



Dahua AI Camera (DH-IPC- HFW7442HP-Z4)

Integration White Paper



Contents

1. Introduction	3
1.1 Integration Purpose	3
1.2 Requirements	3
1.2.1 General Requirements.....	3
1.2.2 CathesisVision License Requirements	3
1.3 Product Specifications	4
1.4 Integration Components	4
2. Features and Abilities	5
2.1 General Device Features.....	5
2.2 Device Objects	5
2.3 Device Events.....	6
2.4 Metadatabase.....	7
2.5 Maps	8
3. Conclusion	9

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1. Introduction

This document indicates the features/abilities of the Dahua AI Camera when integrated with CathexisVision. Functionally, this integration will include the triggering of standard CathexisVision system events, based on information received from the device.

For instructions on installation or configuration of the integration, please consult the **Dahua DH-IPC-HFW7442HP-Z4 Integration App-note**, available on the Cathexis website, and/or the **CathexisVision Setup Manual**.

1.1 Integration Purpose

With advanced deep learning algorithm, Dahua Ultra AI series network camera supports various intelligent functions and satisfies the requirements in different scenes. The camera is equipped with ANPR, and can also accurately detect a person, vehicle, non-motor vehicle, a face, and liveness. This series camera has ultra-starlight night version effect, and works with ultra-low stream. It is dust-proof, water-proof and vandal-proof. These events are sent to CathexisVision from the camera.

1.2 Requirements

1.2.1 General Requirements

- CathexisVision 2019.3 and later.
- Win 10-64bit and later, Win Server 2008 R2 and later.
- Minimum 4 GB of RAM required.

1.2.2 CathexisVision License Requirements

Note: This camera requires an IP camera license as per the selected CathexisVision Software - Lite, Core, Pro or Premium.



A NOTE ON CAMERA CHANNELS

The CathesisVision software packages have **limits on camera channels**. A multi-sensor camera is physically a single device (camera) but it **requires a camera channel for each one of the internal cameras**. The same applies to an encoder: a 16-channel encoder will account for 16 camera channels on the CathesisVision software, even though it is a single device. Even when a camera or device only uses a single IP license, the camera channel limit will still apply.

1.3 Product Specifications

The following camera model and firmware were used to test this integration:

Model	DH-IPC-HFW7442HP-Z4
Firmware	V2.800.0000000.2.R
Build date	2019-07-09
Web Version	V3.2.1.758498

1.4 Integration Components

All CathesisVision integrations have two component levels: **Device** and **Object**.

Device The device is CathesisVision software's interface, which handles all the interaction between CathesisVision and the integrated hardware. When an integration is added to the CathesisVision system, a device is added. The messages received from the device are called Device Events.

Objects Objects are the individual pieces of hardware that comprise the integration. There may be multiple "object types" under the objects group. For example, the main controller and door nodes of an access control system are both objects. They are different types of objects.



2. Features and Abilities

This section indicates the features/abilities of the Dahua AI Camera when integrated with CathesisVision.

2.1 General Device Features

- CathesisVision receives event messages from the Dahua device.
- System and device event messages can be used to trigger a CathesisVision system event.

2.2 Device Objects

Objects are populated automatically as soon as communication between the Dahua camera and CathesisVision is established.

Object Type		Abilities
General		<ul style="list-style-type: none"> • This integration has LPR Detector, LPR Server and “Rules” objects. • Objects are automatically created as soon as communication between the CathesisVision unit and device is established. • Device objects can be commanded as an action of a CathesisVision system event. • LPR events on the device can be used to trigger CathesisVision system and map events. • Device objects support overlays • Objects may be linked to cameras to associate device events with video footage. • LPR Detectors can be associated with a camera. Object group and a LPR license can be assigned to the Camera LPR detector.
LPR Detector	Object Properties	<ul style="list-style-type: none"> • Name. • Enabled. • Online. • Plate Position. • Lane Position. • Licensed.
LPR Server	Object Properties	<ul style="list-style-type: none"> • Name. • State.
	States	<ul style="list-style-type: none"> • Online. • Offline.

Rules	Object Properties	<ul style="list-style-type: none"> • Name. • Enabled.
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2.3 Device Events

The CathesisVision Dahua integration generates Camera Events, which are triggered on the device and reflected in CathesisVision.

Event Element		Features/Abilities
General		<ul style="list-style-type: none"> • Events triggered on the device are sent to CathesisVision.
Camera Events	Video Detection	<ul style="list-style-type: none"> • Motion Detection. • Video Tampering. • Defocus Detection. • Scene Changing.
	Audio Detection	<ul style="list-style-type: none"> • Audio Detection.
	IVS	<ul style="list-style-type: none"> • Tripwire. • Intrusion. • Abandoned Object. • Fast-moving. • Parking Detection. • Crowd Gathering Estimation. • Missing Object.
	People Counting	<ul style="list-style-type: none"> • People Counting. • In Area No.
	Face Detection	<ul style="list-style-type: none"> • Face Detection.
	ANPR	<ul style="list-style-type: none"> • ANPR.
CathesisVision Event Actions		<ul style="list-style-type: none"> • Events generated by the device are reflected in CathesisVision, and can be used to create CathesisVision system events. • Two custom events are possible: Display message and Display popup. • The device and device objects cannot be controlled as part of the system events.



2.4 Metadatabase

A unique metadatabase is created on the CathexisVision server for this integration. It is fully searchable, with configurable filters based on device event information (as above), and time stamping. The filtered event/s, and the associated video, will then be available for review in a new window from which an archive can be created and exported.

Database Element	Features/Abilities
General	<ul style="list-style-type: none"> • All device events are databased. • Database entries include the footage from cameras linked to device objects. • Multiple cameras may be linked to multiple objects. • Device event metadata is displayed where applicable. • Databased device events may be viewed in the embedded video player, which includes the usual CathexisVision video review tools.
View Options	<ul style="list-style-type: none"> • Licenses (groups). • Licenses (extended). • Licenses (full). • Licenses (minimal). • Average speed. • Average speed (all). • Loitering. • Loitering (all).
Sort Options	<ul style="list-style-type: none"> • Time. • License. • LPR detector. • Prefix.
Easy Search	<ul style="list-style-type: none"> • License plate. • License plate (partial match). • Group. • LPR detector.
Filter	<ul style="list-style-type: none"> • Detection confidence level. • Plate Number. • Time of Capture. <p>Additional values can be configured for a captured plate, and also be used as filters:</p> <ul style="list-style-type: none"> • Name. • Colour of vehicle. • Vehicle type. • Vehicle make.
Export	Database entries may be exported in CSV and PDF format.



2.5 Maps

The CathesisVision GUI provides for configurable site maps that feature multi-layered, hierarchical, interactive interfaces providing representation and control of a site and its resources.

Map Element	Features/Abilities
General	Device objects can be embedded in a site map, which offers multiple action options when messages are received from the device, the device triggers an event, and/or the user manually initiates a map action.
Map Action Triggers	<ul style="list-style-type: none"> • All device objects may be set to trigger a map action if the user left-clicks on map. • Some device objects may be set to trigger a map action if a state change message is received from the device. • All device objects may be set to perform a map action if <i>any</i> event occurs on the device. • Device objects, which can be configured to trigger CathesisVision events, may also be set to perform a map action when specific CathesisVision events are triggered.
Map Actions Options	When triggered (see above), objects may perform the following map actions (where applicable): <ul style="list-style-type: none"> • Connect to a site. • Perform an animation. • Go to a camera preset. • Load a map. • Set a PTZ relay output. • Show a popup menu. • Set a relay output. • Show an HTML block.



3. Conclusion

This document was designed to deal specifically with this integration. For further information about the CathesisVision software, consult the main manual (<http://cathesisvideo.com/>).

For support, email support@cat.co.za.

USEFUL LINKS

To view **tutorial videos** on CathesisVision setup, visit <https://cathesisvideo.com/resources/videos>

Find answers to Cathesis **Frequently Asked Questions**: <https://cathesis.crisp.help/en/?1557129162258>

