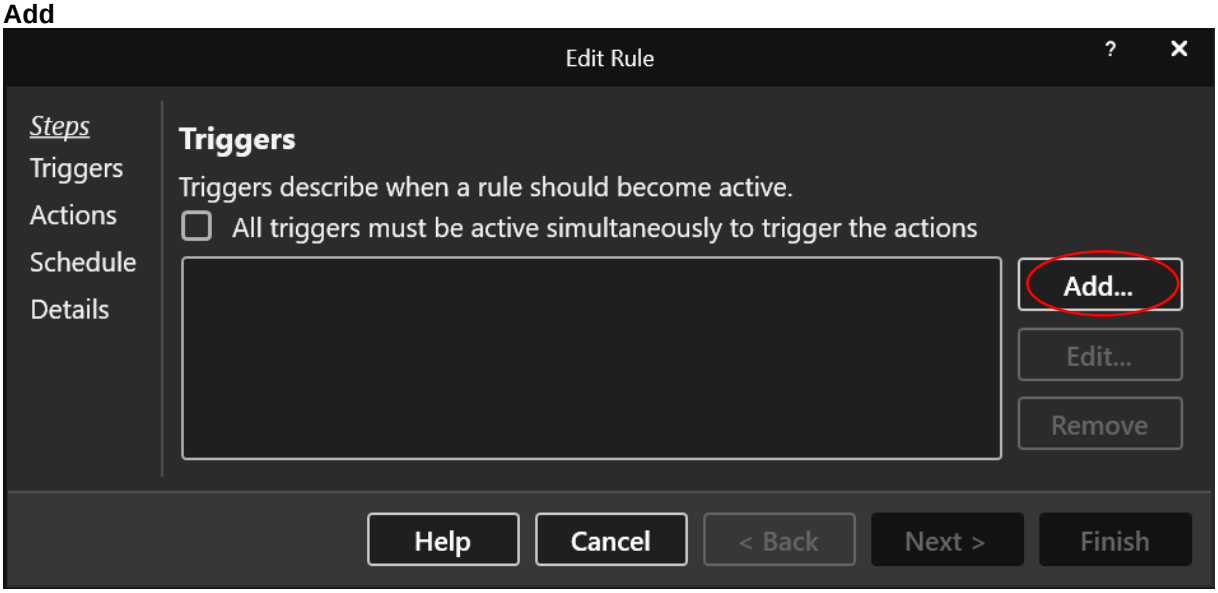
5 A1610 Integration

Next we'll create an Action Rule to send an HTTP Command that every time an 'Access Request Granted' event occurs, a notification will be sent to the camera to allow one person for that amount of time.

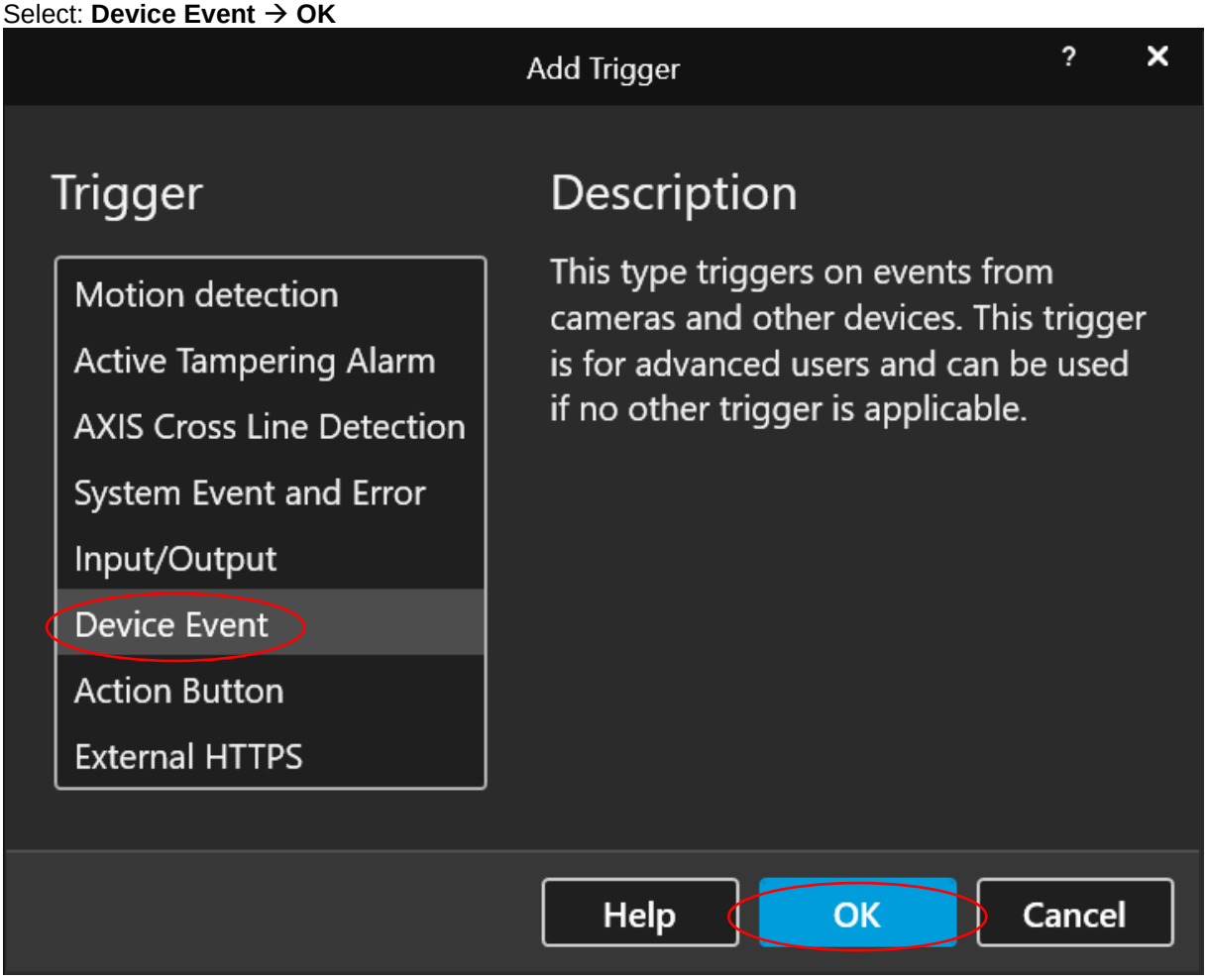
Navigate to **Recording and Events** (left menu bar) → **Action Rules** (Subsection) → **New** (bottom right corner)


Configuration
AXIS A1610
Action rules
Devices
Storage
Recording and events
Recording method
I/O ports
Action rules
Client
Connected services
Server
Licenses
Security
Access control
Smart search 2
System Health Monitoring
Access Door
Badgein
Lockdown Button
Open Door Rule - B8A44F90B21C
Record ongoing call - B8A44F90B21C
Return to Normal
New...
Copy...
Remove

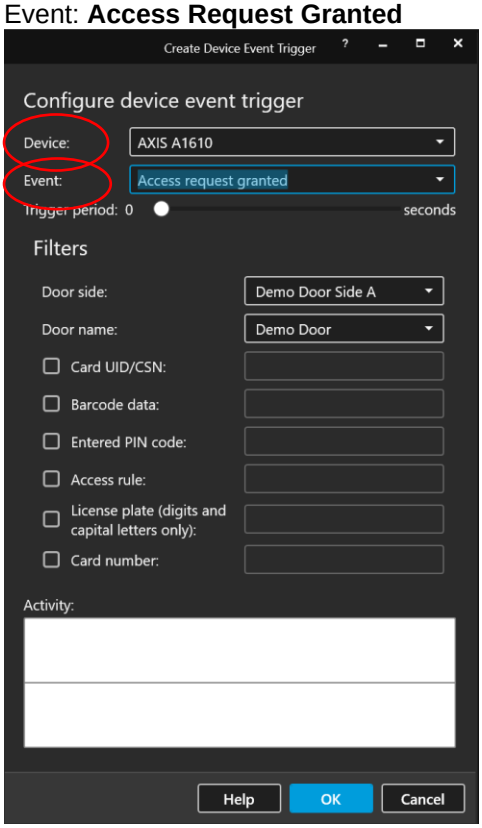
Add


Edit Rule
Steps
Triggers
Actions
Schedule
Details
Triggers
Triggers describe when a rule should become active.
All triggers must be active simultaneously to trigger the actions
Add...
Edit...
Remove
Help
Cancel
< Back
Next >
Finish

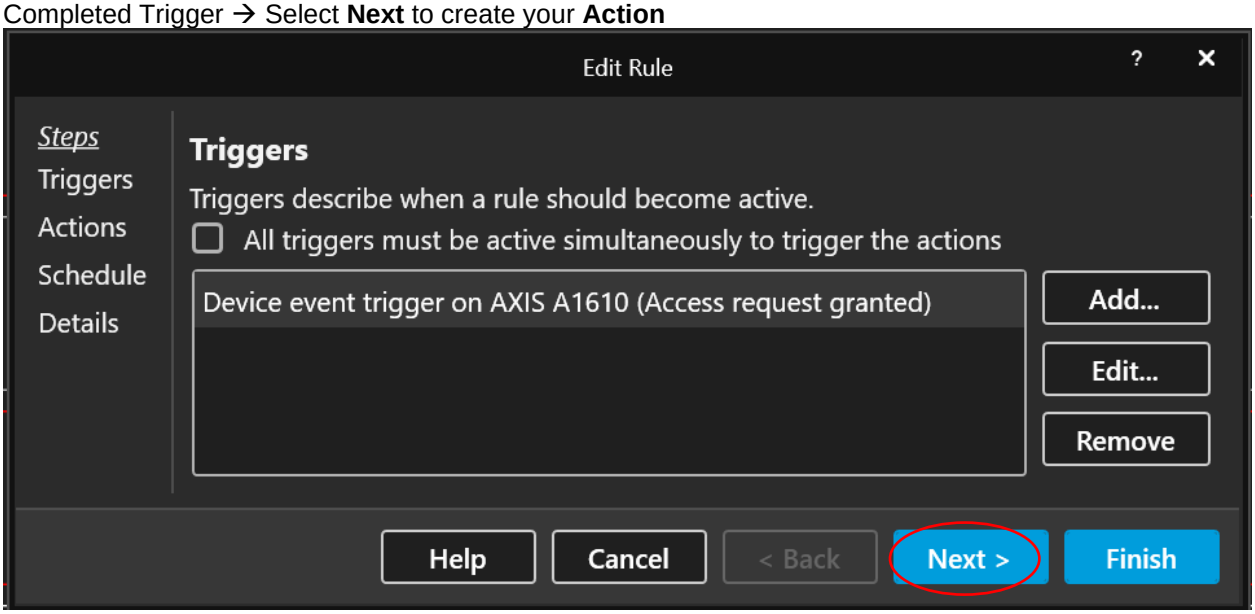
Select: **Device Event → OK**



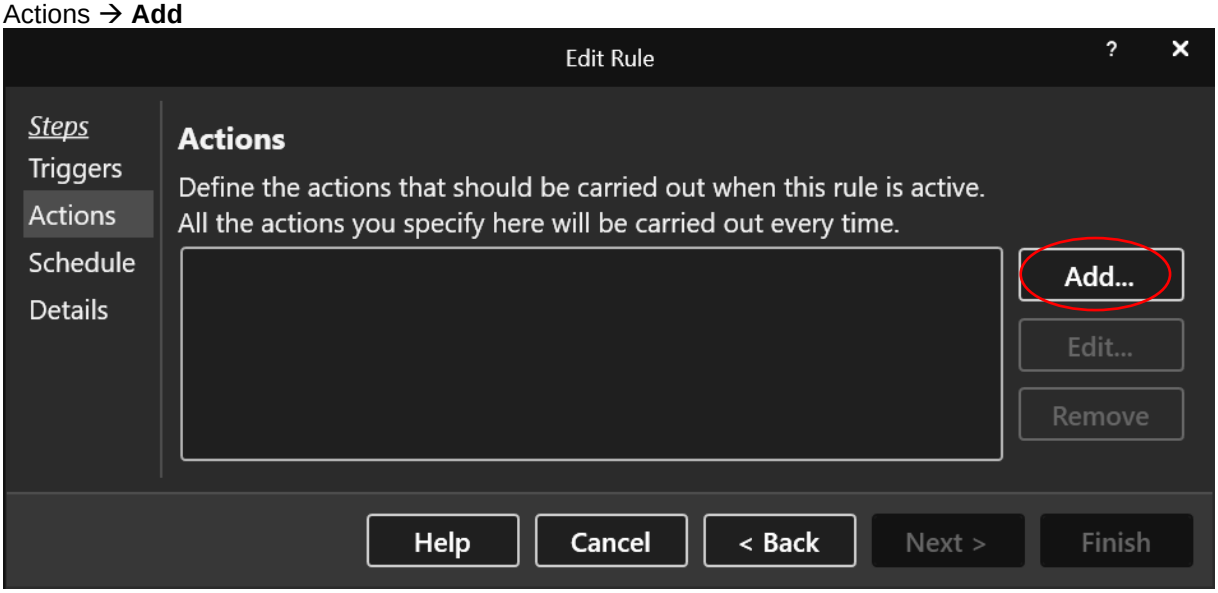
Device: **AXIS A1610 (Door Controller)**
Event: **Access Request Granted**



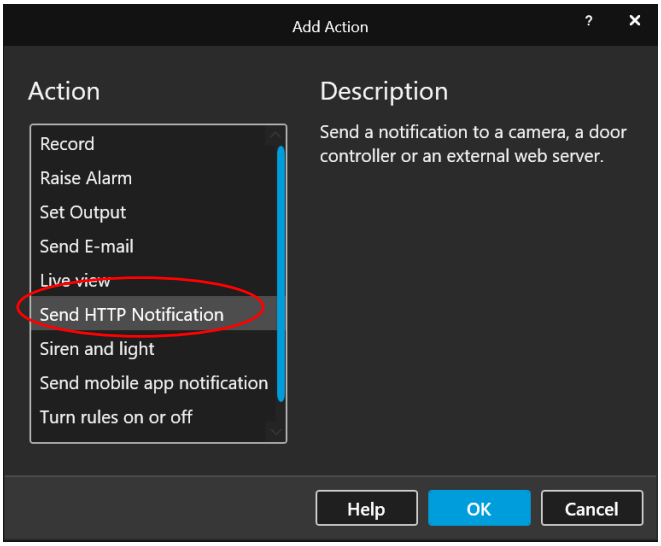
Completed Trigger → Select **Next** to create your **Action**



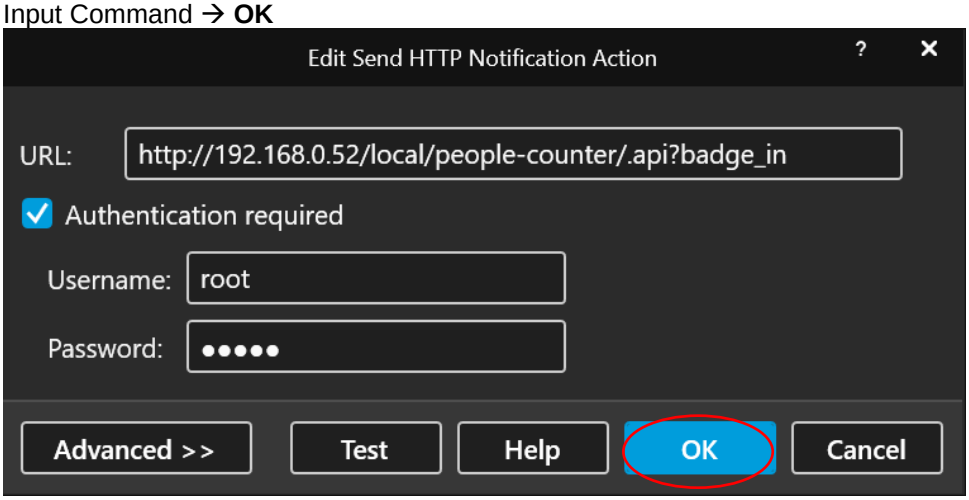
Actions → **Add**



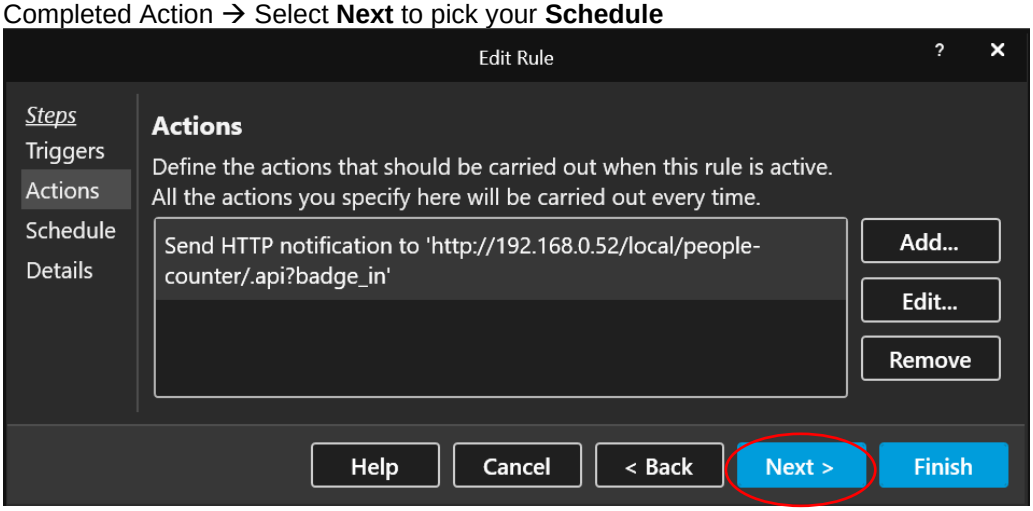
Select: **Send HTTP Notification**



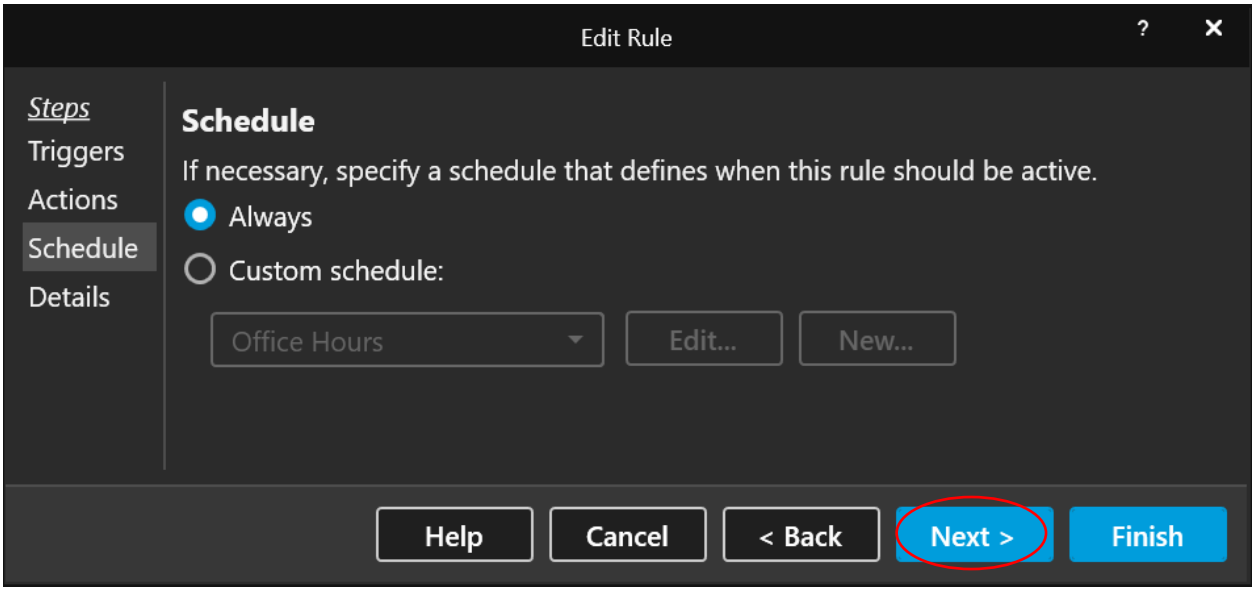
Input Command → **OK**



Completed Action → Select **Next** to pick your **Schedule**

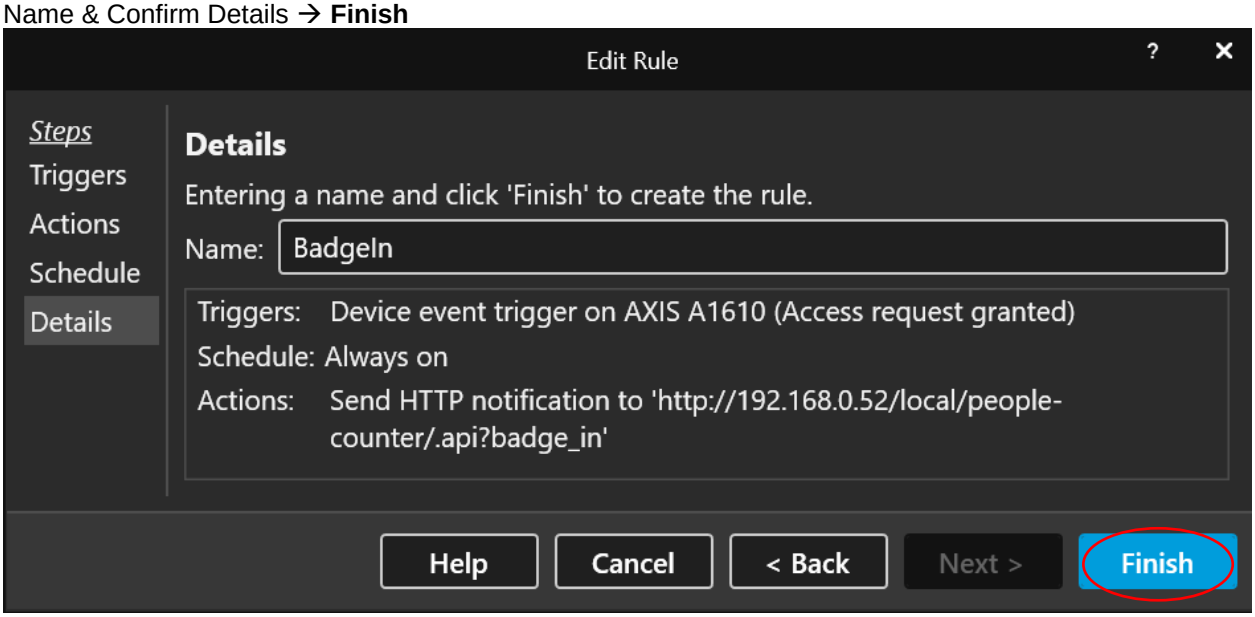


Schedule:



Next Once you've picked your schedule

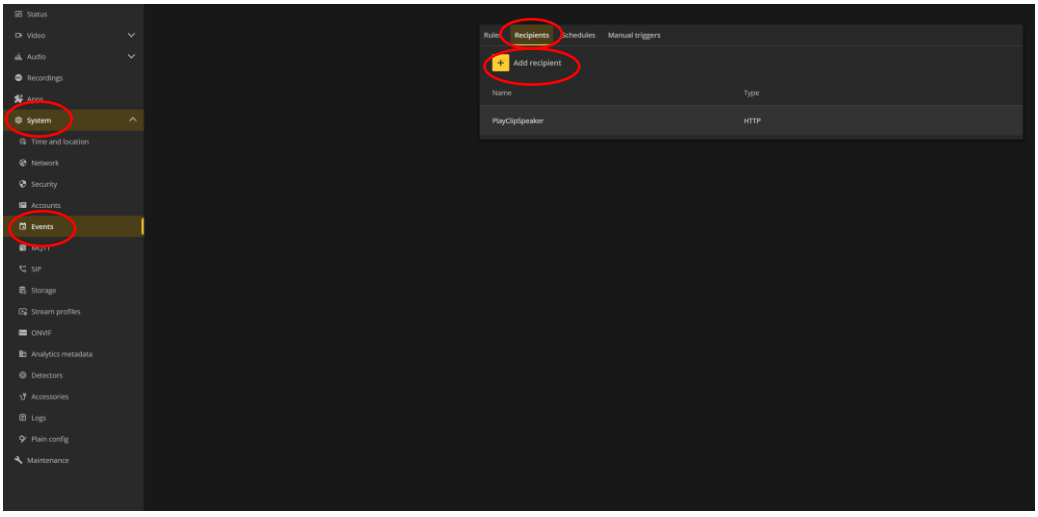
Name & Confirm Details → **Finish**



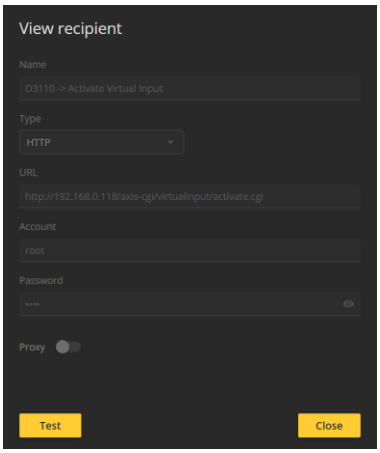
Now, every time a valid card request is granted the notification will be sent to the camera to allow one person for that amount of time.

6 Third Party System integration

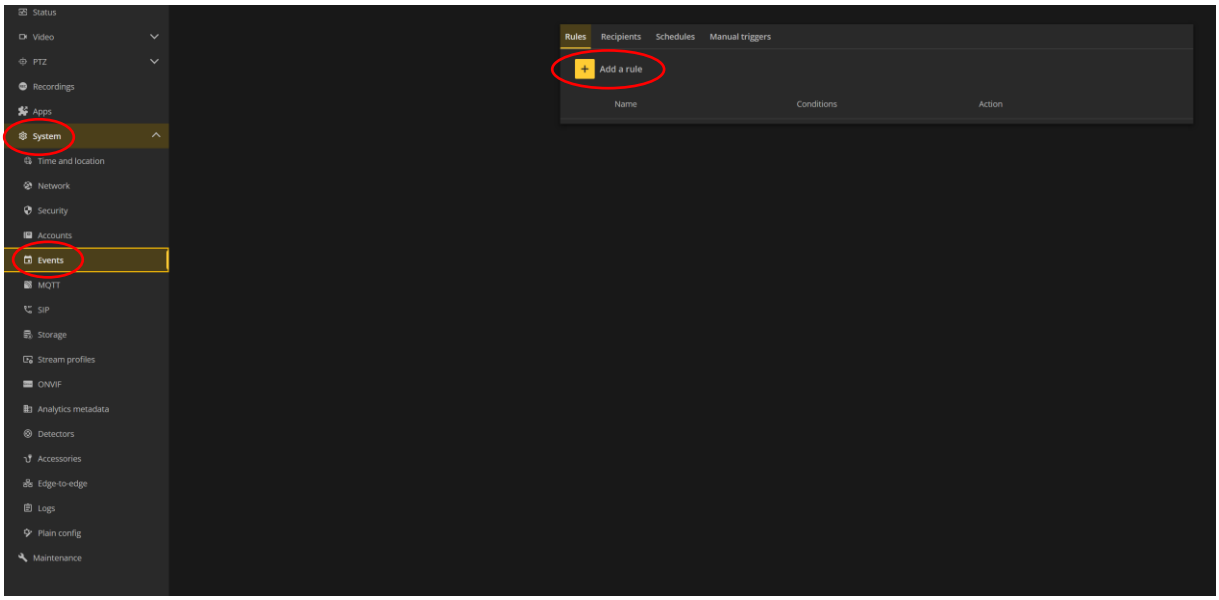
With the D3110. The setup is very similar. The alarm is created like this (after configuring and wiring ports):
System → Events →Recipients → + Add Recipients



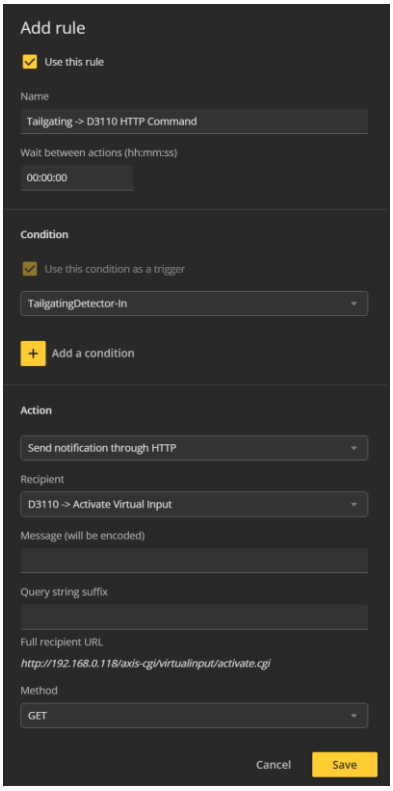
Input



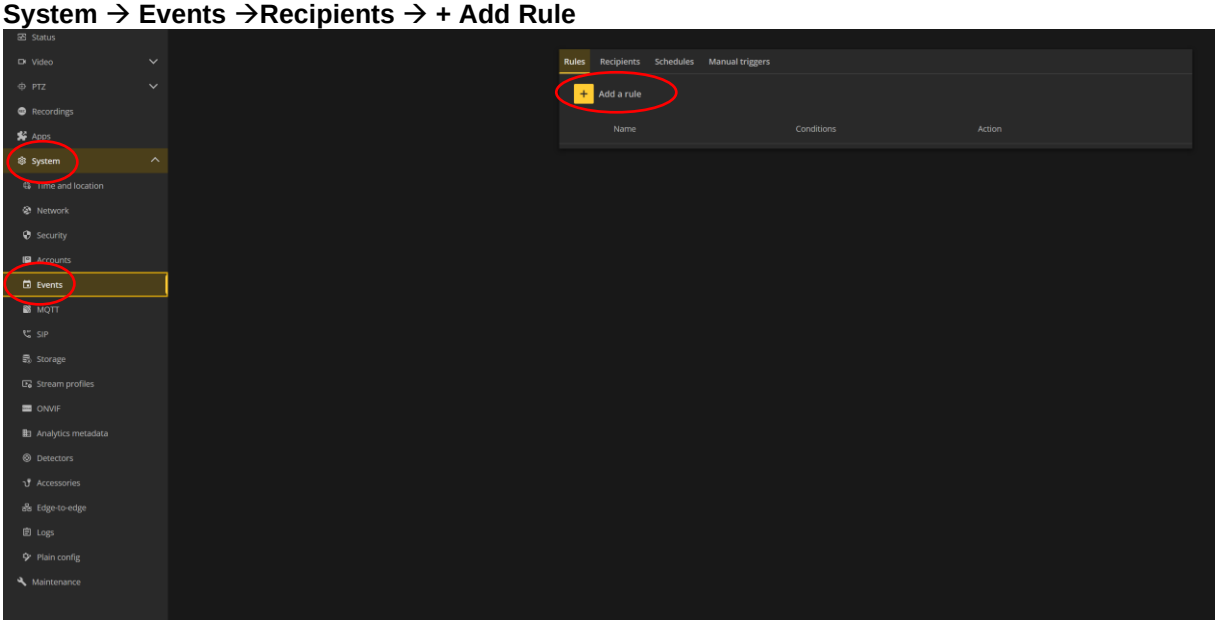
In the event config, do the following:
System → Events →Recipients → + Add Rule



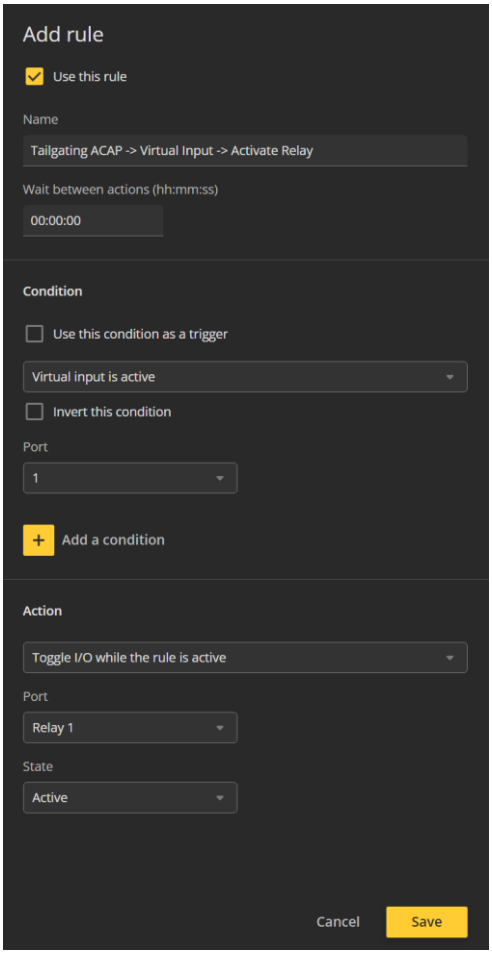
Condition: **TailgatingDector – in**
Action: **Send HTTP Notification**
Recpient: **D3110 Activate Virtual Input**
Method: **Get**



Next we'll create a rule when the D3110 Virtual Input is activated from the Tailgating Application, The D3110 will activate a Relay or I/O
System → Events →Recipients → + Add Rule



Condition: **Virtual input is Active**
Action: **Toggle I/O while rule is active**
Port: **Relay 1 or as wired**
State: **Active**



If a physical alarms needs to be sent to the access control system on a tailgating event. An output port on the D3110 can be pulsed remotely by the camera using the below recipient config. The URL is: http://<IP>/axis-cgi/virtualinput/activate.cgi