

13 June 2019

Getting started with AXIS Live Privacy Shield

Content

This training material is meant as a step by step guide as to how to get the AXIS Live Privacy Shield application installed and running on an AXIS camera.

There are three main sections:

1. Initial preparations.
2. Configuring AXIS Live Privacy Shield.
3. Configuring AXIS Camera Station.

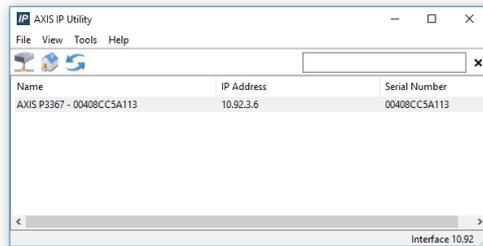
These sections are followed by some additional information which is good to be aware of in terms of the intended usage, known limitations and additional resources.

Initial preparations 1/11.

Connect the Axis camera*, and the PC to be used to configure the camera, to the POE switch:



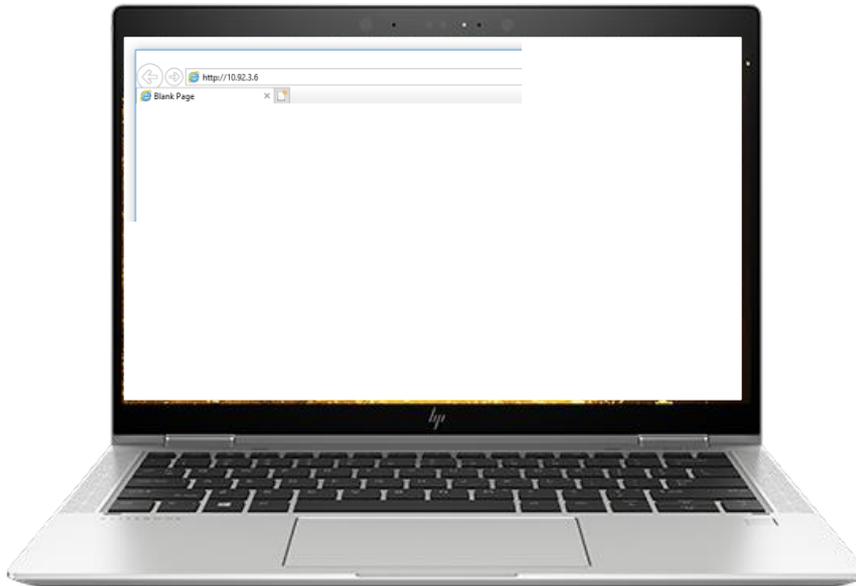
Run Axis 'IP Utility**' to discover the camera and set/note the cameras IP number:



- * Supported camera models are available [here](#)
- ** IP Utility is available for download [here](#)

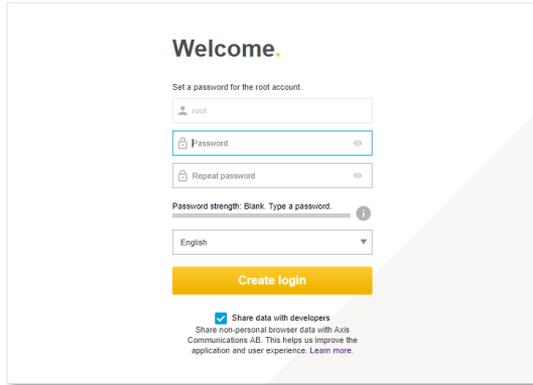
Initial preparations 2/11.

On a pc connected to the same network as the camera, browse to the camera's web interface by entering the camera's IP address in the browser's URL field:



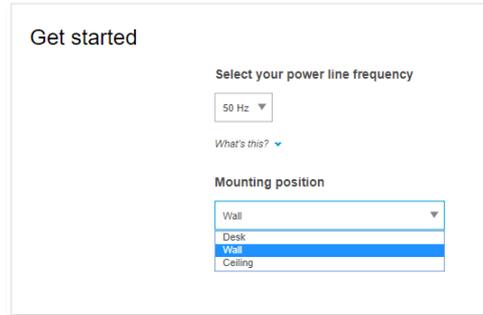
Initial preparations 3/11.

A setup wizard is displayed in the browser (perform a camera reset to reactivate if needed). Step through the setup wizard to get the camera's basic configuration defined:

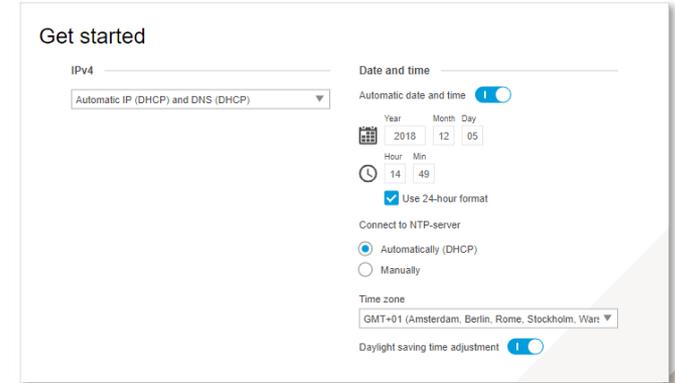


1. Set a password for the root user that is not easily guessed! Note that only **English** is supported in the Axis Live Privacy Shield ACAP.

www.axis.com



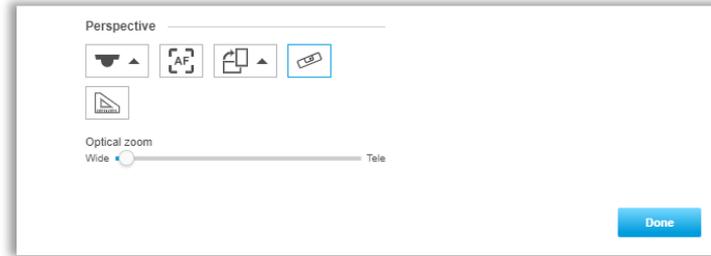
2. Select 50Hz power line frequency for Italy, and select the appropriate mounting position for how that specific camera will be mounted.



3. In the final wizard step, select the necessary IPV4 network configuration and set the time and date or NTP server options.

Initial preparations 4/11.

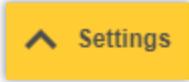
The next step should be performed once the camera is mounted in its final position on-site, if the camera position or location is changed, these steps should be performed again to ensure the correct setup:

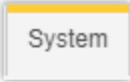


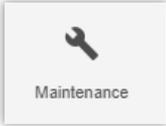
-  Set the camera mount position: Desk / Wall / Ceiling
-  Use Auto-Focus to get the image focussed
-  Set the stream rotation between 'portrait' and 'landscape' as required
-  Display a grid in the camera view to align the camera with the horizontal
-  Use the pixel counter to secure sufficient resolution for a specific task at the specific mount location and optical zoom setting.

Initial preparations 5/11.

Check that the firmware is the correct version provided for this project.

Select: 

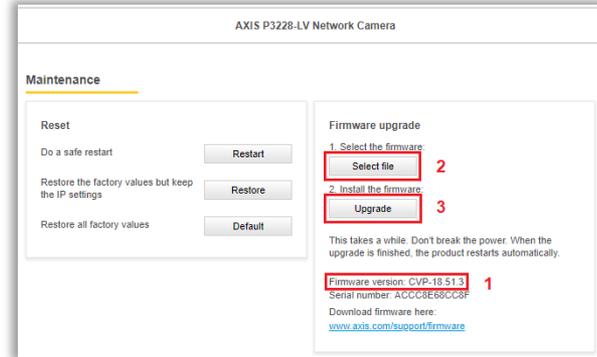
Then the System Tab: 

Then Maintenance: 

1. Check the firmware currently installed is version 9.20 or later
If not, follow steps 2 & 3 to update to the required firmware image, otherwise proceed to the next slide.

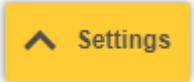
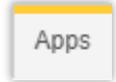
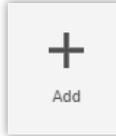
2. Click on 'Select File' to open a file browser. Use the file browser to select the firmware .bin file to be used.

3. And then click 'Upgrade' to start the upgrade process on the camera. This will likely take a few minutes to complete...

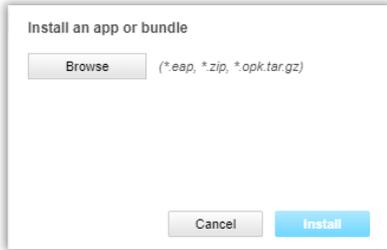


Initial preparations 6/11.

Once the firmware installation is complete and the device has restarted, the AXIS Live Privacy Shield application should be uploaded to the camera.

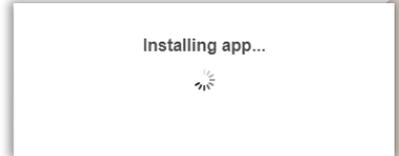
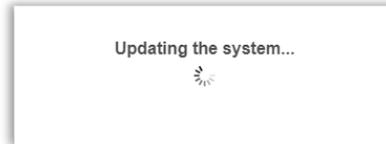
Select:  Then the Apps Tab:  Then Add: 

Use the file browser to select the AXIS Live Privacy Shield App file as provided by Axis:



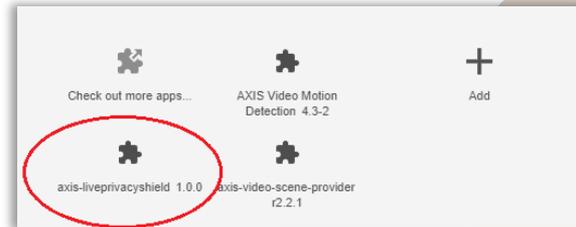
and then click 'Install'. Then wait while the camera installs the app

and updates the system:



Once installed, confirm that the correct version of the application is available:

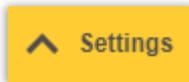
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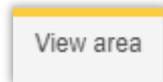
Initial preparations 7/11.

Once the firmware and App installation is complete, two view areas should be created:

1. Select:



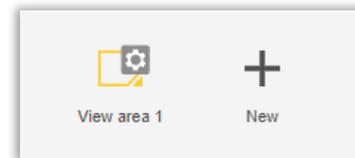
Then the View area Tab:



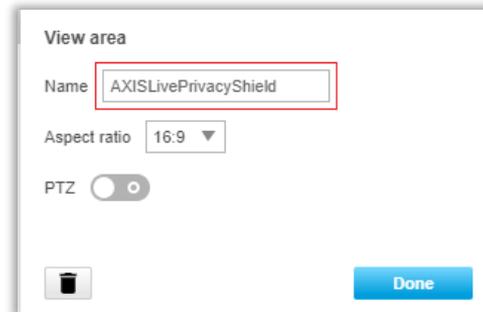
Then Add:



2. Select the newly created 'View area 1' to open its settings:



3. And rename it to 'AXISLivePrivacyShield' or similar:



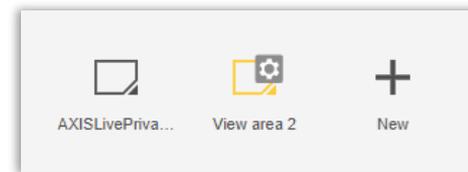
4. Click 'Done'.

Initial preparations 8/11.

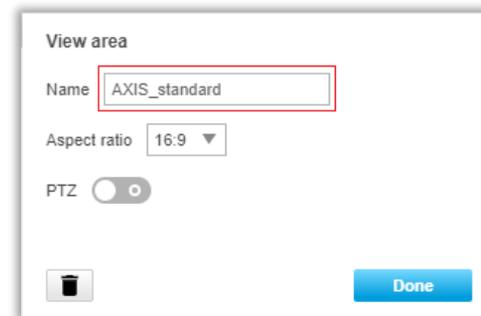
5. Select 'New' again to create a second view area:



6. Select the newly created 'View area 2' to open its settings:



7. And rename it to 'AXIS_standard' or similar:

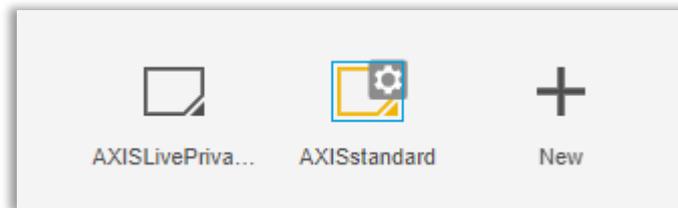


8. Click 'Done'.

Initial preparations 9/11.

The camera now has two view areas configured:

AXISLivePrivacyShield and AXISstandard



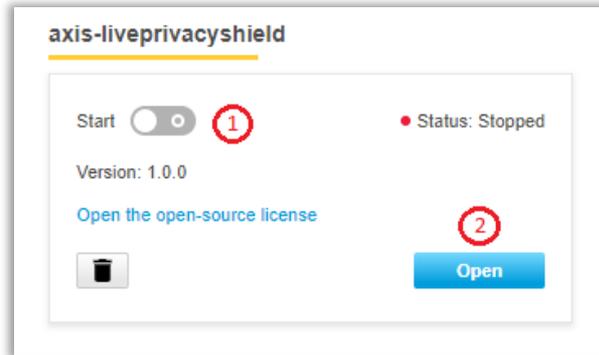
These two view areas will be used in AXIS Camera Station to provide a stream both with the AXIS Live Privacy Shield and without. These streams will be configured in AXIS Camera Station in such a way as only users with the necessary privileges will be able to access the stream without the Privacy Shield.

Initial preparations 10/11.

Now, click on the App icon to launch the AXIS Live Privacy Shield application:

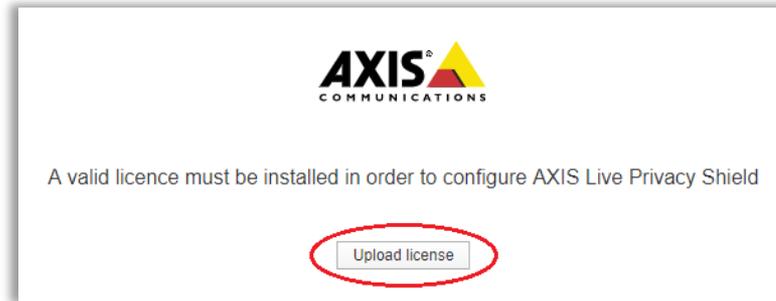


Then select 'Start' to launch the application, and then 'Open' to access the application via the browser:



Initial preparations 11/11.

Now the AXIS Live Privacy Shield app will open in a new browser instance and the next step required is to install a licence key, if this has not been done previously:



Select 'Upload Licence' and select the licence key file, and select 'Open'.

See these links for obtaining a license key:

<https://www.youtube.com/watch?v=s1Q5tQhbQY8>

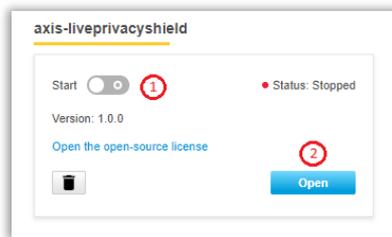
You should now be ready to configure the app!

Configuring AXIS Live Privacy Shield 1/7.

The first step required is to ensure that the AXIS Live Privacy Shield application is installed and started. If not, please see the previous section of this presentation!

To do this, access the cameras web interface:

> Web interface > Settings > Apps > AXIS Live Privacy Shield:

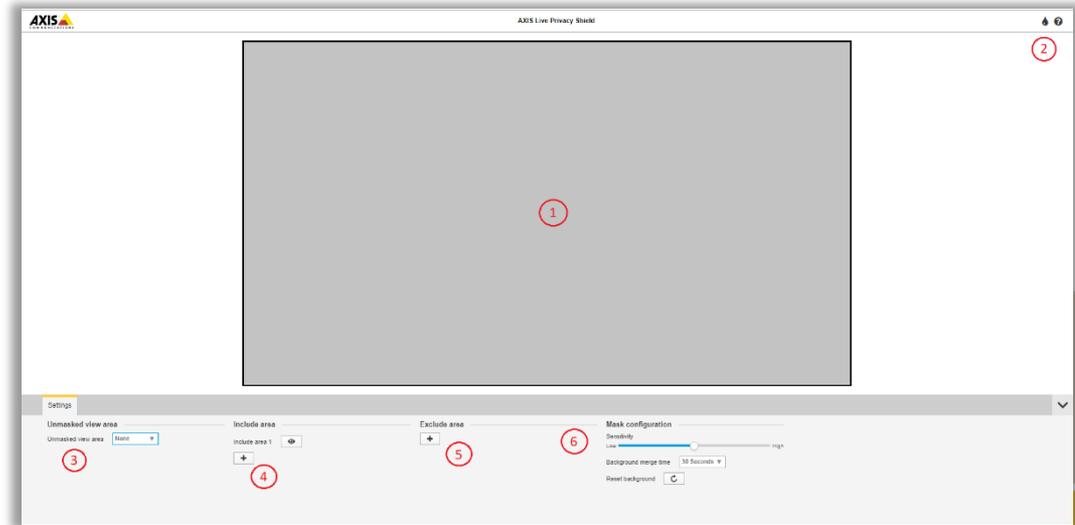


Make sure the app is started and then open the application in a new browser tab by pressing the 'Open' button.

Configuring AXIS Live Privacy Shield 2/7.

In the next few slides we will cover each of the applications settings, listed here 1 to 6:

1. Camera view
2. 'Themes' and 'About'/'Legal'
3. Unmasked view area
4. Include area
5. Exclude area
6. Mask configuration



Configuring AXIS Live Privacy Shield 3/7.

1. The Camera view:

shows the user what the streamed output will look like, and where any include and exclude polygons lie in relation to that view.

2a. Themes:

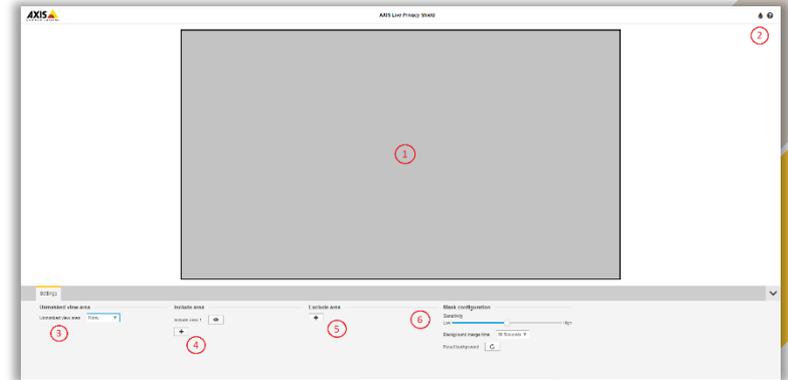
here the user can select if the camera displays a light or dark theme in general, as well as the theme colours used to display the include and exclude areas.

2b. About:

AXIS Live Privacy Shield version

2c. Legal:

Displays a list of licences used by the AXIS Live Privacy Shield implementation.



Configuring AXIS Live Privacy Shield 4/7.

3. Unmasked view area

If the camera is configured with multiple view areas, it is here that you can select which view area(s), if any, that should not include the AXIS Live Privacy Shield.

NOTE! Selecting a stream here will mean that stream will have no privacy shield.

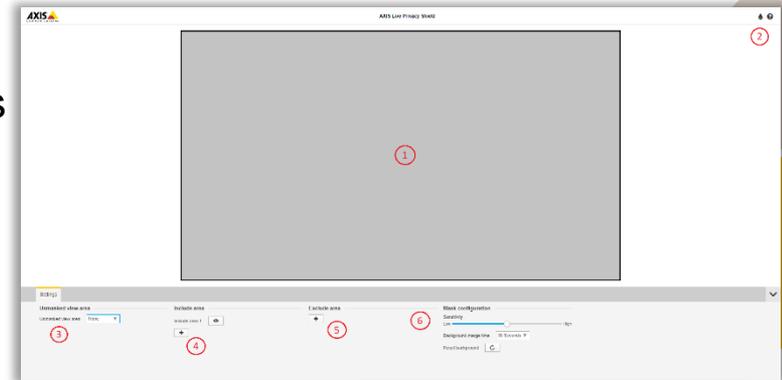
See appendix 1 for creating additional view areas...

4. Include area

By default the Include area should cover the all of the area in the camera view that should be covered by the Privacy Shield.

The area is defined by a polygon shown in the camera view area. The sides and corners of the polygon can be dragged as required and new corners introduced.

It is possible to have more than one include area, but it is not recommended.



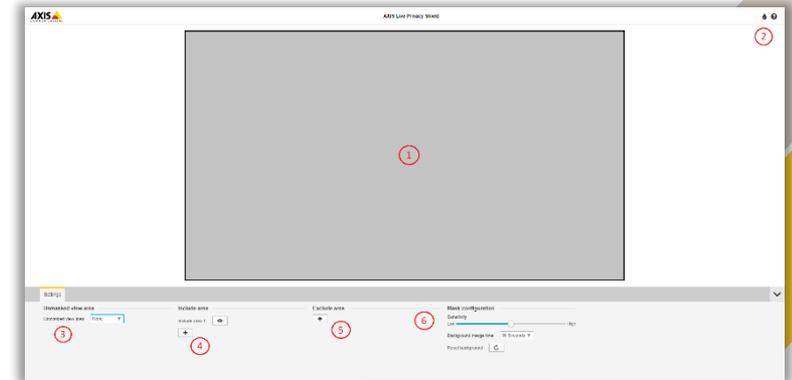
Configuring AXIS Live Privacy Shield 5/7.

5. Exclude area

By default the Exclude area should be a subset of the (an) Include area. The Privacy Shield will not be active in the excluded area, i.e. moving objects will be visible as usual.

It is possible to have more than one exclude area, but the exclude areas should not be larger than the associated include area. The Exclude areas are defined by a polygon in the same way as the include areas, i.e up to 20 corners. There can be many exclude areas but...

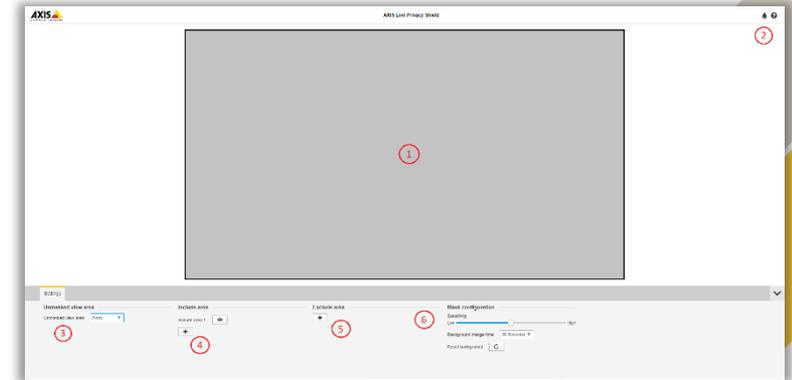
Only 5 Include/Exclude polygon are supported in total.



Configuring AXIS Live Privacy Shield 6/7.

6. Mask configuration

- a. Sensitivity – as the name suggests this affects the algorithms sensitivity. Setting this too high will introduce more noise to the Privacy Shielded pixels in the image. Even small vibrations can cause objects to be included in the privacy shield if sensitivity is too high. Setting it too low could mean that some pixels that should be covered by the Privacy Shield are displayed as normal. The differentiation between background and privacy shielded pixels is based on movement and colour variation.
- b. Background merge time – this is a measure of how long a change to the original background should be present and unchanging before it should be considered part of the background. Once considered part of the background, the object will become visible even if it is within an include area.



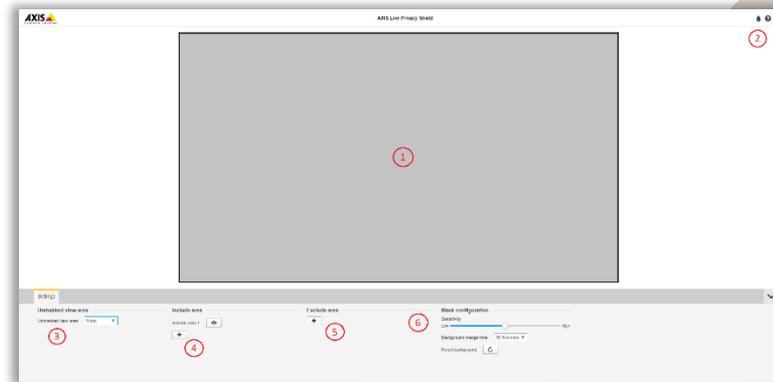
Configuring AXIS Live Privacy Shield 7/7.

6. Mask configuration continued...

c. Reset Background

The reset background is an administrative function that allows the user to redefine what is considered background.

When the scene covered by the Privacy Shield is in a state that can be considered as the default setup, i.e. only background items are present, then the reset background function can be activated in order to 'clean' previously removed objects from what is considered the background. This is usually only necessary if the scene has a longer merge time where it may take hours to remove residual privacy shield masked areas where object have been moved, introduced or removed.



Configuring AXIS Camera Station 1/9.

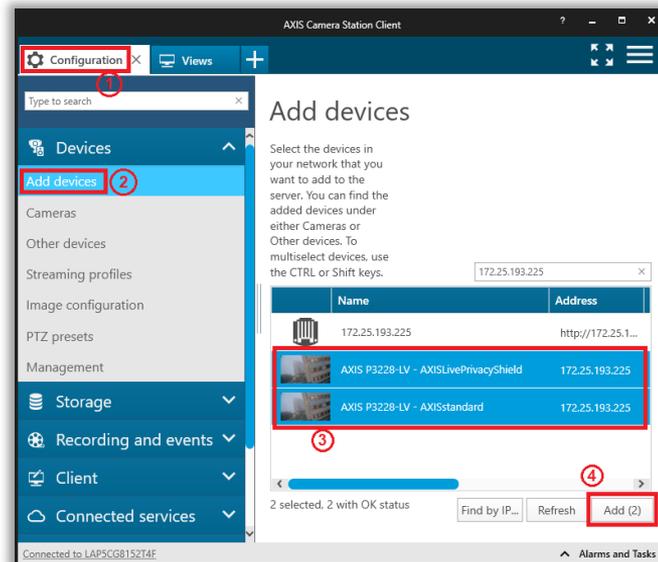
If AXIS Camera Station is not already available, download and install it from:

<https://www.axis.com/products/axis-camera-station>

Once installed, start up the AXIS Camera Station client application.

First, add the camera running the AXIS Live Privacy Shield to AXIS Camera Station.

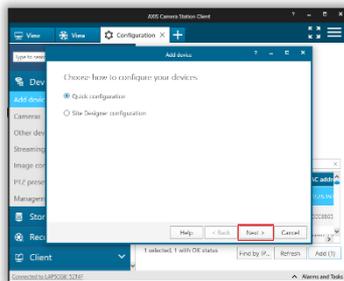
1. In Camera Station, Open the 'Configuration' tab.
2. Select 'Devices' and then 'Add Devices...'
3. By using the 'Find by IP...' function or using the text search box, locate and select the two view areas associated with the camera.
4. Press 'Add' to add the camera to AXIS Camera Station.



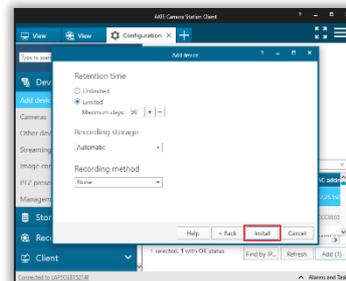
Configuring AXIS Camera Station 2/9.

For the next few dialog screens, in this example the default settings are kept for simplicity's sake, but these can be altered as required.

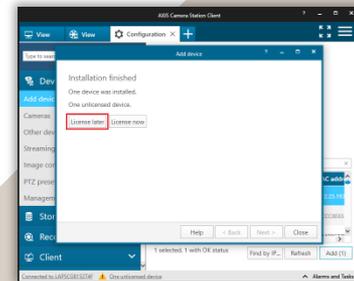
1. The configuration option is left as quick:



2. The recording method left at none and the camera is added by pressing 'Install'.



3. Select 'Licence later' or follow instructions available here:
<https://www.axis.com/products/axis-camera-station/activation>.

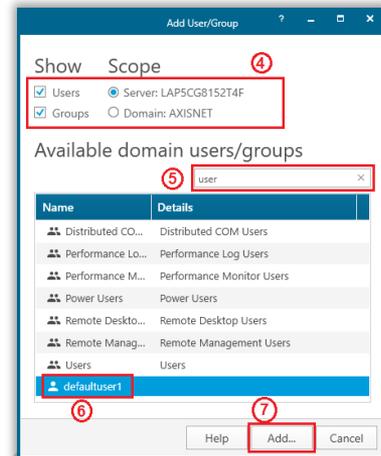
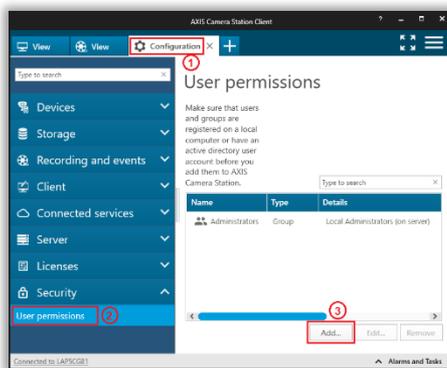


Configuring AXIS Camera Station 3/9.

Two AXIS Camera Station users are needed to differentiate the stream with and the stream without the Privacy Shield. In this example, DefaultUser will have access to the Privacy Shielded stream while Administrators will get the standard stream (No privacy shield).

First we need to add the 'DefaultUser':

1. On the 'Configuration' tab,
2. select 'User permissions' and
3. then 'Add...'
4. Choose the relevant user group, Server or domain.
5. Text search can help narrow the results.
6. Select the user to be added
7. Click on 'Add...'

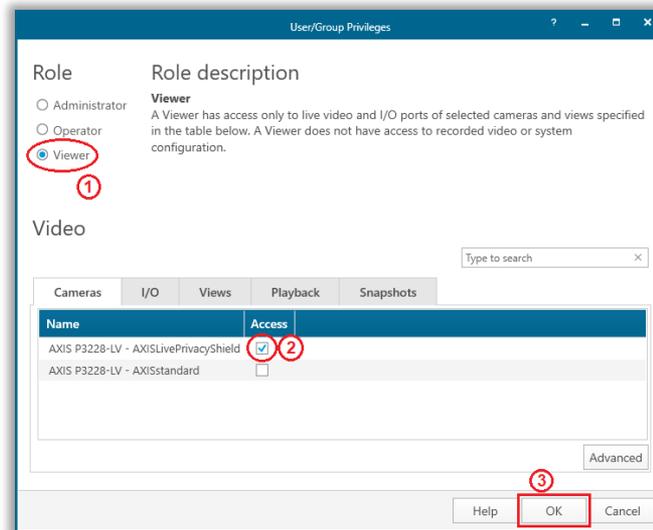


Configuring AXIS Camera Station 4/9.

In the following User/group privileges dialog, the stream to which the new user will have access is specified.

1. Set the user type to 'Viewer'.
2. Under Access, check the box for the stream that has the privacy shield active, previously this was labelled AXISLivePrivacyShield
3. Click 'OK'

This setting ensures that Viewer labelled 'DefaultUser' will only be able to see the Privacy Shielded stream.

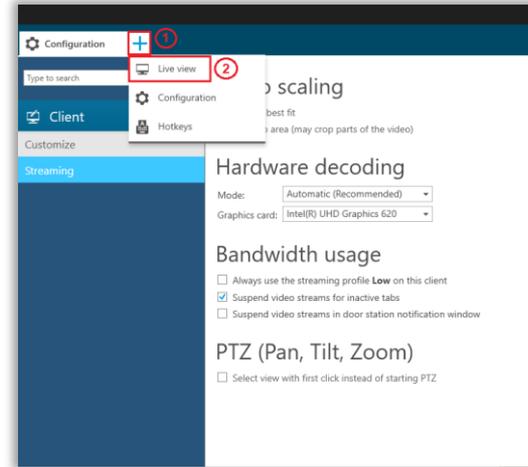


Configuring AXIS Camera Station 5/9.

To confirm the user configuration, log out of AXIS Camera Station client and log back in as the user added in 'How to configure Axis Camera Station 3/5' (defaultuser1 - the associated password to use when logging in to AXIS Camera Station's the same as that user's Windows credentials).

When the application has opened, add a live view by:

1. Clicking on the '+' tab
2. Selecting Live View
3. The Live Privacy Shield protected view of the camera should now be visible.

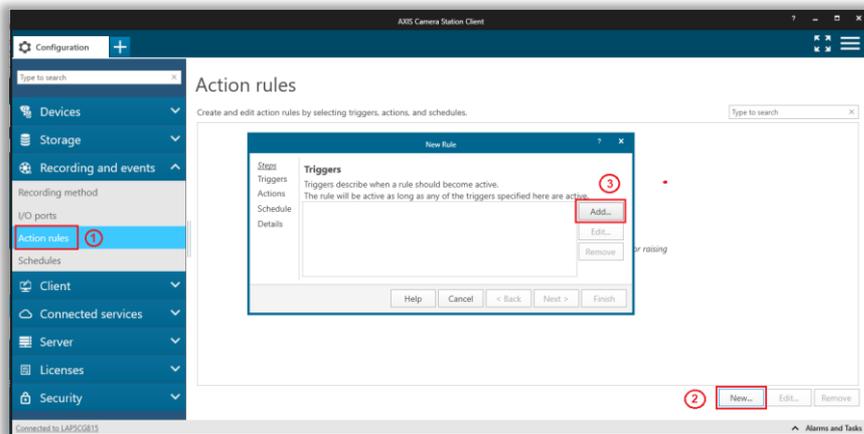


To view the unprotected stream from the same camera, the user will need to logout of AXIS Camera Station, and log back in as **Administrator**.

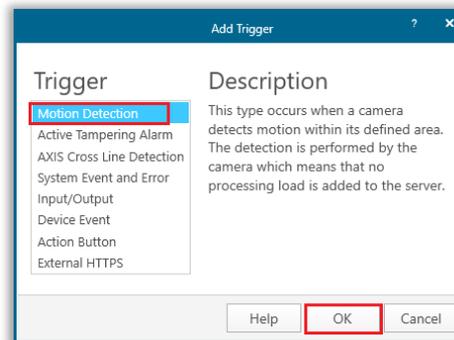
Configuring AXIS Camera Station 6/9.

To setup recording of both streams based on motion detection follow these steps:

1. In the Configuration Tab of the AXIS Camera Station client, under Recording and Events, Action Rules, choose 'New...' and then 'Add...'

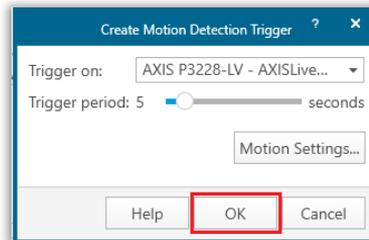


2. Select 'Motion Detection' and 'OK'...

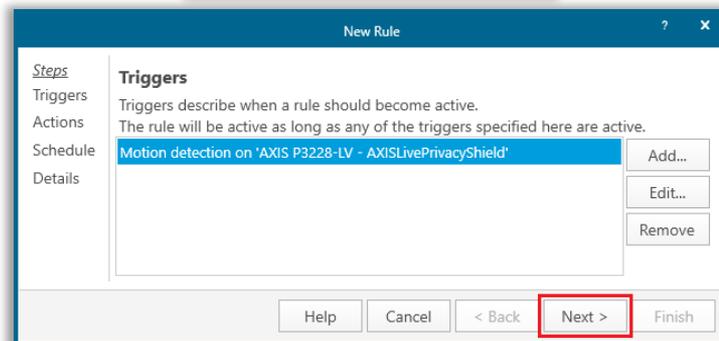


Configuring AXIS Camera Station 7/9.

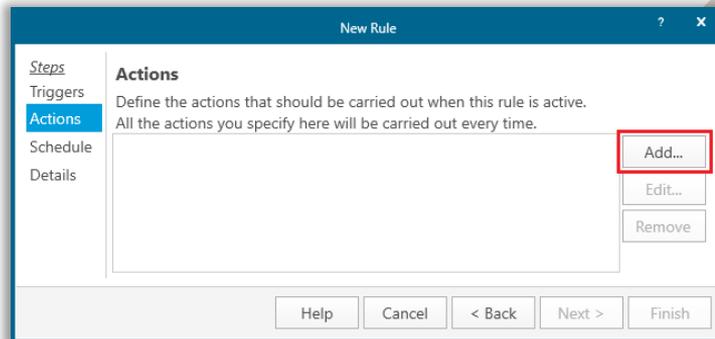
3. With Trigger on set to the 'AXISLivePrivacyShield' stream adjust 'trigger period' and 'motion Settings...' as needed, then click 'OK'.



4. Click 'Next >' to add an action.

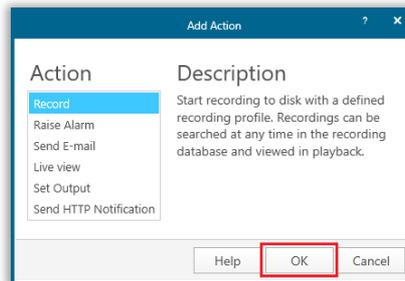


5. Select 'Add...' to specify the Action.

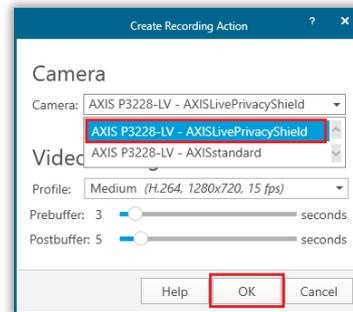


Configuring AXIS Camera Station 8/9.

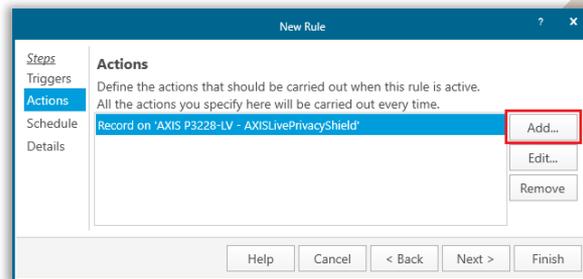
6. Check the 'Record' action is selected then click 'OK'



7. With the '**AXISLivePrivacyShield**' stream selected, adjust Profile, pre and post buffer as needed, and then click 'OK'.

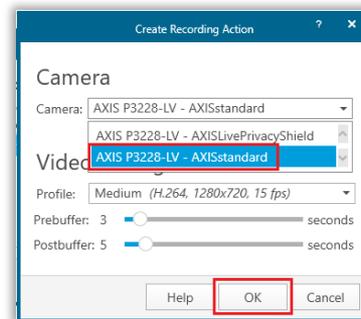


8. Select 'Add...' to specify a second action to record the second stream.

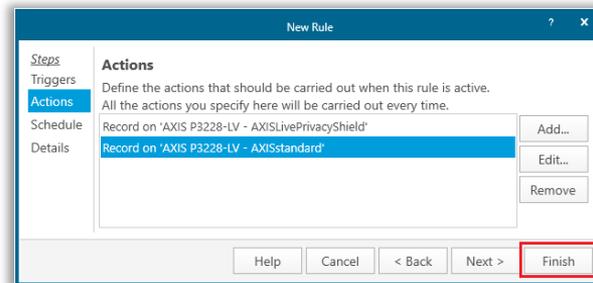


Configuring AXIS Camera Station 9/9.

9. With the '**AXISstandard**' stream selected, adjust Profile, pre and post buffer as needed, and then click 'OK'.



7. Click 'Finish' to finalize the New Rule creation.



Done!

Current Limitations.

AXIS Live Privacy Shield is supported from firmware version 9.20.

The feature is currently supported on Most ARTPEC6 based devices and newer running firmware 9.20. For a specific list of models, please see the AXIS Live Privacy Shield product page on axis.com

AXIS Live Privacy Shield cannot currently be run together with overlays.

AXIS Live Privacy Shield currently has English as the User Interface support only.

Only 5 Include/Exclude polygon are supported in total.

Compatible HDTV 1080p cameras will support dynamic masking at max. 25/30 fps. Compatible cameras in 4K resolution mode will support dynamic masking at max. 12.5/15 fps

Best practices and dos and don'ts.

Constant light source - ideally indoor avoiding daylight/night interference.

The distance between object and cameras should be at least 5 meters.

Ideally the camera should be mounted directly above the area to be observed in order to avoid people straying into an excluded area.

The physical mounting of the camera should be stable, any vibration or other movement will result in image masking.

Rarely or intermittently moving objects could be merged into the background and become visible!

Use cases: What it is and what it isn't.

What AXIS Live Privacy Shield is:

AXIS Live Privacy Shield is a utility to prevent identification of objects moving within a specified section of the scene the camera is observing.

What AXIS Live Privacy Shield isn't:

AXIS Live Privacy Shield is not intended to be used as a shelf sweeping alarm. There is no functionality available today to detect and notify a user if an existing object or objects are removed from the current view.

Additional content.

Examples of how adjusting the Sensitivity setting impacts performance:

Low Sensitivity



The person walking in the corridor is protected by the privacy shield with only small gaps, and there are few masking artefacts elsewhere.

Medium Sensitivity



The person walking in the corridor is protected by the privacy shield in a better way than with low sensitivity and there are limited masking artefacts elsewhere.

High Sensitivity

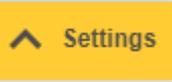


With the sensitivity set to high, the person walking is completely masked however masking artefacts are also introduced elsewhere by small reflections and or shadows.

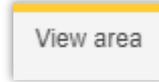
Appendix 1 – Creating additional View Areas

1. Access the cameras system settings: <http://<your.cameras.IP.address>/#settings/system>

2. Select:



Then the View area tab:



Then New:



3. The view area can then be selected in the menu below, and that view area will be Highlighted in the camera view above in order to be adjusted, by dragging the yellow highlighted rectangles borders in the view as needed:

