



Inception and Hanwha WAVE Integration

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Overview

There are many different events and actions that Inception and the Hanwha WAVE system can produce and execute. Below are some examples of what can be achieved when setting up this integration.

- Inception door opens and a camera maximises to full screen on Hanwha WAVE
- Inception area is armed and triggers a camera to start recording on Hanwha WAVE
- Line crossing is detected on Hanwha WAVE and triggers an alarm on Inception
- A clickable icon on a camera view of Hanwha WAVE to unlock a door on Inception

This integration is capable of bi-directional communication, however a one way set up needs to be configured on each system. This guide is broken up into **Inception to Hanwha WAVE** and **Hanwha WAVE to Inception**.

This integration uses API messages through HTTP communication. The steps in this guide are examples as it cannot account for every customer request but does attempt to include as much information as possible for an integrator to configure their own site. It is encouraged to take notes while using this guide as *technical support is limited for this type of integration.*

[Trigger events and Actions](#) lists all items that are applicable on each system.

Inception to Hanwha WAVE Requirements

These requirements are configured in steps on pages 3-6.

From Hanwha WAVE:

1. Server details for Inception such as IP address, Port # and User credentials (username/password)
2. A user with *View event log* privileges.
3. A **Camera Rule**

For Inception:

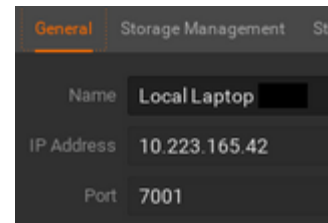
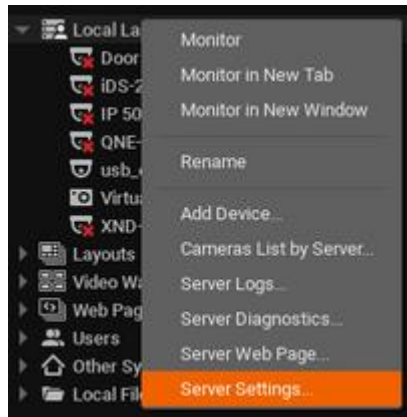
1. A *HTTP Send Only Connection*.
2. An **Automated Action**.



Hanwha WAVE setup

Server Settings

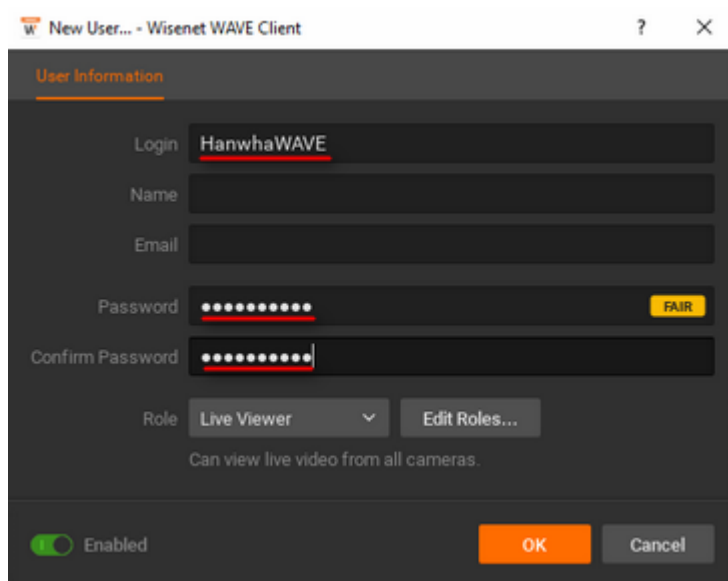
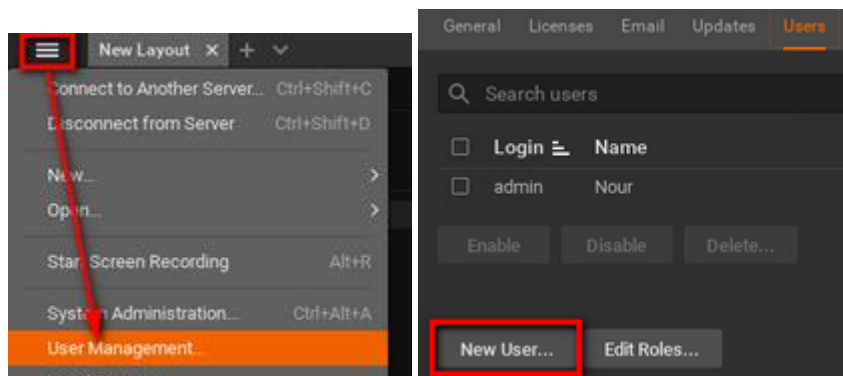
To check the server settings, right click on the server and click on *Server Settings*. The details in the *General* tab will be required for the *Inception Connection* configuration.



Note the IP address and Port number as they are needed in future steps.

Create a User

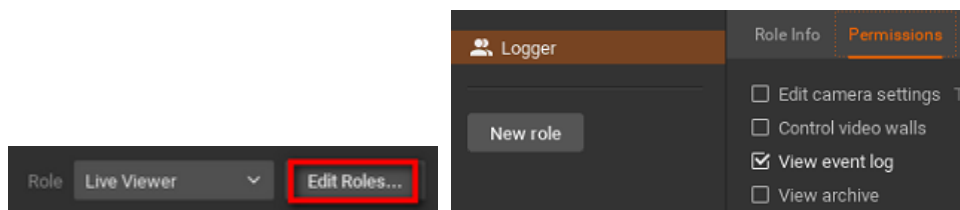
Go to *Menu*, *User Management* then *New User* and enter **Login** and **Password** details.



Take note of these details as they are needed in future steps.



Ensure the role has "View event log" enabled. Click on *Edit Roles* -> *New role*. Enter a name for the role and go to the *Permissions* tab and enable *View event log*.

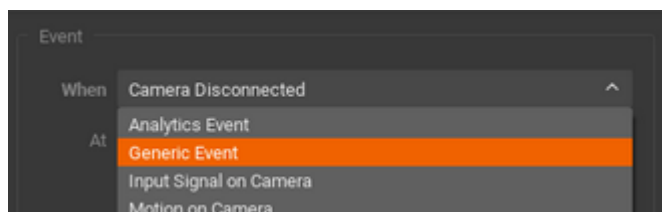


Click *Apply* then *OK*. Ensure the user is saved and enabled.

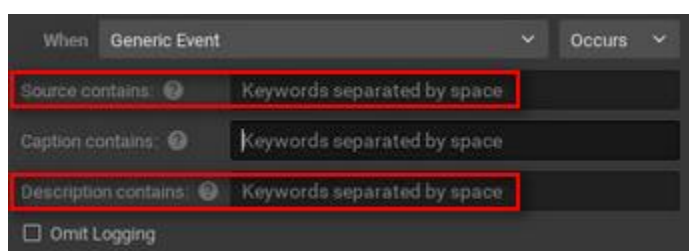
☐	Login	Name	Role
☐	admin		Owner
☐	Wave		Logger ☒

Create a Camera Rule

Right click on a camera and go to *Camera Rules* then + *Add*. Select *Generic Event* in the *When* dropdown.



The *Source*, *Caption* and *Description* are all optional, however only *Source* and *Description* are required for specific triggers. If a notification or an event log is required, these fields can be left blank.



Generate an API example message

This step does not configure any settings. It is only to check what string is required for the [Inception's Automated Action](#).

Go to the Hanwha WAVE home page and navigate to *For Developers* -> *Generic Events Generator*

The following example includes *Source* and *Description* in the string. Scroll down to the bottom of the webpage to see the full URL.

source string

Name of the de
could see this

caption string

Short event de

description string

Requesting URL

Only "api/" and after is required.

Example: [api/createEvent?source=Inception&description=Door%20Opened](http://localhost:7001/api/createEvent?source=Inception&description=Door%20Opened)

Note: "%20" represents the space between *Door* and *Opened* in the description.

Inception Setup

Create a Connection

Navigate to *Configuration -> General -> Connection* on Inception. Click on + *Add* and name the connection.

Expand *Connection Details* and set the *Connection Type* to **HTTP (Send Only)**. Enter the details from the [Server Settings](#) and [Create a Hanwha WAVE User](#) steps. Ensure the IP address & port number is separated with a colon ":" and select **Basic** in the *Authentication Method* dropdown. Click on *Save*.

Connection Details

Enable ☒

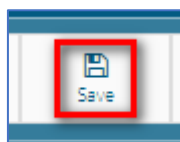
Connection Type

URL Path

Authentication Method

Username

Password





Create an Automated Action

Navigate to *Configuration -> Automated Actions*. Click on + Add and name it.

Expand *Trigger Condition* and click on + Trigger.

Select **Door** in the *item type* dropdown. In this example, **Front Door** and **Unlocked** will be selected. Click *Confirm*.

Expand *Actions When True* and click on *Add Items*. This is where the previously configured connection and the API URL will be entered.

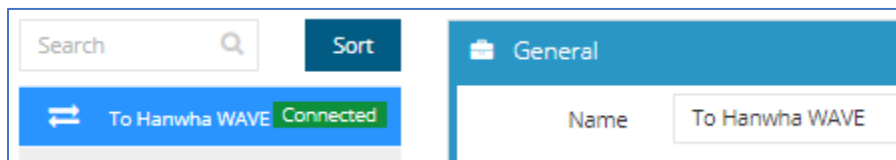
Select **Send Custom Text** in the action dropdown, select the connection that was created in [Create a Connection](#) and enter the API URL. The following example [api/createEvent?source=Inception&description=Door Opened](#) is from the [Generate an API example message](#) step.



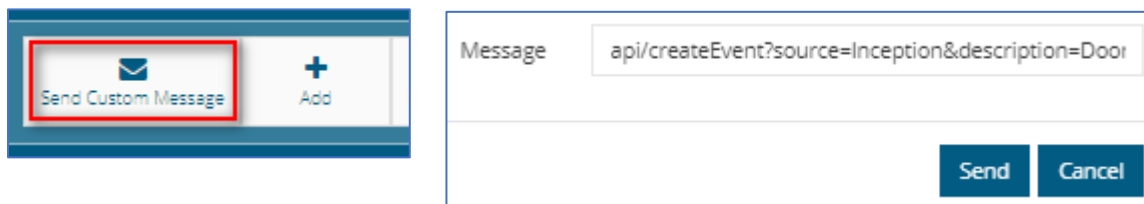
Test connection (optional)

Navigate to *Configuration -> General -> Connections*

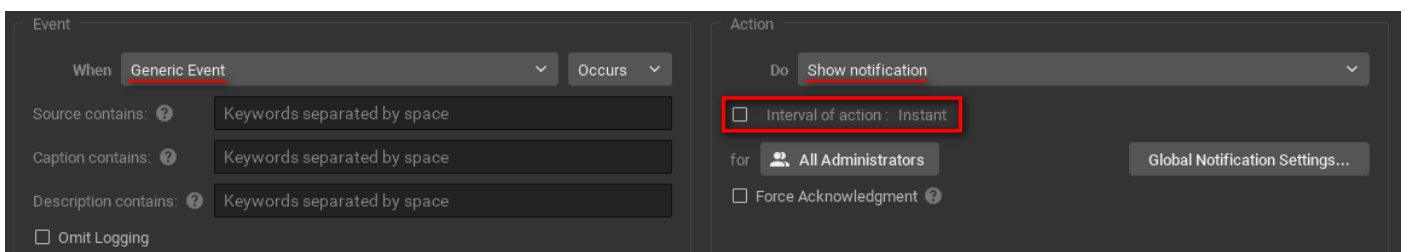
Select the outgoing connection that was previously created.



Click on *Send Custom Message* and enter a string from the [Generate an API example message](#) step and click *Send*.



The best way to check Hanwha WAVE is receiving a message is to create a camera rule that has **Generic Event** selected for the Event and **Show Notification** selected for Action, *Source/Description* is blank and **Interval of action** is unticked for the Action.



Alternatively, the below URL can be entered onto any browser on the same network.

<http://username:password@HanwhaWAVEIPaddress:port/api/createEvent?source=browser&caption=Test>

If the above link works, it's likely that the Inception is not configured properly or has incorrect details.

If nothing comes through at this point, the network firewall and port blocking needs to be checked. There is no support offered for this troubleshooting.



Hanwha WAVE to Inception Requirements

These requirements are configured in steps on pages 8-11.

From Inception:

1. A **User**
2. A **Connection** that:
 - a. Is set to *TCP (Server)*
 - b. Specifies a port that Hanwha WAVE will connect to
 - c. Has `\r\n\r\n` as a Prefix for Received Messages
3. An **Automated Action** that will trigger an action when a message is received from Hanwha WAVE.

For Hanwha WAVE:

1. A **Camera Rule** that includes a message to be sent to Inception.

Inception Setup

Create a User

Navigate to *Configuration -> Users -> Manage Users*. Click on + *Add* and name it.

Expand *Credentials* and tick *Enable Web Login*. Enter a username & password and set the *Web Page Profile* to **REST Web API User**.

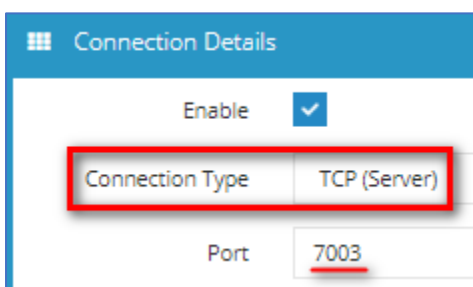
Take note of these details as they are needed in future steps.

Create a Connection

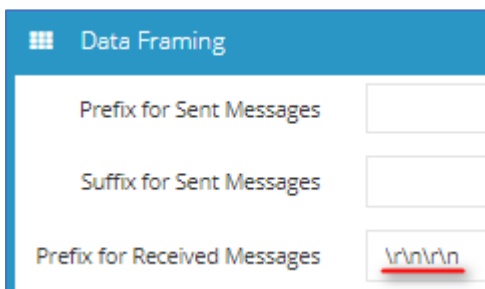
Navigate to *Configuration -> General -> Connection*, click on + Add and name the connection.



Expand *Connection Details* and select **TCP (Server)** in the *Connection Type* dropdown and specify a port that the Hanwha WAVE system will use.



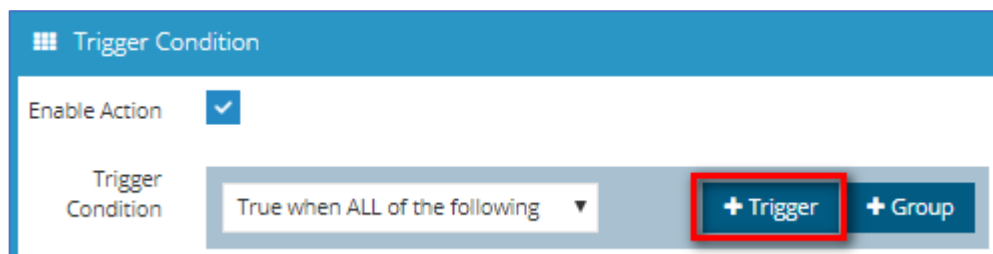
Expand *Data Framing* and enter `\r\n\r\n` into the *Prefix for Received Messages*



Create an Automated Action

Navigate to *Configuration -> Automated Actions*. Click on + Add and name it.

Expand *Trigger Condition* and click on + Trigger.



Select **Connection** in the *item type* dropdown then the connection previously created. Select **Received Message** in the *State* dropdown. Type in the message that Hanwha WAVE will send. In this example, **Open Door** will be sent. Click on *Confirm*.



Select an item type to base this trigger on

Area

Area

Door

Input

Output

Time Period

Lift Floor

Connection

Card Reader

Select an item type to base this trigger on

Connection

Select an item

From Hanwha WAVE

Is / Is Not

Is

State

Received

Message

Open\x20Door

Cancel

Confirm

NOTE: Inception will receive a space as \x20.

Expand *Actions When True* and click on *Add Items*.

Actions When True

Actions When True

Action Type

Add Items

Remove

This example will allow Hanwha WAVE to open a door. Select **Control Door**, **Front Door** and **Grant Access**. Click on *Confirm*.

Actions When True

What action would you like performed?

Control Door

Door

Front Door

How To Control

Grant Access

Click on *Confirm* then *Save* (located at top of web page).



Hanwha WAVE setup

Create a Camera Rule

Right click on a camera and click on *Camera Rules* then + *Add*.

Select **Do HTTP request** in the *Do* dropdown and ensure *Interval of action* is **unticked**. Select **text/plain** for *Content type*, **Basic** for *Authentication type* and **POST** for *Request type*. Enter details in:

- *HTTP URL* - IP address and port number (separated with a ":",") from: [Create a Connection](#)
- *HTTP content* - Message text from [Create an Automated Action](#)
- *Login/Password* - username/password from: [Create an Inception User](#)

Do: **Do HTTP request**

☐ Interval of action : Instant

HTTP URL: **192.168.1.106:7003**

HTTP content: **Open Door**

Content type: **text/plain**

Login: **Inception** Authentication type: **Basic**

Password: **.....** Request type: **POST**

Inception will receive a space as **\x20**. This will need to be included in message field of the Inception's Automated Action. For example, if Hanwha WAVE has "**Open Door**" in the HTTP content, Inception needs "**Door\x20Opened**" in the Message Received field of the [Automated Action](#).

The following example will create an icon on a camera that will send a message to Inception.

Select **Soft Trigger** in the *When* dropdown.

Event

When: **Soft Trigger**

At: **Analytics Event**

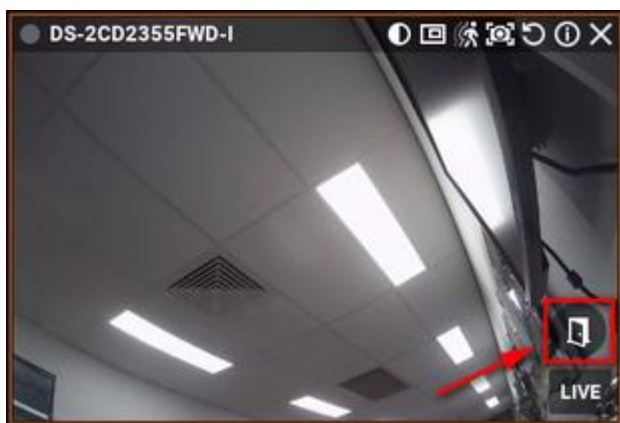
Available to: **Input Signal on Camera**

Name: **Soft Trigger**



Select the camera, user/s, name it and select the icon.

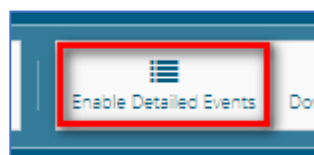
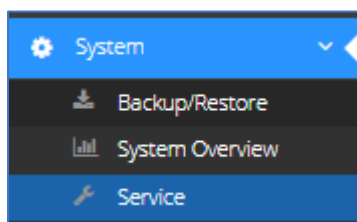
It will appear on the camera's live view. Click on it to open the Inception door.



Test connection (optional)

Inner Range have intentionally omitted some events that log to standard review to reduce flooding in an instance where a system may be sending messages to Inception, multiple times a second. There is an option to disable the omission of these events with a maximum period of 4 hours.

Navigate to *System -> Service* and click on *Enable Detailed Events*. Select a duration and click *Enable*.



Navigate to *State / Control -> Review Events*.

The following is an example of a message being received from Hanwha WAVE and highlighted in yellow is the intended text.

When	Message	Who	What
16/12/2019 09:50:14	Connection Received Message	From Hanwha WAVE	POST/x20/x20HTTP/1.1/r/nDate:x20Mon,x2016/x20Dec/x202019/x2009:50:16/x20+1100/r/nHost:x20192.168.1.106:7003/r/nConnection:x20keep-alive/r/nUser-Agent:x20Wisenet/x20WAVE/4.0.0.29786/x20(Hanwha)/x20Mozilla/5.0/x20(Windows/x20NT/x206.1;x20WOW64)/r/nContent-Type:x20text/plain/r/nAuthorization:x20Basic/x20SW5JZXB0aW9uOkUyZVwdGlbGw==/r/nContent-Length:x209/r/nX-Nx-User-Name:x20Inception/r/nContent-Encoding:x20identity/r/n/r/nOpen/x20Door

If the above (or similar) is getting logged to review with the intended text at the end, the *Prefix for Received Messages* is not set correctly. Ensure that `\r\n\r\n` is entered in [the connection](#).

Data Framing

Prefix for Sent Messages

Suffix for Sent Messages

Prefix for Received Messages

Suffix for Received Messages

Once this is done, the below should be received. Notice that the **Open\X20Door** message has been omitted from the first incoming message but accepted it in the next log (highlighted in yellow). This is what should be received as well as what should be entered in the Automated Action trigger condition.

When	Message	Who	What
	Automation		
16/12/2019 09:48:21	Automated Action Changed State to True		From Hanwha WAVE
16/12/2019 09:48:21	Connection Received Message	From Hanwha WAVE	OpenDoor
16/12/2019 09:48:21	Connection Discarded Text because Incorrect Framing	From Hanwha WAVE	POST/v20/v20HTTP/1.1/v/nDate/v20Mon,v2016/v20Dec/v202019/v2009:48:23/v20+1100/v/nHost/v20192.168.1.106:7003/v/nConnection/v20keep-alive/v/nUser-Agent/v20Wisenet/v20WAVE/4.0.0.29786/v20(Hanwha)/v20Mozilla/5.0/v20(Windows/v20NT/v206.1/v20WOW64)/v/nContent-Type/v20text/plain/v/nAuthorization/v20Basic/v20SWSjZXB0aW9uOkluY2VudGlvbG==/v/nContent-Length/v209/v/nX-Nr-User-Name/v20Inception/v/nContent-Encoding/v20Identity



Trigger events and Actions

Inception

Trigger events

The following is a list of events that, when occurred, can send an API message.

Area	Output	Connection	Hardware Module
Armed	On	Received message	Offline
Disarmed	Off	Connected	Cabinet Tamper
in Entry Mode	Time Period	Disconnected	Siren Tamper
in Exit Mode	Active	Door	AC Power Loss
in Alarm	Inactive	Locked	Low Battery
Detecting Active Alarm Type	Input	Unlocked	Missing Battery
Detecting Input Activity	Secure/Sealed	Open	Failed Battery Test
Detecting Input Activity (Pulsed)	Active/In Alarm	Closed	Failed PIN Attempt
Armed - Away	Isolated	Locked Out	Duress User
Armed - Stay	Lift Floor	Forced	RF Jam
Armed - Sleep	Secured	Door held Open for Too Long (DOTL)	
About to Arm	Free Access	Card Reader	
Armed Successfully	Locked out	Any Valid Card	Valid PIN by User
Unable to Arm		Valid Card by User	3-Badge Armed
In Walk Test Mode		Any Valid PIN	3-Badge Armed by User

Actions

The following is a list of actions that Inception can trigger based on an API message.

Input refers to the physical or hardwired input.

Custom Input refers to a logical/phantom input.

Output	Door	Floor	Siren
Turn On	Grant Access	Secure	Bell
Turn Off	Permanently Lock	Free Access	Sweep
Toggle	Permanently Unlock	Timed Free Access	Fire
Input	Timed Unlock	Custom Input	Evacuate
Isolate	Area	Activate	Beep
De-Isolate	Arm	Deactivate	Warn
Connection	Disarm	Pulse	Squawk
Send Text			

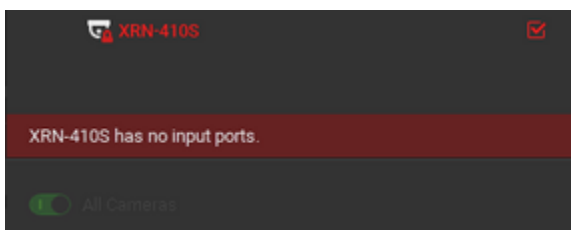


Hanwha WAVE

Trigger events

Analytic events: Hanhwa WAVE will list any event a camera supports. These events can be motion, tamper, line crossing, face detection, defocused area, baggage removal, unattended baggage, license plate recognition, people counting, heat detection, scene change and many others.

If the camera does not support analytics, Hanwha WAVE will display that it is not supported. Below is an example of a camera not supporting an input.



Input of a camera: A physical input of a camera, which will be a open/normally closed contact.

Soft trigger: This is a clickable icon that will be displayed on a camera's live view.

Camera disconnected/IP conflict: A camera network issue.

Server issue: This can be a license, network, conflict or storage issue.

Action events

Do HTTP request: Send a HTTP message to another API system.

Bookmark: This will add a marker to a camera's timeline of recorded footage.

Camera recording: This will trigger a camera to start recording.

Show text overlay: This will display text over live view of a camera.

Play sound/Speak: Hanwha WAVE system will convert text-to-speech and sound when trigger.

Send email/write to log/show notification: The SMTP server needs configuration for the email option.

Exit/Set full screen: This will minimise/maximise a live view stream.

Open layout: This will open a camera layout.

Show alarm on layout: This will display an icon/image on a camera layout.