

WHITE PAPER

Edge-to-edge technology

Smart pairing with Axis speakers

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1 Introduction

Edge-to-edge is a technology that facilitates the connection between Axis cameras and Axis speakers.

Through smart pairing of devices, it is now easy to add audio-out functionality to a camera that doesn't already have it. Audio-out is something that most security systems could benefit from. For example, complementing video surveillance with the broadcasting of a deterring audio message can be a very effective way to prevent theft in a store or put an end to unsolicited activities near a critical infrastructure facility. Audio output may not be needed in all the cameras of a surveillance system, but with edge-to-edge technology you have the flexibility to add it where you need it the most.

This white paper describes how edge-to-edge technology works and how it is used in network speaker pairing.

2 What is edge-to-edge?

An *edge device* is typically a data-producing device, such as a security camera, a sensor, or a smartphone. It is a networking device that is located close to the user (or to the client device), rather than being in the backbone of the network. Axis is an expert provider of edge devices for security. Our comprehensive portfolio includes video cameras, speakers, microphones, radar devices, and sensors, which are all IP based.

Based on that definition, *edge-to-edge technology* is when edge devices connect with each other, or *pair*, without having to communicate one on one with the core of the system. In the Axis feature *network speaker pairing*, this is what the camera does with an external, Ethernet-connected Axis speaker. With both devices connected to the network, the pairing is made possible through a special software in the camera. After pairing, audio settings can be controlled from the camera GUI (graphical user interface). The camera will identify itself to the VMS (video management software) as a camera with integrated audio output and redirect any played audio to the speaker.



Figure 1. Edge-to-edge technology enables an Axis camera to pair with an Axis speaker to obtain seemingly camera-integrated audio. Both devices must be on the network and the camera must be equipped with edge-to-edge support in the firmware.

The camera/speaker pairing can be done directly in the camera GUI by entering the speaker's IP address, username, and password. Note that, in order to ensure full compatibility, pairing must be done before connecting the camera to the VMS. Pairing can also be done by calling the JSON APIs (application programming interface) directly from the VMS.

While network speaker pairing is the main existing implementation of edge-to-edge, there is another one as well. AXIS Radar Autotracking for PTZ is a feature where detection by an Axis radar device automatically triggers a connected Axis PTZ camera to pinpoint and follow the detected object. This feature uses edge-to-edge technology to pair the high-resolution camera with the radar device.

3 Flexible audio connectivity

Edge-to-edge makes it easier to connect speakers and cameras. From the system's point of view, the audio is integrated in the camera, and controlled in the camera GUI. The speaker doesn't have to be connected to the VMS, which means that you have the flexibility to use a VMS that doesn't support Axis speakers – as long as it supports Axis cameras with audio-out functionality.

You can choose cost-effective Axis cameras without audio, and add it through the edge-to-edge software on only the cameras where you really need it. You can place the paired speakers where you like, and change your preferences without having to reinstall or move cameras.

Network speaker pairing can also be used to pair cameras with Axis audio system devices, such as AXIS C8210 Network Audio Amplifier, which enables the creation of hybrid network audio installations with legacy speakers or a mix of analog and network speakers.

4 No extra hardware required

Since a few years back, Axis offers a hardware product that provides mainly the same functionality as edge-to-edge. *Portcast* provides an audio and I/O interface to any device to which it is attached, but this comes with some limitations. Portcast is designed for analog audio, which means it can't be used with Axis speakers unless you also add another piece of hardware for analog-to-digital conversion. In addition, the portcast device is only for indoor use and it consumes power. Edge-to-edge is a handier solution that requires no extra hardware or power and can be used with both indoor and outdoor products.

5 Future possibilities

With Axis comprehensive range of IP devices, it's easy to see future possibilities for edge-to-edge technology, with pairing of several types of devices. You could choose a camera that fits your need when it comes to visual surveillance, but which doesn't necessarily have all the other features you need. These features, enabled by, for example, microphones, radar devices, or motion detectors could instead be flexibly added through edge-to-edge.

About Axis Communications

Axis enables a smarter and safer world by creating network solutions that provide insights for improving security and new ways of doing business. As the industry leader in network video, Axis offers products and services for video surveillance and analytics, access control, and audio systems.

Axis has more than 3,500 dedicated employees in over 50 countries and collaborates with partners worldwide to deliver customer solutions. Axis was founded in 1984 and has its headquarters in Lund, Sweden.

For more information about Axis, please visit our website axis.com.