IPAS & Wisenet Products Integration Guide

Concept Overview & Use Cases

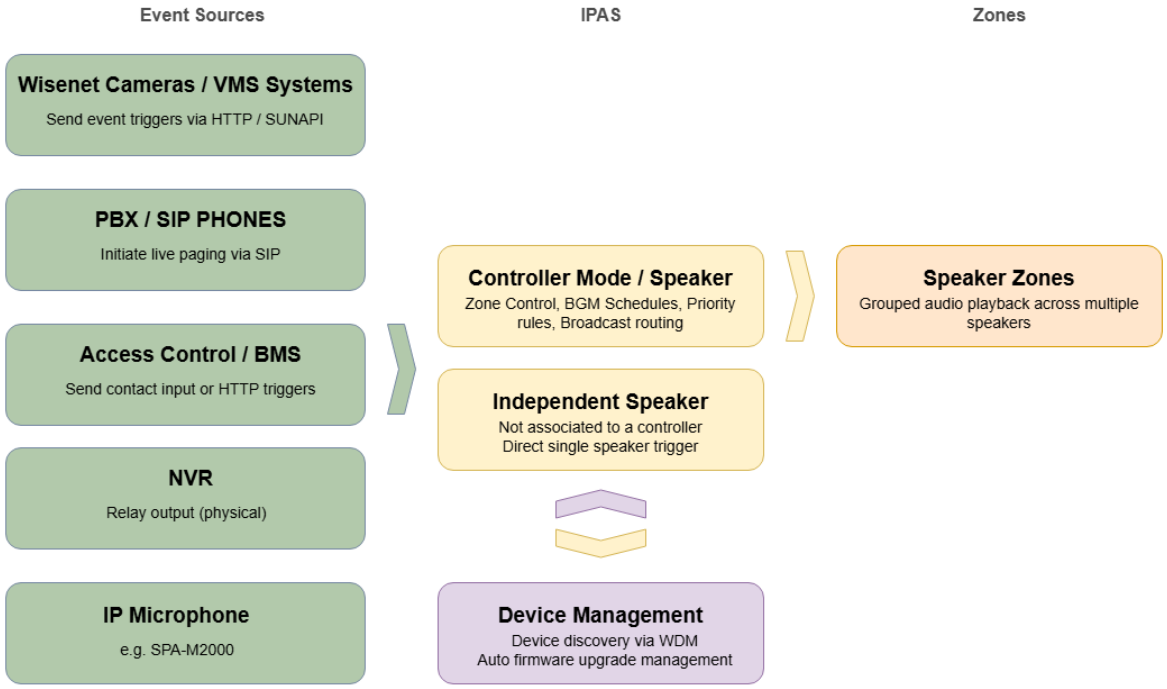
1. Introduction – What is Hanwha IP Audio System (IPAS)?

Hanwha's IP Audio System (IPAS) is a network-based audio platform designed to deliver live and pre-recorded messages over IP speakers and audio modules.
Instead of wiring passive speakers directly to cameras or NVRs, IPAS moves audio to the network layer, enabling centralized management, zoning, automation, and seamless integration with Wisenet cameras, VMS platforms and external systems such as access control, BMS (relay or HTTP triggers), and SIP PBX systems for live paging.

Typical applications include:

- Security and deterrence (audio warnings on intrusion / loitering).
- Safety and evacuation messaging.
- Operational paging in warehouses, factories, retail and transport.
- BGM (background music) and scheduled announcements.

Figure 1 – *High-level IPAS architecture showing how event sources trigger audio playback via Controller mode (for zone broadcast) or Independent Speaker mode.*



2. Why Use IPAS Instead of a Direct Speaker on a Camera?

2.1 Traditional Approach – Camera Audio Out + Analog Speaker

- 1:1 relationship – one camera > one speaker/area.
- No concept of zones or groups; changes require rewiring.
- Limited integration – usually only that camera can control the speaker.
- No built-in storage or scheduling on the speaker side.

2.2 IPAS Approach – IP-Based Audio

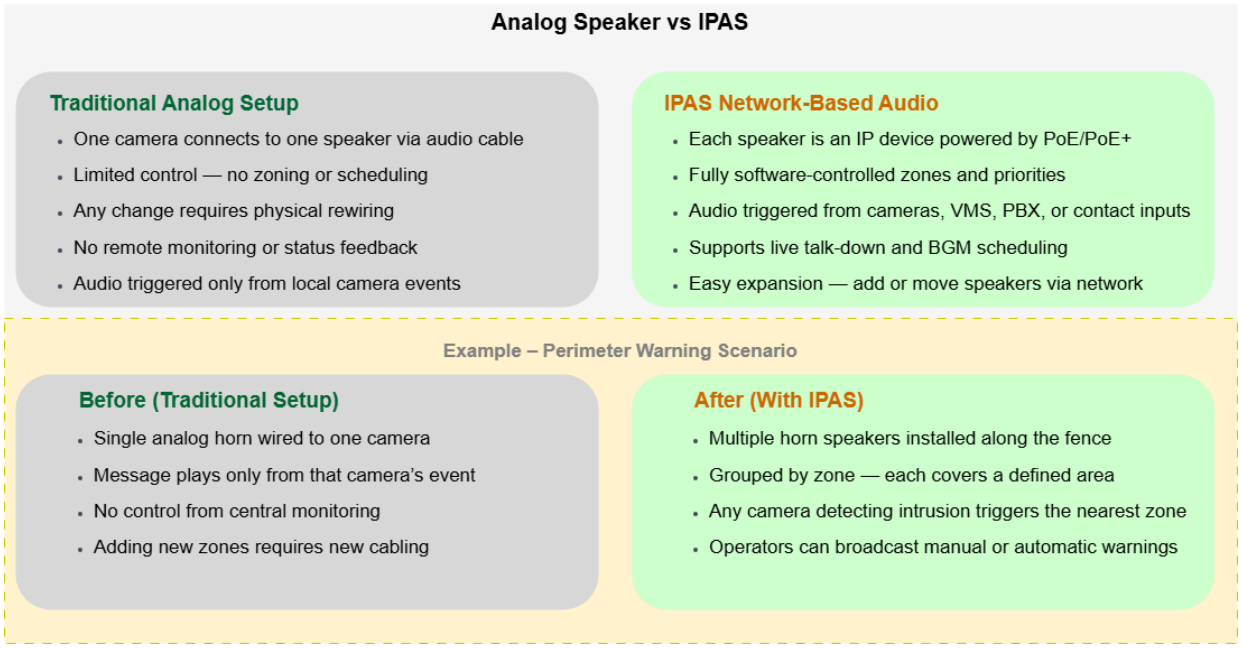
With IPAS, each speaker is an IP endpoint with its own amplifier, storage, and logic:

- **Network-based:** Speakers are discovered and controlled over IP (PoE/PoE+).
- **Addressable:** Each speaker belongs to a zone or group managed by a controller.
- **Event-driven:** Audio playback can be triggered by camera/VMS events.
  Other systems (e.g., access control, fire alarms) may trigger playback via relay integration.
- **Flexible routing:** One event can play different messages in different areas.

2.3 Benefits of IPAS

- **Scalable zoning:** Add / remove speakers and reassign them to zones via software, not cabling.
- **Centralised control:** BGM, scheduled broadcast, priority rules, and monitoring from a controller or server.
- **Multi-system integration:** Audio playback can be triggered by events from Wisenet VMS platforms (e.g., WAVE, SSM) or other systems via supported interfaces such as HTTP relay integrations or SIP paging (PBX).
- **Better deterrence:** Talk-down and targeted messages make CCTV proactive rather than purely forensic.

Figure 2 – *Traditional Analog Speaker Setup vs IPAS System*

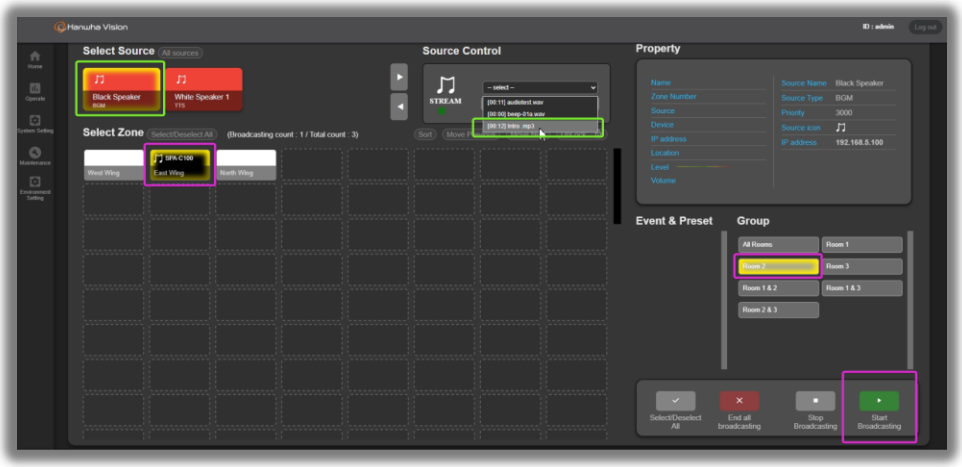


3. Key IPAS Features and Differentiators

3.1 Group Playback & Audio Zones

Speakers can be grouped as zones (e.g. “Entrance”, “Warehouse”, “Platform 1”). A controller manages which audio source plays in which zone(s). One event can trigger playback to a single zone, multiple zones or speaker groups, or an all-call broadcast.

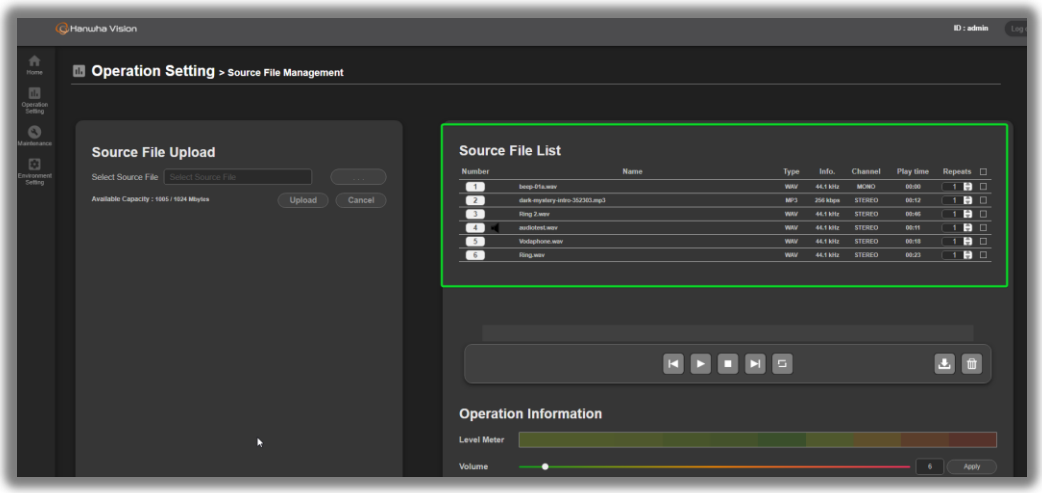
Figure 3 – *Group Playback & Zone Control Interface*



3.2 Centralised Broadcast & BGM

IPAS devices can store BGM, chimes, and pre-recorded messages internally. Scheduled BGM and announcements can be configured on the controller or speakers for opening/closing hours, safety messaging, and regular reminders.

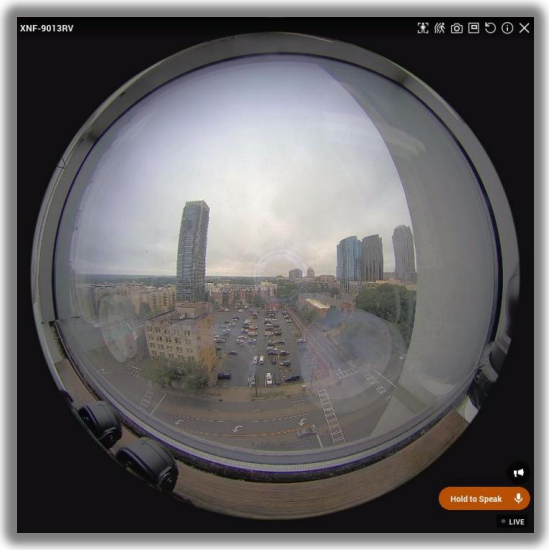
Figure 4 *– BGM Playback and Audio File Management Screen*
Example of the IPAS Controller interface showing locally stored audio files



3.3 Talk-Down & 2-Way Audio

When integrated with Wisenet WAVE, operators can use talk-down to speak live through IP speakers using the microphone in the client.
2-way audio is also supported with Milestone XProtect and Genetec Security Center (Sipelia).
Support for 2-way audio in Wisenet SSM is planned to be available by the end of December 2025.

Figure 5 – *WAVE layout with microphone button highlighted for talk-down.*



3.4 Flexible Trigger Sources

IPAS can be triggered from multiple types of systems:

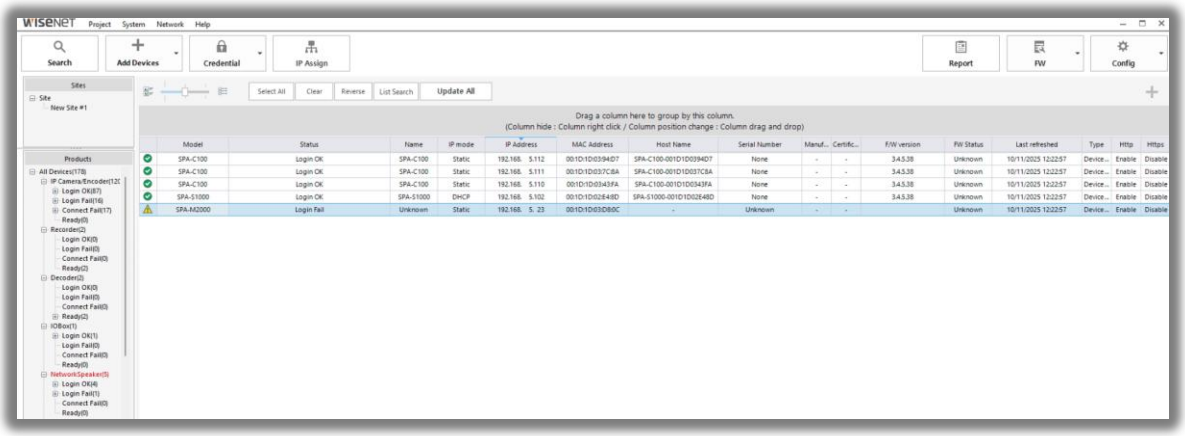
- VMS-driven events from Wisenet platforms (WAVE / SSM).
- Camera-based events (motion, analytics) via HTTP(S) requests or relay output
- Contact inputs such as buttons or relay outputs from third-party devices.
- SIP PBX systems support live paging to IP speakers.

3.5 Remote Management & Monitoring

Each device provides a web UI for configuration, firmware upgrades, and diagnostics. However, through Wisenet Device Manager it will allow for IPAS bulk discovery, password assignment, IP configuration, and firmware management across speakers, microphones, and IPAS controllers.

Figure 6 – *Wisenet Device Manager Overview*

Example of the Device Manager interface showing multiple IPAS connected devices with status, IP and firmware version information.



4. IPAS Architecture & Operating Modes

4.1 Core Components

A typical IPAS deployment includes:

- IP Speakers (ceiling, wall, horn, pendant types).
- IP Audio modules for driving existing analog speakers.
- IP Audio server / controller (e.g. SPA-S1000 or a speaker configured as Controller Mode).
- SIP microphones (e.g. SPA-M2000) for desk paging.

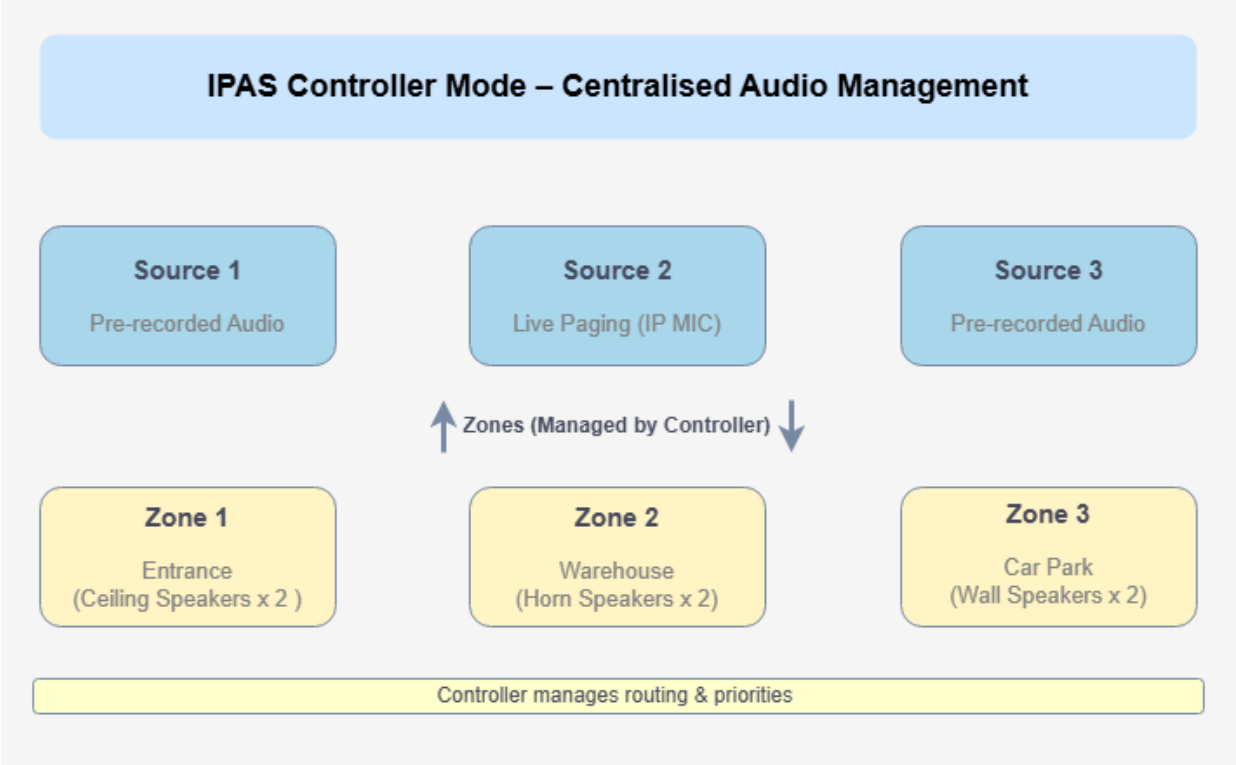
4.2 Controller & Speaker Mode

In Controller & Speaker Mode, one speaker or audio server acts as controller mode device, managing source files and speaker mode speakers.

Key characteristics:

- One controller-mode speaker manages multiple sources (audio files, BGM, IP microphones) and events such as SIP paging.
- Sources and zones are configured via Device Registration, Source Registration and Zone Registration screens.
- Only one controller-mode speaker should exist per broadcast system to avoid conflicts.
- Ideal for multi-zone sites, complex scheduling and BGM, and large installations with many speakers.

Figure 7 – *IPAS Controller, Source, and Zone Architecture*



4.3 Independent Mode

In Independent Mode, each speaker runs standalone without a controller. The speaker stores its own audio files and plays them on demand.

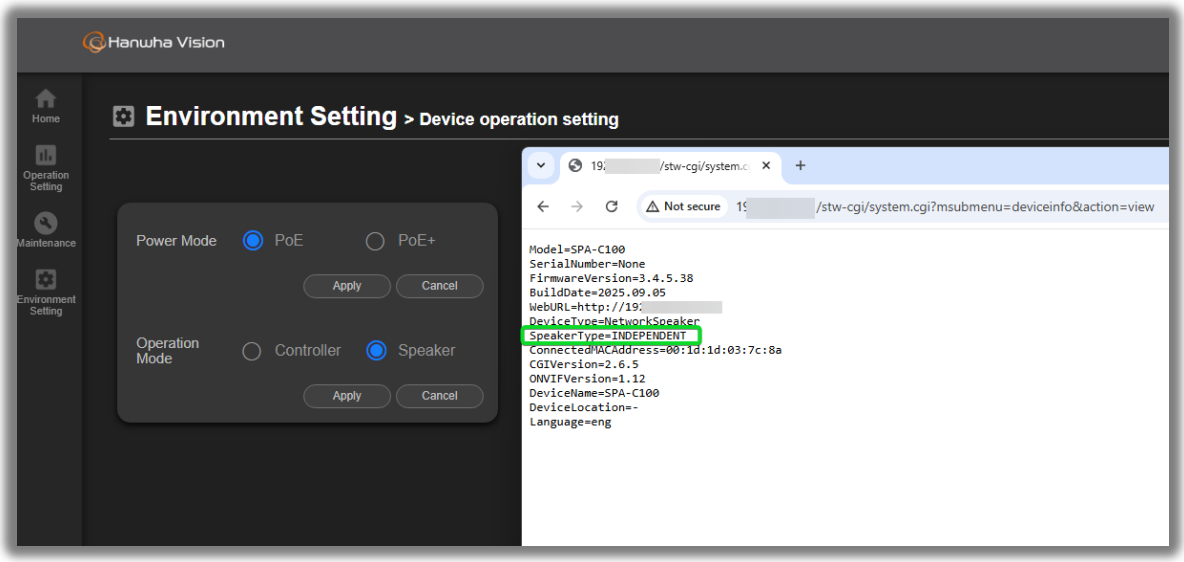
Common trigger methods include:

- HTTP/S SUNAPI URLs (e.g. Type=Play / Type=Stop).
- VMS event actions (e.g. WAVE HTTP(S) Request, SSM CGI).
- Camera handover actions using HTTP.

Independent Mode does not provide for multiple zones or groups, or shared BGM scheduling. It is ideal for single-speaker installations or small sites that only need simple event-to-message behavior.

Figure 8 – Independent Mode Configuration

Example of SPA-C100 device configured in Speaker Mode via the Environment Setting page. Each independent speaker operates as its own network audio endpoint.



4.4 Choosing the Right Mode

General guidance when choosing between modes:

Feature / Capability	Independent Mode	Controller Mode
Audio file stored locally in speaker	✔	✔ (managed by controller-mode speaker)
Single-speaker playback	✘	✔
BGM scheduling	✘	✔
Trigger from local contact input	✔	✔
Trigger via HTTP(S) / SUNAPI	✔	✔
Trigger from VMS platforms (WAVE, SSM, Milestone, Genetec)	✔	✔ (zone/routing support)
Remote monitoring	✘	✔
Speaker group	✘	✔
Centralised priority & routing rules	✘	✔

Table 1 – *Independent vs Controller Mode features*

Note: Independent Mode speakers support event-based playback and 2-way audio only. Button-based and scheduled playback require a controller-mode speaker.

Requirement	Recommended Mode
One speaker, simple event-based playback	Independent Mode
Multiple zones / group paging / BGM	Controller & Speaker Mode
Enterprise site with VMS integration and zone-based audio control	Controller & Speaker Mode
Temporary or lab/test setups	Independent Mode

Table 2 – Choosing the Appropriate IPAS Operating Mode

5. Integration Scenarios with Wisenet Products

This section focuses on when and where IPAS is used, describing the main flows between cameras, NVRs, VMS platforms and IPAS devices.

5.1 Direct Camera → IP Speaker (Independent Mode)

Use case: a line crossing at a fence or restricted area plays a warning on the nearest horn speaker.

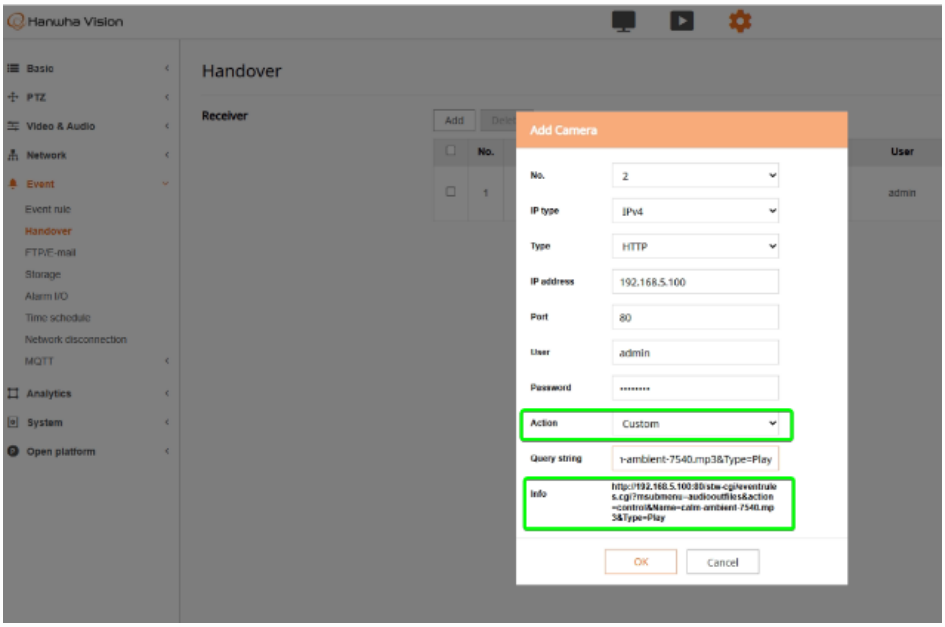
Flow:

- Camera detects event (line crossing, analytics).
- Camera's handover / event rule triggers an HTTP request to the speaker (SUNAPI URL with Type=Play).
- Independent-mode speaker plays the local audio file.

Figure 9 – Camera Handover Configuration for IP Speaker Trigger

Example of a Wisenet camera sending an HTTP (SUNAPI) command to an independent-mode speaker to play a pre-recorded warning message when a line-crossing event occurs.

Example box – Scenario: *"Do Not Cross the Line" – line crossing event triggers a pre-recorded warning message.*



5.2 Camera → Wisenet NVR → IPAS

Use case: the NVR collects events from multiple cameras and triggers zone-based announcements.

Conceptual flow

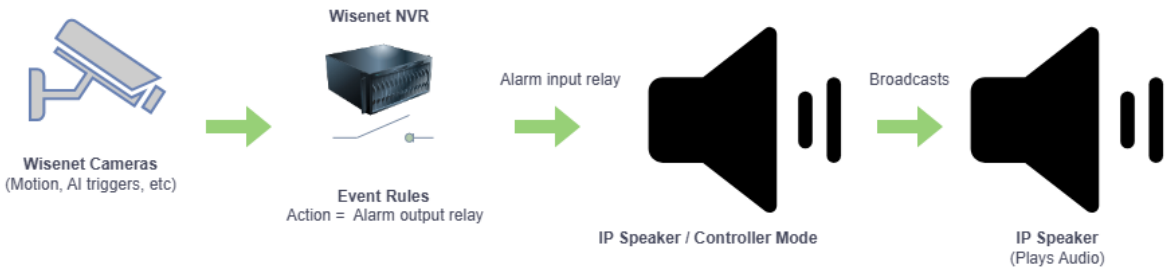
- Cameras send video and event data (motion, AI, alarms) to the Wisenet NVR.
- The NVR's event/action rule activates an alarm output (relay contact) to the IPAS controller. The IPAS controller maps that input to a preset (audio file + speaker zone assignment).
- Target zones play the configured announcement.

Important Limitation

HTTP/S (User Coding) commands from the NVR are not supported for IPAS activation.
Only Alarm Output Relay-based triggering is currently supported.

***Figure 10** – NVR to IPAS Event Flow Architecture*

Cameras send event data to the NVR. When the event rule activates, the NVR outputs a relay signal to the IPAS controller, which triggers a predefined Event Preset and plays the assigned message to the selected speaker zones.



5.3 Camera → Wisenet WAVE → IPAS

Use case: Wisenet WAVE is the main alarm console and operators need both automatic audio deterrence and manual talk-down.

Automated playback (Independent Mode)**:**

- Add the IPAS device to WAVE as a device on the server.
- Create Event Rules that use Play Sound to stream audio from WAVE to the IPAS device, or use Do HTTP(S) Request to call SUNAPI URLs on the controller or speakers.

Talk-down:

Operators select the camera/speaker layout and use the microphone button in WAVE to speak live through the associated IPAS speaker.

Figure 11 – *WAVE Event Rule and Camera Interface for HTTP(S) Trigger and Talk-down functions*

5.4 Camera → Wisenet SSM → IPAS

Use case: Wisenet SSM is the central event engine and IPAS is triggered from camera events.

Controller Mode:

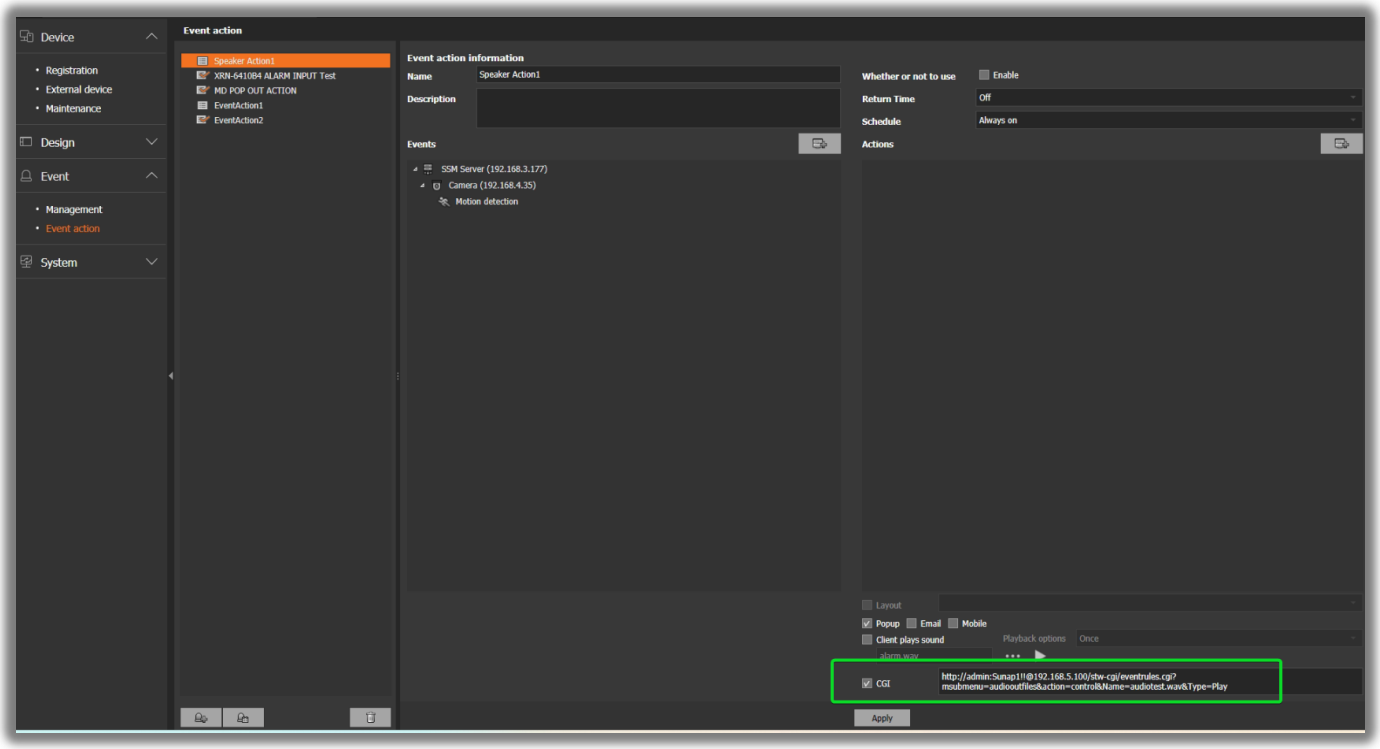
- In SSM Configuration, define an Event Action for a specific camera event.
- Select the IPAS controller and the desired speaker group and audio file exposed by the controller.
- When the event occurs, the controller plays the selected file to the chosen group.

Independent Mode via CGI:

- Configure the speaker in Independent Mode and upload the audio file.
- Create an Event Action using CGI (HTTP URL Command) with a SUNAPI Play URL.

Note: Wisenet SSM currently supports event-based audio triggering with IPAS.
2-way audio (live talk-down) support is planned for a future SSM release (target after the current release cycle).

Figure 12 – *Wisenet SSM Event Action using SUNAPI HTTP Command (Independent Mode Example)*



5.5 Camera > Milestone / Genetec > IPAS

Milestone XProtect:

- Add IPAS devices under **Hanwha Vision Plug-in** > **IP Audios**.
- For Controller Mode, configure presets mapping **Source** > **Target** (speaker / speaker group).
- Create Rules with action **Play through Hanwha Vision IP Audios** and select the appropriate preset.

Genetec Security Center:

- Add IPAS devices as **Hanwha Vision External Devices** using the Genetec plug-in.
- Use **Event-to-Action** with **Action** = **Play through Hanwha Vision IP Audios,** and select the audio device, sound source and target (speaker/speaker group).

Figure 17 *– Genetec Security Center Event-to-Action Configuration*

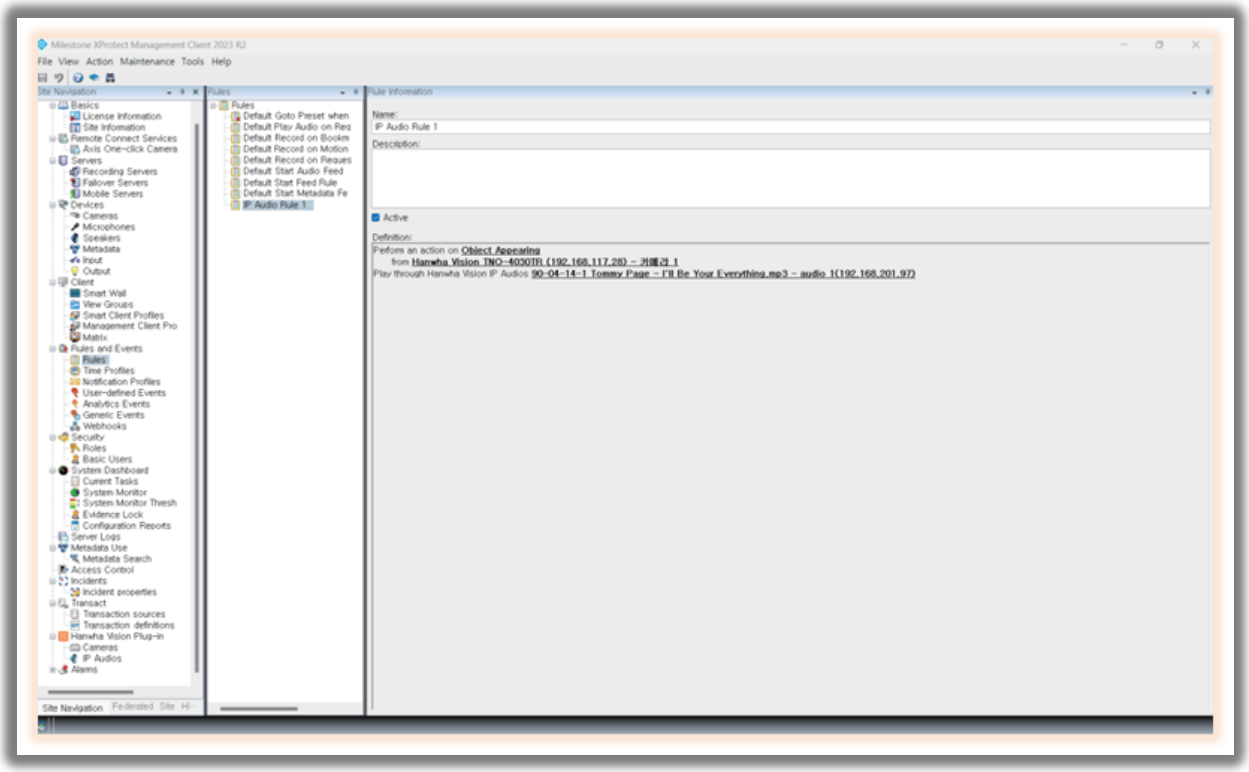
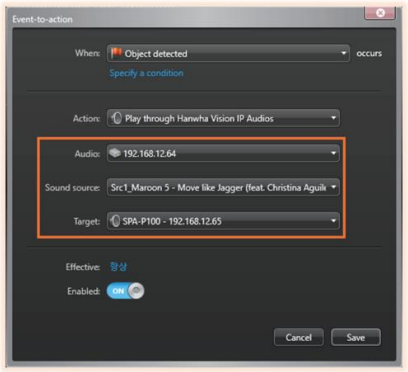


Figure 18 – Milestone XProtect Management Client Rule Setup



Direct VMS Integration (Without Hanwha Vision Plug-in):

- IPAS can be integrated directly with **Milestone XProtect** and **Genetec Security Center** without using the Hanwha Vision plug-in.
- VMS event rules trigger IPAS playback using **HTTP(S) / API requests** exposed by IPAS.
- This method supports **Independent Mode** and **Controller Mode**, depending on the target speaker configuration.
- Available in the **latest IPAS version**.

5.6 Integration with Other Systems (Access Control, Fire, BMS, SIP PBX)

IPAS can be integrated with other systems beyond CCTV:

- **HTTP/S / SUNAPI:** any system that can send HTTP requests can call IPAS URLs to play or stop audio on specific speakers or zones.
- **Contact closures:** buttons, door controllers, fire panels and other relay devices can be wired to IPAS contact inputs and mapped to presets.
- **SIP PBX:** IP PBX integration allows SIP phones to page through IP speakers for phone-based paging.

7. Frequently Asked Questions (FAQ)

Do I always need a controller?
No. For simple single-speaker use cases, Independent Mode is sufficient and the speaker can be triggered directly using HTTP/CGI or VMS actions. A controller is recommended when you need zones, BGM scheduling and centralised monitoring.

Can I mix Controller Mode and Independent Mode on the same site?
Yes. You can have a central IP Audio System for most zones and a few standalone Independent Mode speakers where it is simpler. Design carefully so that Independent speakers are not expected to follow controller priorities or schedules.

What happens if I configure more than one controller?
Multiple controllers managing the same speakers can cause conflicts. Design guidelines recommend a single controller per broadcast system.

Can IPAS work without any VMS at all?
Yes. IPAS can operate standalone using scheduled BGM and announcements, IP microphones for paging, and contact inputs for event-triggered playback.

Which firmware version should I use for IPAS devices?
Integration guides assume IP speakers and bridges run firmware 3.4.5.38 or later. Always confirm minimum required versions with the latest release notes.

What audio formats are supported?
IPAS devices support WAV and MP3 formats within the documented bit rate and sampling ranges (for example MP3 64–320 kbps and WAV 16–48 kHz).

Why doesn't my audio file play when I trigger it from WAVE/SSM/HTTP?
Common causes include a file name mismatch (case sensitivity or special characters), incorrect mode (speaker still linked to a controller), network/firewall issues or incorrect credentials in HTTP/CGI actions.

Can I trigger audio from an existing access control or fire system?
Yes. Use either contact closures (relays into IP Audio System contact inputs) or HTTP/S requests if the system supports them.

Can analog speakers be integrated into an IPAS system?
Yes. Existing analog loudspeakers can be connected to IPAS via IP audio modules/bridges. The module appears as an IPAS endpoint on the network, so those speakers can still be assigned to zones, presets and schedules and managed like any other IPAS device.

Does IPAS support 2-way audio from all VMS platforms?
Yes. 2-way audio (live talk-down) is supported with Wisenet WAVE and is now also available with Milestone XProtect and Genetec Security Center in the latest IPAS versions. Availability and behaviour may depend on the VMS version and integration method.