AXIS Digital Autotracking 2

User Manual

About This Document

This manual is intended for administrators and users of AXIS Digital Autotracking, and is applicable to release 2.0. It includes instructions for using and managing the application. Previous experience of networking will be of use when using this product. Some knowledge of UNIX or Linux-based systems may also be beneficial, for developing shell scripts and applications. Later version of this document will be posted to the Axis website, as required. See also the product's online help, available via the web-based interface.

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Should you require any technical assistance, please contact your Axis reseller. If your questions cannot be answered immediately, your reseller will forward your queries through the appropriate channels to ensure a rapid response. If you are connected to the Internet, you can:

- 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
- chat with Axis support staff (selected countries only)
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Application Overview

Application Overview

AXIS Digital Autotracking is an application that allows the camera to discover a moving object, such as a person or a vehicle, zoom in on the object and follow it within a defined area. Autotracking continues until the moving object stops or disappears from the defined area. The application is most suitable in environments where movement is unusual and could indicate unwanted activity. AXIS Digital Autotracking allows efficient, motion-triggered monitoring while saving on bandwidth and disk space.

Digital autotracking differs from mechanical autotracking in that the camera view is adapted to include all detected moving objects. Mechanical autotracking, which is available in some PTZ cameras, locks on a single object and follows that object until the object is outside the camera's range of coverage.

To use AXIS Digital Autotracking, the application must first be uploaded to the Axis product and it must be started. To avoid tracking unwanted objects, the application should be configured. Include and exclude areas are used to define the parts of the scene in which moving objects should be tracked. Ignore filters can be used to avoid tracking objects such as 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, red polygons show which objects the application tracks and green polygons show which objects the application ignores. A yellow rectangle shows how the camera view is adapted to track moving objects.

Tracking

To track objects, AXIS Digital Autotracking uses one of the camera's view areas. When a moving object is detected, the view area zooms in on and follows the object. While tracking, the application continues to monitor the camera's entire field of view. If a second moving object is detected, the view area is adapted to include all moving objects. Tracking continues until all objects have stopped or disappeared from the include area.

The view area used for autotracking is created automatically when opening the application's webpage for the first time. The view area is called **Digital Autotracking View** and has a resolution optimized for the application and the camera. If required, the view area's resolution can be changed or a user-defined view area can be used. The view area used for autotracking must have PTZ enabled and must use the same aspect ratio as the Digital Autotracking View. The resolution cannot be larger than half the camera's maximum resolution. The maximum zoom level is automatically adapted to the view area resolution.

The view area used for autotracking is displayed in the application's webpage but can also be accessed from, for example, the Live View page. In the application's webpage, the view area is the view to the right. The view to the left is the overview image showing the camera's entire field of view.

AXIS Digital Autotracking can be used while a guard tour is running. The guard tour will be stopped temporarily when digital autotracking starts and will resume when autotracking stops. Manual pan, tilt and zoom operations, for example using a joystick or mouse, have precedence over autotracking.

The Axis product can be configured to perform actions, for example record video or send a notification message, when autotracking starts or stops. See *Using the Application in an Action Rule on page 11*.

Requirements

AXIS Digital Autotracking can be installed in Axis network cameras that support view areas and AXIS Camera Application Platform. The application is intended for fixed cameras with at least megapixel resolution. A complete list of compatible products and firmware versions is available at *www.axis.com/applications*

The application does not require any license.

For full functionality, Internet Explorer and AXIS Media Control (AMC) are required when configuring the application.

Considerations

Before using AXIS Digital Autotracking, take the following into consideration:

- Small and distant objects might not be tracked.

Application Overview

- 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 cause false detections and unwanted tracked objects.

Install Application

Install Application

Install Application

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

1. Download the application from *www.axis.com/applications*
2. Go to **Setup > Applications** in the Axis product's webpages.
3. Under **Upload Application**, click **Browse**, locate the application file and then click **Upload Package**.

The application will appear under **Installed Applications** on the **Applications** page and under **Overview** in the menu.

Note

Applications can be uploaded by product administrators.

Start and Stop the Application

To start the application, select it in the **Installed Applications** list on the **Applications** page and click **Start**.

To stop the application, select it in the list and click **Stop**.

Configure Application

Once installed, the application is available from **Setup > Applications > Digital Autotracking** in the Axis product's webpages. Go to **Settings** and then click ***AXIS Digital Autotracking settings*** to open the application's webpage.

To configure AXIS Digital Autotracking, follow these steps:

1. Modify the size and position of the include area. This is the area in which moving objects will be tracked. See *Include Area on page 7*.
2. Optionally, add one or more exclude areas. Objects in an exclude area will be ignored. See *Exclude Area on page 7*.
3. Click **Save** to apply the changes.
4. Use visual confirmation to verify the settings. See *Visual Confirmation on page 8*.
5. If too many unwanted objects are tracked, enable and configure one or more of the ignore filters. See *Ignore Filters on page 8*.

After modifying a setting, click **Save** to apply the changes. The video stream will be restarted and it may take a few seconds before the change is applied.

Include Area

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

Note

To modify the include area, Internet Explorer and AXIS Media Control (AMC) must be used.

The default include area is a square that covers the whole image. Click on the  icon to highlight the area.

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 square can be changed to a polygon with up to 20 points (corners).

- To add a new point, click on the include area border. Drag the point to the desired position.
- To remove a point, right-click on the point.
- To move a point, drag the point to the new position.
- To move the entire include area, place the mouse pointer inside the area. When the pointer becomes a cross, drag the area to the new position.
- To select the include area, click on the border.

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

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 tracked objects. Up to 10 exclude areas can be used.

Note

To add and modify exclude areas, Internet Explorer and AXIS Media Control (AMC) must be used.

To add an exclude area, click **Add**. The default exclude area is a rectangle placed in the center of the image. Use the mouse to move, reshape and resize the area so that it covers the desired part of the image. The default square can be changed to a polygon with up to 20 points (corners).

- To move the exclude area, place the mouse pointer inside the area. When the pointer becomes a cross, drag the area to the new position.
- To add a new point, click on the exclude area border. Drag the point to the desired position.
- To remove a point, right-click on the point.
- To move a point, drag the point to the new position.
- To select an exclude area, click on the border.

To remove an exclude area, select the area and then click **Remove**.

To highlight the exclude areas, click on the  icon.

Visual Confirmation

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

Note

To use visual confirmation, Internet Explorer and AXIS Media Control (AMC) must be used.

When visual confirmation is enabled, all moving objects found by the application will be encircled and followed by polygons. A red polygon indicates that the object is found and that tracking has started. A green polygon 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.

The yellow rectangle shows how the view area follows moving objects and how the view area zoom level is adapted to include all moving objects.

To enable visual confirmation:

1. Select the **Enable visual confirmation** option.
2. Click **Save**.

Note

- Visual confirmation is disabled after 15 minutes.
- After modifying a setting, click **Save** to apply the change. The video stream will be restarted and it may take a few seconds before the change is applied.
- Enabling visual confirmation may introduce video latency.

Ignore Filters

If AXIS Digital Autotracking tracks too many unwanted objects, start by modifying the include and exclude areas. If still too many objects are tracked, use one or more of the ignore filters.

Supported ignore filters:

- Swaying objects — Used to ignore objects that only move a short distance
- 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

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 use 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. When configuring a filter, start with a small filter size, click **Save** and use visual confirmation to verify the settings. If required, increase the filter size in small steps until the number of unwanted objects is reduced.

Swaying Object Ignore Filter

The swaying object filter is used to avoid tracking 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 unwanted tracked objects. 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 and, if set to a value too large, important objects might not be tracked.

When the swaying object filter is enabled and the application finds a moving object, tracking will not start (red polygon in visual confirmation) until the object has travelled a distance larger than the set filter size. If the alarm sent by the application 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 tracking started.

To enable the filter:

1. Select the **Swaying objects** option.
2. Click on the icon to show the filter size in the image.
3. Use the mouse to adjust the filter size. Start with a small size. Objects moving a distance shorter than the distance from the center of the cross to one of the arrowheads will be ignored. The filter can be moved to the location of a swaying object to make it easier to adjust the size. 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.
4. Click **Save** to apply the filter.
5. Use visual confirmation to verify the settings.
6. 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 10 and 50 in the field. The value corresponds to the distance from the center of the cross to one of the arrowheads. The value 50 implies that an object must travel from its initial point to one sixth of the image width or height before being tracked. The value 25 implies half that distance, that is, the object must travel a distance of one twelfth of the image width or height before being tracked.

Short-Lived Object Ignore Filter

The short-lived object filter is used to avoid tracking objects that only appear for a short period of time, such as light beams from a passing car and quickly moving shadows. Use the filter if such objects cause a lot of unwanted tracked objects.

When the short-lived object filter is enabled and the application finds a moving object, tracking will not start (red polygon in visual confirmation) until the set time as passed. If the alarm sent by the application 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 tracking started.

To enable the filter:

1. Select the **Short-lived objects** option.
2. Enter the number of seconds in the field. The number of seconds is the minimum time that must pass before tracking starts. Start with a small number.
3. Click **Save** to apply the filter.
4. Use visual confirmation to verify the settings.
5. If the result is not satisfactory, increase the filter size in small steps.

Small Object Ignore Filter

The small object filter is used to avoid tracking objects that are too small. For example, if only moving cars should be tracked, the small object filter can be used to avoid tracking people and animals.

Configure Application

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 be tracked because they are larger than the filter size.

To enable the filter:

1. Select the **Small objects** option.
2. Click on the  icon to show the filter size in the image.
3. Use the mouse to adjust the filter size. Start with a small size. Moving objects that fit inside the rectangle will be ignored. The filter displayed in the image 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.
4. Click **Save** to apply the filter.
5. Use visual confirmation to verify the settings.
6. 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 5 and 100 can be used.

Using the Application in an Action Rule

Using the Application in an Action Rule

Using action rules, Axis network cameras can be configured to, for example, record video or send a notification when AXIS Digital Autotracking starts tracking 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 Digital Autotracking starts tracking. For detailed information about the different settings, see the Axis product's online help or User Manual.

1. Insert an SD card in the Axis product, or go to **Setup > System Options > Storage** in the Axis product's webpages and configure the product to use a network share.
2. Install and configure AXIS Digital Autotracking.
3. Optionally, go to **Setup > Video & Audio > Stream Profiles** and create a stream profile to use for recording.
4. Go to **Setup > Events > Action Rules** and click **Add** to create a new action rule.
5. From the **Trigger** drop-down list, select **Applications** and then select **DigitalAutoTracking**.
6. Configure other settings as required. For example, to only record video during certain time periods, select a **Schedule**.
7. Under **Actions**, select **Record Video** from the **Type** drop-down list.
8. To record the view area used for autotracking, select the view area called **Digital Autotracking View**.
9. Select the stream profile and storage device to use and configure the pre- and post-trigger times.
10. Make sure that the rule is enabled and then click **OK**.

Note

To appear in the **Trigger** list, the application must be started and its status must be Idle or Running.

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