

## **AXIS Video Motion Detection 4**

## About This Document

This manual is intended for administrators and users of the application AXIS Video Motion Detection version 4. Later versions of this document will be posted to Axis website, as required. See also the online help, available from the application's web-based interface.

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- download user documentation and software updates

- find answers to resolved problems in the FAQ database. Search by product, category, or phrase
- report problems to Axis support staff by logging in to your private support area
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# AXIS Video Motion Detection 4

## Application Overview

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### Application Overview

AXIS Video Motion Detection 4 is an application that detects moving objects in the camera's field of view. When the application detects a moving object it triggers an alarm. Axis network cameras and video encoders, and third-party software use the alarm to, for example, record video or send a notification.

To use AXIS Video Motion Detection 4, the application must first be uploaded to the Axis product and it must be started. To avoid triggering unwanted alarms, the application should be configured. Include and exclude areas are used to define the parts of the scene in which moving objects should be detected. Ignore filters can be used to avoid triggering alarms caused by for example shadows of swaying trees, lights from passing cars and small animals regardless of where in the scene the objects appear.

During configuration, visual confirmation can be used to help understand the effect of the different filters. When visual confirmation is enabled, an object with a red outline indicates that it triggers an alarm. An object with a green outline does not trigger an alarm.

### Requirements

AXIS Video Motion Detection 4 can be installed in Axis network cameras and video encoders that support AXIS Camera Application Platform. A complete list of compatible products and firmware versions is available at [www.axis.com/applications](http://www.axis.com/applications)

The application does not require any license.

### Considerations

Before using AXIS Video Motion Detection 4, take the following into consideration:

- Small and distant objects might not be detected.
- Detection accuracy may be affected by weather conditions such as heavy rain or snow.
- Make sure that the lighting conditions are within the Axis product's specification. Add additional lighting if needed.
- Make sure that the camera is not subject to excessive vibrations. Vibrations might trigger false alarms.
- It is recommended to wait at least 10 seconds before changing between preset positions in a guard tour. The application needs to recalibrate with each change of preset position.

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## Install Application

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### Install Application

To install the application in an Axis network camera or video encoder, follow these steps:

1. Go to [www.axis.com/applications](http://www.axis.com/applications) to download the application.
2. Go to the **Applications** tab in the product's webpage and click **Add**.
3. Click **Browse**, locate and select the application file.
4. Click **Install** to finalise the installation.

#### Note

Uploading applications requires administrator rights.

### Start the application

1. Go to the **Applications** tab in the product's webpage.
2. Select the application.
3. Enable the toggle bar for **Start and stop the app**.

### Stop the application

1. Go to the **Applications** tab in the product's webpage.
2. Select the application.
3. Disable the toggle bar for **Start and stop the app**.

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## Configure Application

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### Configure Application

To open and configure AXIS Video Motion Detection 4, follow these steps:

1. Go to the **Applications** tab in the product's webpage.
2. Select the application.
3. Enable the toggle bar for **Start and stop the app**.
4. Click **Open**.
5. Modify the size and position of the include area. This is the area in which moving objects will be detected. See *Include Area on page 7*.
6. Optionally, add one or more exclude areas. Objects in an exclude area will be ignored. See *Exclude Area on page 7*.
7. Use visual confirmation to verify the settings. See *Visual Confirmation on page 8*.
8. If too many unwanted alarms are triggered, configure one or more of the ignore filters. See *Ignore Filters on page 8*.

### Profiles

Profiles make it possible to create multiple configurations, for example one configuration for daytime and one for nighttime or configurations with different include areas. Each profile triggers its own alarms and has its own settings. Axis cameras and third-party software that listen to alarms from the application can be configured to respond differently when receiving alarms from different profiles.

For example, to use one configuration for daytime and one for nighttime, create two profiles with different settings. In the Axis product, create one action rule for each profile and use daytime and nighttime schedules as additional conditions.


For PTZ products you can connect the profile to a preset position. It will restrict motion detection to a specific preset position. Select **All presets** to detect motion in all preset positions. Disable **Connected preset** to detect motion in any position.

To switch between profiles, click on a corresponding tab.

### Create, Edit and Delete Profiles

The first profile is created automatically. Additional profiles can be created by clicking on  in the tab-menu.

To rename a profile, select the profile and click  under **Manage this profile**. Type the name in the text-field and select **OK**

To delete a profile, select the profile and click  under **Manage this profile**. Select **Delete** and confirm by pressing **OK**.

#### Note

If deleting a profile that is used by an action rule or by third-party software, also delete or reconfigure the action rule or third-party software.


### How to connect a profile to a preset position

To connect a profile to a preset position for a PTZ product:

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1. Select an existing profile-tab or click  to create a new profile.
2. Under **Connected preset**: Change the toggle-bar to enabled.
3. Select a preset position from the drop-down-list.

### Multichannel Products

For supported multichannel products, the application can be used on all channels simultaneously. Each video channel has its own profiles with an include area, exclude areas and ignore filters.

See [www.axis.com](http://www.axis.com) for a list of products that support running the application on all channels simultaneously.

#### Note

- Running the application on several channels simultaneously may affect the product's performance.
- To use the application on multiple channels, the application must be enabled and configured for each channel.
- To switch between channels, click on the list in the bottom left corner of the camera image.
- To enable the application on a channel, switch to that channel and click **Enable**.
- To disable a channel remove all its profiles.


### Include Area


The include area is the area in which moving objects will be detected. Objects moving outside the include area will be ignored. The object will be detected also if only a part of the object is inside the include area.

The default include area is a rectangle that covers the whole image.

Use the mouse to reshape and resize the area so that it only covers the part of the image in which moving objects should be detected. The default rectangle can be changed to a polygon with up to 10 corners.

- To add a new corner, click on the include area border. Drag the corner to the desired position.
- To remove a corner, right-click on the corner.
- To move a corner, click and drag the corner to the new position.
- To move the entire include area, place the mouse pointer inside the area. When the pointer changes shape, drag the area to the new position.

- To select an include area, click in the include area, or click on .

- To reset the include area to its default size, click .

### Exclude Area




An exclude area is an area in which moving objects will be ignored. Use exclude areas if there are areas inside the include area that trigger a lot of unwanted alarms. Up to 3 exclude areas can be used.

Use the mouse to move, reshape and resize the area so that it covers the desired part of the image. The default rectangle can be changed to a polygon with up to 10 corners.

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## Configure Application

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- To add an exclude area, click  .
- To add a new corner, click on the exclude area border. Drag the corner to the desired position.
- To remove a corner, right-click on the corner.
- To move a corner, click and drag the corner to the new position.
- To move the exclude area, place the pointer inside the area and drag the area to the new position.
  
- To select an exclude area, click in the exclude area, or click on  .
  
- To remove an exclude area, select the area and click  .

## Visual Confirmation

Visual confirmation is used to validate that the settings are correct, that is, that all objects that should be detected are detected.

When visual confirmation is enabled, all moving objects found by the application will be outlined. A red outline indicates that the object is found and an alarm is triggered. A green outline indicates that the object is found but is ignored because it is not in the include area or because of one of the ignore filters.

To enable visual confirmation:

1. Click **Visual confirmation**.

### Note

- Visual confirmation is disabled after 15 minutes.
- Enabling visual confirmation may introduce video latency and affect performance during configuration.
- The application needs a few seconds to recalibrate with each change of preset position. This causes a delay before visual confirmation is visible again.

## Ignore Filters

If AXIS Video Motion Detection 4 triggers too many unwanted alarms, start by modifying the include and exclude areas. If too many alarms are still triggered, use one or more of the ignore filters.

Supported ignore filters:

- Short-lived objects – Used to ignore objects that only appear in the image for a short period of time
- Small objects – Used to ignore small objects
- Swaying objects – Used to ignore objects that only move a short distance

Ignore filters are applied to all moving objects found by the application and should be configured with care to ensure that no important objects are ignored.

Only modify ignore filters if needed and use as few filters as possible. Enable and configure one filter at a time and use visual confirmation to verify the settings before enabling another filter.

Modify the filter values in small steps until the desired result is achieved.



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## Configure Application


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### Short-Lived Object

The short-lived object filter is used to avoid triggering alarms for objects that only appear for a short period of time. For example light beams from a passing car and quickly moving shadows. Use the filter if such objects cause a lot of false alarms.

When the short-lived object filter is enabled and the application finds a moving object, the object will not trigger an alarm until the set time has passed. If the alarm is used to start a recording, configure the pre-trigger time so that the recording also includes the time the object moved in the scene before triggering the alarm.

To enable the filter:


1. Select a profile.
2. Click on  beside **Short-lived objects**.
3. Change the toggle-bar to enabled.
4. Enter the number of seconds in the field. The number of seconds is the minimum time that must pass before the object triggers an alarm. Start with a small number.
5. Click **OK**.
6. Use visual confirmation to verify the setting.
7. If the result is not satisfactory, increase the filter time in small steps.

### Small Object

The small object filter is used to avoid triggering alarms for objects that are too small. For example, if only moving cars should trigger alarms, the small object filter can be used to avoid triggering alarms caused by people and animals.

If using the small object filter, take into consideration that an object far from the camera appears smaller than an object close to the camera. If the filter is set to ignore objects the size of a person, people that are close to be camera can still trigger alarms because they are larger than the filter size.

To enable the filter:

1. Select a profile.
2. Click on  beside **Small objects**.
3. Change the toggle-bar to enabled.
4. Reshape the rectangle, representing the filter, to adjust to your needs. Start small and increase in size. Moving objects that fit inside the rectangle will be ignored. The rectangle can be moved to make it easier to compare the filter size with the size of objects in the image. Note that the filter will be applied to all objects in the image, also to objects that are not located at the position of the displayed filter.
5. Click **OK**.
6. Use visual confirmation to verify the settings.
7. If the result is not satisfactory, increase the filter size in small steps.

The filter size can also be set by entering the width and height in the fields. The width and height are the maximum width and maximum height of the objects to ignore and are measured in percent of the image width and height. Values between 3 and 100 can be used.

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### Swaying Object

The swaying object filter is used to avoid triggering alarms for objects that only move a short distance. For example moving trees, flags and their shadows. Use the filter if such objects cause a lot of false alarms. If the swaying objects in the scene are large, for example large ponds or large trees, use exclude areas instead of the filter. The filter will be applied to all moving objects in scene. If a value is set too high, important objects might not trigger an alarm.

When the swaying object filter is enabled and the application finds a moving object, the object will not trigger an alarm until it has travelled a distance larger than the set filter value. If the alarm is used to start a recording, configure the pre-trigger time so that the recording also includes the time the object moved in the scene before triggering an alarm.

To enable the filter:

1. Select a profile.

2. Click on  beside **Swaying objects**.

3. Change the toggle-bar to enabled.

4. Reshape the ellipse, representing the filter value, to adjust to your needs. Start small and increase in size. Objects moving a distance shorter than the distance from the center of the cross to one of the arrowheads will be ignored. The ellipse can be moved to the location of a swaying object to make it easier to adjust the value. Note that the filter will be applied to all objects in the image, not only to the ones at the location where the filter is placed.

5. Click OK to apply the filter.

6. Use visual confirmation to verify the settings.

7. If the result is not satisfactory, increase the filter size in small steps.

The filter size can also be set by entering a value between 3 and 20 in the field. The value corresponds to the distance from the center of the cross to one of the arrowheads. The value 20 implies that an object must travel from its initial point to one fifth of the image width or height before triggering an alarm. The value 10 implies half that distance, that is, the object must travel a distance of one tenth of the image width or height before triggering an alarm.

# AXIS Video Motion Detection 4

## Using the Application in an Action Rule

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### Using the Application in an Action Rule

Using action rules, Axis network cameras and video encoders can be configured to, for example, record video or send a notification when AXIS Video Motion Detection 4 triggers an alarm for a moving object.

The following example shows how to configure the Axis product to record video to an SD card or network share when AXIS Video Motion Detection 4 triggers an alarm. For detailed information about the different settings, see the Axis product's online help or User Manual.

1. Go to the **System** tab in the product's webpage and click **Events**.
2. Click **Add** to create a new action rule.
3. Enter a name for the action rule.
4. From the **Trigger** drop-down list, select **Applications** and then select the desired Video Motion Detection profile. Alternatively select **VMD 4: Any Profile** to trigger the same action for all profiles.
5. Configure other settings as required. For example, to only record video during certain time periods, select a **Schedule**.
6. Under **Actions**, select **Record Video** from the **Type** drop-down list.
7. Select the stream profile and storage device to use and configure the pre- and post-trigger times.
8. Make sure that the rule is enabled and then click **OK**.
9. Go back to the application. Click **Test alarm** on the bottom right corner of the camera image to verify the action rule.

#### Note

- To appear in the **Trigger** list, the application must be started and its status must be running.
- Use the **VMD 3** event if you are using a video management software (VMS) that does not support Video Motion Detection 4 events. The **VMD 3** event triggers the same action for all profiles.

