

How to use 2N SIP Mic with Axis network speakers

Use cases and step-by-step guides

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1. Introduction

The first 2N product to be distributed by Axis is 2N SIP Mic, a two-way network microphone console with a built-in audio management server. It can be easily integrated with Axis network speakers to form a complete public-address system, possible to purchase from a single distributor. Based on open standards, 2N SIP Mic can also be connected to other IT systems.

This document describes suggested use cases for 2N SIP Mic with Axis network speaker system, and provides step-by-step guides for how to configure the hardware. Note that only use cases that support Axis equipment are described, and for details about other possibilities using 2N SIP Mic, an extended user manual can be found on 2N website:

<https://wiki.2n.cz/sipmic/latest/en/3-funkce-a-uziti/3-2-priklady-nastaveni/3-2-4-http-pozadavek>

2. Hardware



The default login credentials for 2N SIP Mic are "Admin" (user name) and "2n" (password).

2N SIP Mic comes with DHCP enabled as default setting. To use the default IP address, 192.168.1.100, press the call button 15 times after restart. For discovery, use the 2N® Helios IP network scanner found at www.2n.cz/products/2n-network-scanner

This document is intended for setups where 2N SIP Mic is connected to Axis audio products such as network speakers AXIS C1004-E, AXIS C2005, and AXIS C3003-E, or network audio bridge AXIS C8033. The audio system is assumed to be already in place.

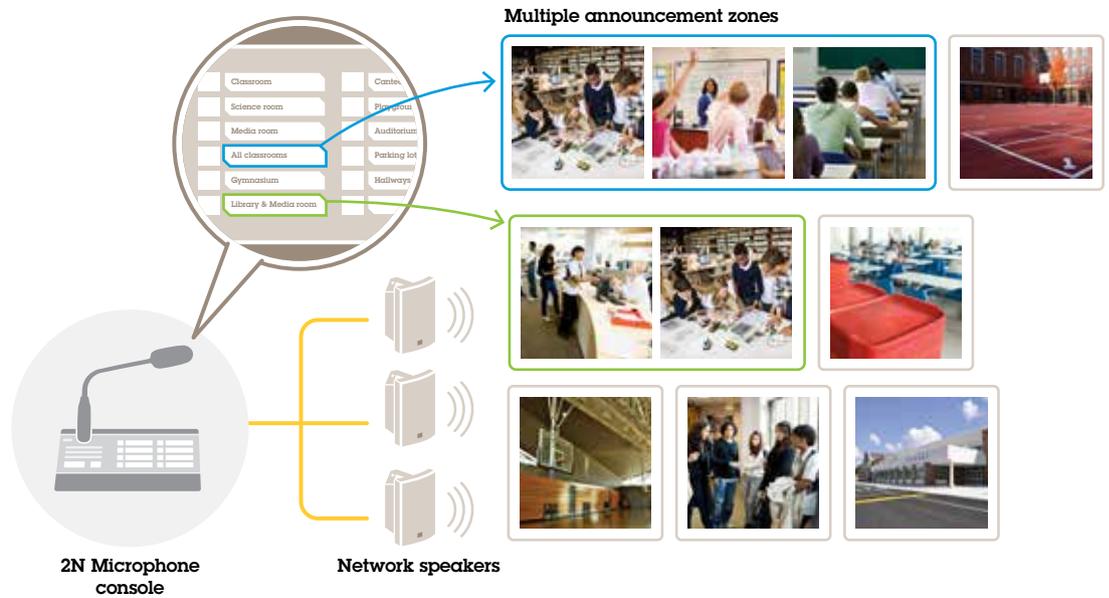


3. Trigger audio from 2N SIP Mic

3.1 Use transmit.cgi and send HTTP request

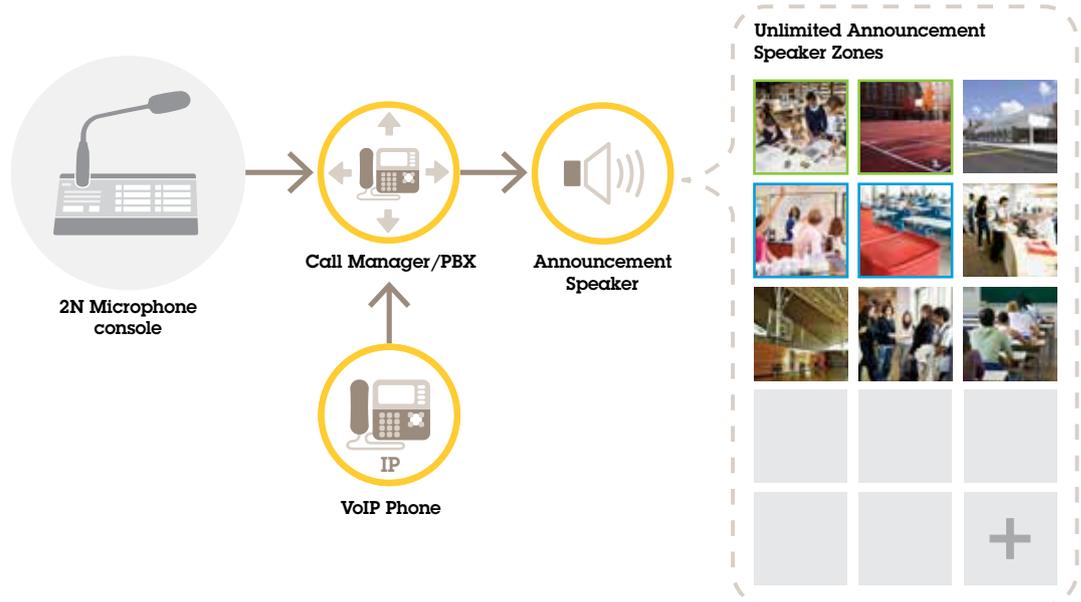
2N SIP Mic has support for HTTP trigger with password authentication and can send general VAPIX commands to all Axis products. However, it cannot receive any VAPIX commands.

When using 2N SIP Mic in combination with Axis network audio systems, it is possible to address zones for public announcements by using transmit.cgi. A maximum of 12 IP addresses can be assigned per zone/button at the same time. Zones can easily be changed, removed, or added in an instant, over the network.



3.2 Use SIP calls and DTMF triggers

2N SIP Mic has support for SIP and DTMF (dual-tone multiple-frequency) signals. SIP calls can be initiated by 2N SIP Mic either via a VoIP PBX, or, if the addressed device is in the same network, as a SIP peer-to-peer connection. To address many speaker zones, the buttons of 2N SIP Mic may be insufficient. It is then possible to instead use paging groups defined in the SIP PBX, in order to address the zones.



4. Suggested use cases

A brief description of the suggested use cases is provided in the following subsections, and detailed step-by-step guides are provided in section 5.

In use cases A, B, and C, audio is triggered by using `transmit.cgi` or sending a http request. In use cases D, E, and F, audio is triggered using SIP calls and DTMF.

4.1 A – Use `transmit.cgi` for public announcements to one speaker group

A basic installation for this use case could contain 2N SIP Mic in combination with an Axis network speaker group consisting of products such as AXIS C3003-E, AXIS C1004-E, AXIS C2005 or AXIS C8033.

An operator would address this whole group for a general announcement.

4.2 B – Use `transmit.cgi` for public announcements to several speaker groups

An installation for this use case could contain 2N SIP Mic in combination with an Axis network speaker group consisting of C1004-E and/or AXIS C2005-E for background music. Two other speaker groups, consisting of multiple AXIS C3003-E speakers, could be installed in a parking area and in a playground.

An operator could address the first speaker group (playing background music) for a general announcement, but later on, also the other speaker groups for another announcement to all three zones.

4.3 C – Use HTTP request to trigger audio clip stored on leader speaker of a group

A basic installation for this use case could contain 2N SIP Mic in combination with an Axis network speaker group consisting of products such as AXIS C3003-E, AXIS C1004-E, AXIS C2005, or AXIS C8033.

An operator would trigger an audio clip stored on a speaker, by pressing a button on 2N SIP Mic.

Clip example:

`http://ip address of the speaker/axis-cgi/playclip.cgi?location=ding_dong.mp3&repeat=-1&volume=100`

4.4 D – Use SIP for public announcements to one speaker

A basic installation for this use case could contain 2N SIP Mic in combination with an Axis network speaker group consisting of products such as AXIS C3003-E, AXIS C1004-E, AXIS C2005, or AXIS C8033.

An operator would address an Axis SIP-capable device, in this case AXIS C1004-E, for a general announcement, by initiating a peer-to-peer call from 2N SIP Mic.

4.5 E – Use SIP for public announcements to a speaker group

A basic installation for this use case could contain 2N SIP Mic in combination with an Axis network speaker group consisting of products such as AXIS C3003-E, AXIS C1004-E, AXIS C2005, or AXIS C8033.

An operator would address the whole speaker group for a general announcement, by initiating a SIP call from 2N SIP Mic.

4.6 F – Use DTMF for public announcement to a speaker group

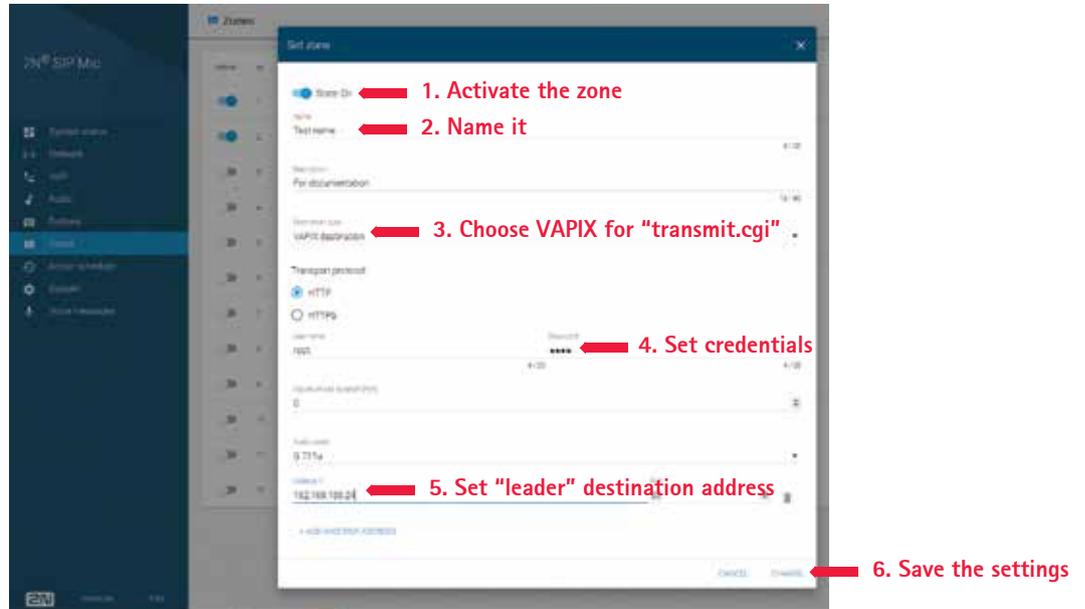
A basic installation for this use case could contain 2N SIP Mic in combination with an Axis network speaker group consisting of products such as AXIS C3003-E, AXIS C1004-E, AXIS C2005, or AXIS C8033.

An operator would address a speaker group for playing a pre-recorded message triggered by a DTMF tone.

5. Step-by-step guides for the use cases

5.1 A – Use transmit.cgi for public announcements to one speaker group

Step 1: Configure a zone with a VAPIX destination.



1. Activate the zone

2. Name it

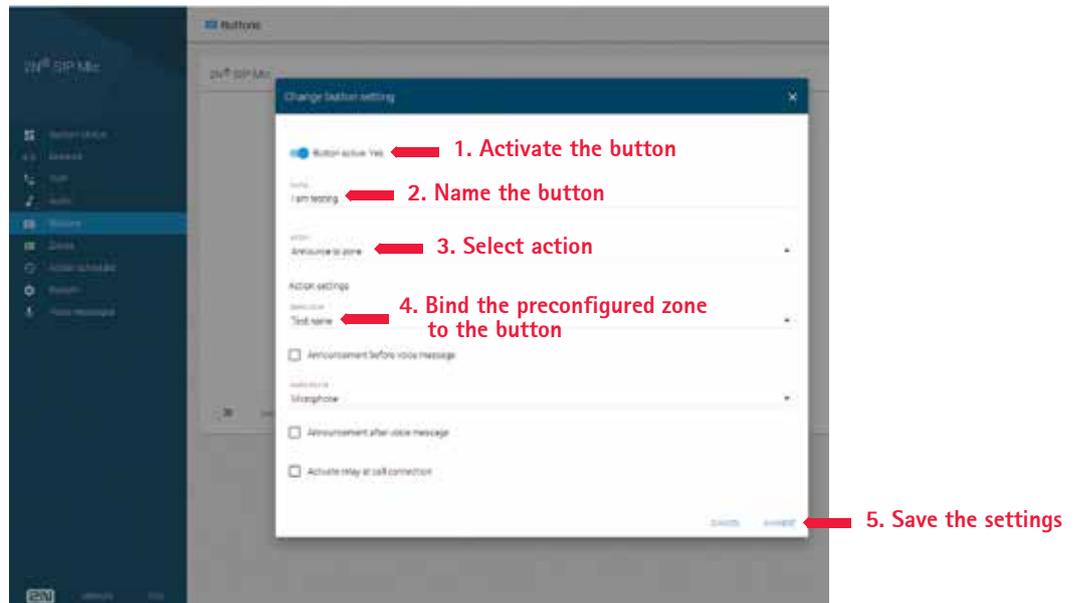
3. Choose VAPIX for "transmit.cgi"

4. Set credentials

5. Set "leader" destination address

6. Save the settings

Step 2: Assign the zone to a 2N SIP Mic button.



1. Activate the button

2. Name the button

3. Select action

4. Bind the preconfigured zone to the button

5. Save the settings

5.2 B – Use transmit.cgi for public announcements to several speaker groups

Step 1: Configure a zone with multiple VAPIX destinations, to address several IP addresses in parallel.

1. Activate the zone

2. Name it

3. Choose VAPIX for "transmit.cgi"

4. Set credentials

5. Set the first destination IP address

6. Set the second destination IP address

7. Press "ADD ANOTHER ADDRESS" to add additional targets

8. Save the settings

Step 2: Assign the zone to a 2N SIP Mic button.

1. Activate the button

2. Name the button

3. Select action

4. Bind the preconfigured zone to the button

5. Save the settings

5.3 C – Use HTTP request to trigger audio clip stored on leader speaker of a group

Step 1: Prepare an audio clip on the leader speaker of the speaker group.

The screenshot shows the web interface for the AXIS C1004-E Network Cabinet Speaker. The left sidebar contains navigation options: Basic Setup, Audio (Overview, System Settings, Device Settings, Clips), VoIP, Detectors, Applications, Events, Languages, System Options, and About. The main content area is titled "Audio Clip List" and contains a table with the following data:

Name	Location
Abrecadabra	/etc/audioclips/abrecadabra.mp3
Alarm	/etc/audioclips/alarm.mp3
Birds chirping	/etc/audioclips/birds_chirping.mp3
Breaking waves	/etc/audioclips/breaking_waves.mp3
Camera click	/etc/audioclips/camera_click.mp3
Ding-dong	/etc/audioclips/ding_dong.mp3
Internal message example	/etc/audioclips/internal_message_example.mp3
Logo	/etc/audioclips/logo.mp3
Ring tone 1	/etc/audioclips/ringtone_1.mp3
Ring tone 2	/etc/audioclips/ringtone_2.mp3

Below the table are buttons for "Add...", "Play", "Stop", "Download...", "Modify...", and "Remove". The "Ding-dong" clip is selected. A red arrow points to this row with the text "1. Choose a clip to play".

Below the table is the "Configure Audio Clip Link" section. It includes a dropdown for "Audio clip" set to "ding_dong.mp3", a volume slider set to "100 %", a "Play number of times" field set to "1", and an "Infinite repeats" checkbox. A red arrow points to the "Audio clip" dropdown with the text "2. Adjust the clip".

At the bottom, there is a "Configured link:" field containing the URL: `http://192.168.188.24/axis-cgi/playclip.cgi?location=ding_dong.mp3&repeat=0&volume=`. A red arrow points to this field with the text "3. Use this http string in the 2N SIP Mic config".

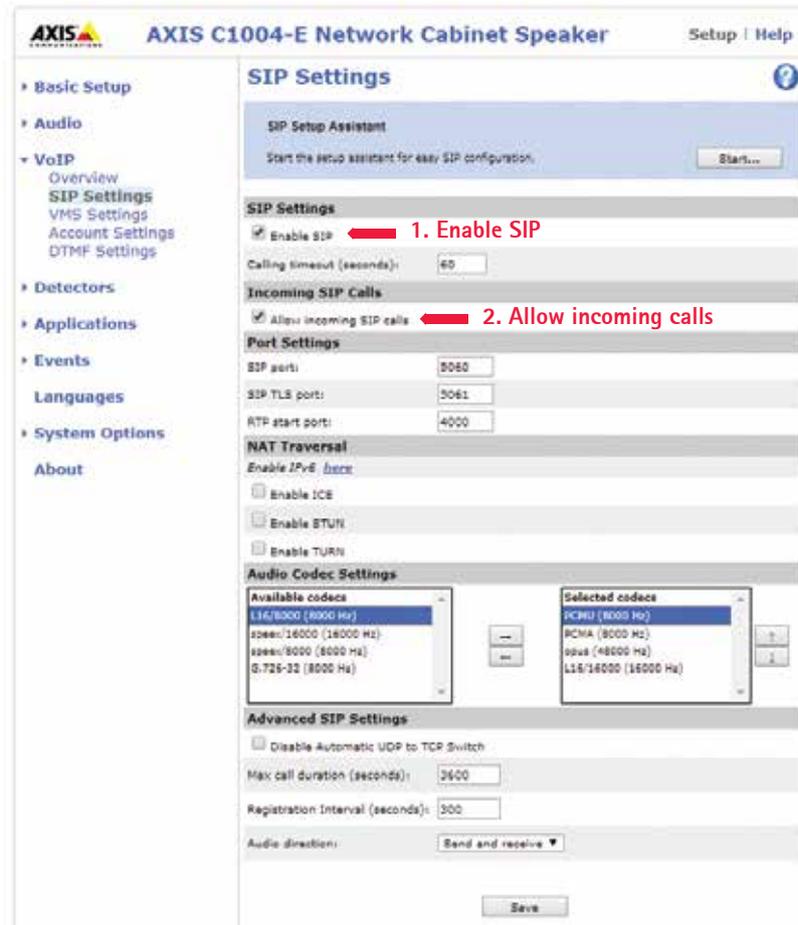
Step 2: Configure a 2N SIP Mic button to trigger the audio clip on the speaker.

The screenshot shows the configuration interface for a 2N SIP Mic. A "Change button setting" dialog box is open, showing the following configuration steps:

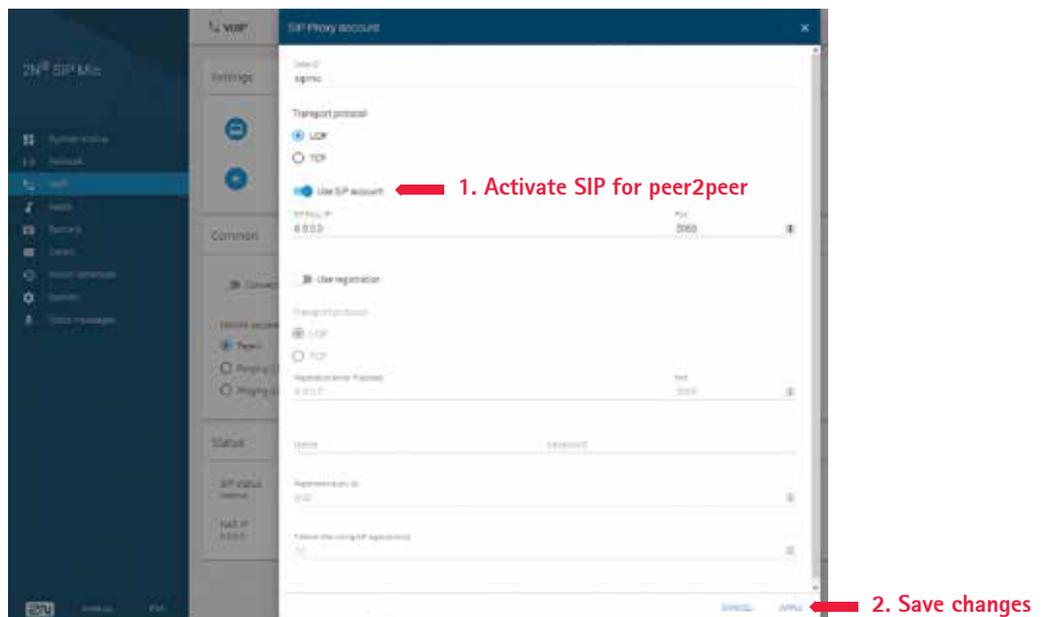
1. Choose a button and activate it: The "Button active" checkbox is checked.
2. Name it: The "Button name" field is set to "SIP Mic".
3. Choose the action "HTTP request": The "Action" dropdown is set to "HTTP request".
4. Type the HTTP request (Username and password need to be included into the string): The "HTTP request" field contains the URL: `http://192.168.188.24/axis-cgi/playclip.cgi?location=ding_dong.mp3&repeat=1&volume=100`.
5. Save the settings: The "OK" button is highlighted.

5.4 D – Use SIP for public announcements to one speaker

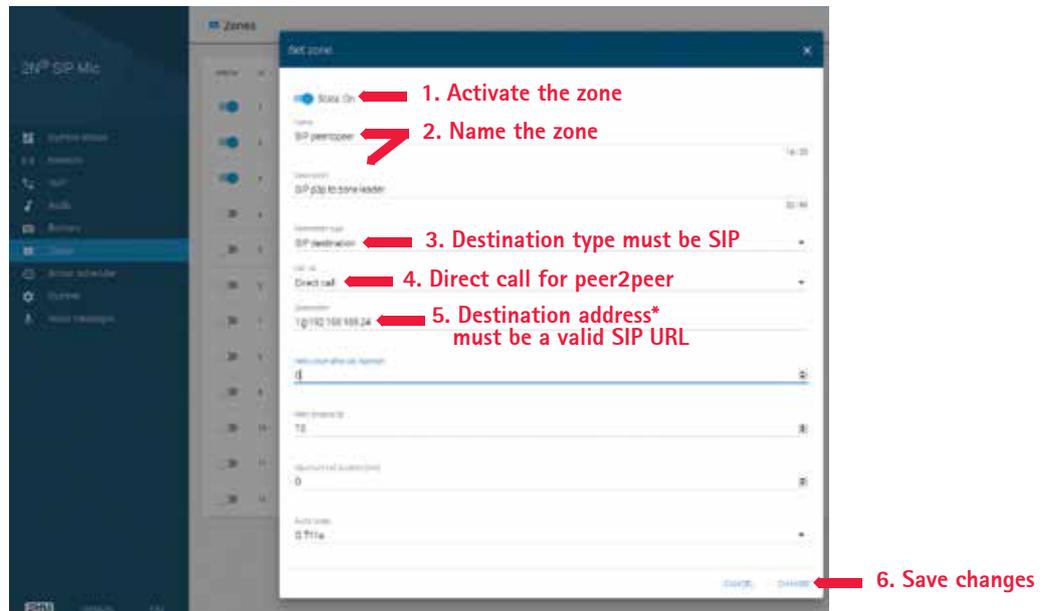
Step 1: Enable SIP on the speaker so that it can receive SIP calls.



Step 2: Configure and enable the right VoIP settings for peer-to-peer calls on 2N SIP Mic.

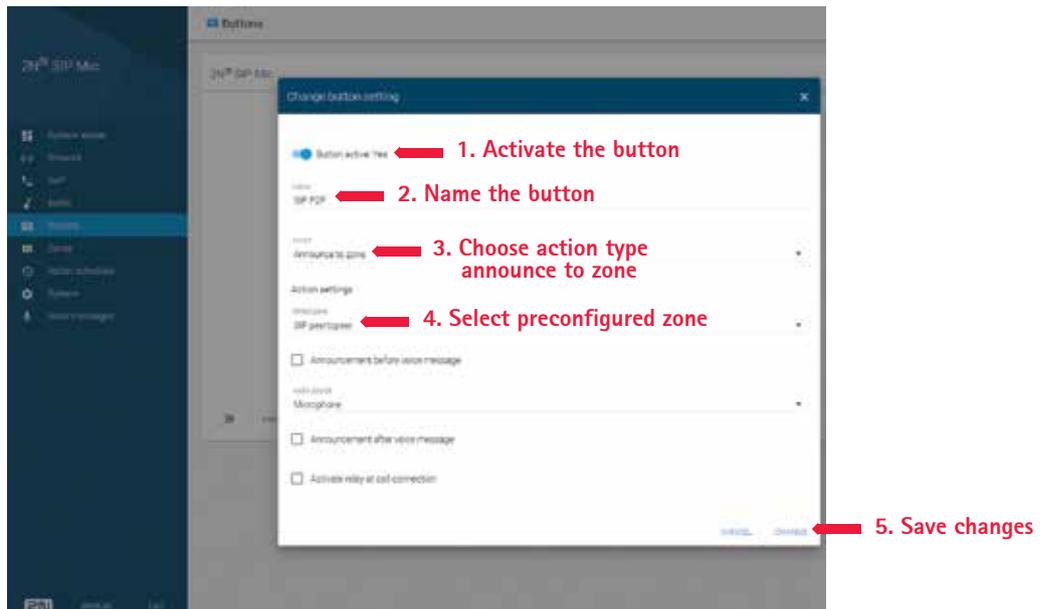


Step 3: Configure 2N SIP Mic to initiate a peer-to-peer call.



Note that the SIP destination address must be a valid SIP URL that includes a host part before the @ and the network IP address after the @. In this example the host part can be anything between 0 and 9.

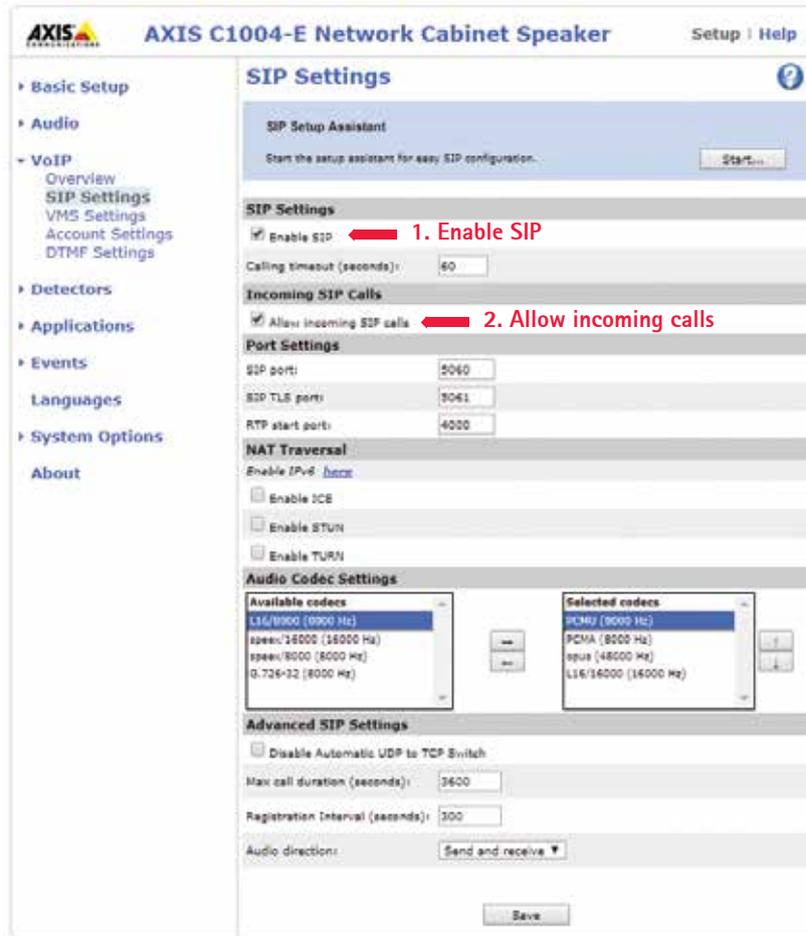
Step 4: Assign the zone to a 2N SIP Mic button.



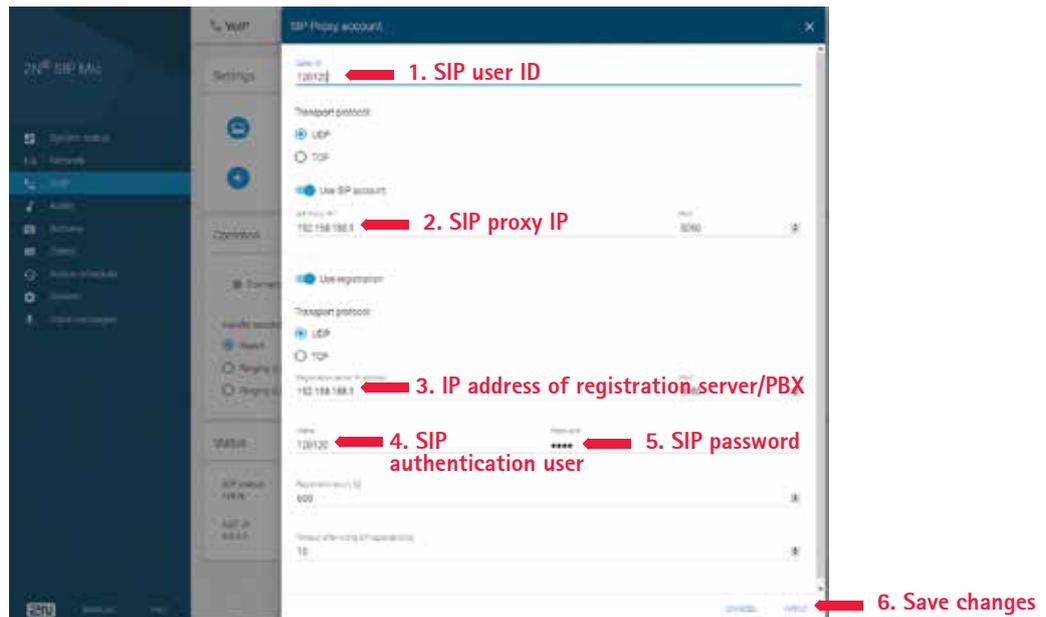
When you press the configured button, 2N SIP Mic will initiate a peer-to-peer SIP call to the defined SIP destination (the speaker).

5.5 E – Use SIP for public announcements to a speaker group

Step 1: Enable SIP on the leader speaker so that it can receive SIP calls.



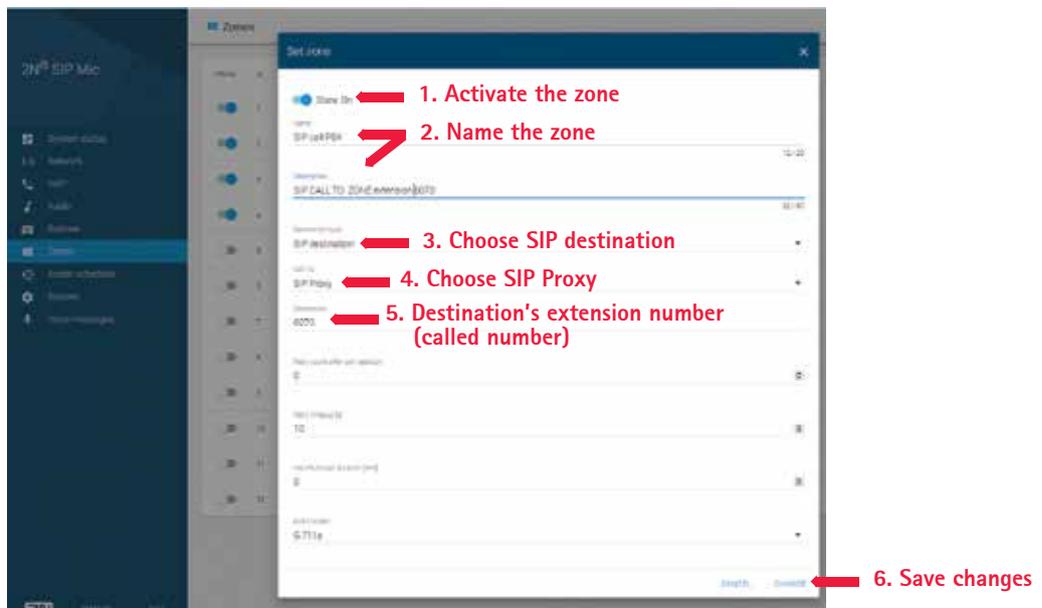
Step 2: Configure and enable the right VoIP settings to register 2N SIP Mic to a VoIP PBX.



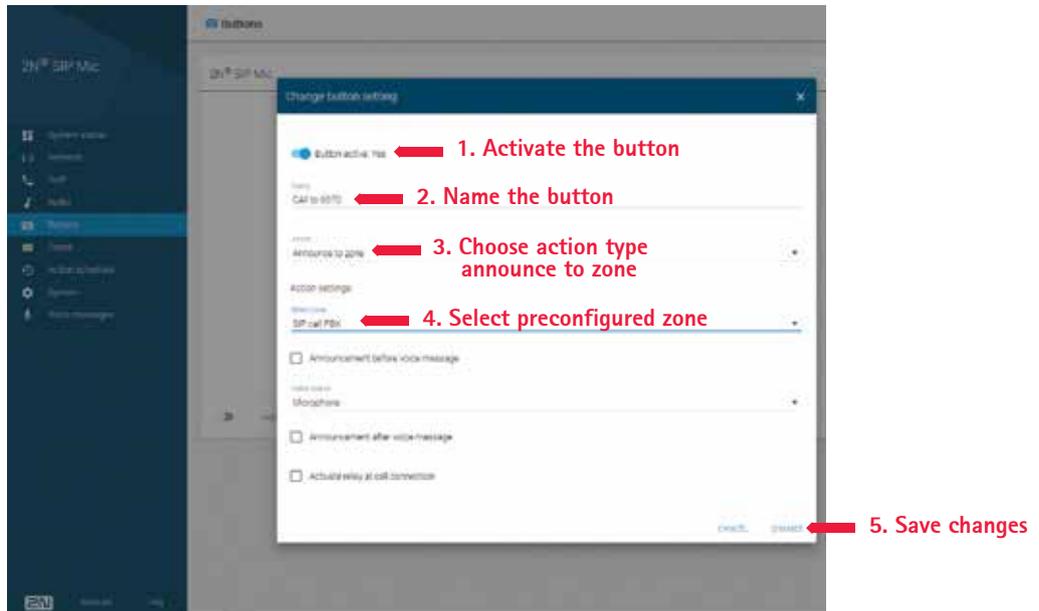
Note: Before you start your configuration, make sure that you have the needed information and resources to see the configuration through. You can use the device provisioning form to collect the configuration parameters. Axis provides no support for PBX configuration, but some configuration examples are available if needed.

Device provisioning form	
Brand/type of SIP registrar / PBX	
SIP user ID	
SIP authentication user	
SIP password	
SIP port number (if not 5060)	
SIP register address (FQDN)	
SIP proxy server address (FQDN)	
SIP via UDP or TCP	
DTMF RFC2833	
DTMF SIP info	
Video H.264 support enabled in PBX	
Sufficient PBX licenses available	
Supported voice codec	
RTP port range	
Contact details for SIP service provider customer support	
Contact details for PBX support	

Step 3: Configure 2N SIP Mic to initiate a VoIP call to a zone, via a PBX.



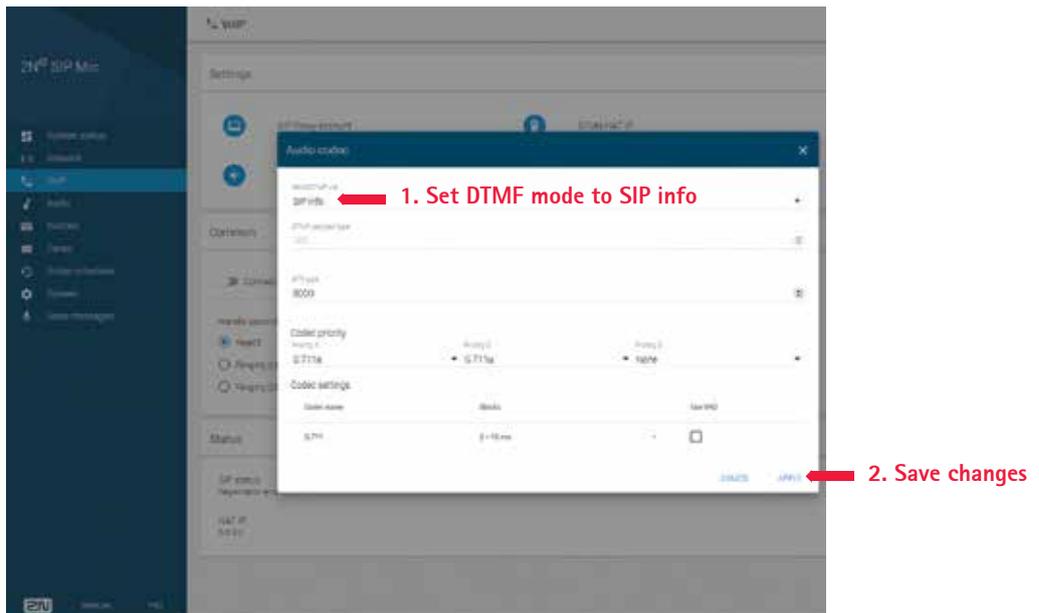
Step 4: Assign the preconfigured zone to a 2N SIP Mic button.



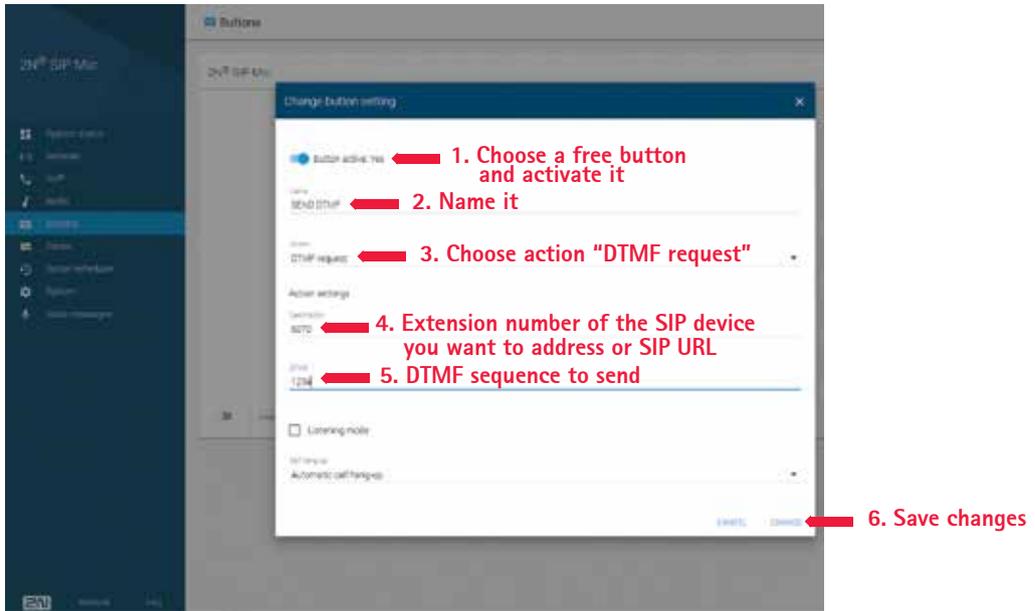
When you press the button, 2N SIP Mic will initiate a call to the destination number (the zone/leader speaker).

5.6 F – Use DTMF for public announcement to a speaker group

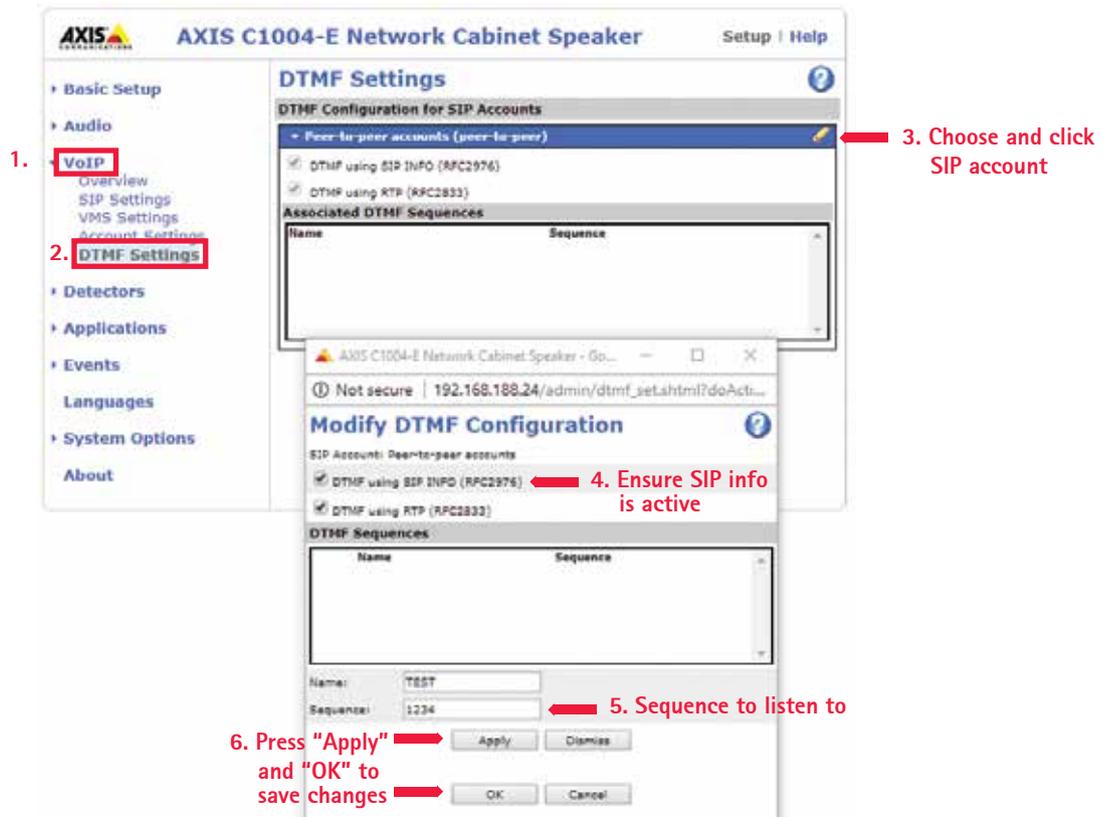
Step 1: Enable DTMF on 2N SIP Mic.



Step 2: Configure a 2N SIP Mic button to send DTMF.



Step 3: Configure the leader speaker to receive DTMF tone.



Step 4: Configure the speaker to trigger the action "Play audio clip" upon receiving a DTMF tone.

The screenshot displays the configuration interface for the AXIS C1004-E Network Cabinet Speaker. The left sidebar shows the navigation menu with 'Action Rules' highlighted. The main area shows the 'Action Rule List' table and the 'Action Rule Setup' dialog box.

Name	Trigger	Schedule	Action	Recipient
Audio Ringing	Call - State	-	Play Audio Clip	-

1. Action Rules

2. Enable and name the rule

3. Set trigger and choose DTMF

4. Set action type

5. Save changes

About Axis Communications

Axis offers intelligent security solutions that enable a smarter, safer world. As the global market leader in network video, Axis is driving the industry by continually launching innovative network products based on an open platform – delivering high value to its customers and carried through a global partner network. Axis has long-term relationships with partners and provides them with knowledge and ground-breaking network products in existing and new markets.

Axis has more than 2,700 dedicated employees in more than 40 countries around the world, supported by a network of over 90,000 partners across 179 countries. Founded in 1984, Axis is a Sweden-based company listed on NASDAQ OMX Stockholm under the ticker AXIS.

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