

# BriefCam® v5.6.1

## User Manual

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## Notice of Confidentiality

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## Introduction

BriefCam is the industry's leading provider of VIDEO SYNOPSIS® and deep learning solutions that make video searchable, actionable, and quantifiable. BriefCam's video analytics platform is built on a unique fusion of computer vision and AI (artificial intelligence) technologies, empowering new and innovative safety, security, and operational efficiency by extracting practical value from video surveillance systems.



BriefCam's next-generation platform enables rapid video review and search, quantitative video insights, and smart alerting – dramatically shortening time-to-target to detect and mitigate security threats, and significantly enhancing safety and operational optimization.

## BriefCam Platform Components and Variants

The BriefCam platform comprises the following:

**VS (VIDEO SYNOPSIS® server)**, responsible for Web, video streaming, data analytics and aggregation services, metadata database management, video file storage, load balancing, VMS (Video Management System) plug-ins, and user management.

**RS (RESEARCH Server)**, hosting an advanced business intelligence platform for the analysis of video sources and the production of interactive quantitative dashboards tailored to users' business objectives.

**PS (Processing Server)**, equipped with one or more GPU cards and responsible for video decoding, rendering, object extraction, and classification. Multiple servers can be deployed at a single site to scale video processing requirements.

BriefCam is offered in a number of variations as detailed in the table below:

Variant	BriefCam Investigator	BriefCam Investigator for Teams	BriefCam Rapid Review	BriefCam Insights	BriefCam Protect
<b>Video sources</b>	File-based	File-based	VMS	VMS	File-based and VMS
<b>Solutions included</b>	REVIEW	REVIEW	REVIEW	REVIEW, RESEARCH, RESPOND	REVIEW, RESEARCH, RESPOND
<b>User count</b>	Single-user	Multi-user	Multi-user	Multi-user	Multi-user

## BriefCam Software Solutions

The BriefCam platform comprises the following key modules:

**The REVIEW Solution** – enables VIDEO SYNOPSIS® generation on the basis of video sourced from both offline files and online VMS platforms, with full case management and such powerful features as multi-camera search, appearance similarity and face recognition, and granular filtering.

**The RESEARCH Solution** – facilitates leveraging of quantitative video analysis-derived intelligence for informed, data-driven decision-making, including advanced trend and dimensional (area, path, duration and other) KPI analysis as well as full dashboarding and scheduling capabilities.

**The RESPOND Solution** – supports delivery of proactive responses to critical events for increased safety and security, with customizable alerts, alert reporting, and browser notifications.

## Sign in to the BriefCam Web Client

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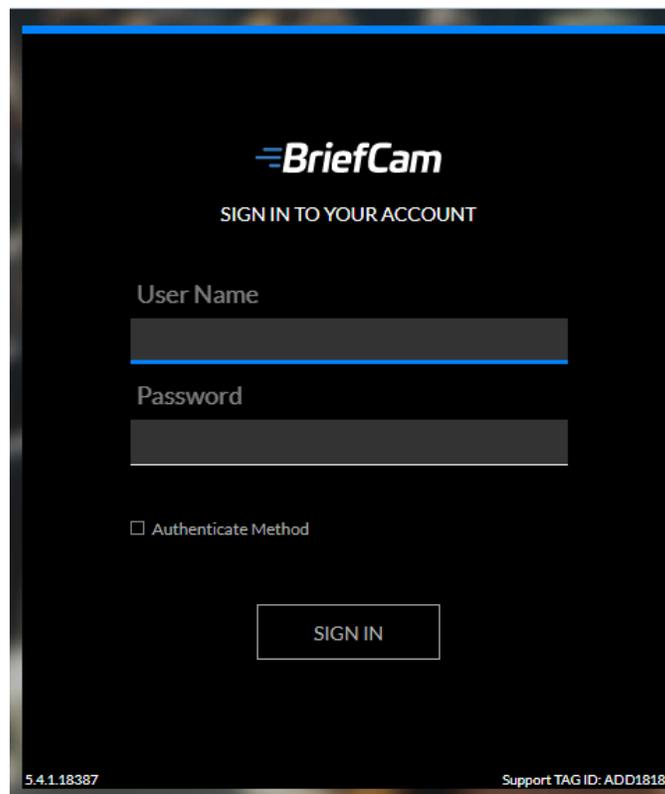


The supported browsers are Google Chrome™ desktop and Mozilla® Firefox®.

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In the web browser address bar, enter the internet address of the BriefCam server that you received from your system administrator (example: `http://1.2.3.4:8081/synopsis` or `https://1.2.3.4:8082/synopsis`) and press **Enter**.

You will then be presented with the BriefCam sign-in page.

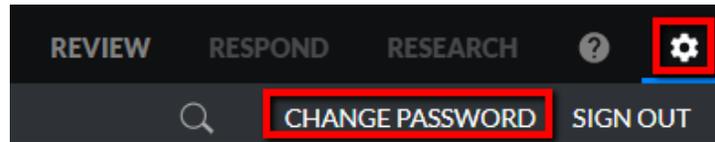


The screenshot shows the BriefCam sign-in page. At the top, the BriefCam logo is displayed above the text "SIGN IN TO YOUR ACCOUNT". Below this, there are two input fields: "User Name" and "Password". Under the "Password" field, there is a checkbox labeled "Authenticate Method". At the bottom center, there is a "SIGN IN" button. In the bottom left corner, the version number "5.4.1.18387" is visible, and in the bottom right corner, the support tag ID "Support TAG ID: ADD1818" is displayed.

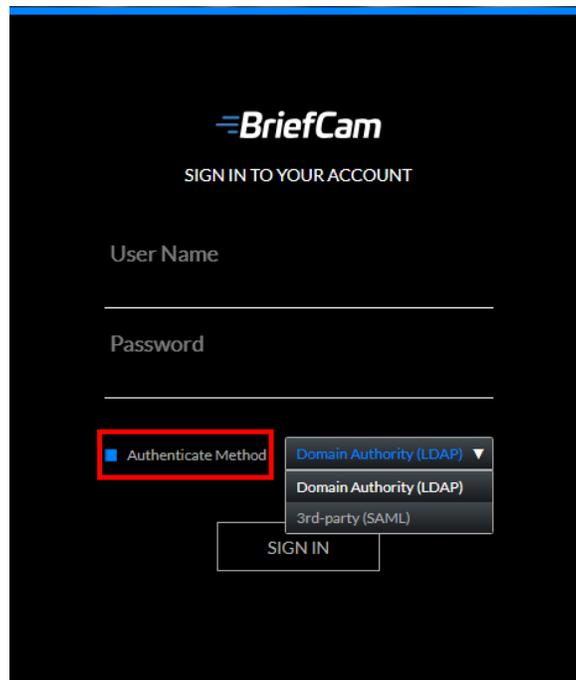
In the **User name** and **Password** fields, enter the sign-in information that you received from your system administrator.

If you want to sign in with an authenticated method, select the **Authenticate Method** checkbox and select either **Domain Authority (LDAP)** or **3rd-party (SAML)** and then click **Sign In**. Note that this first needs to be configured by the Admin.

Note that you can change your password by clicking on the Settings (⚙️) icon and clicking **Change Password**.

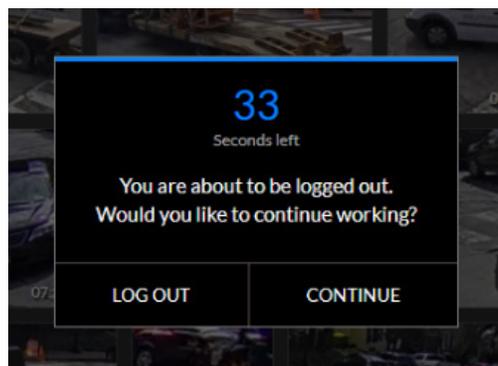


The TAG ID at the bottom of the screen is a number for support purposes. When contacting a Support representative, you may be asked to provide this number.



Users are automatically logged out after 20 minutes (per machine). This allows organizations to do away with licenses being used when the user is no longer there and then it is not available for other users.

Before the automatic log out, the following message is displayed.



## The REVIEW Solution

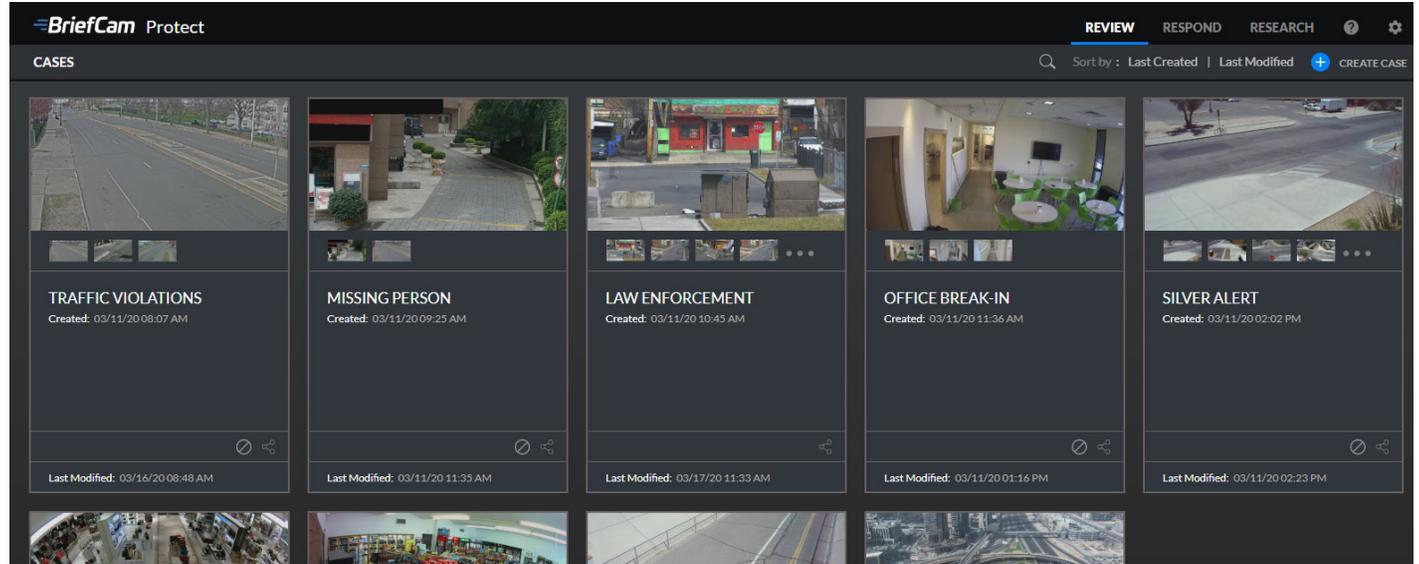
BriefCam's REVIEW solution can process both file-based and VMS video sources (depending on the specific license acquired). It supports case management, BriefCam's VIDEO SYNOPSIS® (extraction and superimposition of video objects over original scenes to allow simultaneous display of events that occurred at different times), and multi-camera search, enabling the pinpointing of objects of interest via appearance similarity and face recognition as well as a broad range of filter presets.

## Case Management

At the core of the REVIEW solution is powerful case management. The **Cases** interface – the main page that loads in your browser when you log into the solution's Web interface – presents an integrated view of all video assets of an investigation within a single container.

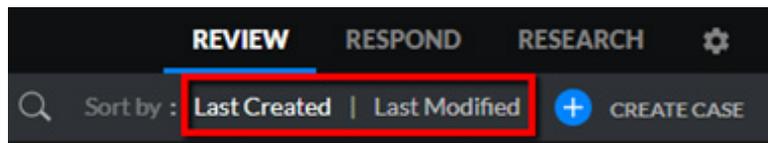
Additional case management features include the ability to bookmark objects of interest and summarize case findings (including relevant exhibits) in reports for truly streamlined investigation workflows.

The first thing you'll be presented with when logging into BriefCam in your browser is the REVIEW solution's **Cases** overview page, which displays cases under your ownership (that is, cases created in your user account and cases that were shared with you).

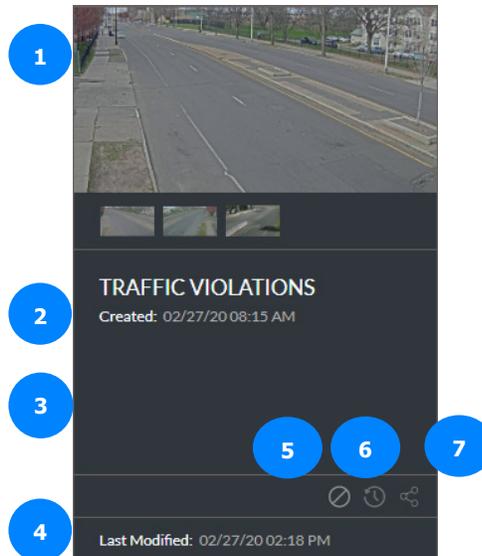


You can search for cases via the magnifying glass icon in the top right-hand corner of the page and create new cases by clicking **Create Case**.

You can also sort the cases by using the **Last Created** and **Last Modified** options in the top right-hand corner.



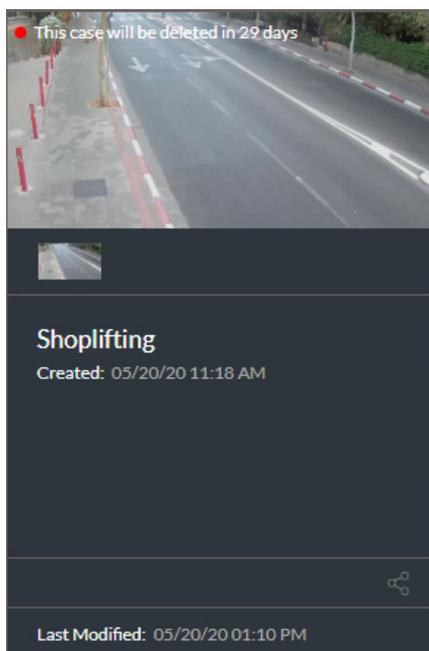
Let's zoom in on a sample case.



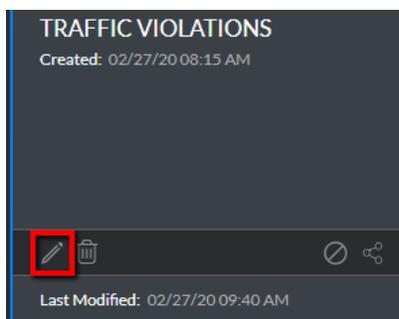
Each of the cases displayed on the **Cases** page features the following:

1. A large cover image taken from the most recent synopsis added to the case, with smaller thumbnails of additional synopses directly below the cover image.
2. The case's name and the date and time of creation.
3. A case description (optional).
4. The date and time of the case's last modification.
5. Indicates that the case was excluded from being automatically deleted during maintenance. You can click on it to edit the behavior.
6. Indicates that the case includes scheduled sources.
7. Indicates the case collaboration status. You can click on it to change the status.

At the top of the screen, you will see when the case will be deleted. For example, in the image below, it says: This case will be deleted in 29 days.



To prevent a case from being deleted during maintenance, when items are automatically deleted, click the edit icon.



In the edit screen, check the **Do not delete case during auto-delete maintenance** checkbox.

**LIVE QA ROOM** ×  
Edit title and description

Title  
Shoplifting

Description (optional)

Incident Time (optional)      07/01/2019      14:31

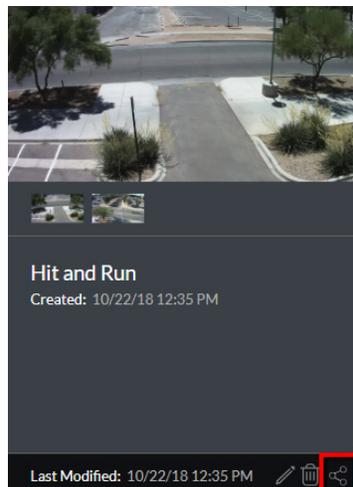
CANCEL       **DO NOT DELETE CASE DURING AUTO-DELETE MAINTENANCE**      SAVE



For details about the maintenance process, see the **BriefCam Administrator Guide**.

## Case Collaboration

When you are the owner of a case, you can click the **Case Collaboration** icon at the bottom right of the case to share your case with other users or groups.



Select the users or groups that you want to share the case with.

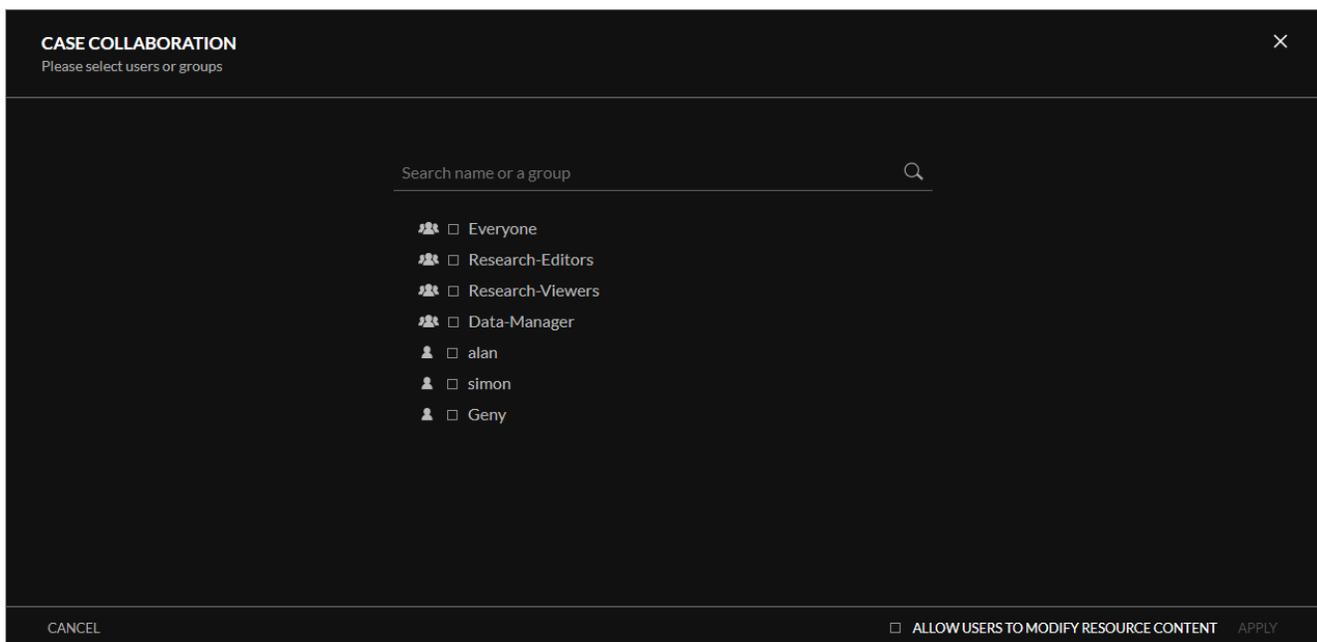
If you want to allow the user to modify the case, select the **Allow users to modify case content** checkbox. If you want them to only have read-only access, then leave the checkbox unchecked. You can only set read-only or read-write permissions for all of the shared users and groups collectively.

A person with read-only access can:

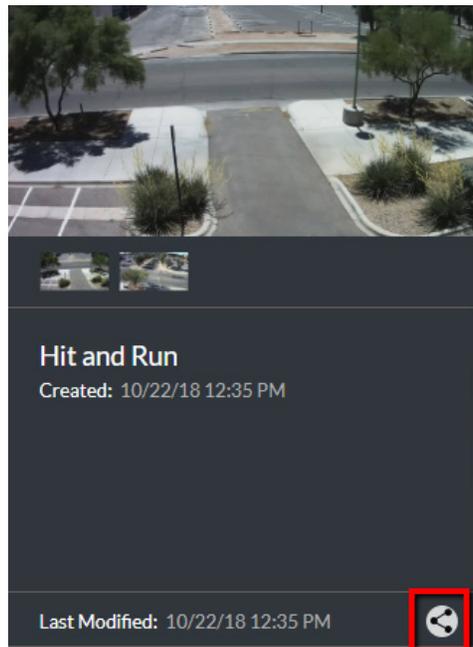
- Add faces from the case to the faces list
- Add identities to a case
- Add identities to a watchlist
- Save and delete presets
- Add, edit and delete bookmarks, including visual layer bookmarks

A person with read-only access cannot:

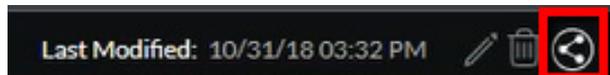
- Update or delete the case
- Add or delete sources
- Retry the processing of sources (in the Status tab)
- Exclude a case from maintenance
- Reshare the case



When you click **Share**, the icon will turn to white.

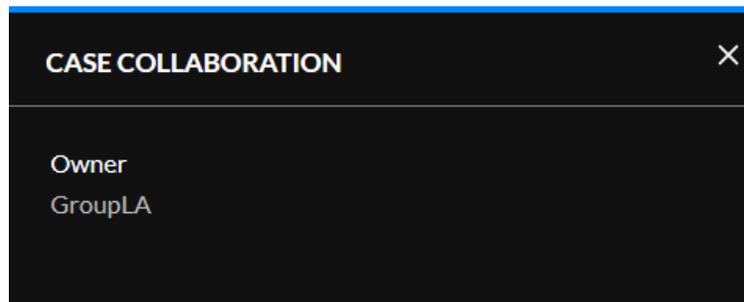
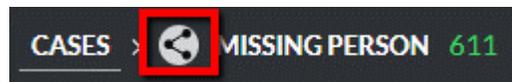


If it is a case that was shared with you, the colors will be reversed.



If you click on the white icon on the case, you can edit the case collaboration settings.

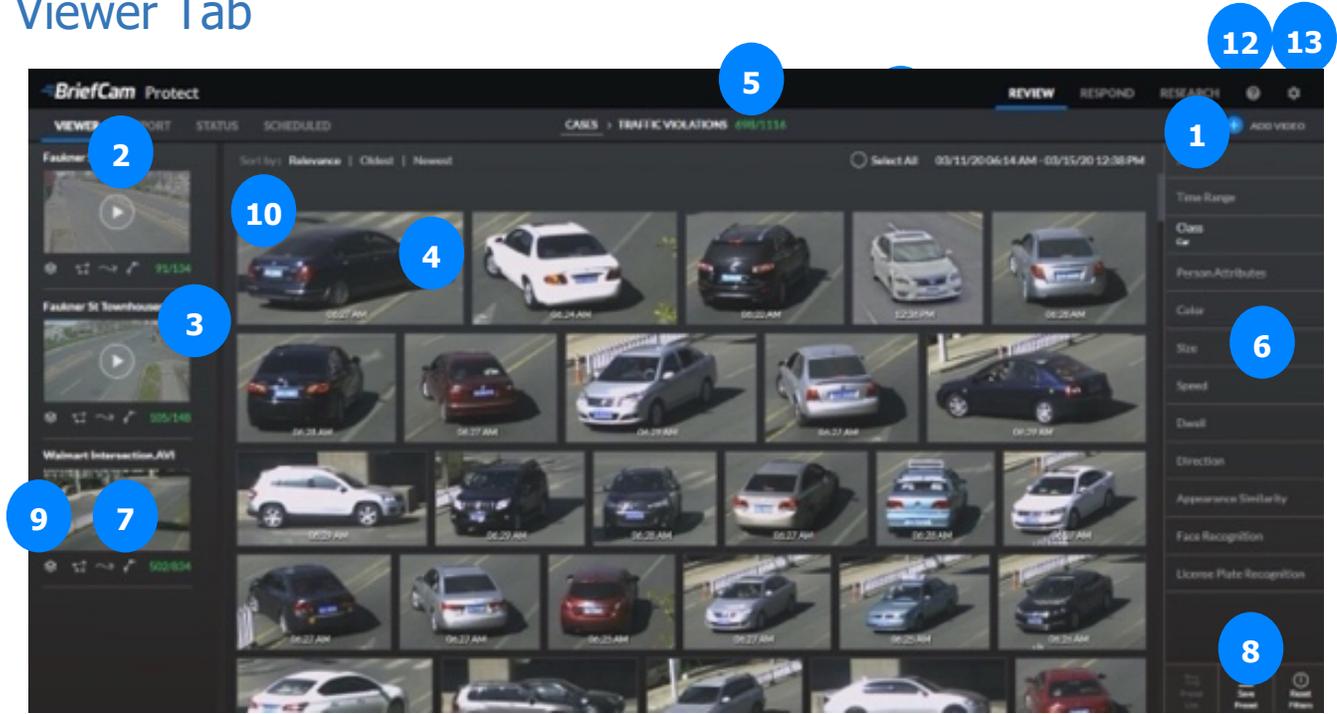
If you click on the white icon from the top of the case's screen, you'll see the owner of the case.



## Case Management Interface

Click a specific case and you'll be presented with its detailed case view page, which features four tabs – **Viewer**, **Report**, **Status**, and **Scheduled**.

## Viewer Tab



When opening a case, the browser page defaults to the **Viewer** tab, which includes the following:

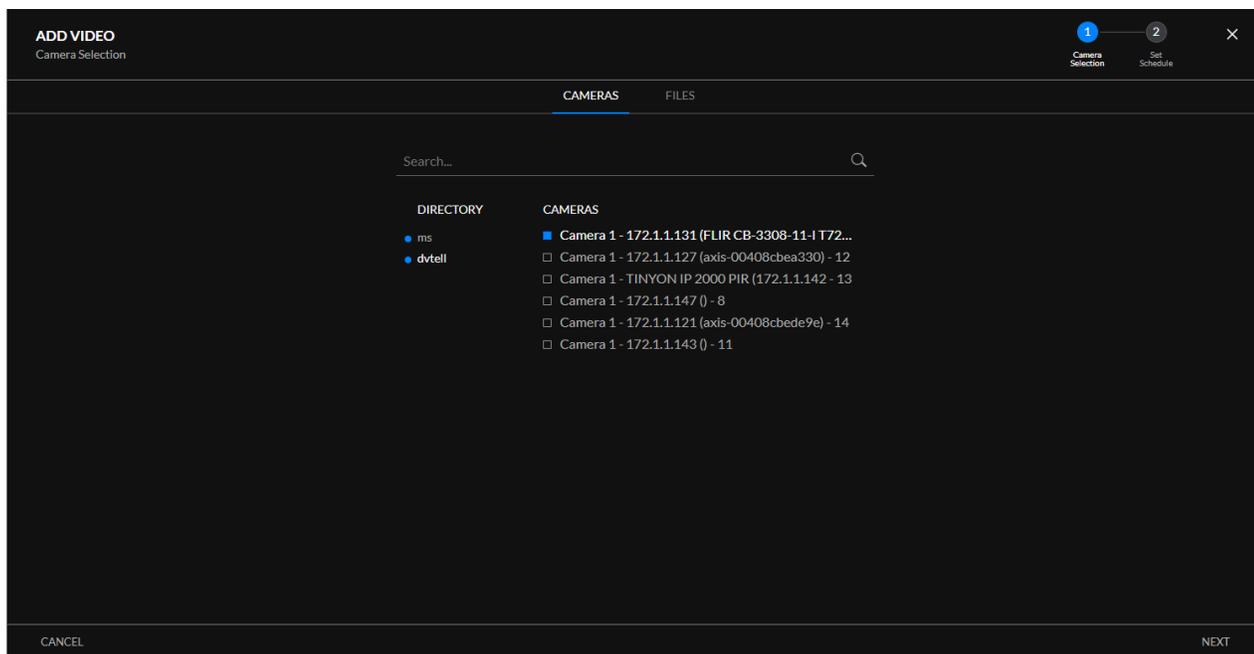
1. [Add Video](#)
2. [Video Sources List](#)
3. [Per-Video Object Count](#)
4. [Object Thumbnails](#)
5. [Per-Case Object Count](#)
6. [Global Filters](#)
7. [Video Source-specific Area, Path and Line Crossing Filters](#)
8. [Filter Presets](#)
9. [Visual Layers](#)
10. [Object Thumbnail Sorting](#)
11. [Select All](#) – Selects all loaded thumbnails
12. [Training](#) – Link to online training videos
13. [User Settings](#)

## Add Video

### Adding Video from Cameras

Click the **Add Video**  button to access a dialog enabling the addition of new video sources to a case.

The dialog defaults to **Cameras** for generation of synopses of video footage injected from integrated VMS cameras.



Select one or more cameras and click **Next**.

The screenshot shows the 'ADD VIDEO' dialog box with the 'CAMERAS' tab selected. At the top right, there are two steps: '1 Camera Selection' and '2 Set Schedule'. The 'DAILY' schedule is highlighted with a blue border. Below the schedule options, there is a section for 'Activate every day' with 'FROM' and 'TO' time pickers set to 11:49 AM and 12:49 PM respectively. There is an unchecked checkbox for 'Run at end of time-range'. Below that is a 'Run at' section with a time picker set to 12:54 PM. At the bottom left is a 'BACK' button and at the bottom right is a 'SUBMIT' button.

Select the schedule for when you want to process the video: **Run Now**, **Daily** or **Weekly**.

Set the date and time range of the video that you want to process.

For **Daily** and **Weekly** schedules, you also can set when the scheduled task will run by entering a time in the **Run at** field.

Click **Submit** to initiate video processing.

All scheduled sources will appear in the **Scheduled** tab.

## Adding Video from Files

### Uploading Files

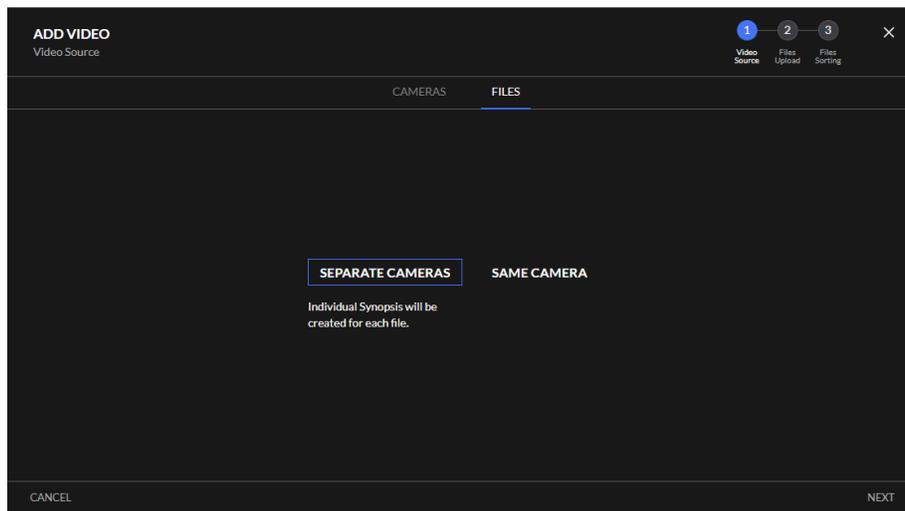
You can add sources from video files by uploading video files to the BriefCam Server. To do so, switch to the **Add Video** dialog's **Files** tab, then click **Separate Cameras** to upload video files from multiple source cameras or **Same Camera** to upload video files from a single camera.



When uploading from separate cameras, you can upload up to 100 files at a time.

Click **Next**.

# TRANSFORMING VIDEO SURVEILLANCE INTO ACTIONABLE INTELLIGENCE

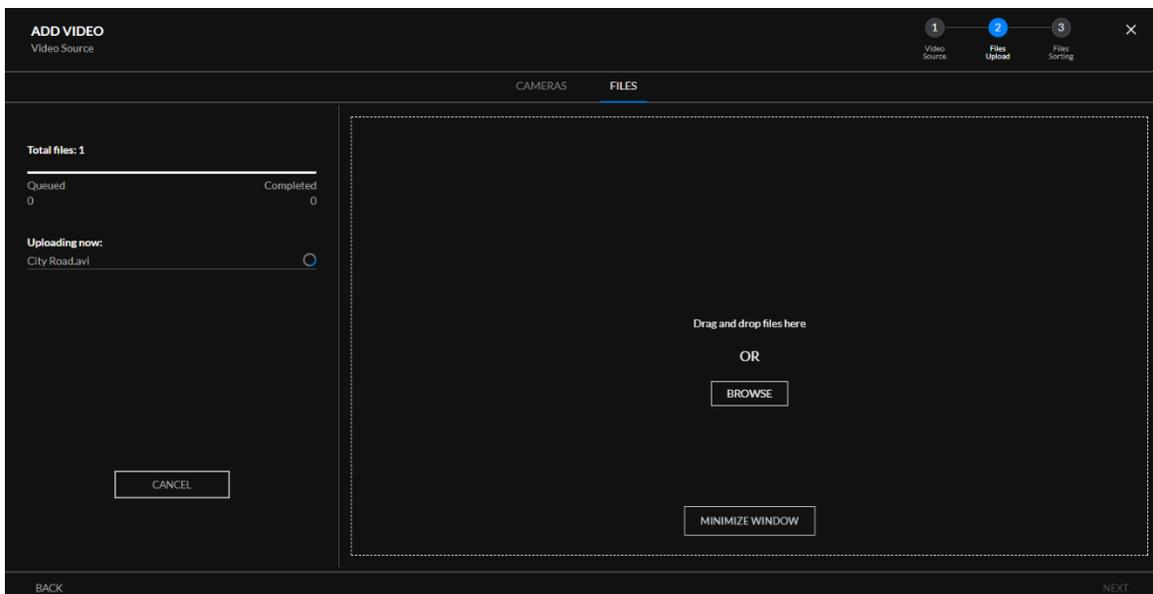


Files from a single camera will be combined into a single VIDEO SYNOPSIS® in alphabetical order. This is useful when adding multiple files exported from a DVR – all originating from a single video source. All files will be treated as if they were combined.

When adding files from separate cameras all files will be treated as different video sources.

When XBA files are uploaded, each multi-stream file will be generated as a separate synopsis. XBA files can be uploaded with up to four video streams.

You can either drag and drop video source files to the dialog or click **Browse** to bring up a standard file selection dialog.



When files are being uploaded a progress-bar will appear for each one.

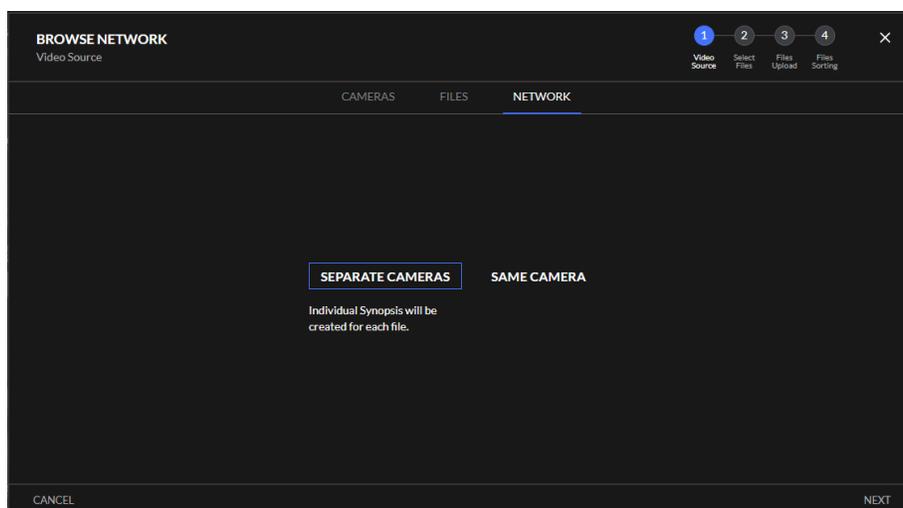
During uploads, you can minimize the file upload wizard and carry on with your work in other areas of the BriefCam software. The software will notify you of upload progress (you can maximize and return to the wizard at any time) and completion, following which you'll be able to return to the wizard. Click **Next** to proceed to file sorting.

## NAS File Upload

As an alternative to downloading to the local machine and then uploading to the BriefCam server, you can add sources from video files by loading the files directly from your organization's network drive.

To enable and configure this feature, please refer to the **Administrator Manual's NAS Configuration** section.

Once the NAS file upload is configured, switch to the **Add Video** dialog's **Network** tab, then click **Separate Cameras** to upload video files from multiple source cameras or **Same Camera** to upload video files from a single camera and click **Next**.



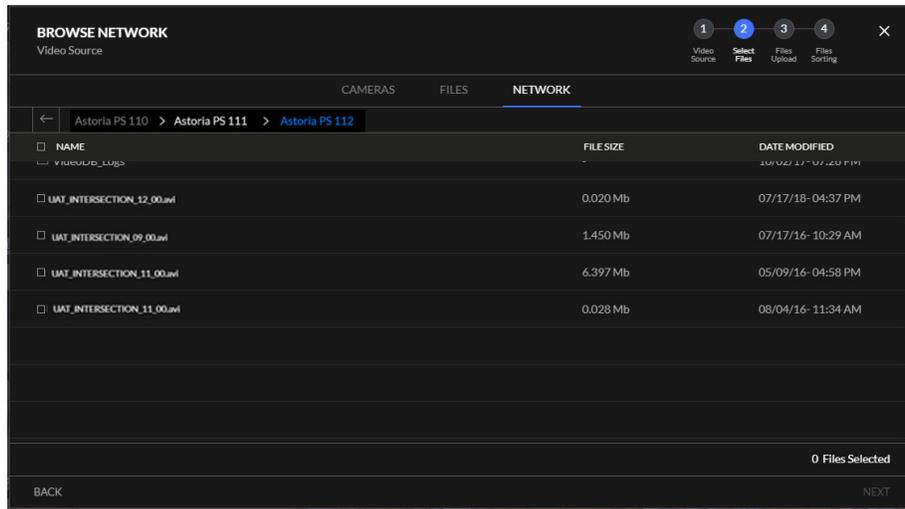
Files from a single camera will be combined into a single VIDEO SYNOPSIS<sup>®</sup>. This is useful when adding multiple files exported from a DVR – all originating from a single video source. All files will be treated as if they were combined.

When adding files from separate cameras, all files will be treated as different video sources.



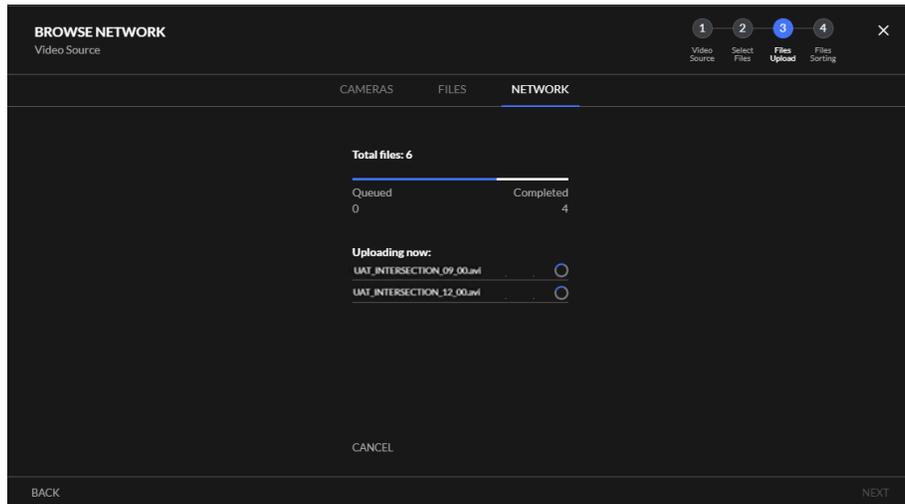
When video files are selected using the Network folder and then moved to a different folder, the selection is removed.

You are now be presented with the network drive(s) that were added to the configuration files. Select the network drive. You can now select the files you would like to load.



Click **Next**.

When files are being loaded, a progress bar will appear for each one.

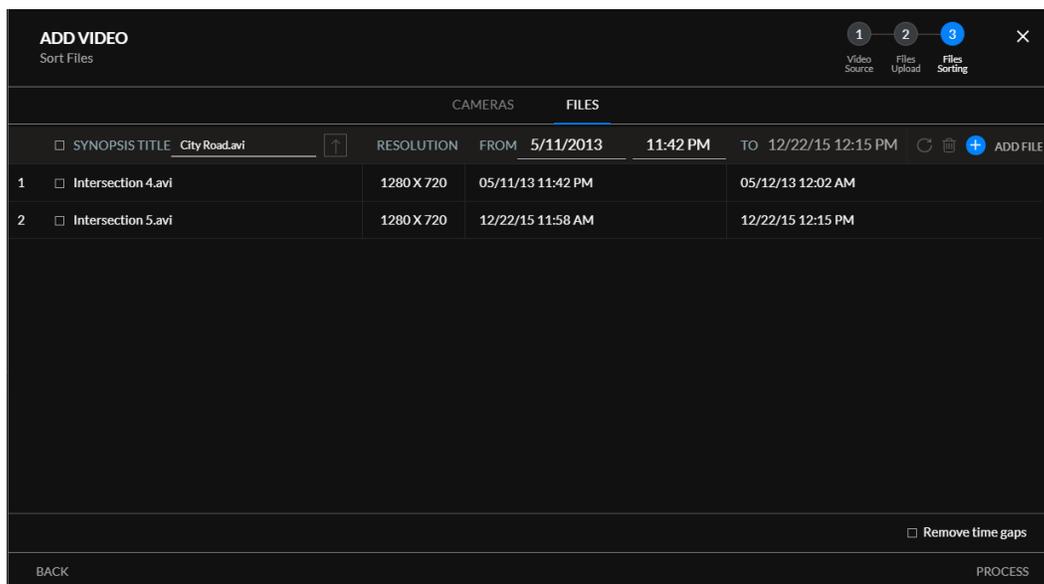


Click **Next** to proceed to file sorting.

## File Sorting

### Same Camera

When the uploading/loading of multiple video files from a single camera is complete, you'll be presented with a list similar to the one shown below.



All of the files to be combined in the synopsis will be sorted chronologically by default with the date taken from the directory where your files were saved.

You can also sort the files by resolution.

If the times of the files overlap, BriefCam will automatically adjust the times to resolve any overlaps by moving all times forward according to the videos' durations. The start time and duration of the first file will remain as is, and the times of the subsequent files will be automatically adjusted using the first file as a reference point.

Time gaps are automatically detected. You can check the **Remove time gaps** checkbox (located in the bottom right corner of the screen) if you want to remove these gaps. BriefCam will concatenate file time ranges, with the first file on the list again serving as the starting point.

You can manually set the time and date of the combined video file sequence by editing the start time of the first file on the list. All other files and their start and end times will automatically be offset as per this manually edited start time and arranged by duration.

The title of the combined synopsis defaults to the name of the first file on the list and can be edited.

You can delete single and multiple files from the combined sequence by checking the checkboxes next to their names and clicking the trash can icon in the top right-hand corner of the dialog.

The files can also be sorted by file name. When sorted by file name, the start and end times of all files on the list will automatically be modified to conform to the new first file on the list and its duration. (You can manually set the time and date by editing these properties for the first file on the list.)

Note that the resolutions all have to be the same when the files are uploaded from the same camera.

## Separate Cameras

When the uploading of video files from multiple cameras is complete, you'll be presented with a list similar to the one shown below.

ADD VIDEO		CAMERAS		FILES	
SYNOPSIS TITLE	RESOLUTION	FROM	TO	ADD FILES	
<input type="checkbox"/> Supermarket-veggie-diq	1280 X 720	12/29/2011 12:00 PM	Dec 29, 2011, 12:15:28 PM		
<input type="checkbox"/> UAT_INTERSECTION lo	1280 X 720	5/1/2013 12:41 PM	May 1, 2013, 1:08:43 PM		
<input type="checkbox"/> Holgate trucks and conti	1280 X 720	10/27/2013 2:11 PM	Oct 27, 2013, 5:18:22 PM		
3 total					
BACK		PROCESS			

All files are sorted chronologically. You can edit each file's name and start time (any change can be reset), as well as delete single or multiple files (by checking the checkboxes next to their names and clicking the trash can icon in the top right-hand corner of the dialog).



When deleting one stream on Timespace multi-stream files, all other streams from the same file are deleted as well.

Whether you are uploading video files from single or multiple cameras, any changes made (for example, editing the synopsis title or the start date and time) can be reversed by clicking "reset" (🔄) in the top right-hand corner of the dialog.

When ready, click **Process** to initiate VIDEO SYNOPSIS® processing.

## Video Sources List

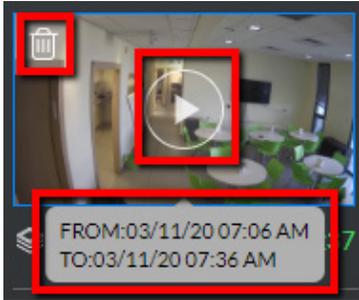
Thumbnails of sources added to the case are listed vertically on the left-hand side of the page in the order that they are uploaded.



It is recommended to limit the number of synopses per case to 50. More than 50 synopses may affect the user experience, such as the use of filters.

Hovering over any video source thumbnail will reveal the play button, delete button and the start and end time of the video source.

Click the play button to play the VIDEO SYNOPSIS, which will feature only objects matching currently selected filters.



## Video Player



When playing a video, you can use any of the standard playback controls provided. The following are the available options. For additional information, see the sections below.

Icons	Functionality	Description
	More video options	Expands and collapses additional options
	Density control	Controls the number of events shown concurrently when playing a synopsis
	Toggle timestamps	Determines whether to display the time and date, the time only or to hide the timestamp (Off).
	Sort video	Sorts the synopsis according to relevance and time
	Toggle bounding boxes	Determines whether to display the bounding boxes.
	Backward, pause/resume and forward	Moves through the video frame by frame both backwards and forwards. The right and left keyboard keys can also be used to move through the video.
	Playback speed selection	Controls the speed of the playback
	Zoom	Zooms in and out of areas of interest
	Capture	Capture the image or part of it and save it.
	Full-screen and windowed toggling	Determines whether to display the screen in full-screen or windowed mode

Note that objects are played back in non-chronological order to optimize viewing time (an object's original time of occurrence can be seen when playback is paused). Click individual objects to gain access to additional controls that enable you to play back an object's original video or add it to a case report.

Note that BriefCam's adaptive streaming technology, based on HLS, automatically selects one of two resolution levels (according to available bandwidth) to enable optimal streaming video viewing.

When running or exporting a video synopsis, 4K videos are rendered in half of the resolution for increased performance. The original video of a 4K video is rendered and exported in full size.

## Density Control

Density is the number of events shown concurrently when playing a synopsis. The density control () located on the left of the video synopsis player, can be used to adjust event density. Click the control to reveal the density slider (see below), then slide up or down to increase or decrease the number of events shown at once.

Increasing density will make the video synopsis shorter, whereas decreasing it will make the video longer. The adjusted run time will be presented in the playtime progress bar and reflected in the number of chapters (for example, 36 in the image below is the number of chapters).



The density setting is not persistent; it is applicable only for the current synopsis. Opening another synopsis or another case will set the default density.

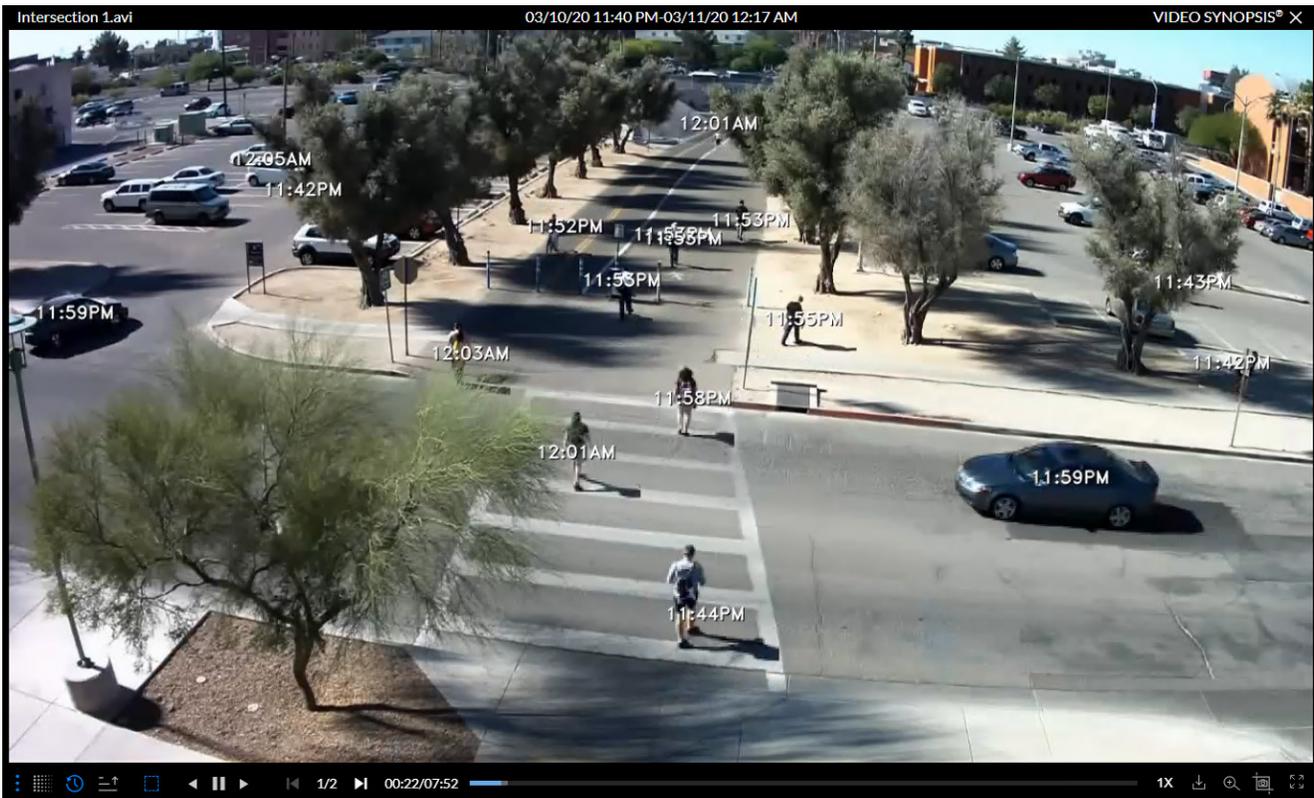
## Toggle Timestamps

Determines whether to display the time and date, the time only or to hide the timestamp (Off).

Timestamps indicate the date and/or time (hour and minute) at which events first appeared.

The timestamp toggle () can be used to turn timestamp display on or off (the default is on). The selection is persistent for all synopsis playbacks by the user on all three solutions. Once the user changes the timestamps mode, it is saved in the user's settings for all later synopsis playbacks.

Timestamps are displayed continuously while the synopsis is played.



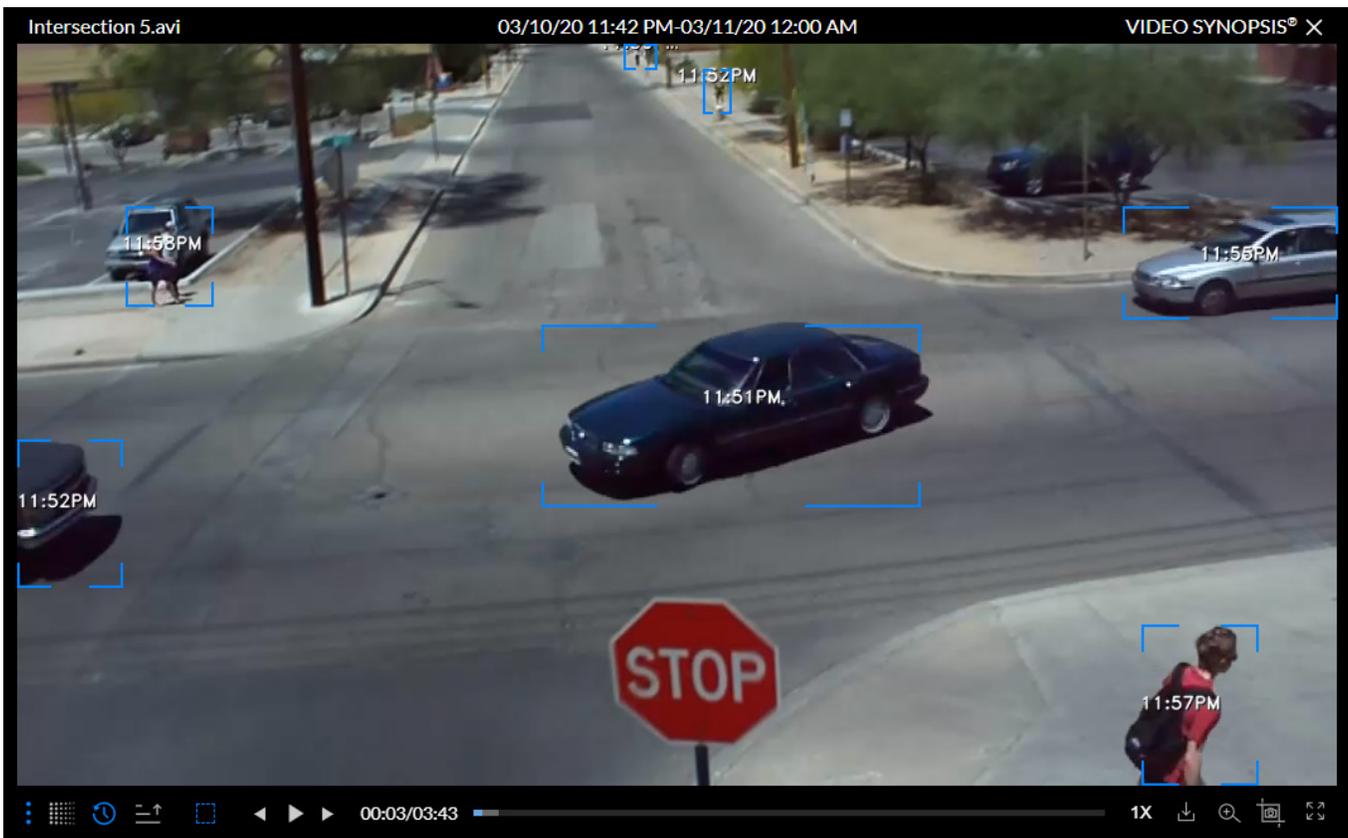
## Sort Video

The Sort Video icon (  ) enables you to sort the synopsis according to relevance and time (oldest to newest). The option that you select here is only applicable for the current synopsis.

The available options are **By Relevance** and **By Chronology** (oldest to newest detected objects).

## Toggle Bounding Boxes

Bounding boxes (see figure below) enable you to keep track of all events shown in the synopsis and to ensure that no event is overlooked.



The **show bounding box** toggle () can be used to turn the bounding box display on or off (the default is on).

When the box is on, the bounding boxes will be shown when a synopsis is paused and when playing back the original video (only for the selected object).

**Note:** Bounding boxes when playing an original video are not supported for Axis, Bosch, CASD, Digifort, Digital Watchdog, Exacq, Genetec, IndigoVision, ISS, NX, Qognify (formerly OnSSI and SeeTec) integrations. This is because these VMSs do not provide accurate timestamps.

## Playback Speed Selection

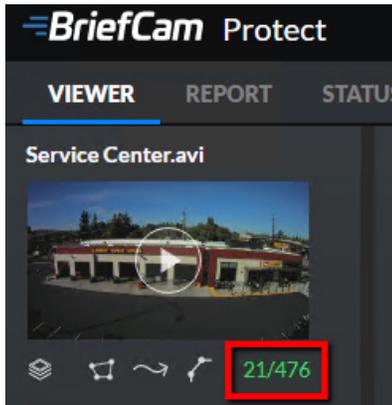
Click the  icon to control the speed of the playback. The available options are four times the speed (4X), double (2X), regular speed (1X), 50% of the speed (0.5X) and a quarter of the speed (0.25X). When you change the playback speed, the new speed remains until you sign out (even when moving between modules).

## Zoom

Clicking the zoom button lets you use the mouse wheel to zoom in and out of areas of interest.

Dragging with the mouse moves the zoom area.

## Per-Video Object Count



Displays the total number of objects detected in a specific video source. When search criteria are applied, this count reflects the number of objects matching the criteria out of the total number of objects detected in the video source.

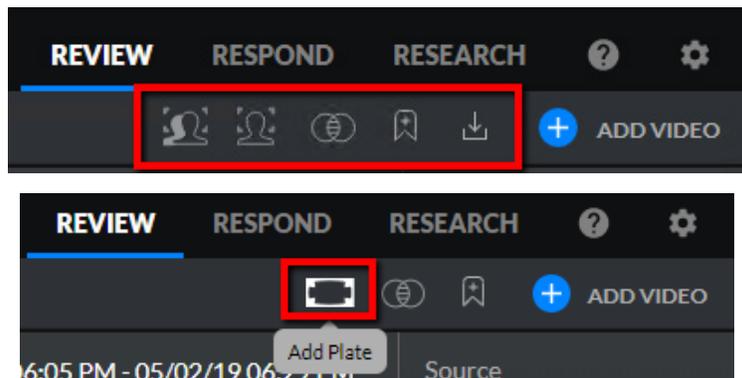


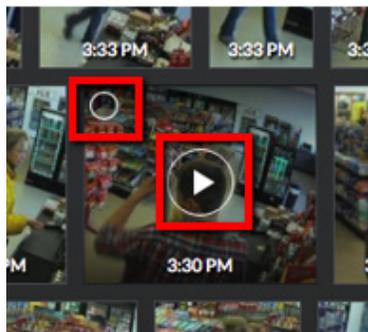
When processing the same video a number of times, there may be slight variations in the number of discovered objects, due to BriefCam's parallel computing optimization methods.

## Object Thumbnails

The **Viewer** tab's main content area features thumbnails of video extracted from all camera sources added to the case. Thumbnails are sorted chronologically by default, and by relevance when filters are applied.

Click the selection button when hovering over object thumbnails to select one or more objects. You can then use the action buttons in the top right-hand corner (see below) to include these objects in the **License Plate Recognition**, **Face Recognition** or **Appearance Similarity** filters (further details ahead), to add them as bookmarks to a case report or to export all face thumbnails.





Hovering over any thumbnail will reveal the object selection and playback buttons. Click the playback button to open and view a close-up clip of the selected object.

The following controls will appear:

**Original Video** – Enables playback of a clip of the original video featuring the object. When you play the original video, a bounding box will surround the object that appeared in the close-up. You can click the Toggle Bounding Box () button to turn the bounding box on and off (the default is on).



BriefCam can detect objects whose duration in the scene is very short, less than 10 frames. However, for such objects no original video clip is generated.

**Add to Report** – Click this to bookmark the object and add it to the report (you'll be requested to enter a title and optional description).

**Face Recognition** – If the object is a person and the person's face is captured in sufficient quality, you can use this option to add the face to the **Face Recognition** filter.

**Appearance Similarity** – Click this to add the object to the **Appearance Similarity** filter.

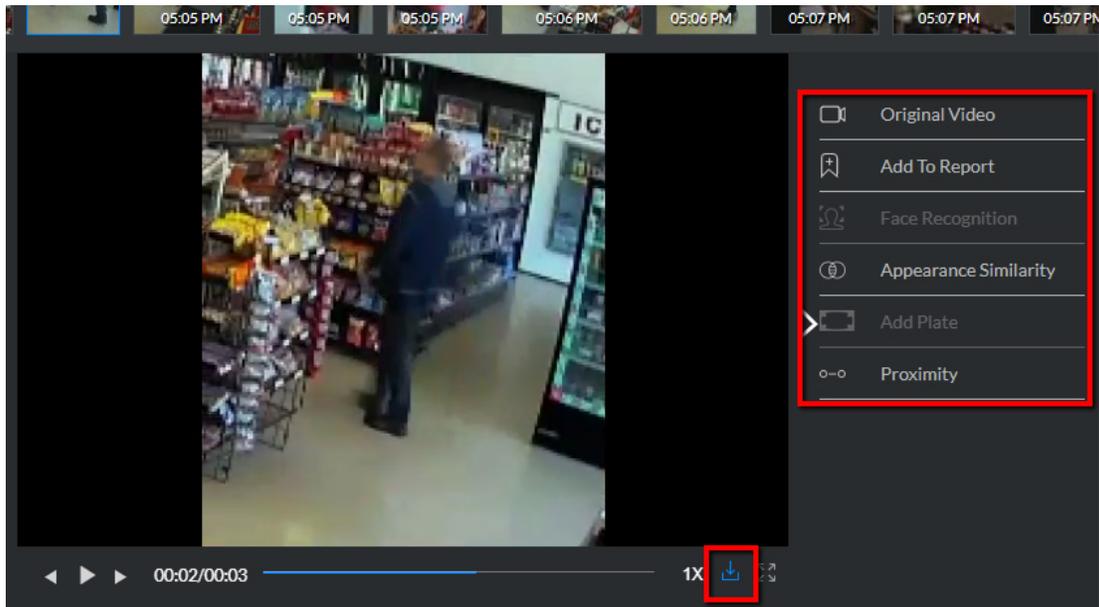
**Add Plate** – Click this to add a captured license plate to the **License Plate Recognition** filter.

**Proximity** – Click this to add the object to the **Proximity** filter.



If the case is shared as read-only, the **Add To Report** and **Face Recognition** options will not be available.

Click the download () icon, to download an .mp4 file of the close-up clip.



The following will appear to the left of the close-up playback area:

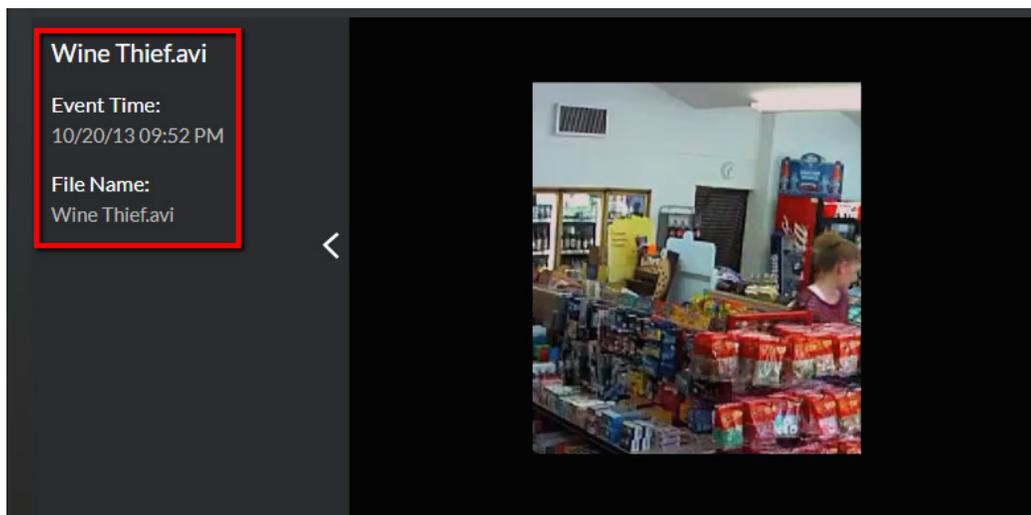
**Synopsis Title** – as defined when the synopsis was created.

**Event Time** – the time at which the event was first recorded in the original video.

**File Name** – indicates the original file name for a reference even in a multi-file same-camera synopsis. Visible only on file mode synopsis.

**License Plate** – if the object has a detected license plate, the license plate number will appear.

When face or plate watchlists are used, additional information regarding the watchlist will also be displayed.



## Per-Case Object Count

At the top middle part of the screen, you can see an object count per case. It will either display the overall number of objects detected in the video synopses associated with the case or the number of case-associated objects matching applied filters.

## Global Filters

A rich selection of granular filters can be used to include and display only objects matching a range of characteristics on the **Viewer** tab.

Refer to the following table for all available filtering options.

Filter applied	Case objects included
<b>Source</b>	<p>Objects originating from specific video synopses (should no sources be selected, objects from all sources will be displayed).</p> <p>By default, all sources are selected.</p>
<b>Time Range</b>	<p>Objects matching specific time ranges.</p> <p>The filter contains two tabs: Last Runs and All Runs. The Last Runs tab is the last run of each source, including One Time sources and Scheduled sources. The All Runs tab shows the time-range selectors for the entire scheduled period starting from the first run and ending with today's latest run. By default, the case is filtered by Last Runs.</p> <p><b>Note:</b> Only the selected sources are taken into account for the Time Range filter.</p>
<b>Class</b>	<p>Objects matching the following classes:</p> <p><b>People:</b> Man, Woman, Child</p> <p><b>Two-Wheeled Vehicles:</b> Bicycle, Motorcycle</p> <p><b>Other Vehicles:</b> Car, Pickup, Van, Truck, Bus, Train, Airplane, Boat</p> <p><b>Illumination Changes*:</b> Lights On, Lights Off (see also <a href="#">Illumination Changes</a>)</p> <p><b>Animals</b></p> <p><b>Other*</b> (see also <a href="#">Other</a>)</p> <p>*These do not appear by default (your administrator can enable them for you).</p> <p><b>Note:</b> The Car class includes minivans, SUVs, vans, cargo vans, etc.</p>

Filter applied	Case objects included
<p><b>Person Attributes</b></p>	<p>Objects with the following attributes:</p> <p><b>Lower Wear:</b> Long, Short, Colors</p> <p><b>Upper Wear:</b> Long Sleeves, Short Sleeves, Colors</p> <p><b>Hat:</b> No Hat, Hat</p> <p><b>Face Mask:</b> No Mask, Mask</p> <p><b>Bag:</b> No Bag, Backpack, Hand Held</p> <p>You can fine tune the tolerance of the attributes by using the <b>Tolerance</b> field. See also <b>Filter Tolerance Adjustment</b></p> <p>You can fine tune the colors of the lower and upper wear by using the <b>Shade</b> and <b>Coverage</b> fields. See also <b>Color Tolerance</b>.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Filtering by colors for lower and upper wear only works for people who are standing and does not work on 360 cameras.</li> <li>• Hoods are considered hats.</li> <li>• The Face mask detector operates only on faces that are 1-star quality or above (objects that appear when you click the Show Faces option in the Face Recognition filter).</li> <li>• Hand Held may also bring up any item held in a person’s hand, such as laptops and cell phones.</li> </ul>
<p><b>Color</b></p>	<p>Objects matching any combination of brown, red, orange, yellow, green, lime, cyan, purple, pink, white, gray and black.</p> <p>See also <b>Color Tolerance</b>.</p>
<p><b>Size</b></p>	<p>Objects based on their actual (real-life) size from a histogram of sizes relevant to a specific case.</p> <p><b>Note:</b> Only the selected sources are taken into account for the Size filter.</p>
<p><b>Speed</b></p>	<p>Objects based on their actual speed from a histogram of speeds relevant to a specific case.</p> <p><b>Note:</b> Only the selected sources are taken into account for the Speed filter.</p>
<p><b>Dwell</b></p>	<p>Objects having dwelled for a user-specified period or longer in a scene.</p>

Filter applied	Case objects included
<b>Direction</b>	Objects having travelled in a specified direction.
<b>Proximity</b>	Objects appearing below or above a specified distance. See also <b>Proximity</b> .
<b>Appearance Similarity</b>	Objects with similar attributes, either people ( <b>People Similarity</b> ) or vehicles ( <b>Vehicle Similarity</b> ). See also <b>Appearance Similarity</b> .
<b>Face Recognition</b>	<p><b>Show Faces</b> – a toggle button to show objects that were detected in the video as faces.</p> <p>The filter contains thumbnails that can be selected to filter objects by the selected faces. See also <b>Face Recognition</b>.</p>
<b>License Plate Recognition</b>	<p><b>Show Plates</b> – a toggle button to show plates that were detected in the video.</p> <p>The filter contains thumbnails that can be selected to filter objects by the selected license plate numbers. See also <b>License Plate Recognition</b>.</p>



BriefCam uses a two-tier classification approach. First, BriefCam classifies the class category (e.g. vehicle). For this top level, BriefCam has a 96% accuracy or above. For sub-classes the filtering is more detailed, and the accuracy might not be the same as the top-level classes (e.g. specific vehicle type).

In some cases, the fine-grain classification of sub-classes is not attempted. For example, if you have an object with a very **low resolution** then it might be possible to detect that it's a 2-wheeled vehicle, but the resolution is not high enough to determine if it's a bicycle or a motorcycle.

## Object Classification – Resolution Limits

Minimum large edge (pixels)	Minimum small edge (pixels)	Relevant classes
32	12	High level classes - Person, 2 Wheels, Vehicles, Animals
64	32	Man, Woman, Child & all of the Person attribute classes

Minimum large edge (pixels)	Minimum small edge (pixels)	Relevant classes
40	20	Car, Pickup, Van, Bus, Truck, Airplane, Train, Boat
32	16	Bicycle, Motorcycle

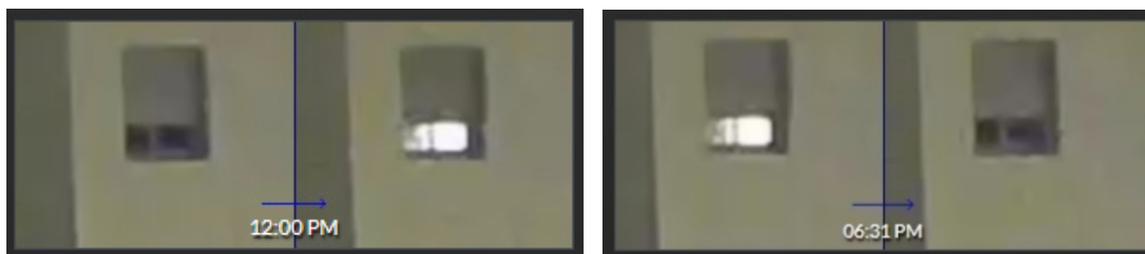


Classification accuracy on thermal videos will be lower than on regular videos.

## Illumination Changes Class

This feature is disabled by default. The administrator can enable it.

Use the Illumination Changes class to filter for windows or other lights that were turned on and off. You'll see a chronological video synopsis where illumination change events are represented as objects and displayed once for lights-on and once for lights-off. Here are two examples:



The following changes are not detected:

- Short changes of lights on and lights off. This tolerance level can be changed by the administrator.
- Illumination changes in very small areas. This tolerance level can be changed by the administrator.
- Gradual illumination changes (e.g. light and shadow changes by sun movement).

## Other Class

All objects that do not fall into one of the high-level classes with high confidence are classified as **Other**. Usually, this class category will not contain objects of interest.

Note that if, for example, a bag in the scene is detected and classified as **Other** (because it is not a person, vehicle, or animal), it does not mean that all bags will be detected and classified as **Other**.

**Other** objects are not shown unless the **Other** class is selected. This behavior is different than usual classes whose objects are shown if no other filter is selected.

This feature is disabled by default. The administrator can enable it.

## Proximity Filter

To find which people were above or below a certain proximity from a specific person, add the person to the **Proximity** filter, by one of the following methods:

- Selecting one or more people and clicking the **Proximity** icon ( ) in the action bar at the top right-hand corner of the screen.
- Playing a close-up clip and selecting the **Add to Proximity** option.
- Playing a synopsis, clicking an object, and selecting the **Add to Proximity** option.

Only objects classified as people can be added to the **Proximity** filter.

Once a person is added and selected in the filter and the filter is applied, the results will include all people that were closer (or farther, or both) than the defined threshold(s) for longer than the defined minimum duration (if defined).

Sort by: Relevance | Oldest | Newest       Select All      06/09/20 02:23 PM - 06/09/20 02:28 PM

Source

Time Range

Class

Person Attributes

Color

Size

Speed

Dwell

Direction

**Proximity**

Appearance Similarity

Face Recognition

License Plate Recognition

Distance Thresholds

Below 6 feet

Above 21 feet

Duration Thresholds <sup>?</sup>

Min. Duration 5 sec

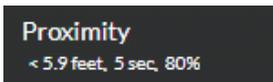
Max Duration 80 %

RESET      APPLY

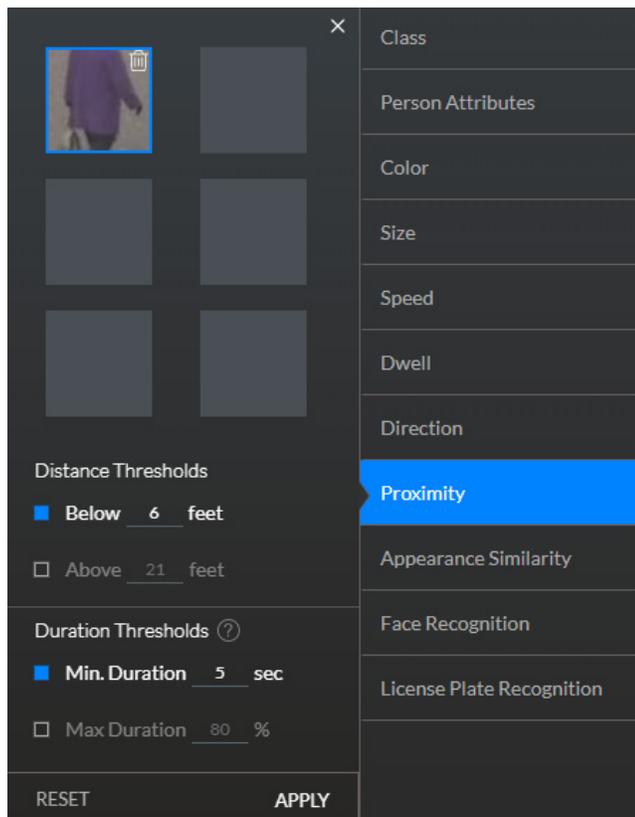
When you click the **Apply** button, all other filters are automatically reset and previous search results will disappear and get replaced with the people in proximity to target people.

In the Filter pane, under the **Proximity** filter, you can see the thresholds that were set in the fields described below.

This example means the below field is set to 5.9 feet, the Min. duration is set to 5 seconds, and the Max. duration is set to 80%.



## Distance Thresholds



The Distance Thresholds let you set how close or far from each other the two people need to be in order to be included in the search results. You can enter numbers with up to one numeral after the decimal point. The valid values for the Distance Thresholds are 0.1 m to 20 m (0.3 ft to 66 ft).

The Below and Above fields are independent, so if you select both, the search results will show people that were below the distance set in the Below threshold and also results for people that passed the distance in the Above threshold.

## Duration Thresholds

The Duration fields are optional.

The valid values for the Min. Duration Threshold are 1- 900 seconds (15 minutes) and the valid values for the Max. Duration Threshold are 1-100%.

The default value for Min. Duration is 5 secs and for Max. Duration is 80%.

The **Max. Duration** option lets you ignore groups of people who were closer/farther from the distance threshold(s) for more than the percentage of the duration in the scene.

For example, if the **Max. Duration** option is set to 90% with a minimum distance threshold of 2 meters, people that are closer than 2 meters for more than 90% of their duration in the scene (the duration of the person who appeared the longest in the scene is used), are considered "associated" and are not included in the filter output (even though they may match the filter's distance and minimum duration conditions). This is useful to exclude groups of people that enter together, exit together, and meet the close proximity conditions together, such as families, that are permitted to be together.

Let's consider a case where person A enters the scene and stays in it for one minute and then person B joins person A in close proximity for another minute – the violation duration will be 50% (1 minute out of the 2-minute max duration of the two persons) and if we set the Max. Duration to a value below 50% – this pair will be ignored.

## Known Issues

There are a few known issues to keep in mind when using the Proximity filter:

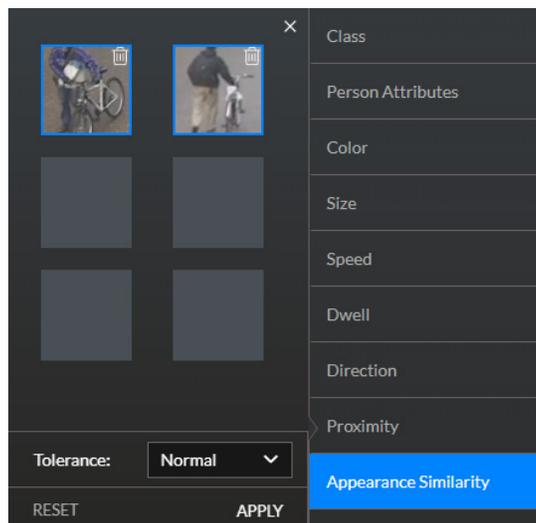
- Objects at the beginning of the video source's time range do not have real-world coordinate information. This is because the geometry modeling algorithm needs to analyze a certain number of objects before real-world coordinates are available. These objects (without real-world coordinates) cannot be added to the Proximity filter (and will not show up in the Proximity filter results). To circumvent this, fetch a video time range with a margin at the beginning.
  - Note that when a processing job gets split into tasks (mainly in the REVIEW module), the same limitation applies for each task. For example, the default task length is 4 hours and a video of 10 hours will be split into 3 tasks of 4, 4 and 2 hours. To circumvent this, the administrator can change the task length. However, this has an implication on the system throughout, so it is recommended to switch it back to the default task length when done.
- BriefCam cannot extract geometries for scenes that are too crowded (where objects are not separable and trackable).

- Objects near the horizon have high inaccuracies. This happens mostly when the camera POV is more parallel to the ground. To ignore these objects, it is recommended to use an Area filter in the REVIEW module to filter out people who are moving in the far away area and do not come near.
- The Proximity filter triggers an alert when a person violates the proximity thresholds. If two people who have already violated the proximity thresholds violate the thresholds again with one another – an alert will not be triggered.

## Appearance Similarity

To filter objects down to similar objects only, select one or more objects (by hovering over them and clicking their selection button), then click the **Appearance** icon (👁️) in the top right-hand corner of the screen. You can alternatively do so by clicking the **Appearance Similarity** option displayed to the right of an object's close-up clip playback.

The **Appearance Similarity** filter will open and display all selected objects. Select the objects to be filtered and click **Apply**. This will filter all case objects to display only objects similar to those selected. Similar objects are objects with the same identified classes and attributes (class, size and color), e.g. two objects both classified as men, blue upper wear and a backpack will be considered "similar" even though a human operator may not consider them similar. Two red pickup trucks may be considered similar by BriefCam, even if they look different to a human eye. The objects' behavior, such as speed and direction, are also taken into account when finding similar objects.



You can hover over an individual object in the **Appearance Similarity** filter and click its delete (trash can) button to remove it from the filter or click **Reset** to remove all selected objects from the filter and resume display of all case objects.

## Face Recognition

You can search for faces across sources regardless of the angle or date of the sources.

It's important to remember that for face recognition many factors affect the performance, including camera location (placement), distance of cameras, resolution (pixels), lighting, accuracy of the face, angle of camera, and type of camera.

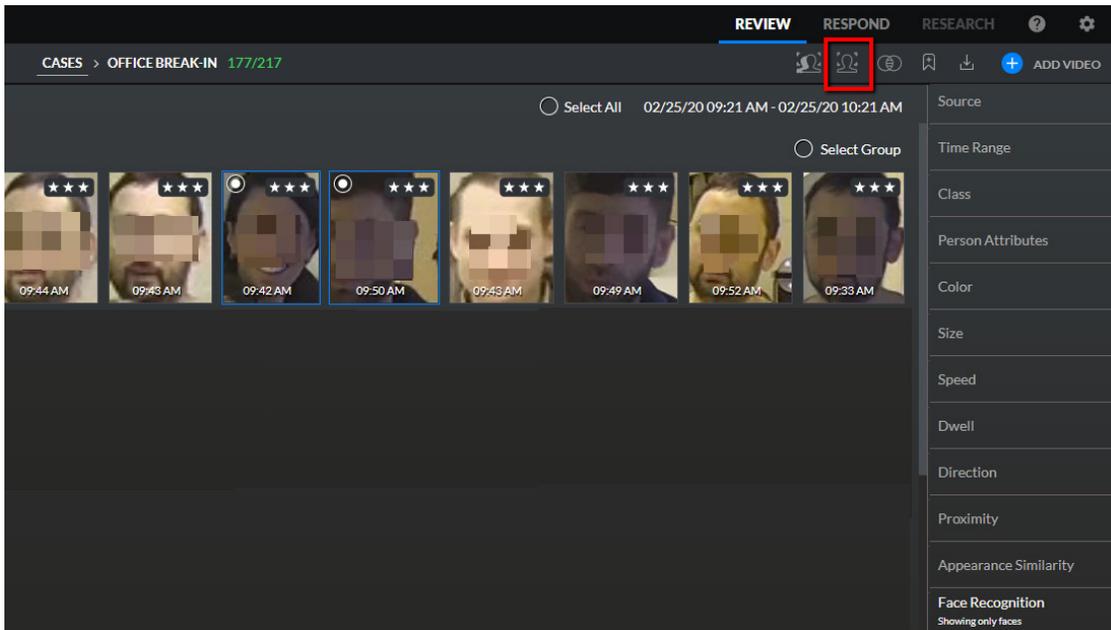
### Selecting Faces

You select faces either from the thumbnails or from the synopsis:

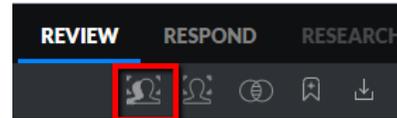
#### Thumbnails mode

1. When you find the thumbnail with the face that you want to search for, hover over the thumbnail and click the empty white circle in the left of the object. You can do this for multiple objects (multiple examples of the same individual or multiple individuals).
2. When all selected faces are examples of the same individual appearing several times in the sources, click the **Add Faces – Same Identity** button in the top right-hand corner of the page. A single identity will be created in the Face Recognition filter with all of the examples you selected. This increases the likelihood of a successful match when applying the filter.
3. Each identity and face is given a 1-3 star ranking. The ranking will be explained in the **Face Recognition Quality** section.
4. Note that the images are blurred in this document to protect the identities of the people. They do not appear blurred in BriefCam.





5. When all selected faces are of different individuals, click the **Add Faces – Multiple Identities** button.



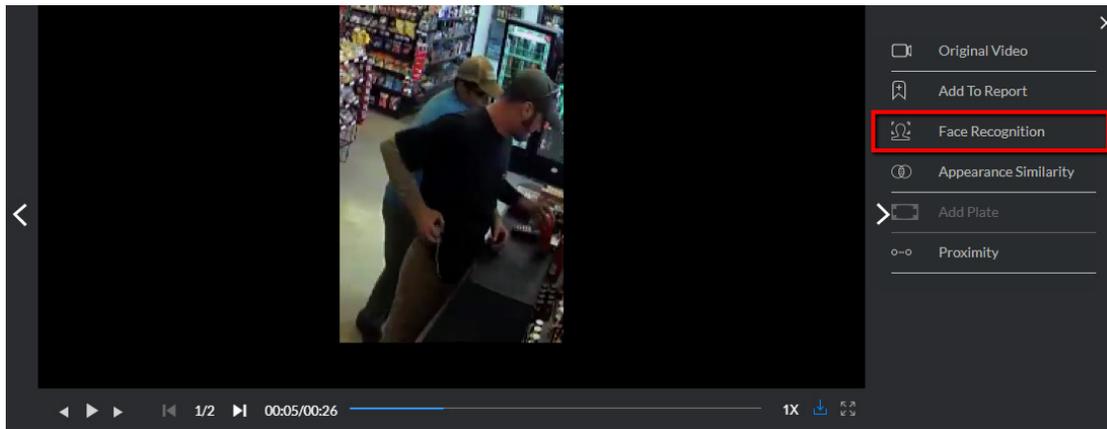
This will add an identity for each of the selected individuals to the Face Recognition filter.



Faces rated with one star will not be added to an identity.

## Thumbnails mode (object pane is open)

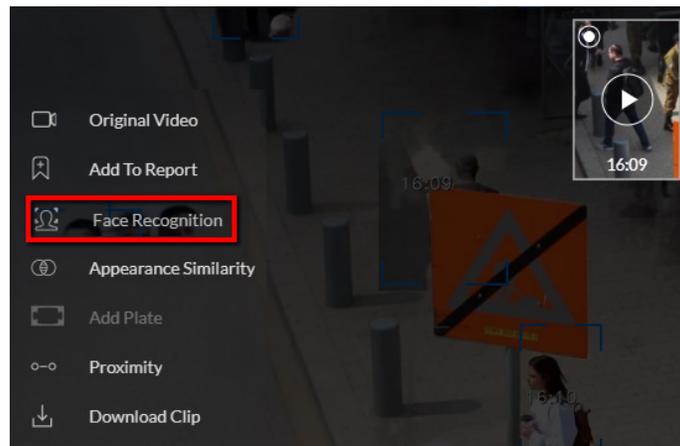
You can also add faces to the Face Recognition filter by clicking on a thumbnail. When the object is open, you can click the **Face Recognition** option (if enabled) to add the face to the filter.



## Synopsis mode

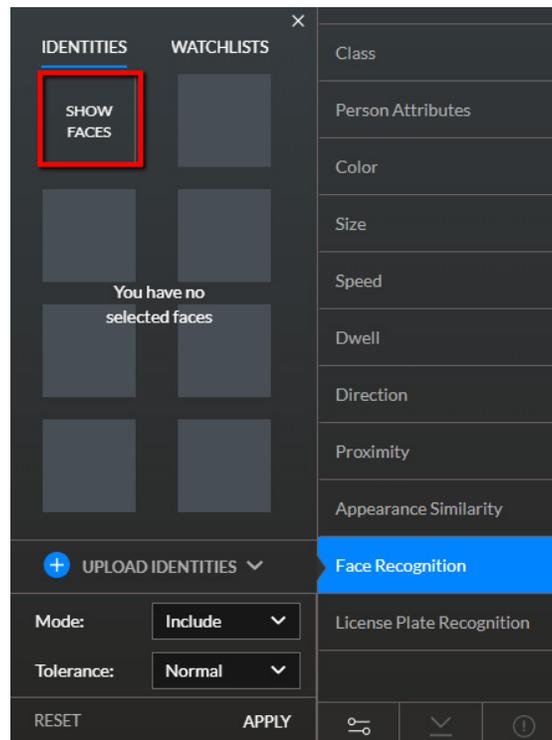
When you click on an object from the VIDEO SYNOPSIS®, you can add an individual by selecting the **Face Recognition** option that appears at the bottom left hand side of the screen.

In this mode, you can only add a single face to the filter at a time.

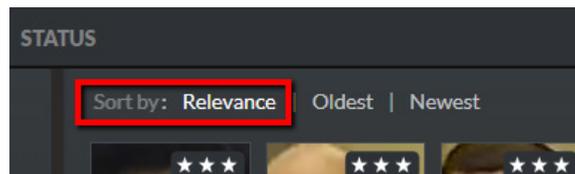


## Filtering with Show Faces Mode

To display all objects identified by BriefCam as faces, click the **Show Faces** button. These are the objects that can be used for **Face Recognition** filtering.



When you click the **Show Faces** button and the Sort by is set to Relevance, the thumbnails will appear with the highest number of stars first (high to low).



The Show Faces mode is optional and contributes to easier visualization of faces in the video (even if you're not going to search for them) and makes it easier to select the faces that are valid for face recognition (2 and 3-star faces).

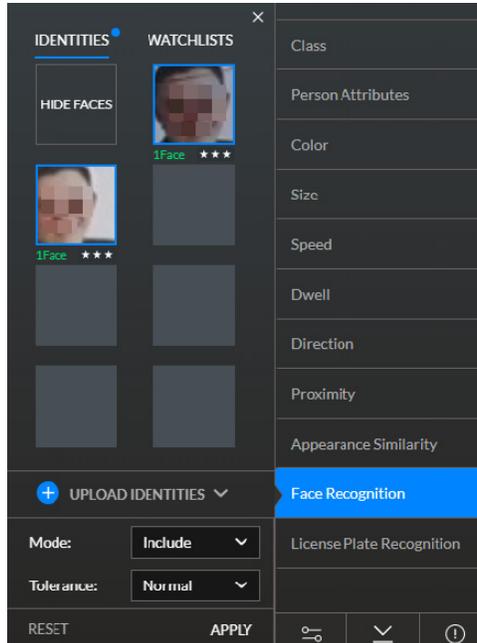
## Searching for Identities

The selected faces will now appear in the **Face Recognition** filter, ready to be searched. In the **Identities** tab, select the faces you'd like to search for and click **Apply** to filter all objects by these faces. All case objects matching the selected identities will appear.

The results are displayed as follows:

- Thumbnails mode – matching objects from all selected sources appear, sorted by relevance by default.

- Synopsis mode – matching objects from the camera appearing in a video synopsis.



In the **Mode** field, you can select between two operation modes:

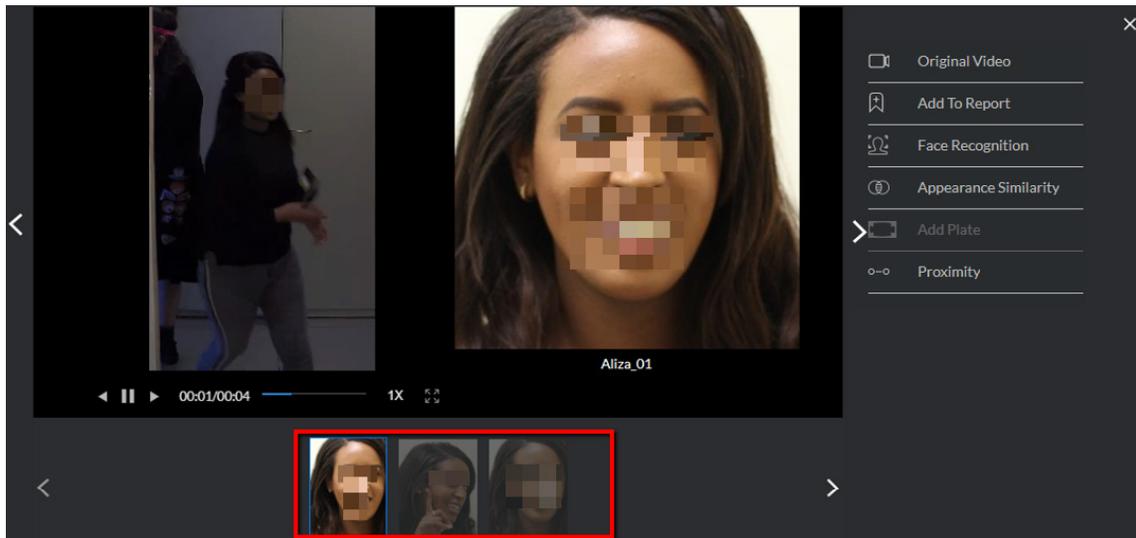
- **Include** (default) – Find all objects that have a recognizable face that matches one or more faces within the selected identities or watchlists.
- **Exclude** – Find all objects that have a recognizable face that matches none of the faces within the selected identities or watchlists.

Scenario with Exclude Option	Triggers an Alert
Faces that are not on the watchlist	√
Faces of low quality that are not compared (1-star faces and 2-star faces in RESPOND normal-sensitivity)	√
Persons without a detected head/face	X

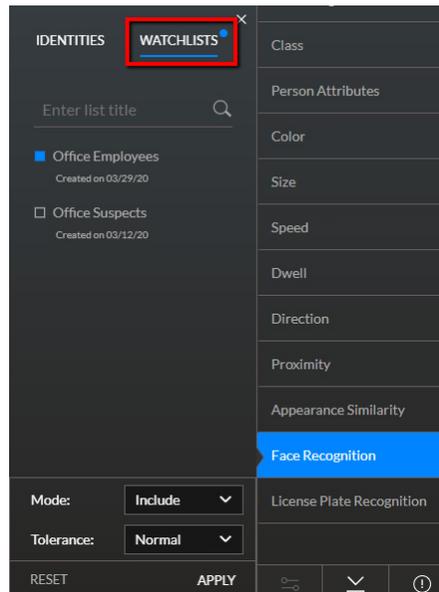
You can hover over an individual face and click its delete (trash can) button to remove it from the filter, click **Reset** to remove all faces, or click the **Hide Faces** button to resume display of all objects (not only recognized faces).

A blue circle will appear to the right of the word **Identities** and/or **Watchlists** when an item in that section is being used in the filter.

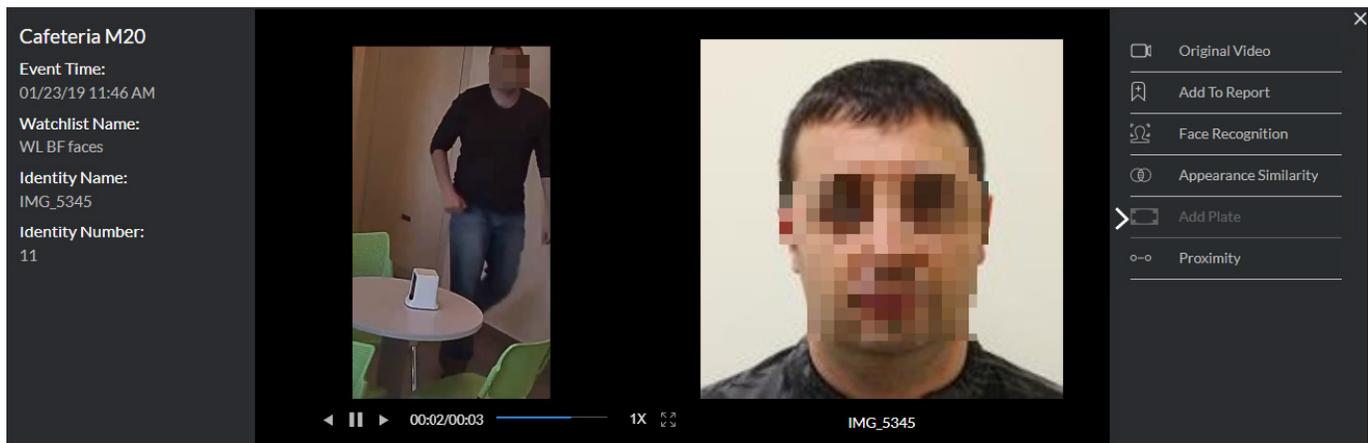
When you search by identities and click **Apply**, the images of the identity will appear under the clip.



When you search by using a watchlist and click **Apply**, the image from the watchlist will appear together with a video clip.



On the left-hand side are details about the event, watchlist and identity. This helps the operator verify that the identity matching was correct.



The screenshot displays the BriefCam interface. On the left, a sidebar contains the following information: "Cafeteria M20", "Event Time: 01/23/19 11:46 AM", "Watchlist Name: WL BF faces", "Identity Name: IMG\_5345", and "Identity Number: 11". The main area features a video player with a play button, a progress bar at 00:02/00:03, and a zoom level of 1X. The video shows a person in a dark shirt and jeans standing in a cafeteria. To the right of the video is a large, semi-transparent face recognition overlay showing a close-up of the person's face with a blurred background. On the far right, a vertical menu includes options: "Original Video", "Add To Report", "Face Recognition", "Appearance Similarity", "Add Plate", and "Proximity".

**Note:** In **Exclude** mode, if faces that are non-matched are found, only the face is displayed (since there is no matched identity).

Watchlists are set in the User Settings and are described in the Watchlists section below.

When searching for identities, faces with a 1-star rating will not be included in the search results and cannot be added to the filter.

## Uploading Identities



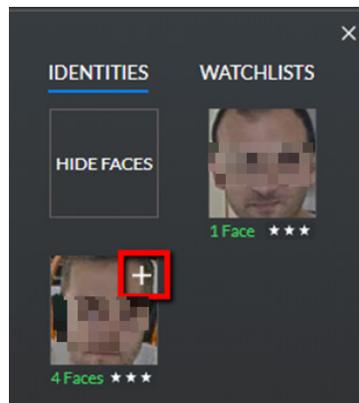
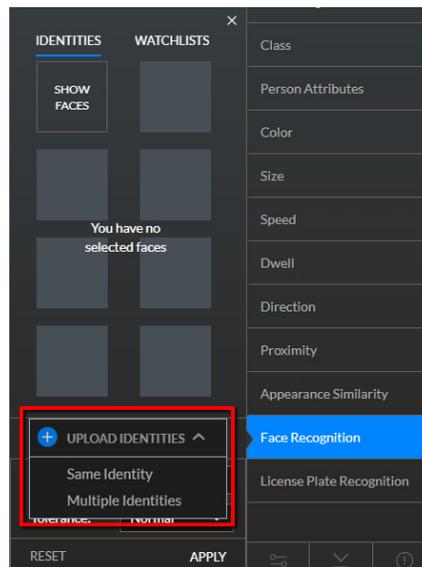
It is recommended to use images where the face is in the center of the image.

It is recommended to upload images with not too much context around the face; the face should not be less than one quarter of the image.

The supported file types for images are .png, .jpg, .gif, .jpeg, and .bmp.

You can upload images of people by clicking the **Upload Identities** button.

Then, select whether you will add images of the same identity or multiple identities.

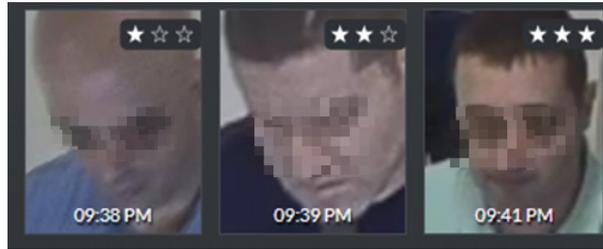


Uploading and managing watchlists is done in the User Settings. For more information, see **Watchlists**.

## Face Recognition Quality

The accuracy of face detection and face similarity search is highly dependent on scene characteristics and video quality.

Each image is assigned one, two or three stars.



The star rating is assigned by BriefCam and is a combination of:

- Face detection
- Face resolution
- Face image quality
- Face landmarks
- Face pose

In general, **1 star** is for faces that are not possible for AI to recognize as a person, **2 stars** is for faces that AI can recognize with medium confidence and **3 stars** is for faces that AI can recognize with high confidence.

In the REVIEW solution, 2-star and 3-star images can be added to the filter. 1-star images cannot be added.

In the RESPOND solution, 3-star images can trigger alerts and 1-star images cannot trigger alerts. By default, 2-star images cannot trigger alerts; however, for high-sensitivity configurations, 2-star images can trigger alerts.

The table below summarizes this:

	REVIEW	RESPOND
1 star	X	X
2 stars	√	X - default √ - high-sensitivity
3 stars	√	√

## License Plate Recognition

You can search for license plates across sources.

It's important to remember that for license plate recognition many factors affect the performance, including camera location and angles (placement), distance of cameras and resolution (pixels), video

quality, lighting, and type of camera. For more information, see the **License Plate Recognition** white paper.

## Selecting Plates

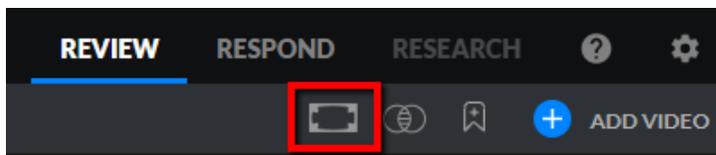
You can select plates either from the object thumbnails or from the synopsis:

### Thumbnails mode

1. When you find the thumbnail with the plate that you want to search for, hover over the thumbnail and click the empty white circle in the left of the object. You can do this for multiple objects (multiple examples of the same plate or multiple plates).



2. Click the **Add Plate** icon at the top right of the screen to add it to the License Plate Recognition filter.



### Thumbnails mode (object pane is open)

You can also add plates to the License Plate Recognition filter by clicking on a thumbnail. When the object is open, you can click the **Add Plate** option (if enabled) to add the plate to the filter.

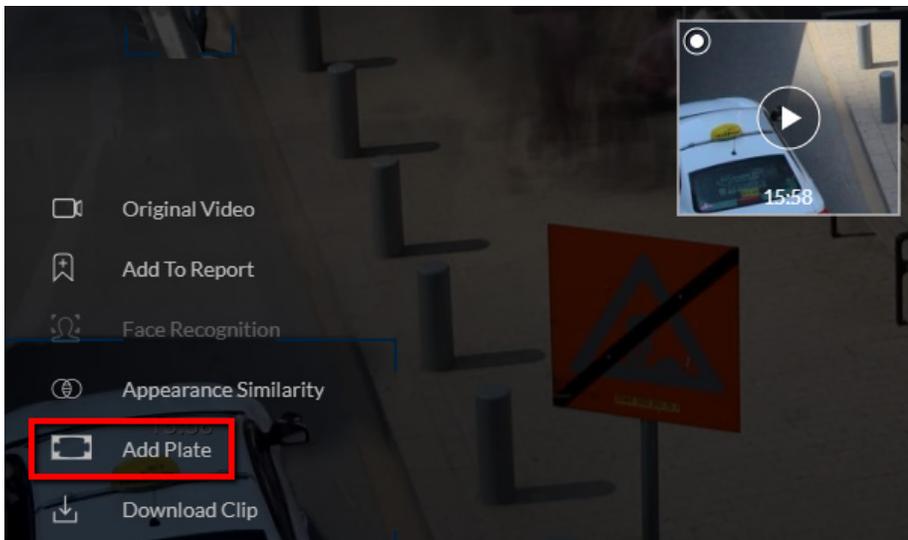
Note that the images are blurred in this document to protect identities. They do not appear blurred in BriefCam.



## Synopsis mode

When you click on an object from the VIDEO SYNOPSIS®, you can add a vehicle by selecting the **Add Plate** option that appears at the bottom left hand side of the screen.

In this mode, you can only add a single plate to the filter at a time.



## Filtering with Show Plates Mode

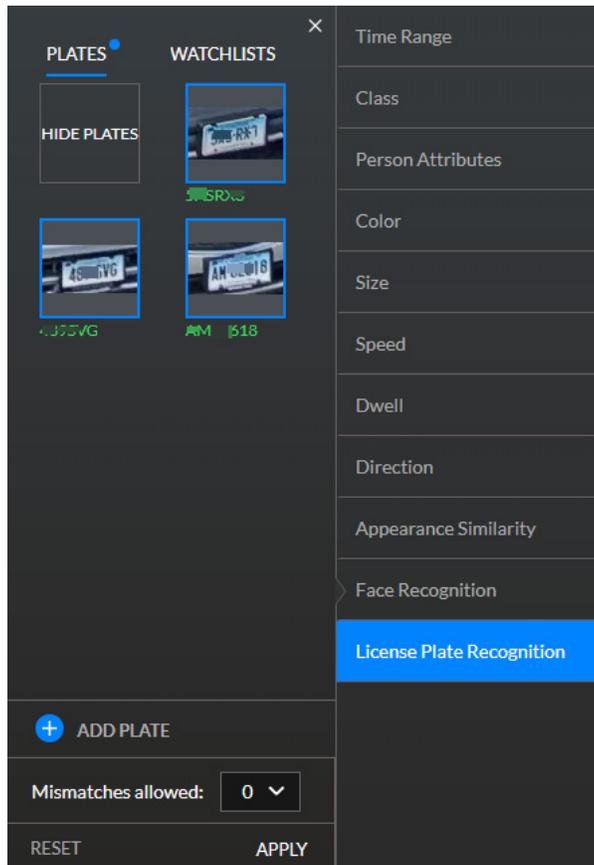
To display the plates of all objects identified by BriefCam as having license plates, click the **Show Plates** button.

These are the objects that can be used for **License Plate Recognition** filtering.

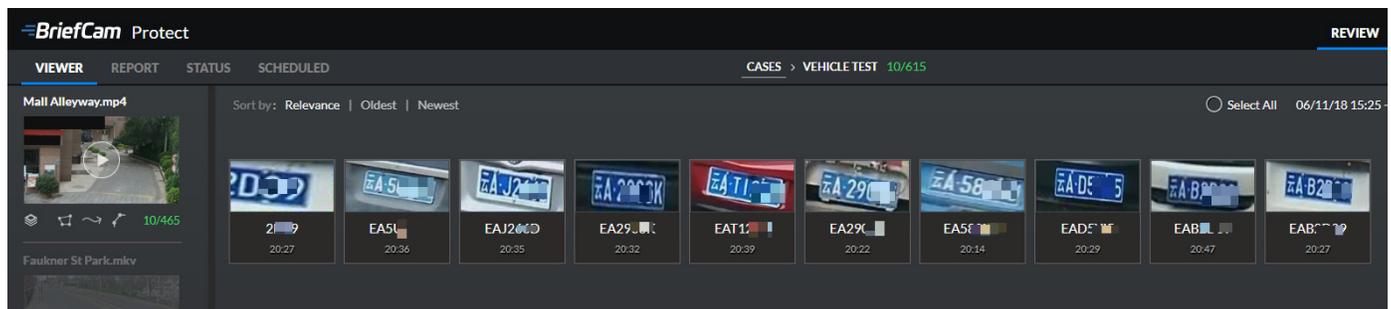
The Show Plates mode is optional and contributes to easier visualization of license plates in the video and manual verification of the automatic plate transcription.

## Searching for License Plates

The selected license plates will now appear in the **License Plate Recognition** filter, ready to be searched by.



In the **Plates** tab, select the license plates you want to search for and click **Apply** to filter all objects by these license plates.

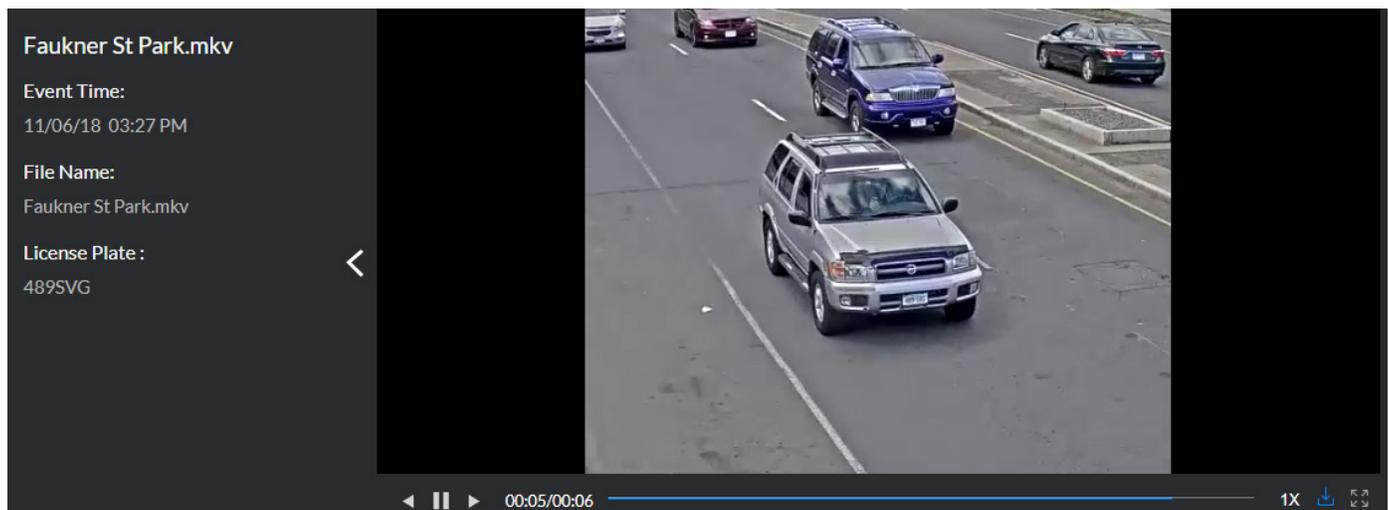


You can hover over an individual license plate appearing in the License Plate Recognition filter and click its delete (trash can) button to remove it from the filter, click **Reset** to remove all license plates, or click the **Hide Plates** button to resume display of all objects (not only recognized license plates).

In the **Mismatches allowed** drop-down list, you can select whether to allow between 0 and 8 mismatched characters in the search. For example, if you select 0, only perfect matches will be displayed. If you select 2, plates with 2 mismatches or less will be displayed.

A blue circle will appear to the right of the word **Plates** and/or **Watchlists** when an item in that section is being used in the filter.

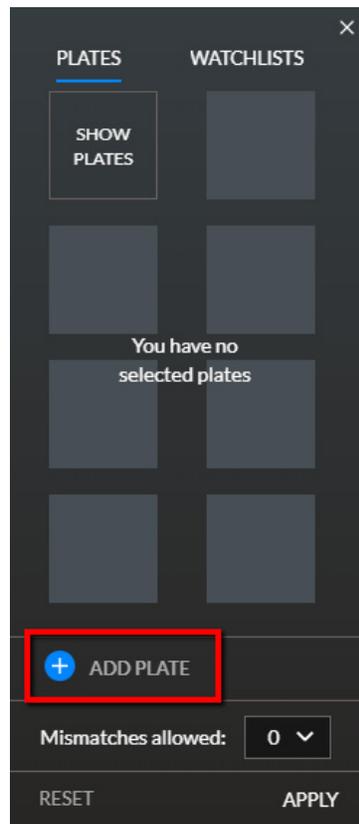
On the left-hand side are details about the event and license plate. This helps the operator verify that the automatic license plate transcription was correct.



Watchlists are set in the User Settings and are described in the Watchlists section below.

## Uploading License Plates

You can add license plate text manually by clicking the **Add Plate** button.



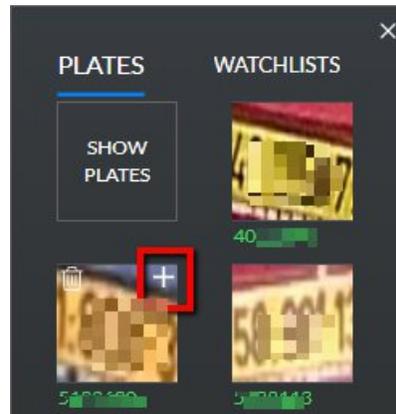
The string can be 4-10 characters long, or 2-10 characters long with an asterisk (\*) as a wildcard (asterisks can be used at the beginning or end of the string), and question marks (?) throughout.

When you type in a lower-case letter, it will be automatically converted to an upper-case letter. If you enter a hyphen (-), it will be omitted.

### Adding a License Plate from the Filter to a Watchlist

To add a license plate to a watchlist, click on the + sign on the top right of the image and then select what list to add the license plate to.

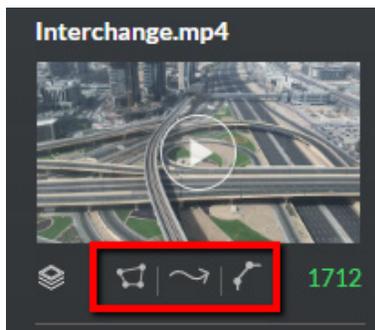
**Note:** You can make license plates available to other cases by adding license plates to watchlists and then selecting the watchlist from the other case.



Creating, uploading and managing watchlists is done in the User Settings. For more information, see **Watchlists**.

## Video Source-specific Area, Path and Line Crossing Filters

Click the **Area**, **Path** or **Line Crossing** icons underneath an individual video synopsis to filter its objects by areas of interest, paths or line crossings.



The **Area**, **Path** and **Line Crossing** filters are specific to a single video source, whereas the global filters apply to all videos in a case.

### Area Filters

**Area** filters can be applied to include or exclude objects detected within one or more user-defined three- or four-sided polygonal areas.

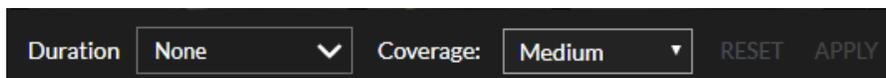
To find objects in an area, also known as **areas of interest (AOI)**, click the triangle  icon at the bottom left of the screen to create a three-sided area. Click the square  icon to create a four-sided area (this is the default). You can add up to 10 areas.

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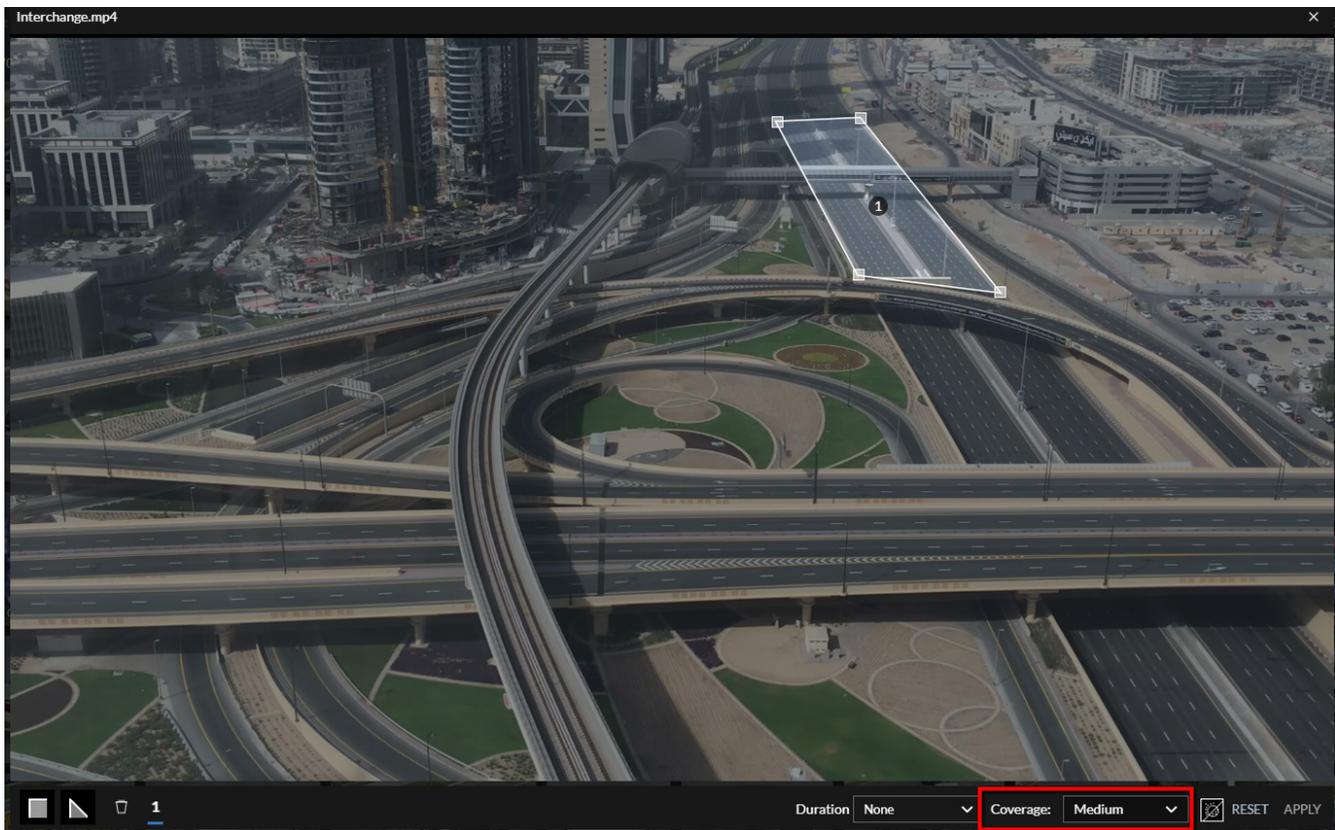
To exclude an area from the search, also known as **areas of exclusion (AOE)**, after drawing the area, click the **Invert Selection**  icon. Any objects that appear in the excluded area will not be shown. At the bottom of the screen, a number will appear representing each of the areas. The highlighted area will have a blue line under the number.



You can set the minimum **Duration** the object must spend inside the Area.



**Coverage** tolerance settings (low, medium and high) can also be applied to areas of interest (AOI), as shown in the image below, and areas of exclusion (AOE).



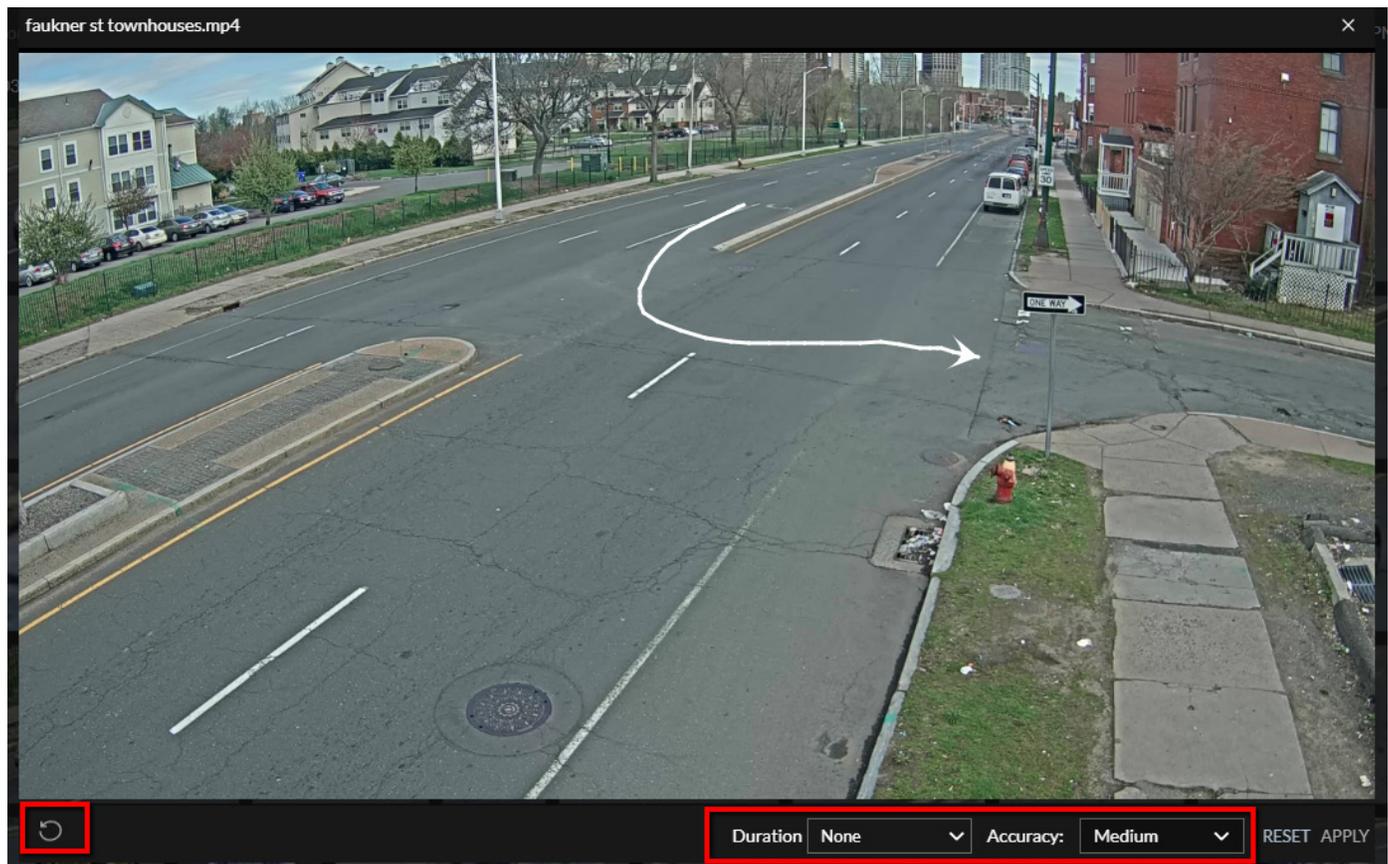
## Path Filters

Using the **Path** filter you can draw freeform paths to detect objects whose lower part (legs, wheels) traveled along those paths. BriefCam takes into account the bottom part of the object for the **Path** filter and not the object's center. Both overall and synopsis-specific object counts will update accordingly.

You can set the minimum **Duration** the object spends on the drawn Path.

By default, **Accuracy** is set to **Medium**. Choosing the **High** accuracy level will result in only events closely adhering to the drawn path being filtered, whereas a **Low** accuracy setting will result in the inclusion of additional events that only loosely follow the defined path.

You can undo the last path that you drew by clicking the Undo icon (🔄).



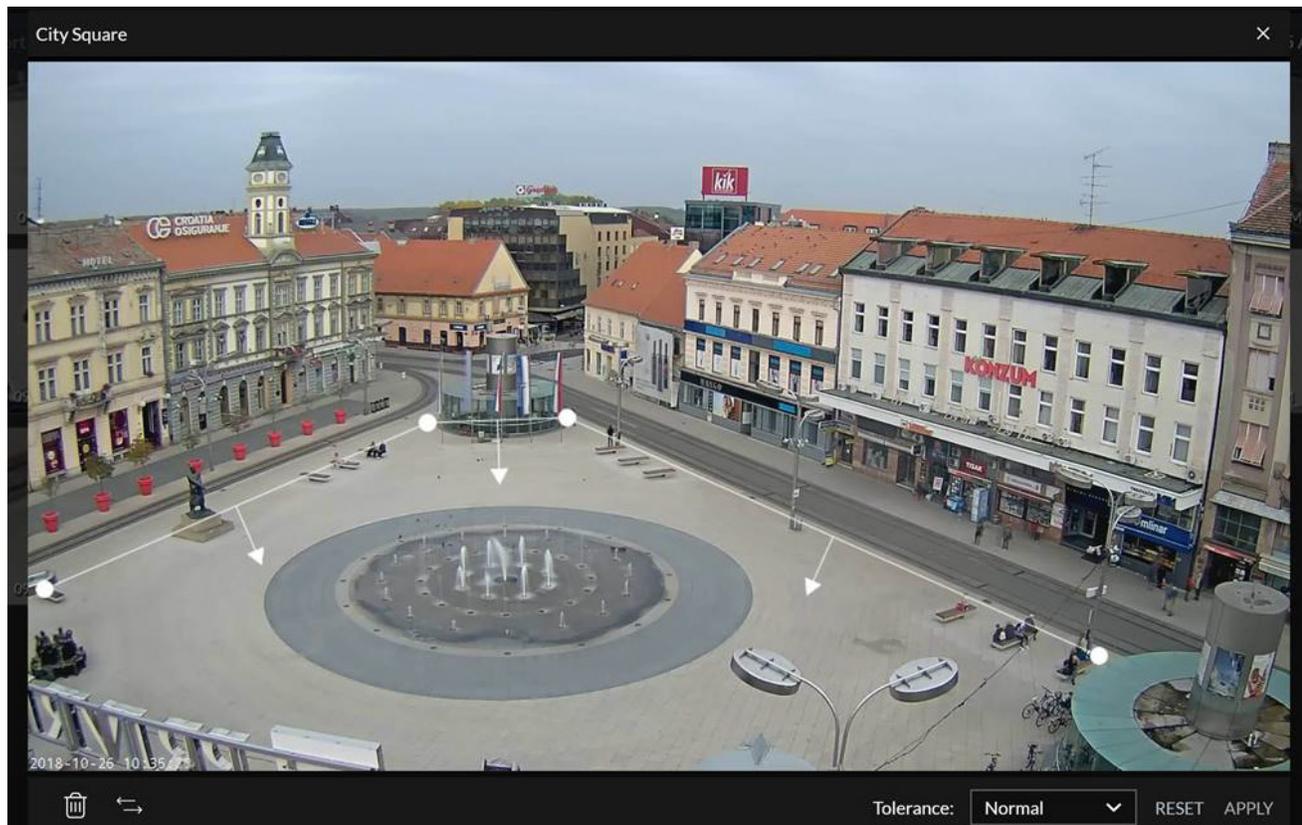
## Line Crossing Filters

Using the **Line Crossing** filter, you can detect, filter and count objects that cross a marked line in a certain direction for perimeter protection and directional object count.

To draw a line:

1. Click the Line Crossing icon (📍) and click on the screen where you want the line to begin. A dot will appear in that location.
2. Click in a second location and a line will appear between the two dots.
3. You can place up to 9 points (dots).

For example, in the image below lines were drawn to find objects that entered the city square.



To select or move a point, click on the point. To move a point, drag it to its new location.

To delete a point, click on the point and then click the trash can (🗑️) icon.

The direction of the line crossing will be the same in all line segments. To switch directions, click the switch direction (↔️) icon to switch the direction of all the segments.

You can use the **Tolerance** field to fine-tune your search. The tolerance affects which points in the bounding box interact with the line:

- Strict – Search for objects where two points of the bounding box (5% from the bottom and 30% inwards from each side) cross the line.

- Normal – Search for objects where one of the two points of the bounding box (5% from the bottom and 30% inwards from each side) crosses the line.
- Loose – Search for objects where any of four points at the corners of the bounding box crosses the line.

## Filter Tolerance Adjustment

The class, attributes, color, dwell time, direction, area, path and face and appearance similarity filters are all configured with default tolerance levels.

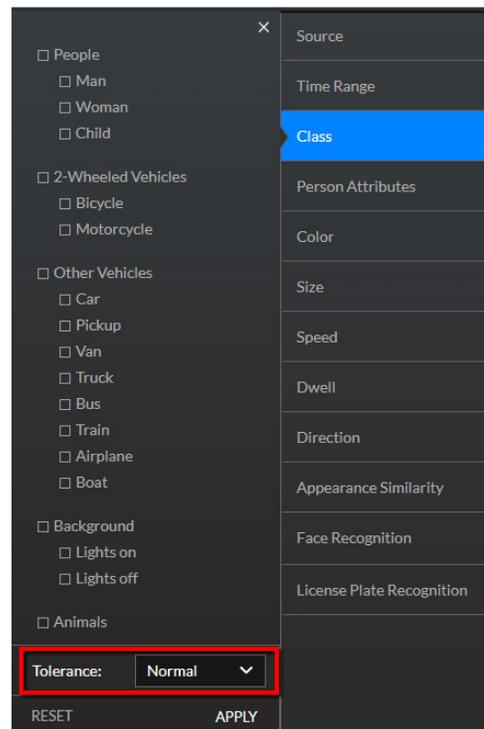
## Class, Dwell, Person Attributes, Face Recognition and Appearance Similarity Tolerance

When you open the **Class, Dwell, Person Attributes, Face Recognition** or **Appearance Similarity** filters, you can adjust the **Tolerance** level.

Using the **Tolerance** field, you can set the level of precision and recall.

**Precision** measures how accurate the results are. It is the number of correct results divided by the total number of returned results.

**Recall** measures how complete the results are. It is the number of correct results returned divided by the number of all correct results.



The available values for the **Tolerance** field are:

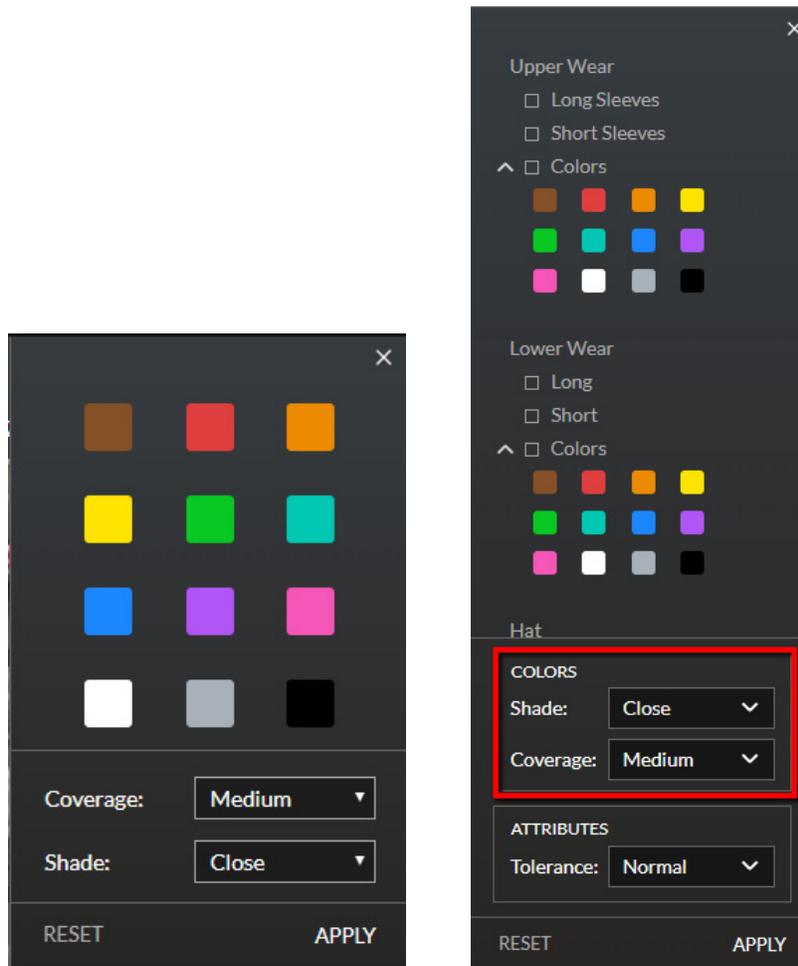
- **Strict** – With this tolerance level, there is high precision and low recall. This means that you will see mainly thumbnails of the same matching object. However, false positives might be received, but less than with the Normal tolerance level, and some of the correct matches might be missed.
- **Normal** (default) – With this tolerance level you will see the majority of the appearances of the same object, but you may also see a few wrong matches.

- **Loose** – With this tolerance level, there is low precision and high recall. This means that you will see all thumbnails of the same object, but you will also see wrong matches.

As the number of objects in the case grows, the number of false matches will increase.

## Color Tolerance

The **Color** filter control and the colors for **Upper/Lower Wear** can be fine-tuned using the **Coverage** and **Shade** tolerance settings.



Use the **Coverage** filter (low, medium, or high) to set how much of the object needs to match the selected color in order to be considered a match and to be displayed. If, for example, you are looking for a car that is almost completely blue, then setting the **Coverage** to **High** would probably give you the most accurate results. This is because objects with a small amount of blue will not appear.

Use the **Shade** filter (approximate, close, or precise) to set how flexible the filter should be in terms of the shade of an item. You are setting here how far the tone of the color can be from the selected color to be considered a match.

If you are looking, for example, for a person with pink hair, select the Upper Wear attribute and the pink color. You can also try searching for the pink color in the Color filter) and set the **Coverage** to **Low**, since the hair of a person usually covers only a small portion of the image, and set the **Shade** to **Approximate**, since the hair might not be exactly pink, but a lighter or darker shade of pink.

If you are looking for a green hat, select the green color and set the **Coverage** to **Low**.

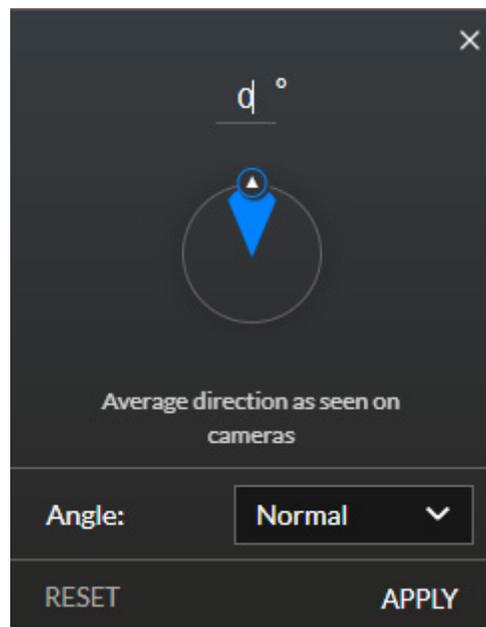
These types of results are easier to achieve when using colors that normally would not appear, such as green, yellow and red. Doing this type of search for white, for example, would be less successful, since white and black are very dominant colors.

Regarding colors and vehicles, shades can be used, but for blue and black, shade does not work well because of windows and shadows tend to be bluish or black.

**Note:** Different cameras and different angles can produce slightly different tones than a human perceives. This may affect color filtering across cameras or across different times of the day.

## Direction Tolerance

For the **Direction** filter, the default tolerance setting under **Angle** is **Normal**, as shown below.



To assure the strictest adherence to the selected direction, click the **Angle** drop down list to change it to **Narrow**. You can alternatively change the setting to **Wide**. You can also enter the degrees for the angle.

## Filter Presets

You can apply any combination of global and source-specific (**Area** and **Path**) filters to case objects. Once you have done this, you can use the three filter preset buttons that are located at the bottom right of the screen – **Save Preset**, **Preset List**, and **Reset Filters** – to store and retrieve these filter combinations as presets or to reset them.



## Visual Layers

The Visual Layers control () provides users with visibility into statistical visual analysis of object activity and dwell areas and popular event paths in a synopsis. Visual layers can be created per specific search criteria. The visual layers are available for viewing only after synopsis processing is complete. Clicking the control reveals a menu enabling you to select the desired visual layer (see below).

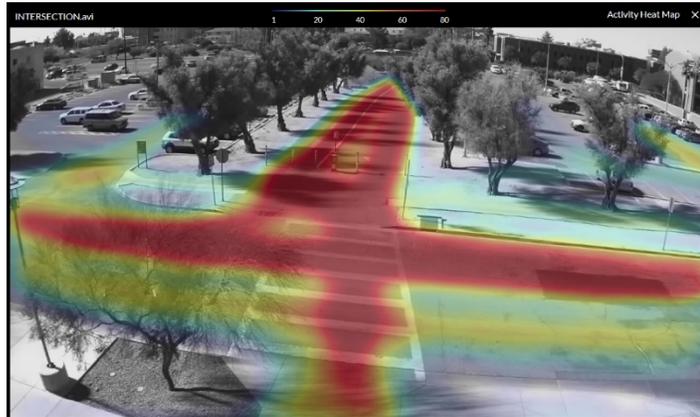


For each visual layer, clicking the close icon () closes the visual layer, and resumes the event thumbnail view.

You can also click the full screen icon () from any of the visual layers.

## Activity Heat Map

Click the **Activity** icon () on the visual layer menu to superimpose an activity heat map layer, which highlights areas in which increased event movement has been detected (see below).



The activity heat map legend (  ) available at the top of the synopsis playback window indicates the number of detected objects associated with each of the various heat map colors.

## Dwell Heat Map

Click the **Dwell** icon (  ) on the visual layer menu to superimpose a dwell heat map layer highlighting area, in which events lingered for extended periods of time (see below). The minimum time an object needs to dwell in order to appear in the Dwell heat map layer is 10 seconds.



The dwell heat map legend (  ) available at the top of the synopsis playback window indicates the number of detected objects having dwelled at the highlighted areas.

## Common Paths Visual Layer

Click the **Paths** icon (  ) on the visual layer menu to superimpose a common paths layer, which highlights the paths most commonly taken by objects detected in the video (see below).



The common paths legend (  ) available at the top of the synopsis playback window indicates the number of detected events having followed the paths indicated via the different colors.

## Background Changes Layer

Click the **Background Changes** icon (  ) on the visual layer menu to see where changes occurred in the background.

This visual layer can be used to understand which items were interacted with more than others, and which objects haven't moved at all. This is useful to see places where changes in the scene have taken place – such as static objects that have been moved around (e.g. the popular items on display at a store, and parked cars that have moved).

Note that camera movements and severe lighting changes may also reflect as background changes, although no item interactions occurred.



The objects circled in red are objects that did not move for a long time. This is a side effect of the background changes feature.

## Adding a Visual Layer to a Report or Exporting an Image

You can add Visual Layer images to case report or export a still image.



Click the **Add to Report** button (🔖) and enter title and description.

Click the **Export** button (📄) to export and download a .PNG image file with the filtered visual layer.

### Note:

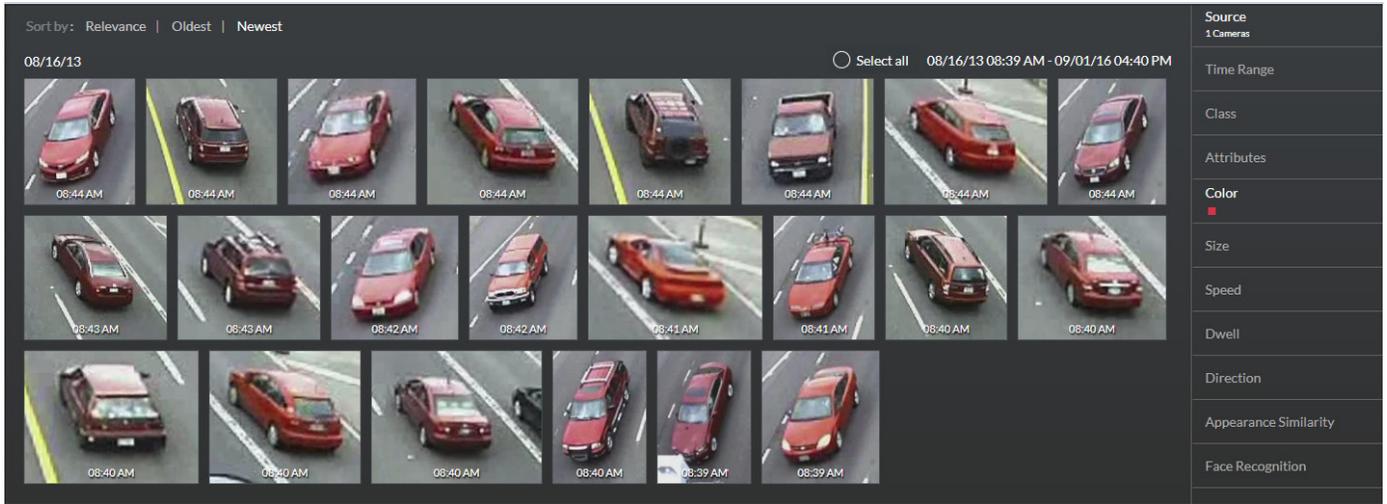
Visual layers can be created per specific search criteria. For example, when a user refines the search and filters for bicycle, the generated visual layer will be created according to the filtered objects (see image below).



## Object Thumbnail Sorting

Thumbnails are sorted chronologically by default, and by relevance when filters are applied.

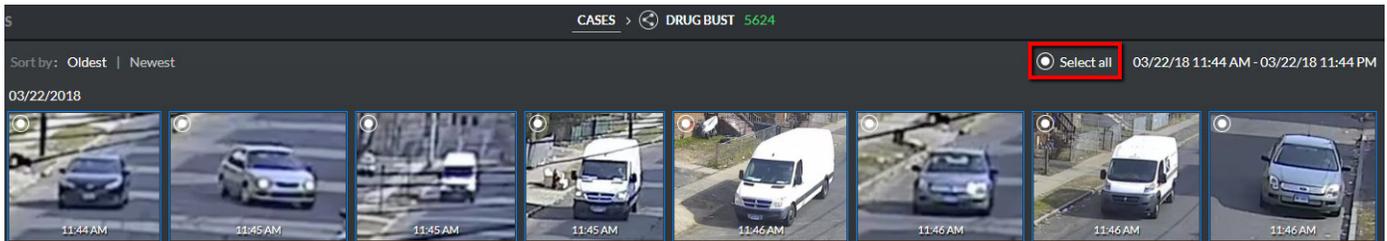
However, sorting by time (oldest to newest and vice versa) is also available.



## Select All

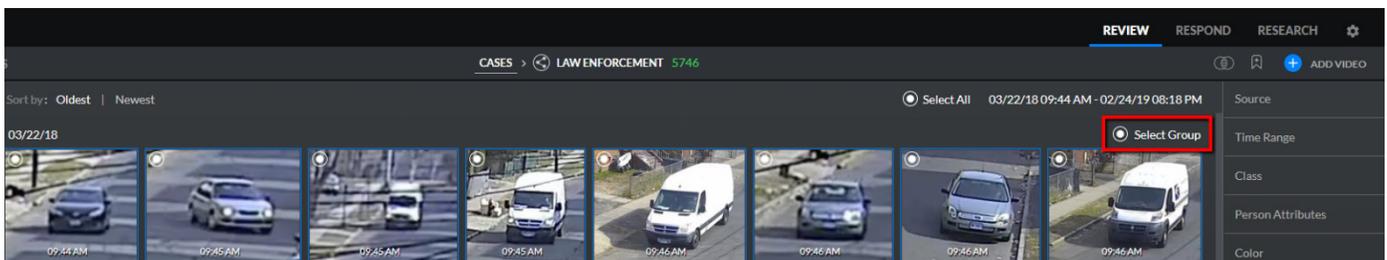
The **Select all** option selects all displayed objects. Once selected, you can perform various options, including adding an image to the face filter, the similarity filter or to a report.

If you click the **Select all** option again, newly displayed objects will be selected. If there are no newly displayed objects, then all thumbnails will be deselected.



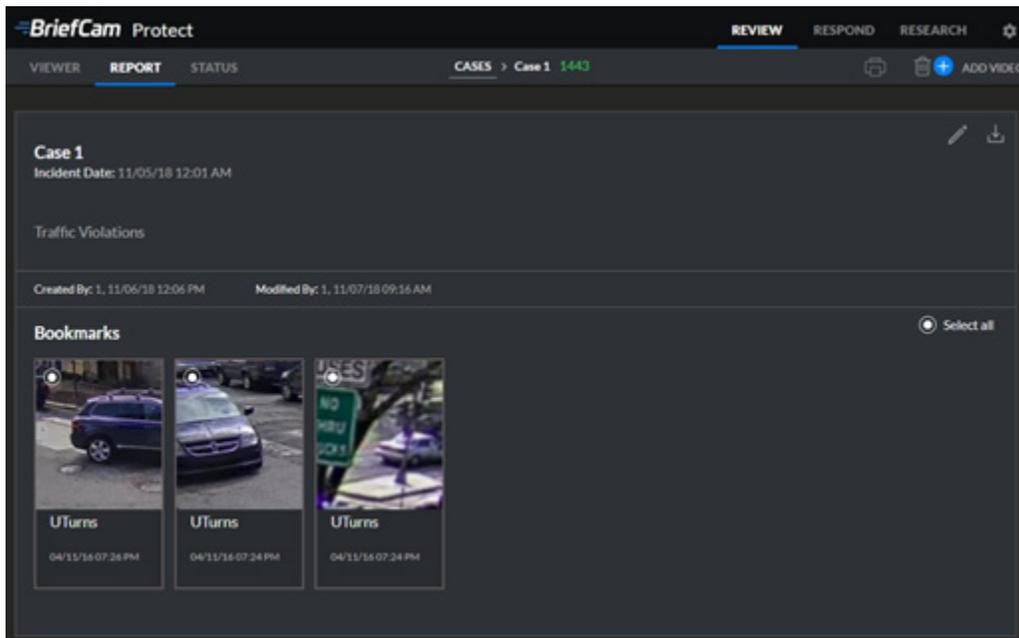
## Select Group

When one object is selected, you can select the **Select group** option to select all objects in that group (same camera or same date).

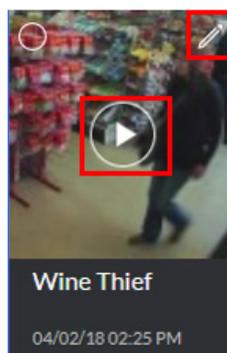


## Report Tab

Case findings can be summarized in concise reports with all relevant exhibits. To view reports, access the REVIEW solution's **Report** tab.



Reports feature a case title and description as well as bookmark thumbnails for all objects and visual layer images added via the **Add to Report** button () , each with a title and description (entered when adding objects to the report on the **Viewer** tab). Hover over bookmark thumbnails to reveal the selection, editing and playback buttons.



Clicking the playback button will allow you to view the original video featuring the relevant object.

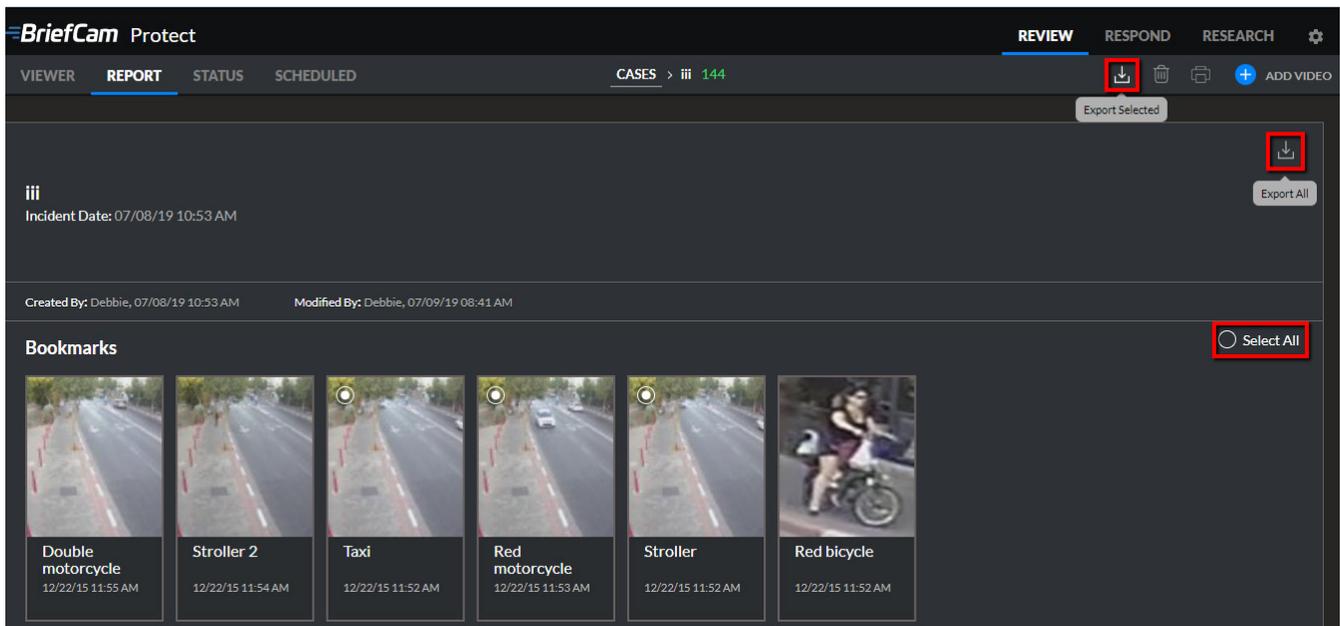
When hovering over the bookmark, you can then click the edit icon () to edit a bookmark's title and description.

You can export bookmarks by selecting one or more bookmarks or by selecting the **Select all** option, then clicking the export icon (📄) on the right-hand side of the **Report** tab. You need to click this icon twice. The first time it is clicked, BriefCam prepares the report. When the icon turns to a blue color (📄), click it again and the report will be downloaded.

You can also export only the selected bookmarks by clicking the export icon next to the delete icon.

When an object is exported, a zip file will be created containing the selected objects' original video, close-up clip and thumbnail. When a visual layer is exported, a zip file is created containing a jpg of the visual layer.

You can delete bookmarks by selecting one or more bookmarks for deletion, then clicking the trash can icon (🗑️) in the top right-hand corner of the **Report** tab to delete all selected bookmarks.



## Status Tab

To view the VIDEO SYNOPSIS<sup>®</sup> processing status, access the REVIEW solution's **Status** tab.

Date Added	Camera/File	Status	Time Range	Actions
09/26/19 08:12 PM	Ashley and Sigourney.mkv	✓ Success	03/22/18 12:35 PM - 03/22/18 04:35 PM	
09/26/19 07:46 PM	Bedford Mall.mkv	✓ Success	03/22/18 01:07 PM - 03/22/18 02:07 PM	

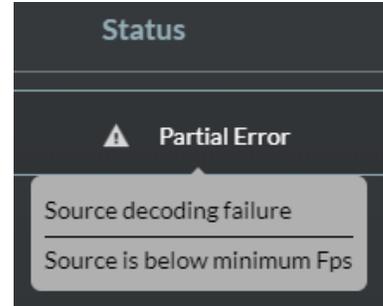
Each video added will appear here, along with the date on which it was added to the case, its source file or source camera, its video synopsis processing status, and the time range selected for its video synopsis.

Video synopsis processing status indications include the following:

**Processing** – video synopsis processing is in progress.

**Success** – video synopsis processing has been completed and the synopsis is ready.

**Error (or Partial Error)** – video synopsis processing has failed (due to server connection failure, lack of recordings on VMS, video fetch failures, etc.).

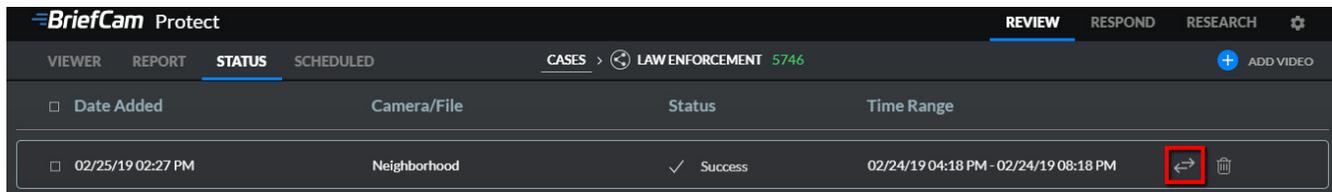


You can hover over the status for more information about the error.

Clicking the **Retry** button () , which is presented when videos have failed either partially or completely, will trigger a new attempt to process the failed videos.

**No Objects** – video synopsis processing has completed, and no objects have been detected.

Sources can easily be moved between cases by going to the case’s Review > Status tab, hovering over the relevant row and clicking the **Move request** icon .

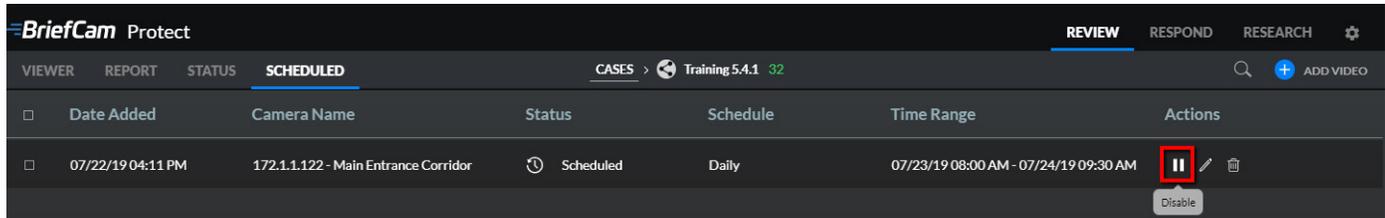


## Scheduled Tab

The **Scheduled** tab displays all scheduled REVIEW sources.

When hovering over a schedule, you can click the edit icon () to edit the schedule. Changes will apply from the time of the change forward. Past runs are not deleted.

The disable scheduling icon will prevent any future run of the source. It will not delete past runs.

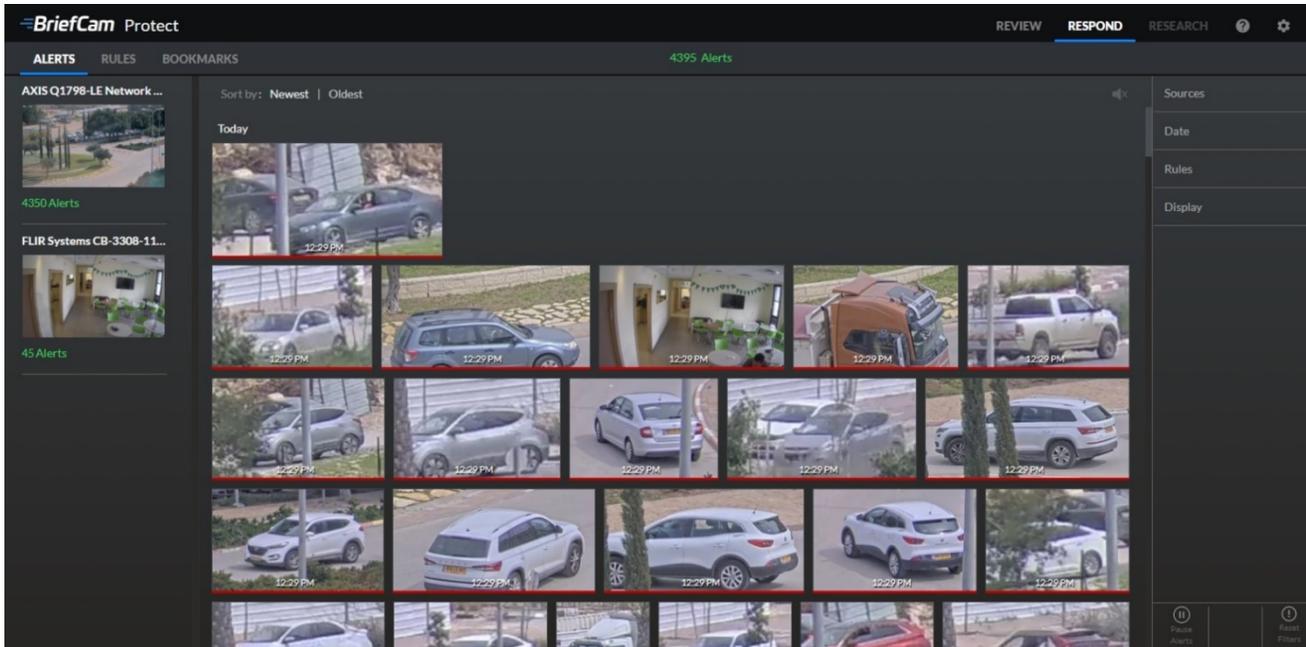


Each scheduled source represents the scheduling and not an actual run of the source.

## The RESPOND Solution

BriefCam’s RESPOND solution helps you receive smart alerts and real-time alerts of critical events and increase safety and security with proactive responses.

To use the solution, access the BriefCam Web interface’s Respond tab.



The RESPOND solution features three tabs:

- **Alerts** – displays thumbnails of objects that have triggered alerts.
- **Rules** – enables definition of alert-triggering rules.
- **Bookmarks** – contains alerts bookmarked by the user.

## The Rules Tab

The RESPOND solution’s **Rules** tab displays a searchable list of defined rules that trigger alerts when events captured by specific cameras match predefined filter conditions. This list will be empty if no rules have been added.

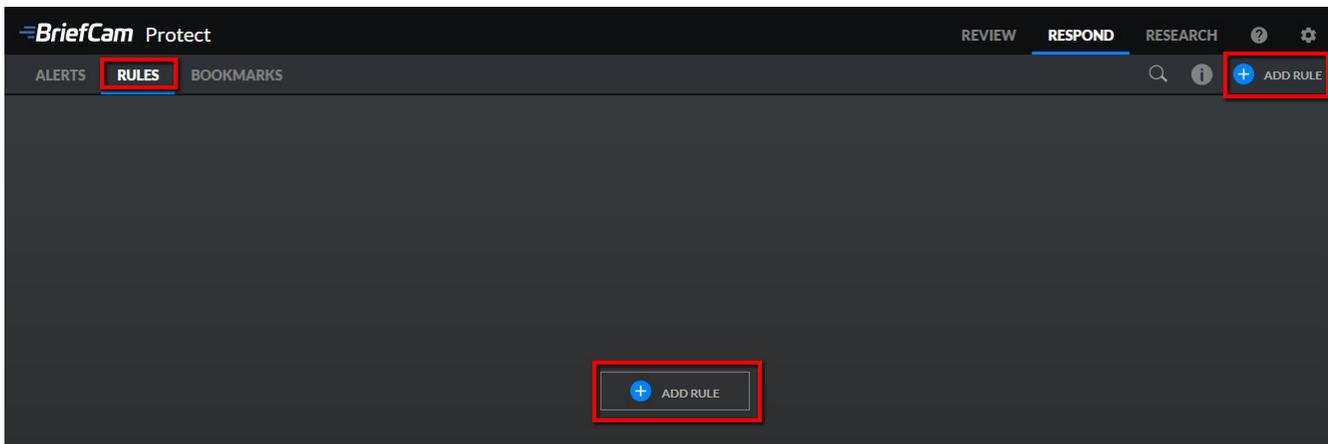
<input type="checkbox"/>	Title	Camera Name	Camera Image	Created	Rule Type	Status	Schedule	Actions
<input type="checkbox"/>	daily 3h	Network Camera		01/15/20 02:13 PM	Smart Alerts	Disabled	Continuous	
<input type="checkbox"/>	daily 2h	West Corridor		01/15/20 02:13 PM	Smart Alerts	Active (Processing)	Continuous	



RESPOND rules are only possible to set if there are available RESPOND licenses (which also signify the available number of real-time GPU workers). For scheduled RESPOND rules, different rules and cameras can consume the same license as long as they don't overlap in time. For example, a new rule can be set if there are available licenses at the desired schedule.

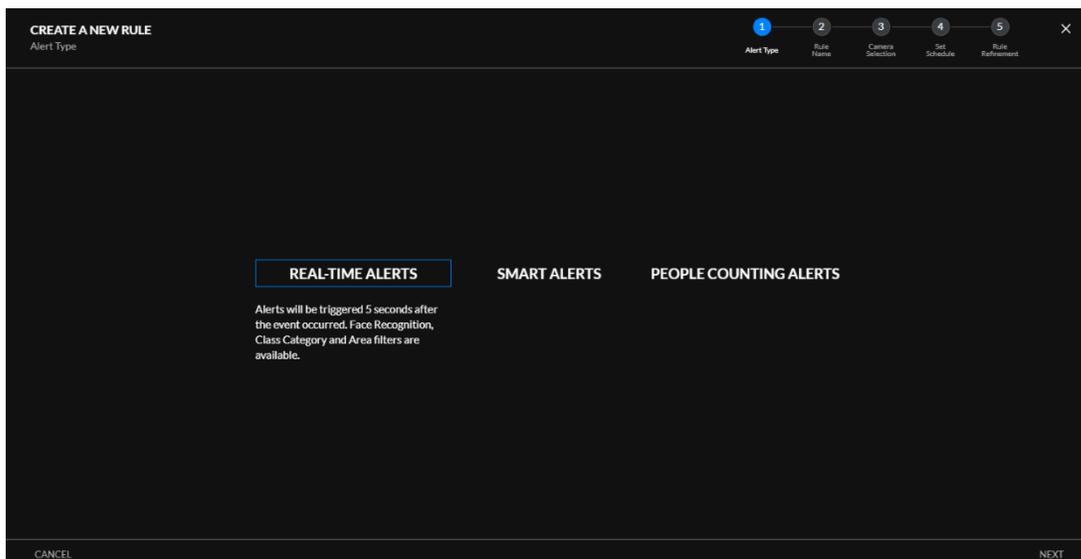
## Creating a New Rule

To create a new rule that will trigger an alert, in the **Rules** tab, click the **Add Rule** option.

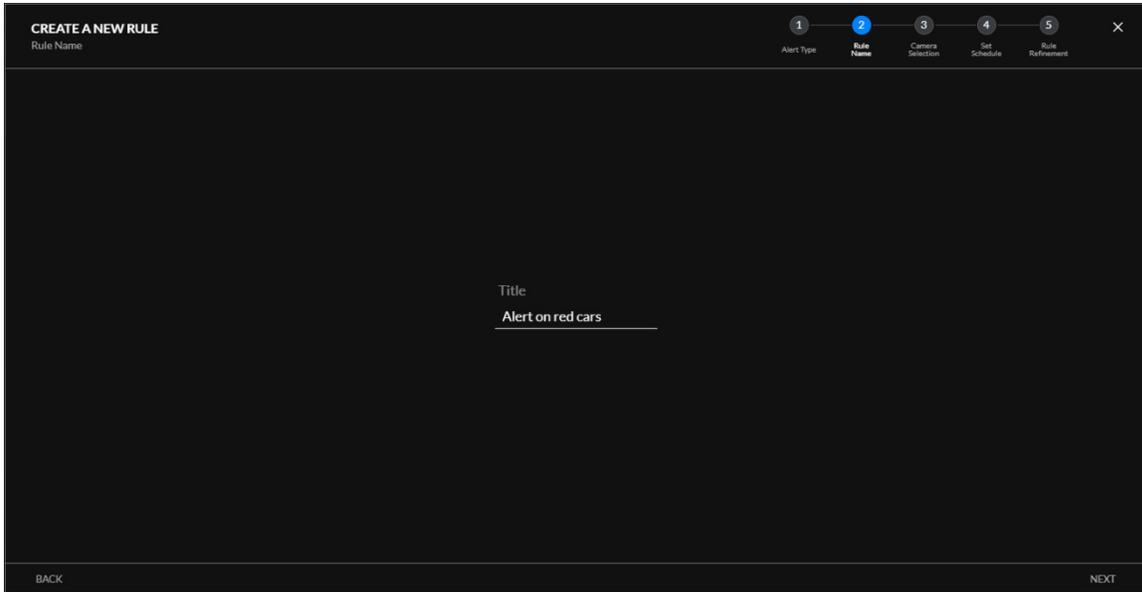


In the screen, select either **Smart Alerts**, **Real-Time Alerts** or **People Counting Alerts**.

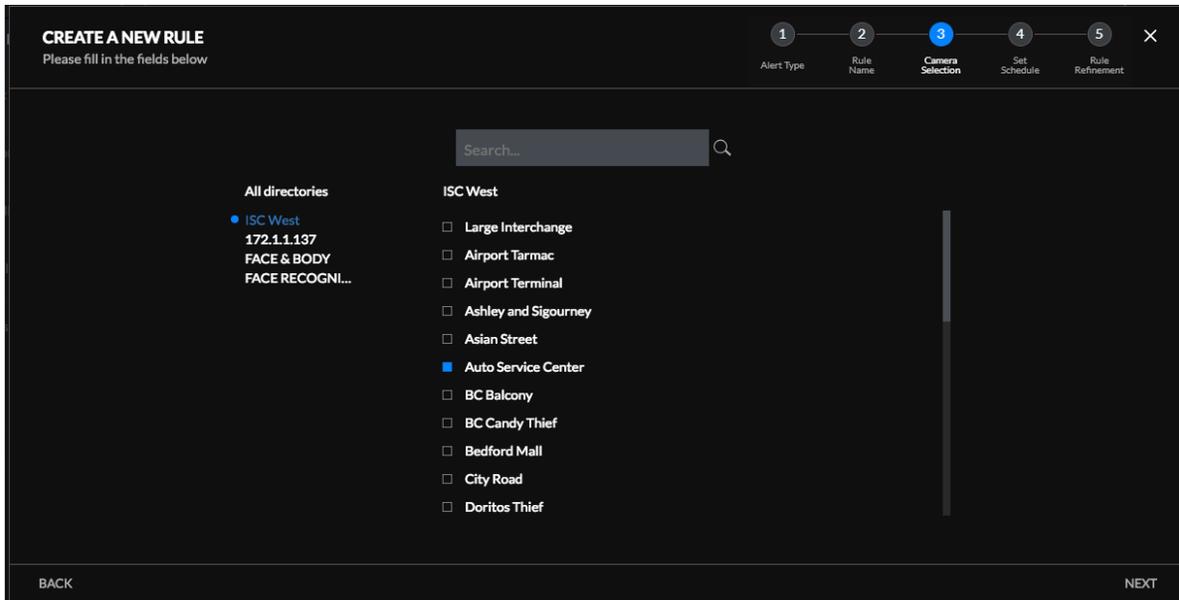
Once you select the type of alert that you want to set up, click **Next**.



In the screen that opens, specify a name for the rule, then click **Next**.

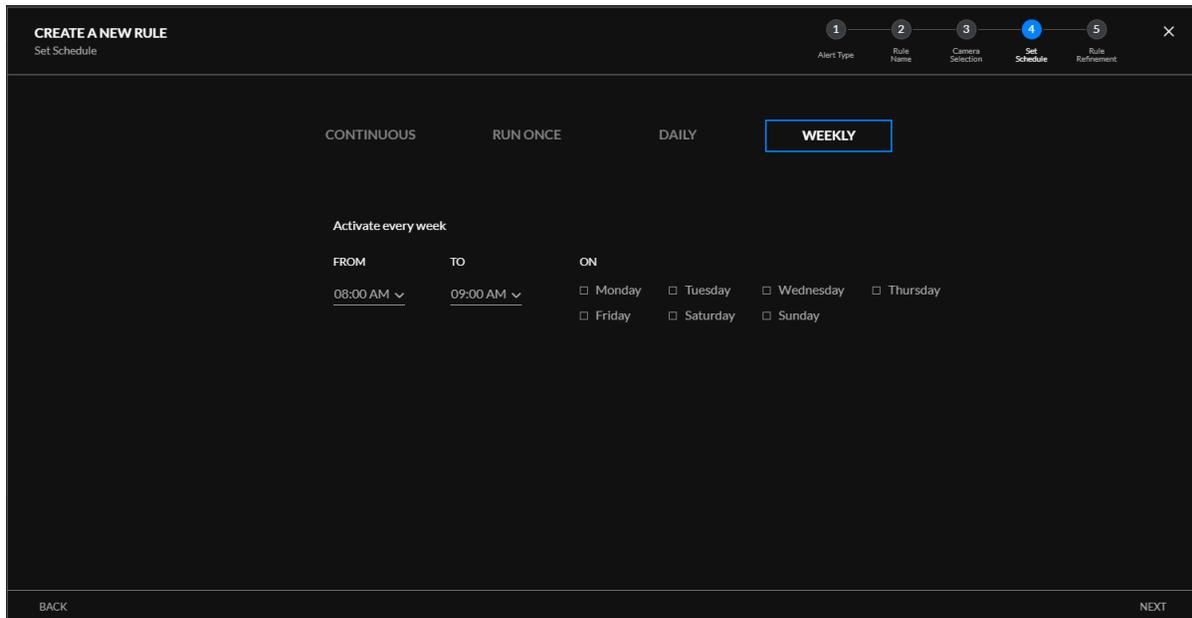


Select the desired source camera from the list and click **Next**.

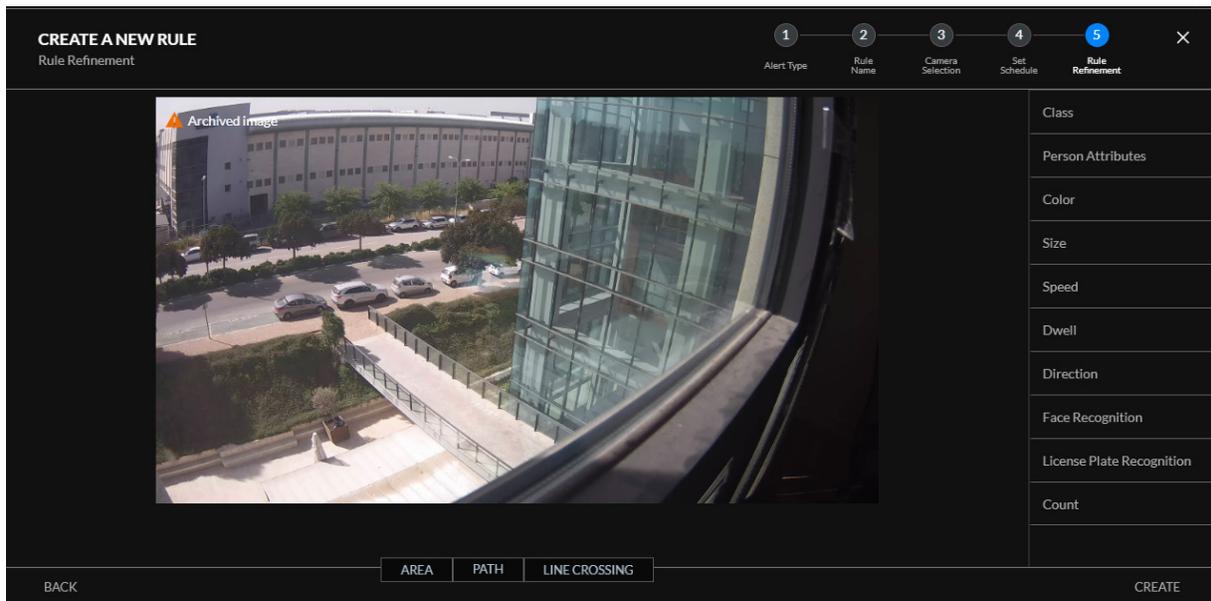


Set a schedule for the rule: **Continuous**, **Run Once**, **Daily** or **Weekly** and then click **Next**.

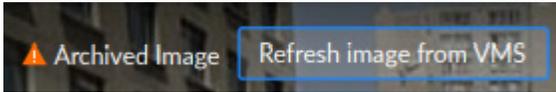
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Apply any desired filters.

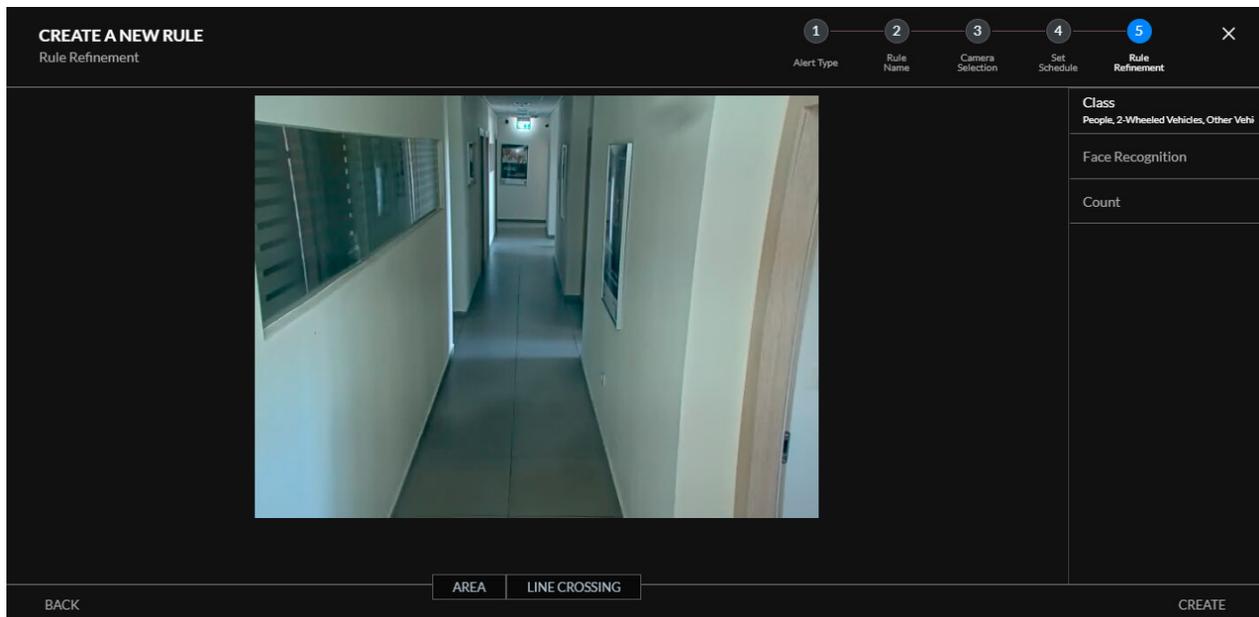


Notice that the image that is displayed is an archived image (as shown in the top left corner of the image). The archive image is displayed because getting a fresh image from the camera might take some time due to the VMS. When there is a newer image available, you can click on the **Refresh image from VMS** button also in the top left corner. However, the button is not available when drawing an Area filter. In this case, you need to either refresh the frame image and then draw the area or apply the Area filter and then refresh the image.



Note that for real-time alerts:

- Not all filters are available for real-time alerts.
- You cannot select both the Class and Face Recognition filter in the same rule.
- The Count filter can be selected in addition to either the Class or Face Recognition filter.



## Alerts with Face Recognition

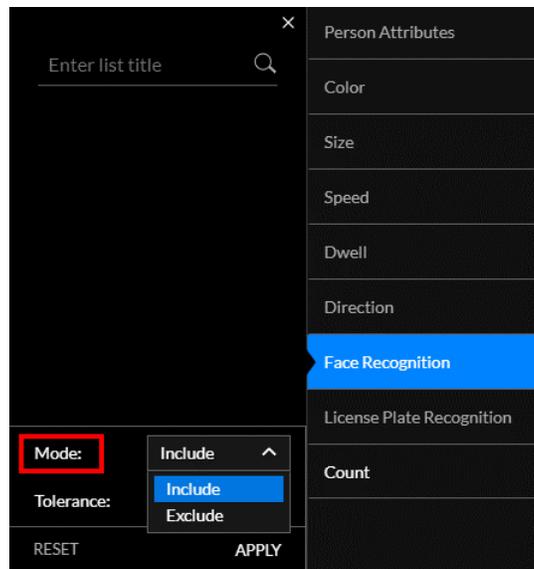
When defining a RESPOND rule that includes the Face Recognition filter, you can select between two **Alert Modes**:

- **Include** – Create an alert when any object that has a recognizable face matches one or more faces on specified watchlists.
- **Exclude** – Create an alert when any object that has a face does not match any of the faces on specified watchlists.

The table below summarizes when an alert will be triggered when the **Exclude** option is selected:

Scenario with Exclude Option	Triggers an Alert
Faces that are not on the watchlist	√
Faces of low quality that are not compared (1-star faces and 2-star faces in RESPOND normal-sensitivity)	√
Persons without a detected head/face	X

For each alert, on the left-hand side, you'll see the watchlist name that triggered the alert.



## Real-Time or Smart Alerts with Count Filter

The last filter option is the **Count** option. Click on this option and you can then create alerts that are triggered when a certain number of objects meets a set filter in a predefined period (**Time-Dependent Count**) or concurrently (**Concurrent Count**).



For queue counting, use [People Counting alerts](#). People counting alerts are ideal when you want to count people in semi-crowded scenes and people that are static (not moving a lot).

The screenshot shows a configuration window for an alert. On the left, there are two main options: 'Time-Dependent Count' (selected with a blue dot) and 'Concurrent Count'. Under 'Time-Dependent Count', there is a 'Times or More' field set to '2', a 'Within' field set to '1' with a 'minutes' dropdown, and a 'Cool-down' field set to '1' with a 'minutes' dropdown. At the bottom of this section are 'RESET' and 'APPLY' buttons. On the right, there is a vertical list of filter categories: 'Class', 'Person Attributes', 'Color', 'Size', 'Speed', 'Dwell', 'Direction', 'Face Recognition', 'License Plate Recognition', and 'Count'. The 'Count' option is highlighted in blue.

Time-dependent Count is applicable both for smart and real-time alerts.

Concurrent Count is only applicable for smart alerts.

## Time-Dependent Count

Select **Time-Dependent Count** to create an alert when a certain number of objects meets a certain filter in a predefined period of time.

For example, you can set an alert that is triggered when more than 100 people entered a park in a single hour after 9 PM. Or, you can set an alert when more than three employees on the watchlist entered a certain area of the store.

In the **Times or More** field, enter the number of objects that will trigger the alert. The maximum number of objects that can be set is 1,000 and the maximum time period is 24 hours.

In the **Within** field, enter the period of time within which the objects must appear in order to trigger an alert.

In the **Cool-down** field, set the time to wait before starting to count objects again for the next alert. The counter starts at zero when the cool-down period ends. The minimum cool-down period is 1 second and the maximum is 24 hours.

## Concurrent Count

Select **Concurrent** Count to create an alert that is triggered when a certain number of objects meets a certain filter concurrently.

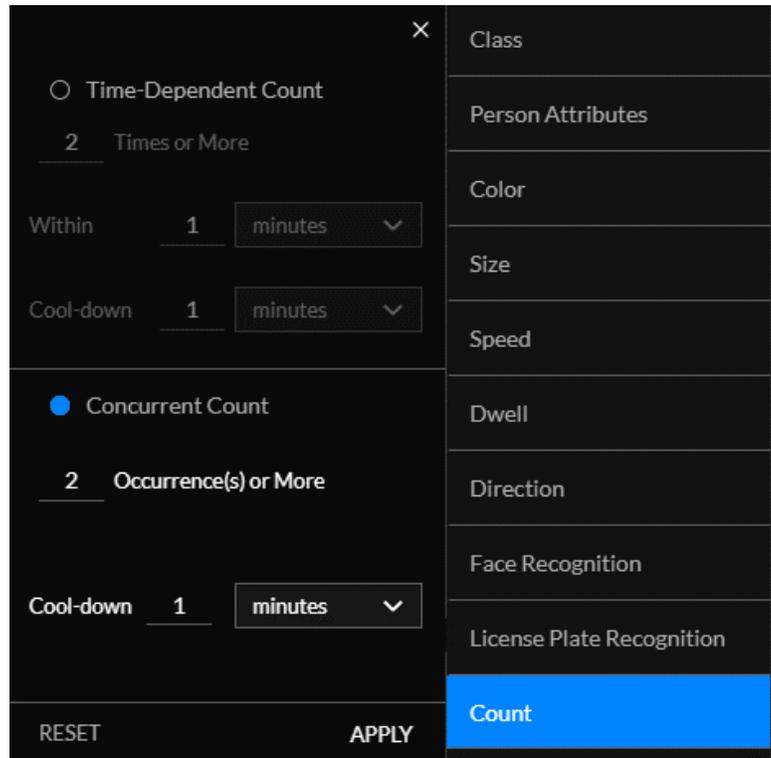
For example, you can set an alert that is triggered when more than 10 people are in a predefined area concurrently. However, if one person left the area before the tenth person entered, the alert will not be triggered. Another example is that you can trigger an alert when there are less than five people in a predefined area in a given time.

In the **Occurrences or More** field, enter the number of objects that will trigger the alert. The maximum number of objects that can be set is 1,000 and the maximum time period is 24 hours.

In the **Cool-down** field, set the time to wait before starting to count objects again for the next alert. The counter starts at zero when the cool-down period ends. The minimum cool-down period is 1 second and the maximum is 24 hours.

Click **Apply** and then **Create** to save the rule and close the wizard.

The new rule will show up as running on the **Rules** tab's defined rules list with the words **Count-based** in parentheses after the rule type.



BriefCam Protect		REVIEW	RESPOND	RESEARCH	?	⚙️		
ALERTS		RULES					+	ADD RULE
Title	Camera Name	Camera Image	Created	Rule Type	Status	Schedule	Actions	
<input type="checkbox"/> daily 3h	Network Camera		01/15/20 02:13 PM	Smart Alerts	Disabled	Continuous		
<input type="checkbox"/> daily 2h	West Corridor		01/15/20 02:13 PM	Smart Alerts (Count-based)	Active (Processing)	Continuous		

## Rules Screen

Each rule is listed along with its name, the name of the source camera selected in the rule, its creation date, rule type and status (Disabled or Active).

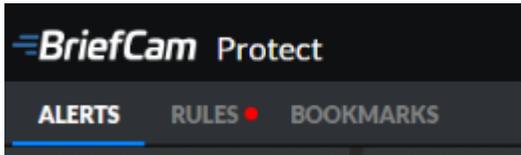
The status is updated every 15 seconds.

For schedules that are Active, additional information will be displayed in parentheses: Processing, Queued, or Recovering.

Click on the information () icon to see a summary of the number of rules and their status.

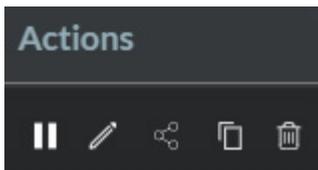
RULES' STATUS		×
Active (Processing)	1	
Active (Queued)	0	
Active (Recovering)	0	
Disabled	32	
Total Number Of Rules		33

**Note:** A red notification badge appears near the **RULES** tab if a video connection was lost for one or more of the rules. To see which connections were lost, refer to the Status column for each rule. The malfunctioning rules will have a status of **Recovering**. When navigating to the **RULES** tab, the red notification badge disappears.



## Actions Column

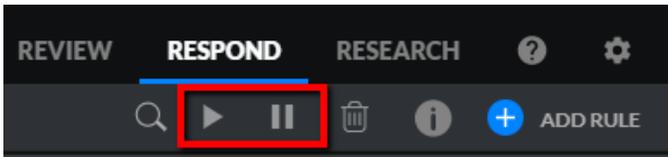
When you hover over a rule, various icons are displayed in the **Actions** column.



Action	Description
	Pause or resume a rule.
	Edit a rule.
	Share a rule. See also <a href="#">Rule Collaboration</a> .

Action	Description
	Duplicate a rule. BriefCam will create the selected rules for each of the selected cameras and apply the same global filters to the rules (except for the path, area, and line crossing filters). The newly created rule is owned by the user who duplicated the rule.
	Delete a rule. If a rule is deleted, alerts created by the rule are also deleted. However, bookmarks of the alerts are not deleted.

If you select more than one rule, two additional options will appear at the top of the screen enabling you to simultaneously activate or disable multiple rules.



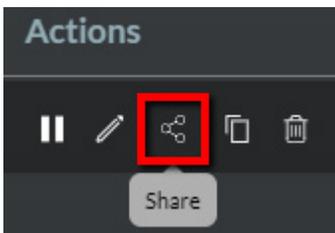
Any events captured by the source camera selected and matching the filters applied in a running rule will trigger alerts in the RESPOND solution's **Alerts** screen, enabling operators to rapidly respond to incidents as they unfold.



If a RESPOND rule fails due to stream loss or another issue, it will try to recover every 60 minutes by default. The time can be changed in the **MaxRetryDelaytimeMinutes** admin setting. To stop the rule from retrying, disable it.

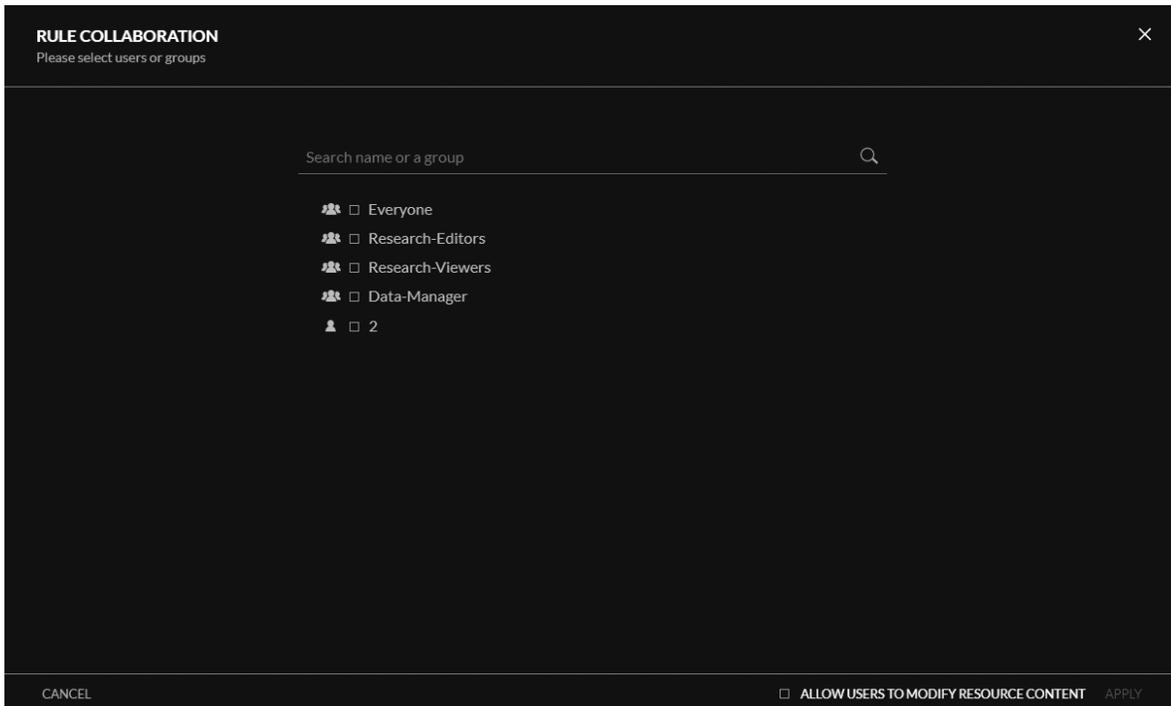
## Rule Collaboration

Click the share icon to share a rule. The share icon is only available for rules owned by the user.



Select the users and/or groups that you want to share the rule with.

By default, rules are shared as "read only". However, if you want to allow the user read-write access, select the **Allow Users to Modify Resource Content** check box.



BriefCam will check that all selected users and groups:

- Have permissions to view the Rule camera.
- Already have permissions to the watchlists that the sharing user does not own (the external and shared watchlists).

When you share a rule, the rule's share icon will turn to white. 

If it is a rule that was shared with you, the colors will be reversed. 

When a rule is configured to use watchlists, those watchlists must be shared as well.

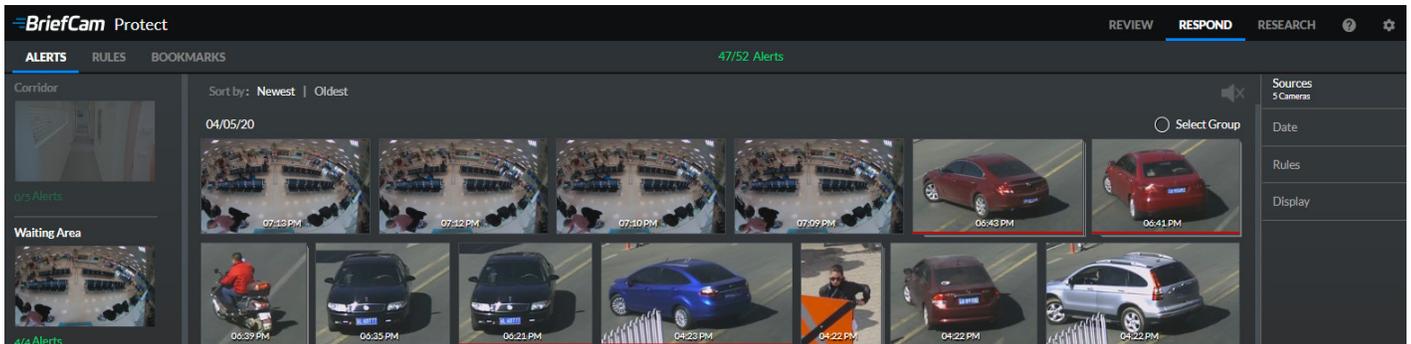
The sharing process will not share watchlists that the user does not own (shared and external watchlists). On the right of the screen you will see a list of watchlists that are owned by you and another list of watchlists that are not owned by you and can, therefore, not be shared by you.

Watchlists are shared in read-only mode with the users/groups with one exception: If the watchlist was already shared in advance with one of the users or groups in full control mode, this sharing mode won't change.

When un-sharing a rule, the shared users will no longer received alerts from this rule and all received alerts from this rule will disappear from the user's RESPOND view.

## The Alerts Tab

The **Alerts** tab contains three sections: a video source pane on the left, thumbnails in the middle and filters on the right.

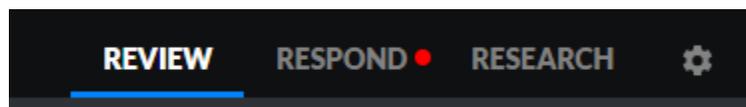


You can sort the alerts by time (oldest to newest and vice versa).

By default, the order of the video sources is only changed right after you change the **Sort by** time or when you set a filter. If you want the video source pane to also be sorted when there is a new alert, your administrator can change this for you.

To activate sound notifications when a RESPOND alert is received, click on the  icon. The sound will play only when you are logged into BriefCam and have activated the sound. You will need to activate it each time you log into BriefCam. The administrator can remove or change the sound file.

**Note:** A red notification badge appears near the RESPOND tab to signify that new alerts are available. When navigating to the **Alerts** tab, the red notification badge disappears.



## Alert Types

### Smart Alerts and Real-Time Alerts

The differences between the smart alert and real-times alerts are detailed in the table below.

	Smart Alerts	Real-Time Alerts
<b>Advantage</b>	More accurate because it uses more frames per object	Better in crowded scenes because it uses face tracking instead of full body tracking

	Smart Alerts	Real-Time Alerts
<b>Alert time</b>	30-60 seconds	Up to 5 seconds
<b>BriefCam object type</b>	Video clip	Still image
<b>Repeated alerts</b>	A single alert per object	Multiple alerts may occur for a single object in certain conditions because the object tracking is basic and not as accurate as with smart alerts.
<b>Available filters</b>	All	Class, Face Recognition, Count (time-dependent only), Area and Line Crossing

## People Counting Alerts

These alerts take a snapshot every few minutes (two minutes by default) of one frame and count the people in the whole frame or in a defined area.

People counting alerts are triggered when the number of people appearing in an area pass the defined thresholds. The people count cannot be further filtered by BriefCam's filters (e.g. the number of women in red).

These alerts are ideal for queue counting and for counting people in crowds and people that are semi-static (not moving a lot). With the count functionality available in Smart and Real-Time alerts, people who are sitting or not moving a lot (static) are not always tracked since they blend in with the background and are therefore not counted accurately.

You can set both an **Above** and **Below** threshold.

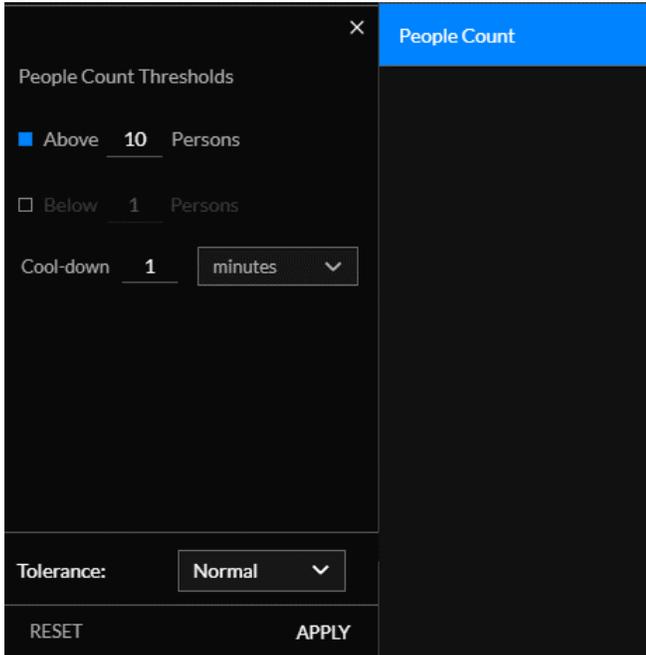
For example, you can set the people counting alert to alert when there are more than 20 people in line (indicating a surge in customers) or to alert if there are less than 2 people in a guard post, or both.

This alert can also be used to alert if there is a number between, for example, 30-35 people.

The valid values for the **Above** threshold are 0-250 and for the **Below** threshold are 1-250.

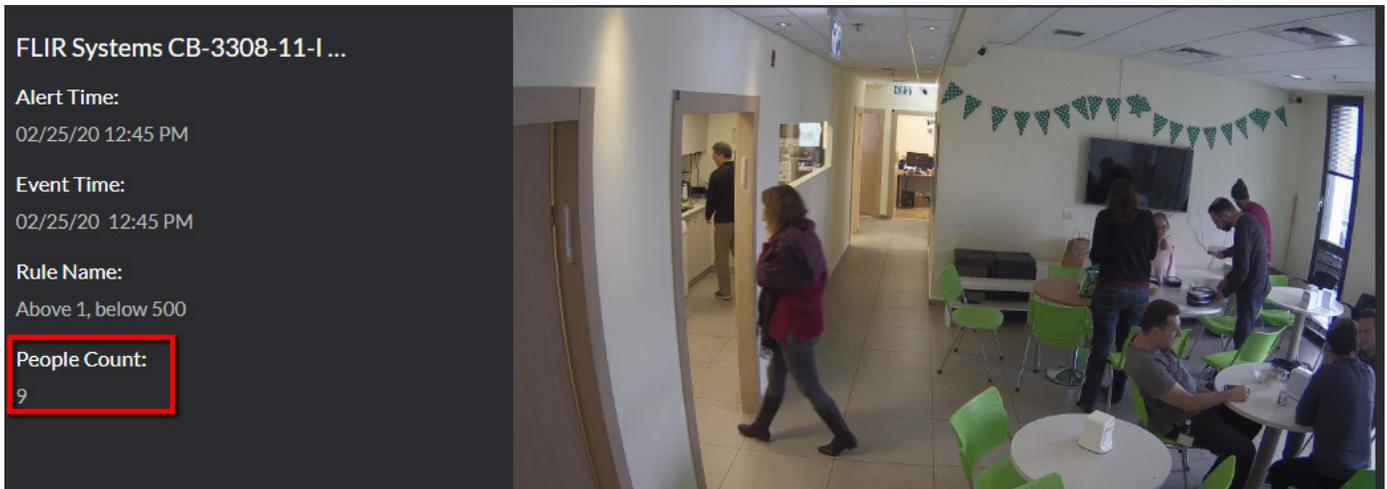
In the **Cool-down** field, set how long to wait before carrying out the next count of people. The valid values are between 0 seconds and 24 hours. Use this to prevent multiple alerts when the thresholds are met.

The only filter available with People Counting alerts is the **Area** filter. Only people whose heads appear inside the marked area are counted.



**Note:** The people counting accuracy depends on many factors, such as occlusions and clutter in the scene. The statistical accuracy for large count numbers is  $\pm 10\%$ , but it may be larger for smaller counts or in challenging scenes.

Each alert will appear with the number of people counted to the left of the image (as shown in the image below).



## Video Source

Each video source represents a camera that has alerts in the selected time range.

Cameras that have more than one rule are shown as a single video source.

**Note:** In the RESPOND solution, it takes five minutes for the video source to be playable after it was created.

Click the playback button to play back the video source. Video playback will feature only objects matching currently selected filters.

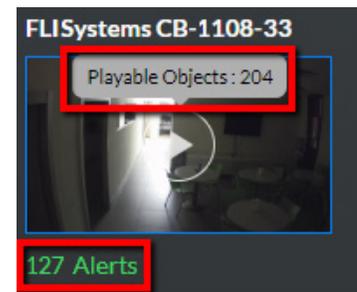
For information about the video player, see **Video Player**.

## Playable Objects

The number of alerts for the video source appears at the bottom left of the synopsis, in green. This number is updated every five seconds, by default.

When you hover over a video source, you will see a tooltip with the number of playable objects.

The number of playable objects depends on the types of alerts defined for the synopsis.



If the video source only contains smart alerts, the numbers will be the same, since each smart alert has one playable object.

Real-time alerts (with or without count-based alerts) and People Counting alerts are not playable and therefore they will not have any playable objects.

For smart alerts with count-based alerts there is a playable object for each counted object. For example, if you have 10 smart alerts and 20 countable objects for each alert, the playable objects will be 200 (10 alerts X 20 objects).

For a video source with both smart alerts and real-time alerts, the playable objects are calculated by subtracting the real-time alerts from the total number of alerts.

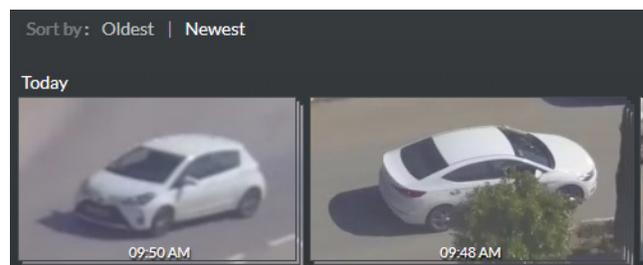
## Thumbnails

The Alerts tab contains thumbnails of all alerts that were generated in the **Rules** tab of the RESPOND solution. The time that the alert was created appears on the thumbnail.

New alerts will appear in the first row. Once the row is filled, the alerts will move down to the next row.

A red line under the thumbnail indicates that the thumbnail has not yet been watched.

Count-based alerts display the thumbnails, one on top of another, of all of the objects that were counted in the alert.



## Alerts with Face Recognition

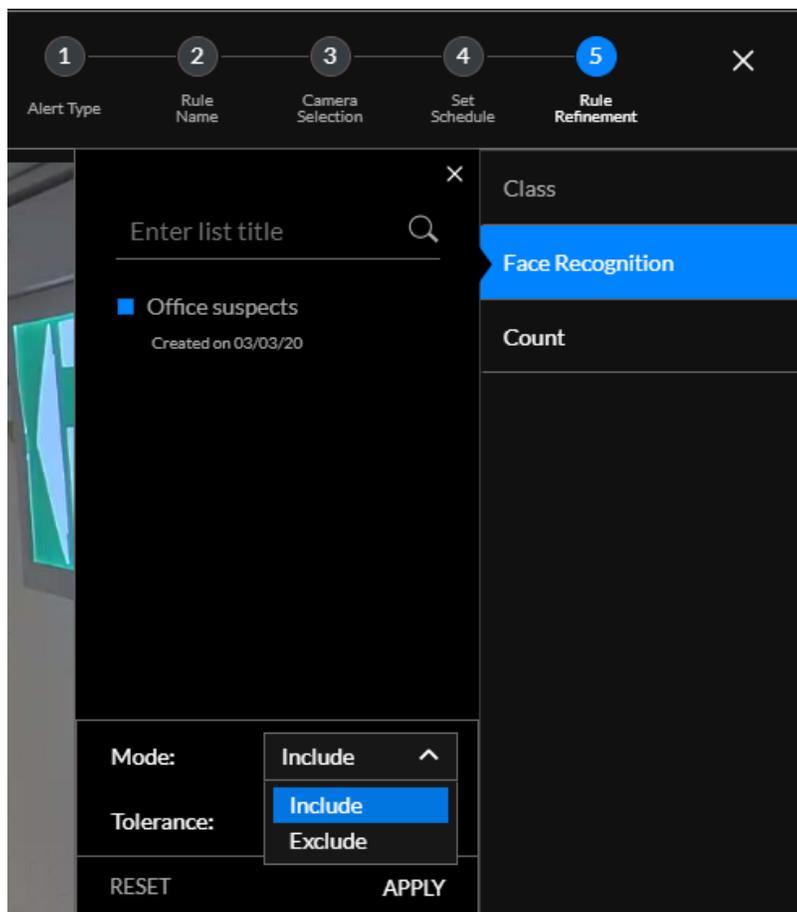
Alerts with face recognition have a cool down period of 30 seconds. This means that when an identity triggers an alert, the same identity will not trigger another alert for 30 seconds.

In the RESPOND solution, 3-star images can trigger alerts and 1-star images cannot trigger alerts. By default, 2-star images cannot trigger alerts; however, for high-sensitivity configurations, 2-star images can trigger alerts. For additional information, see **Face Recognition Quality**.

If you add several images of a person, BriefCam will alert whenever the person is detected from any of the faces associated with the person.

In the **Mode** field, you can select between two operation modes:

- **Include** (default) – Create an alert if an identity on the selected watchlist is found.
- **Exclude** – Create an alert if an identity is found that does not appear on the selected watchlist(s).



The table below summarizes when an alert will be triggered when the **Exclude** option is selected:

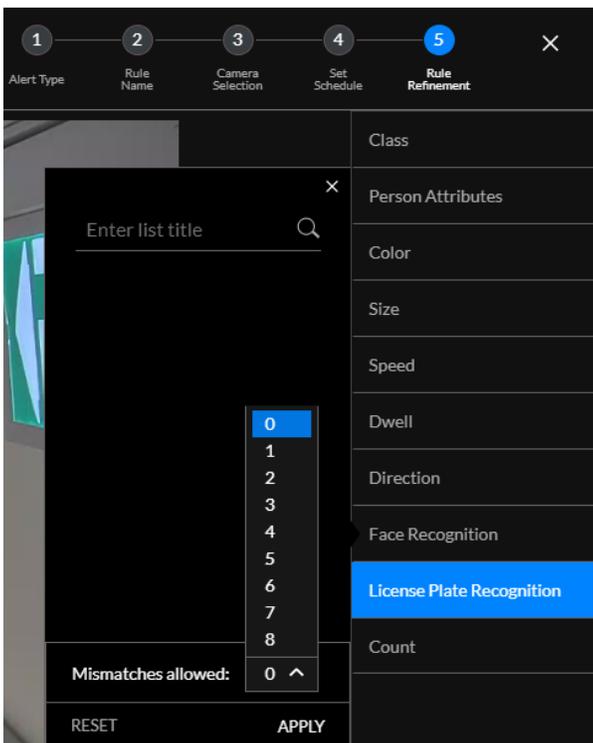
Scenario with Exclude Option	Triggers an Alert
Faces that are not on the watchlist	√
Faces of low quality that are not compared (1-star faces and 2-star faces in RESPOND normal-sensitivity)	√
Persons without a detected head/face	X

## Alerts with License Plate Recognition

You can create a rule that will issue an alert when a license plate that appears in a watchlist appears in the video.

Alerts with License Plate Recognition are available for Smart alerts only.

In the **Mismatches allowed** drop-down list, set how accurate the match needs to be to trigger the alert. You can select whether to allow between 0 and 8 mismatched characters in the search. For example, if you select 0, only perfect matches will trigger an alert. If you select 2, plates with 2 mismatches or less will trigger an alert.



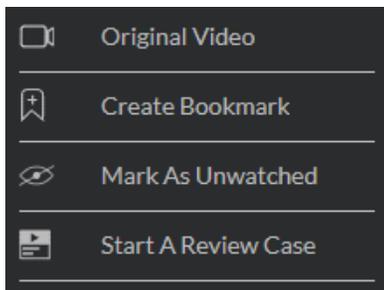
## Alert Playback

### Smart Alerts

For smart alerts, hovering over an individual alert's thumbnail will reveal a playback button (🎬). Click it for a close-up playback of the alert-generating event.



Four options will appear to the right of the image.



Click **Original Video** to view the alert-generating event being played back in the full context of the original feed via which it was captured (i.e. uncropped and at 1:1 zoom).

Click **Create Bookmark** to flag the alert for later review. To view the bookmarks, open the **Bookmarks** tab or use the **Bookmarked** filter.

Click **Mark As Unwatched** and a red line will once again appear under the thumbnail for this alert.

Click **Start A Review Case** to add footage from the video of one or more alerts to a new or existing Review case. See also: **Start A Review Case**.

Click the download (📄) icon, to download an .mp4 file of the close-up clip.

On the left-hand side you'll see information about the alerts, including the alert time, event time, and rule name. When relevant, additional information will also be seen, such as the watchlist name, plate number, and the comment from the LPR watchlist.

### Real-Time Alerts

For real-time alerts, a thumbnail image is available and not a close-up clip like with smart alerts.

However, you can view the original video by clicking the **Original Video** option to the right of the image and you can create a bookmark for the alert.



As shown in the image above, five options will appear to right of the image.

Click **Original Video** to view the alert-generating event being played back in the full context of the original feed via which it was captured (i.e. uncropped and at 1:1 zoom).

Click **Create Bookmark** to flag the alert for later review. To view the bookmarks, open the **Bookmarks** tab or use the **Bookmarked** filter.

Click **Mark As Unwatched** and a red line will once again appear under the thumbnail for this alert.

Click **Start A Review Case** to add footage from the video of one or more alerts to a new or existing Review case. See also: **Start A Review Case**.

Click **Download Image**, to download a thumbnail image.

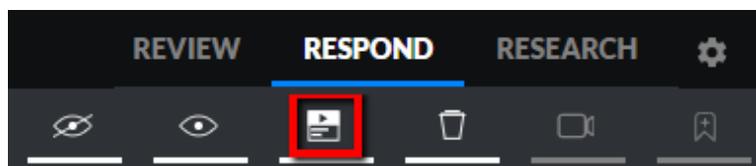
On the left-hand side you'll see information about the alerts, including the alert time, event time, and rule name. When relevant, additional information will also be seen, such as the watchlist name.

## Start A Review Case

If there is an alert that you want to investigate further, you can add the clip and any part of the original video to the REVIEW solution.

When running a clip, you can add it by clicking the **Start A Review Case**  option to the right of the clip.

You can also add multiple alerts by selecting the thumbnail and clicking the Start a Review Case icon in the action bar at the top right of the screen.



# TRANSFORMING VIDEO SURVEILLANCE INTO ACTIONABLE INTELLIGENCE

Enter a title in the screen below. You can also enter a description and the incident time.

If you want to add the alert to an existing case, check the **Add to an Existing Case** checkbox. If you want to create a new case for the alert, leave it unchecked, and click **Next**.

**ADD TO A CASE**  
Please create a title

1 Title 2 Time Range 3 Camera Selection

Title

Description (optional)

Incident Time (optional) MM/DD/YYYY 11:03 AM

Add to an Existing Case

CANCEL NEXT

In the next screen, select the time range from the original clip that you want to be added to the case. The default is two hours before the event until two hours after the event. Then, click **Next**.

**CREATE A REVIEW CASE**  
Please select the source time range

1 Title 2 Time Range 3 Camera Selection

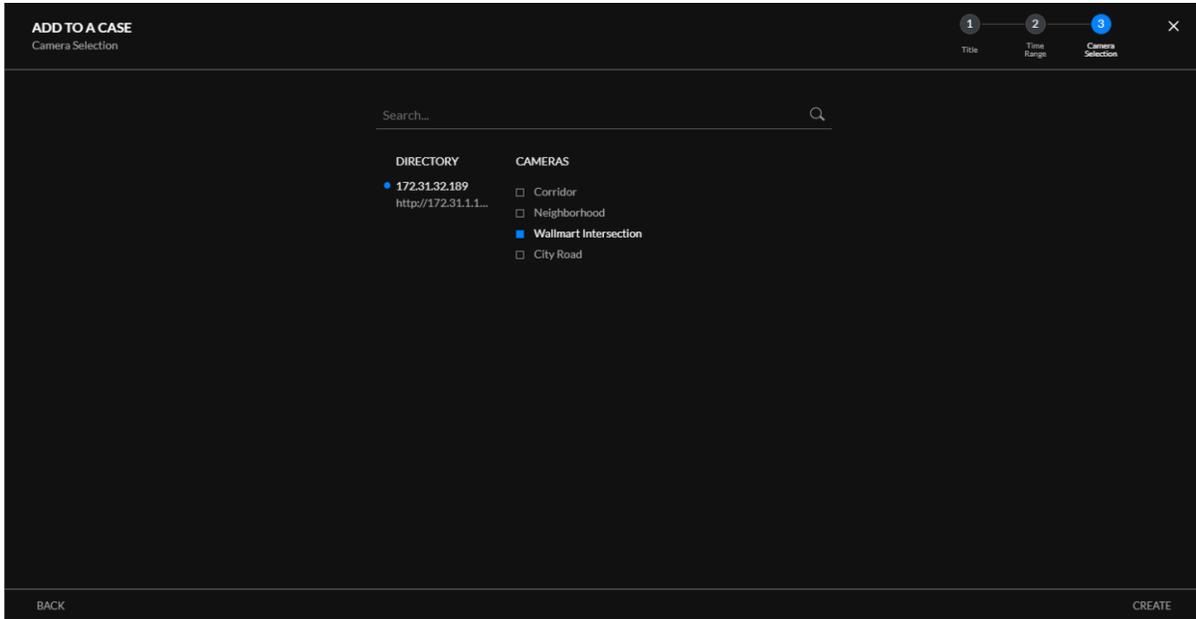
FROM TO

3/15/2019 12:56 PM 3/15/2019 05:00 PM

BACK NEXT

Select the cameras to add to the case. By default, the camera(s) that consisted of the object that caused the Respond alert are selected. Click **Create** and the video file with the alert will be added to a Review case.

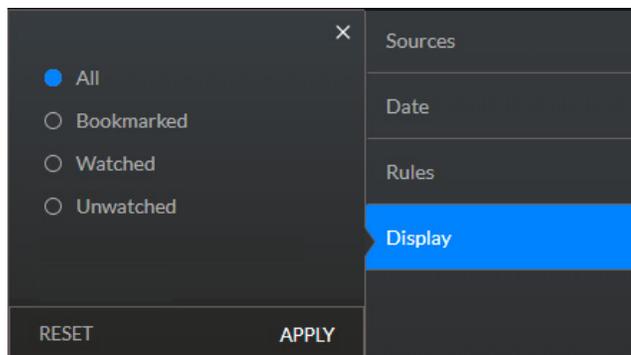
Usually no processing will need to take place since the video was already processed, unless you added unprocessed cameras.



## Filters

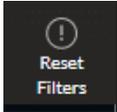
On the right side of the screen, you can filter by **Sources**, **Date**, **Rule** and **Display**.

You can use the **Display** option to show all alerts or to filter the display to bookmarked, watched, and unwatched alerts only.



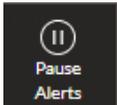
**Note:** When using the **Bookmarked** filters, it will only show bookmarks that were not deleted during the maintenance. Afterwards the bookmark will only appear in the **Bookmarks** tab.

You can reset the filters by clicking the **Reset Filters** button at the bottom of the screen.



## Pause Alerts

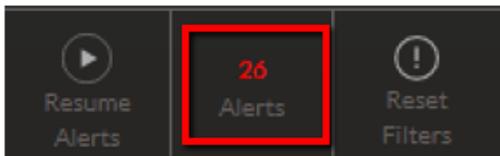
At the bottom right of the Alerts tab, there is a **Pause Alerts** button.



This button stops alerts from being inserted to the thumbnails area. This button is specific per user.

The Pause mode can be configured to be constant (until the user resumes) or to be automatically released after a predefined time frame, which, by default, is 60 seconds.

When the alerts are paused, the incoming alerts will not appear in the Alerts pane, but the number of waiting alerts will appear to the right of the **Resume Alerts** button.



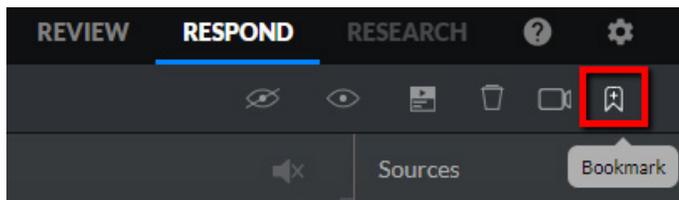
## Sending Alerts to Other Systems

Using BriefCam’s Outbound API, developers can send the alerts to other systems, such as PSIM and C&C, or directly to users via mobile push notifications, SMS or others. For more information, see the **Respond Alerts Outbound API** section of the **BriefCam Developer Tools** document.

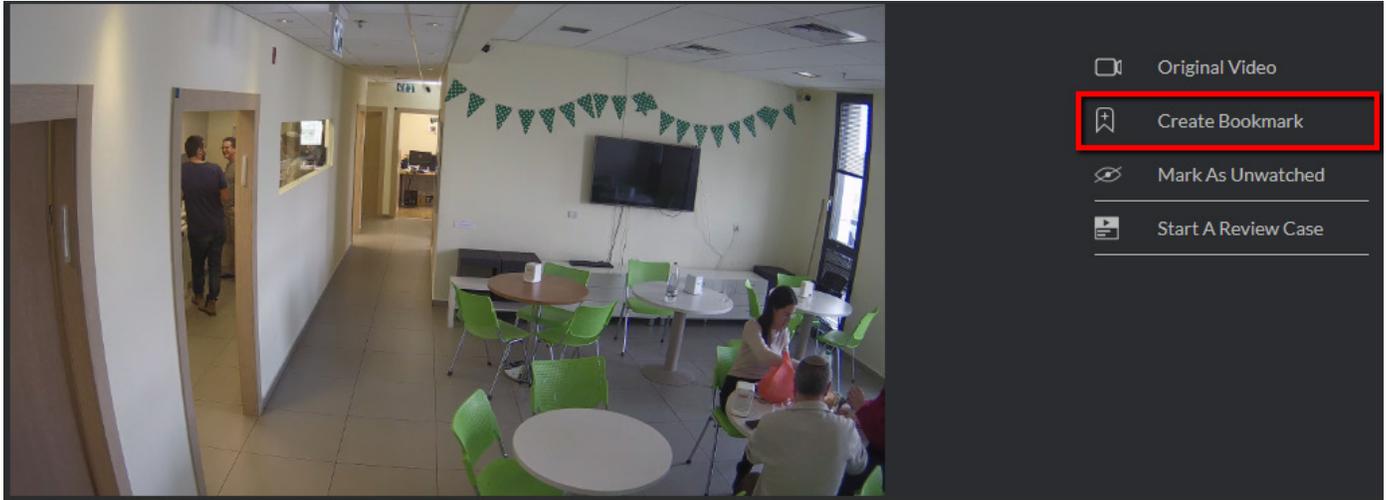
Alerts can also be sent to Genetec Security Center’s **Alarm monitoring** tab, Milestone XProtect’s **Alarm Manager**, IndigoVision’s Control Center, Qognify’s (formerly OnSSI) Ocularis user interface and Verint’s Nextiva. For more information, see the **Installation Guide**.

## The Bookmarks Tab

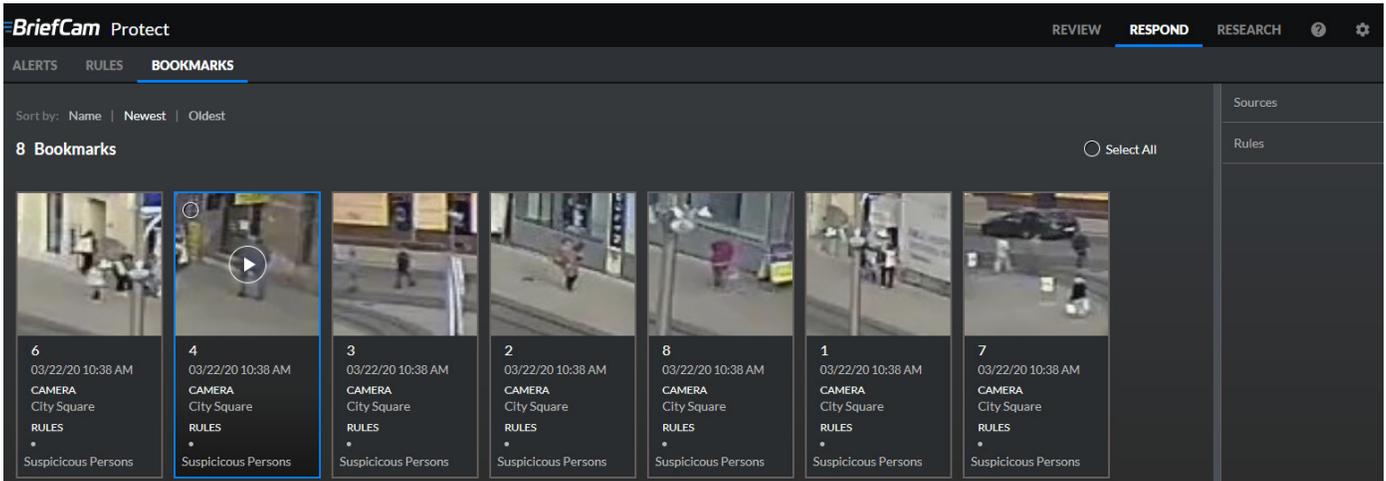
You can add a bookmark by selecting the alert and clicking the bookmark icon.



You can also add a bookmark when playing an alert by clicking the **Create Bookmark** option.



Any alert that you bookmarked will appear in the **Bookmarks** tab.



Hovering over any bookmark will reveal the play button, delete button and a white circle for selecting the bookmark.

You can filter the alerts by source, date or rules using the options in the right-hand pane.

You can delete bookmarks by selecting one or more bookmarks for deletion, then clicking the trash can icon () in the top right-hand corner of the Report tab to delete all selected bookmarks.

## The RESEARCH Solution

BriefCam's RESEARCH solution enables you to leverage quantitative video analysis to make informed, data-driven decisions. The module features the following two tabs:

**Dashboards** – This tab features an embedded BI (business intelligence) platform based on aggregate video metadata. The tab allows you to visualize a range of analytics, such as key performance indicators, and perform trend analysis.

**Sources** – This tab allows you to schedule daily or one-time generation of dashboards for any VMS video source and to define custom dimensions enabling detailed analysis of KPIs.

The RESEARCH tab is only enabled for users belonging to the **Research-Editors** or **Research-Viewers** groups. The system administrator can add users to groups.

**Note:** RESEARCH dashboards do not open when using localhost or an IP in the Web client URL with some versions of the Chrome browser. To solve this issue, use the hostname or use the Firefox browser.

### Sources

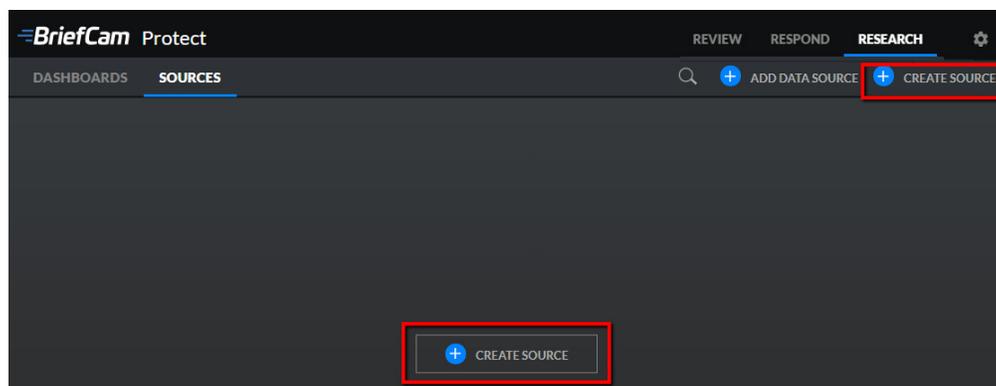
In the SOURCES tab, you define all of the video and data sources that you want to use in your dashboard.

You can schedule daily, one-time or continuous dashboard generation for any VMS video source, as well as the ability to define custom dimensions that enable advanced, detailed analysis of KPIs. In order to utilize custom dimensions, the dimensions need to be set before starting to process the video.

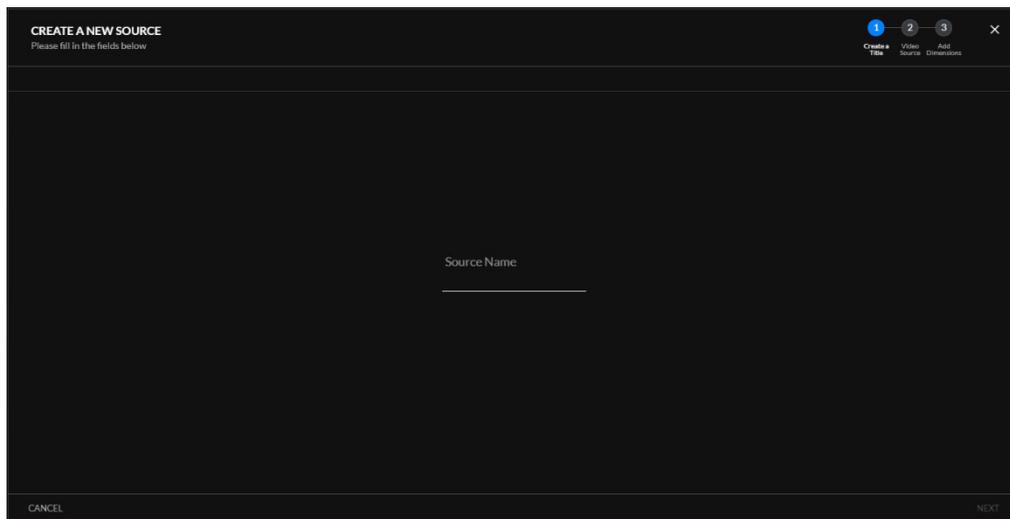
### Creating/Editing a Source

To create or edit a source:

1. Click the **Create Source** button (either from the middle of the screen or in the top right corner of the screen).



2. Name the source. The source name must be unique; otherwise, a notification will be issued.



CREATE A NEW SOURCE  
Please fill in the fields below

1 Create Title 2 Video Source 3 Add Dashboards

Source Name

CANCEL NEXT

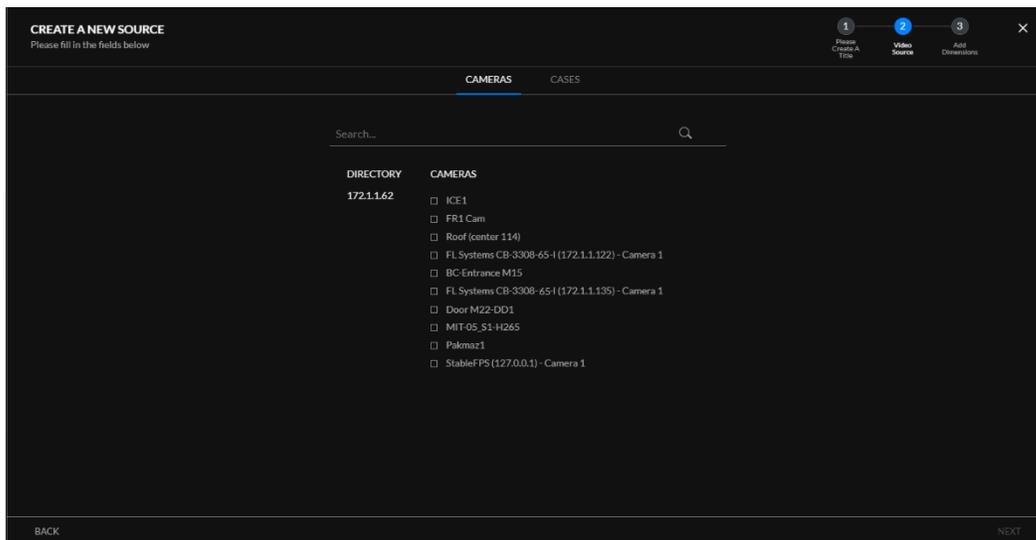
3. Select the video source, either **Cameras** or **Cases**.

If you select **Cameras**, you can configure a source for a single camera (that is not already associated with another source).

If you select **Cases**, you can configure a source using a video file from a REVIEW case, including cases shared with you.

For sources created from a REVIEW case:

- The file can only be configured once as a RESEARCH source.
- Scheduling is not enabled for this type of source since the data was already processed in the REVIEW solution.
- Videos with up to 100,000 objects are supported. Videos with more than 100,000 objects are also supported. However, it may consume a lot of hardware resources and may take additional time to add the objects to the dashboards. When uploading 100,000 objects or more, it is recommended to first consult with your administrator to make sure that the required hardware resources are available.
- If the video was deleted from the case, this source including its data will still appear in the RESEARCH solution.

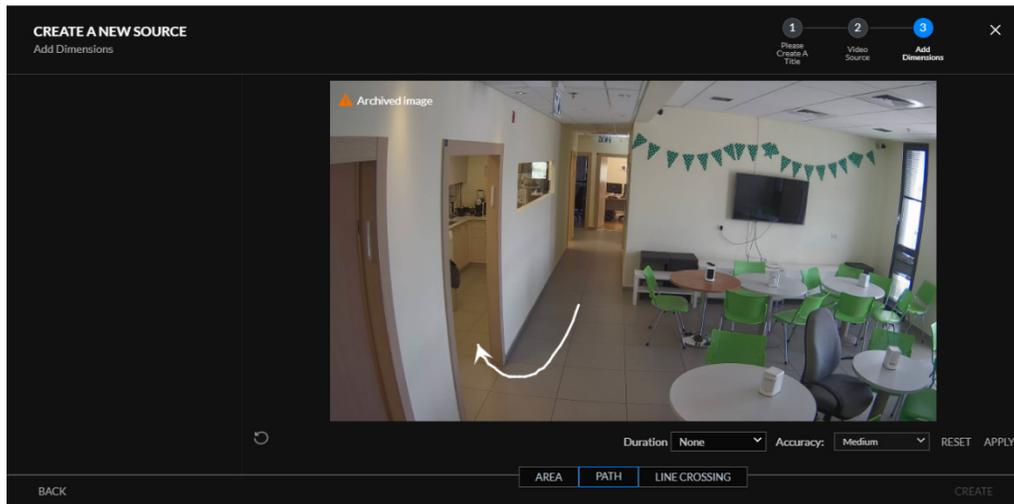


4. In the next screen you can click **Create** or you can first set custom dimensions. You can choose from the following dimension types:
- **Area** – count the number of objects entering one or more user-defined areas. Areas can be set as three-sided (triangular) or four-sided (square) polygonal areas. Click the inclusion/exclusion button to choose whether to count the objects included in the area or excluded from the area.
  - **Path** – count the number of objects traveling along one or more user-defined paths.
  - **Line Crossing** – count the number of objects crossing over the line in a pre-defined direction.

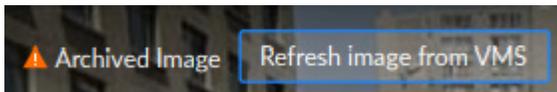
You can set the **Duration in Path** or **Duration in Area** by setting the minimum duration time. For example, by setting the Duration to 10 seconds, you will be able to count the number of objects whose duration within the path is at least 10 seconds.

Coverage tolerance settings (Low, Medium and High) can also be applied to Area, Path or Line Crossing settings (default is Medium). A high coverage tolerance level will result in the inclusion only of objects closely adhering to the drawn Path, Area or Line Crossing, whereas a Low coverage tolerance setting will result in the inclusion of additional objects that only loosely follow the defined Path, Area or Line Crossing.

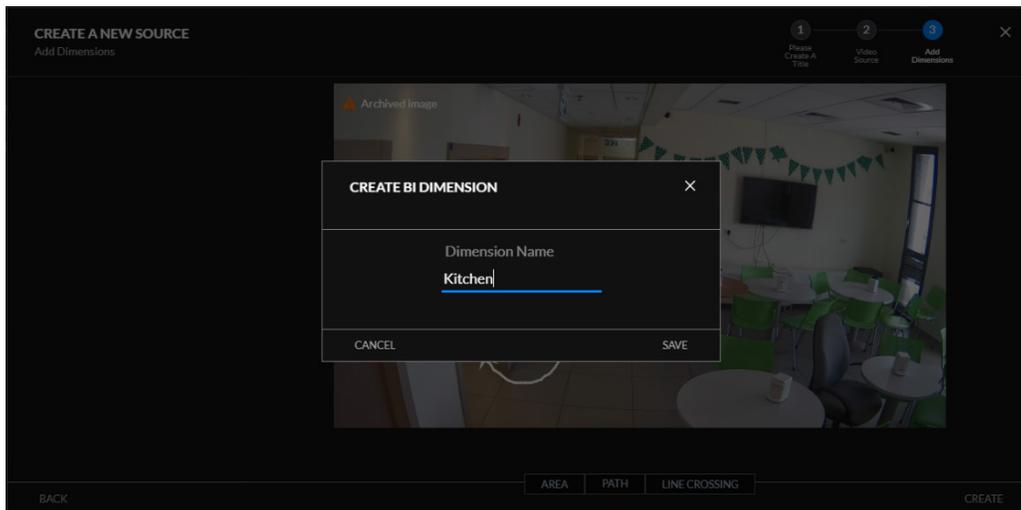
# TRANSFORMING VIDEO SURVEILLANCE INTO ACTIONABLE INTELLIGENCE



Notice that the image that is displayed is an archived image (as shown in the top left corner of the image). The archive image is displayed because getting a fresh image from the camera might take some time due to the VMS. When there is a newer image available, you can click on the **Refresh image from VMS** button also in the top left corner.



5. Click **Apply** and name the custom dimension (the name must be unique to the source).

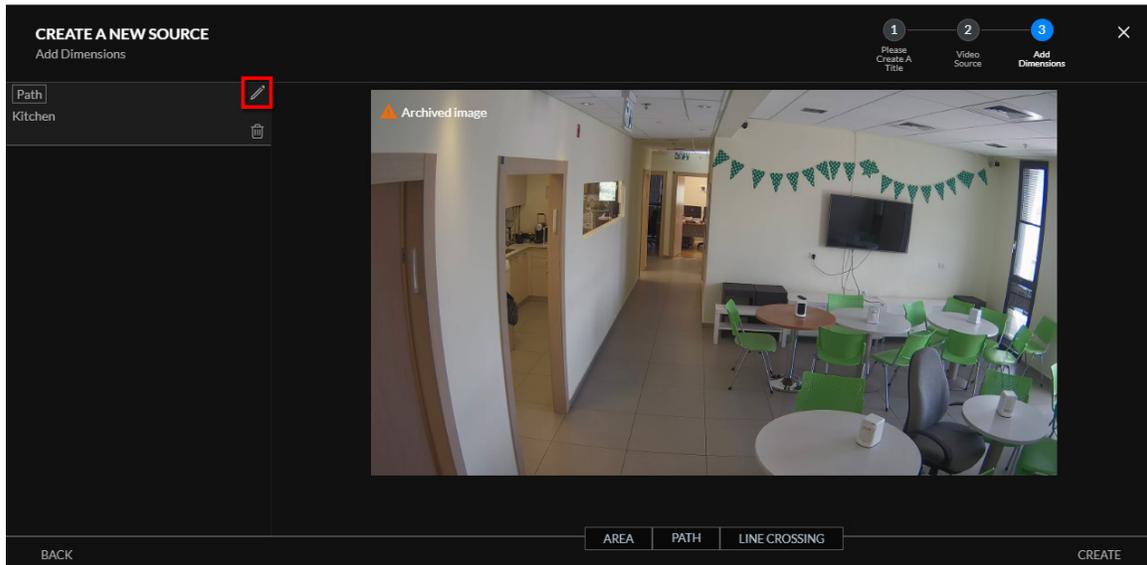


Once named, the custom dimension will appear in the left-hand menu. You can edit the name by clicking the pencil icon.

You can create multiple dimensions for the same source.

For sources created from REVIEW cases, if you want to add, edit or remove a custom dimension, you need to reload the video from within the REVIEW solution.

Renaming the custom dimension and source name is available also after creating the source.



6. Click **Create**.



**Research Editors** can view and edit the sources created by other users and themselves. They can also create, edit and publish dashboards.

**Research Viewers** can edit sources that they created, and view the sources created by other users, including the areas and paths created. They can view and filter published dashboards and create stories.

Both Research Viewers and Research Editors are defined by the administrator.

## Scheduling Sources

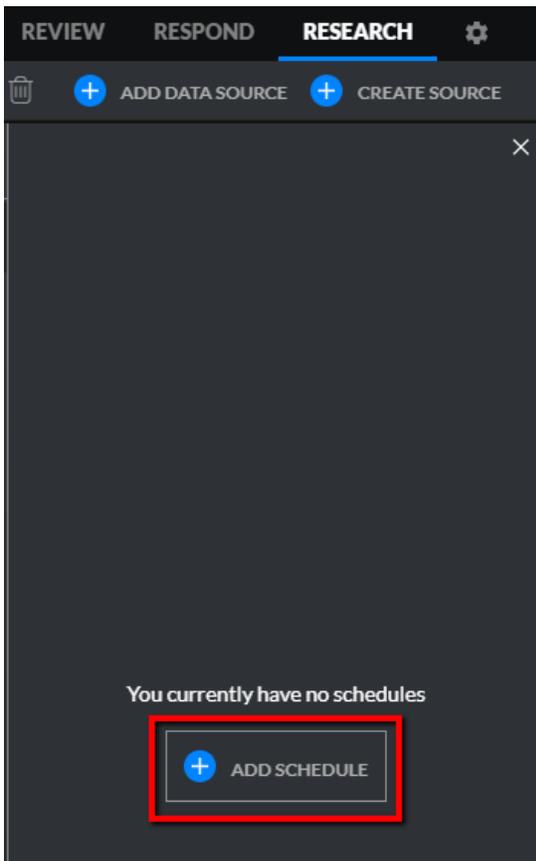
To set a source's schedule:

1. From the **Actions** column, click the clock icon or from the **Schedule** column, click **Add Schedule**.

Note that these options are not available for sources that were created from a REVIEW case.

Source Name	Created	Owner	Status	Schedule	Last Run	Actions
Corner of South St	07/22/19 10:05 AM	1	Active	ADD SCHEDULE	-	⏸️ 🗑️ ⚙️
Corner of North St	07/22/19 10:04 AM	1	Active	Run Once	-	

2. Click Add Schedule.



3. Select the schedule type (**Continuous**, **Run Once**, **Daily** or **Weekly**) and click **Save**.

SCHEDULED TASK WIZARD  
Scheduled Source Task

CONTINUOUS **RUN ONCE** DAILY WEEKLY

Activate once

FROM TO

7/9/2019 07:51 AM 7/9/2019 08:51 AM

Run at end of time-range

Run on

7/9/2019 08:53 AM

CANCEL SAVE

**Continuous** scheduling is used to schedule RESEARCH sources to run in real-time mode, which is useful for up-to-date dashboards.

To use the Continuous mode, you must have the RESPOND solution (including a dedicated GPU).

**Note:** When creating a Continuous schedule fails due to the license check (status is "disabled"), to enable the schedule, you will need to delete the Continuous schedule and recreate it.



When continuous scheduled sources fail, recovery will be attempted after 6 minutes and then for an exponentially increasing amount of time between failures, up until 60 minutes, and then every 60 minutes. The default can be changed in the **MaxRetryDelaytimeMinutes** admin setting.

To stop the source from retrying, disable the scheduled source.

For **Run Once** and **Daily** schedules, you also can set when the scheduled task will run by entering a date and time in the **Run on** fields.

## Status

In the **Sources** tab, the scheduling status of each source is indicated as one of the following

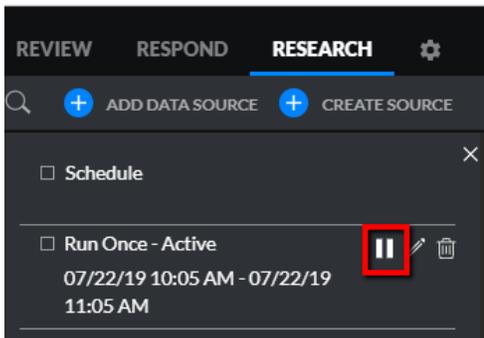
- **Active** – Activated by the user (or scheduler) and running with no error. For **Continuous** schedules that are Active, additional information will be displayed in parenthesis: Processing, Queued, or Recovering.
- **Disabled** – Disabled by the user or scheduler.

Source Name	Created	Owner	Status	Schedule	Last Run	Actions
Corner of South St	07/22/19 10:05 AM	1	Active	ADD SCHEDULE	-	
Corner of North St	07/22/19 10:04 AM	1	Disabled	Run Once	-	

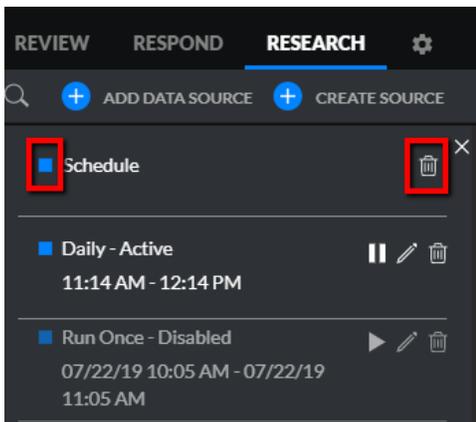
You can change the status of a source by hovering over the source and clicking the **Pause** or **Play** buttons.

If RESEARCH source is disabled, all of its scheduling tasks area also disabled.

Schedules can also be activated or disabled by clicking the **Pause** or **Play** buttons for each schedule.



Multiple schedules can be deleted at once by clicking the **Schedule** check box and then the Delete button.



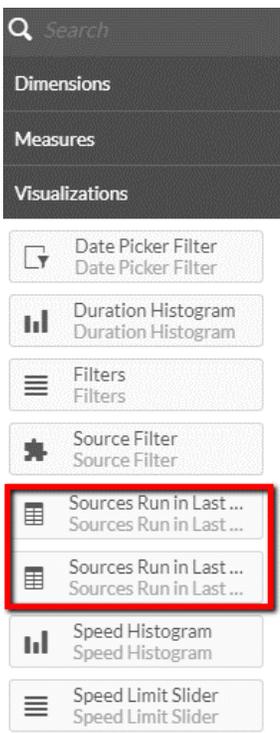
## Last Run of Source

There are two places for you to get information about when sources run within the RESEARCH platform.

- In the **Sources** tab's **Last Run** column, you can see the last time that the source data was processed.

Source Name	Created	Owner	Status	Schedule	Last Run	Actions
source case of today	08/04/19 05:43 PM	1	Active	Not Scheduled	08/04/19 05:45 PM	

- Within **Dashboards**, you can add from the **Master item's Visualizations** section the **Source Run in Last 30 Days** or **Source Run in Last 30 Days (by hour)** tables to monitor the number of objects loaded to the BI platform per source and date.



## Source Information

You can get information about the loading data to the RESEARCH platform by clicking on the information icon.

Source Name	Created	Owner	Status	Schedule	Last Run	Actions
Suspect search	07/08/19 03:03 PM	Eve	Active	One Time	07/08/19 04:10 PM	[Pause] [Refresh] [Delete]
Corner of Main and 1st	07/08/19 03:02 PM	Eve	Active	<a href="#">ADD SCHEDULE</a>	07/09/19 08:30 AM	

The table that appears includes information from the last 30 days about the number of objects processed for the source vs. the number of objects that are ready to be uploaded to the dashboards (RESEARCH platform). The table can be grouped by date or hour and each column can be sorted. Searching is also available.

source case of today | Source ID: 42

Group By:  Date  Hour

Date	Number of objects Processed	Number of objects Ready for Dashboards
04/08/19	2316	2314

## Dashboards

Only users belonging to the **Research-Editors** or **Research-Viewers** groups are allowed to access the RESEARCH solution's **Dashboards** tab. The system administrator can add users to groups.

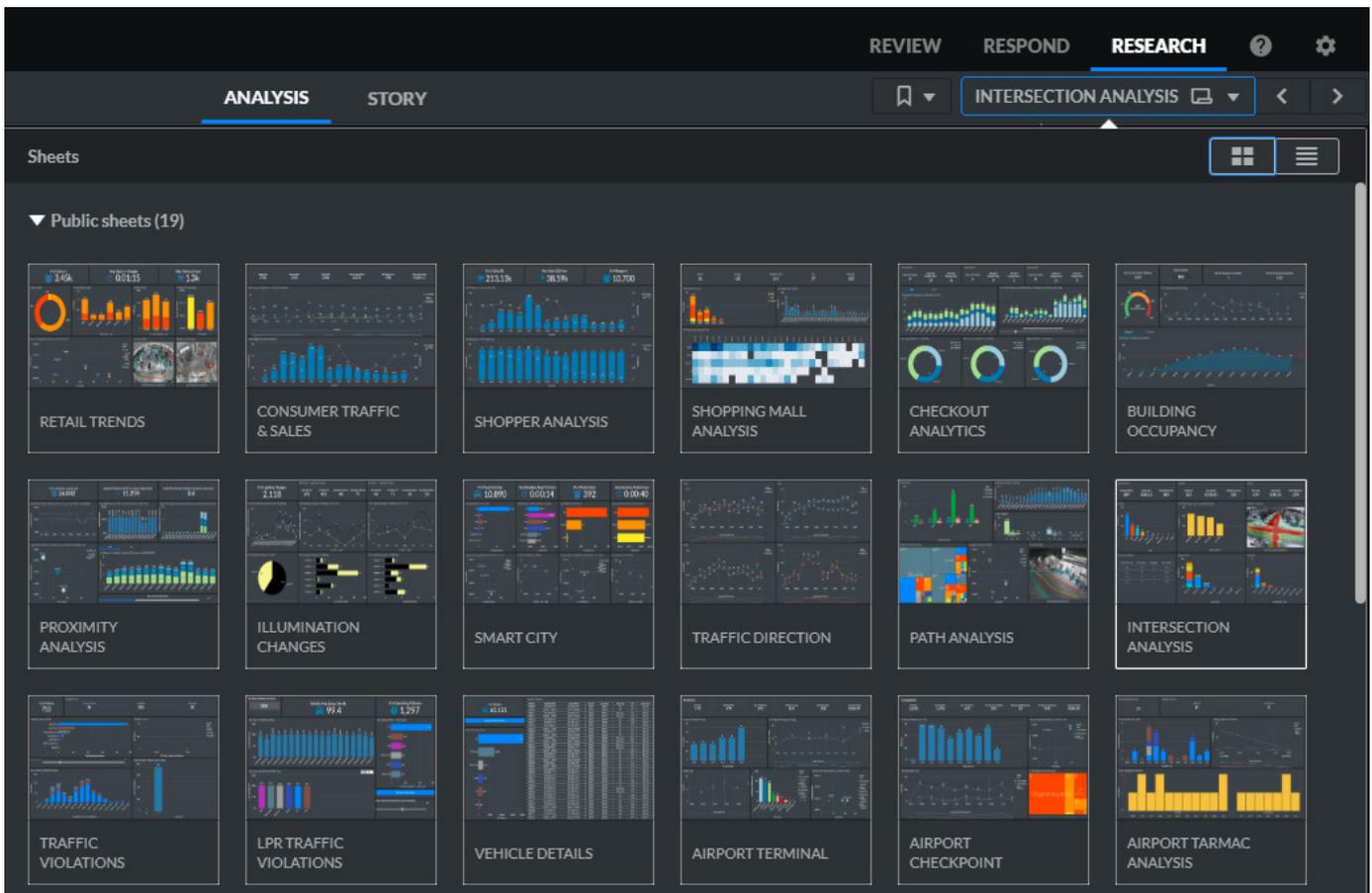
Step Back/Forward | Reset All Filters | Active Filters | Bookmarks | Duplicate Dashboard | Choose Specific Dashboard

Navigate Between Dashboards | Insight Advisor | Filter by Specific Date

Filters | Tolerance | Reset Filter Except for Source | Preset Dashboard Filters

## Base Dashboards

Base dashboards are a library of dashboards available out-of-the-box with the RESEARCH solution for quick and easy onboarding.

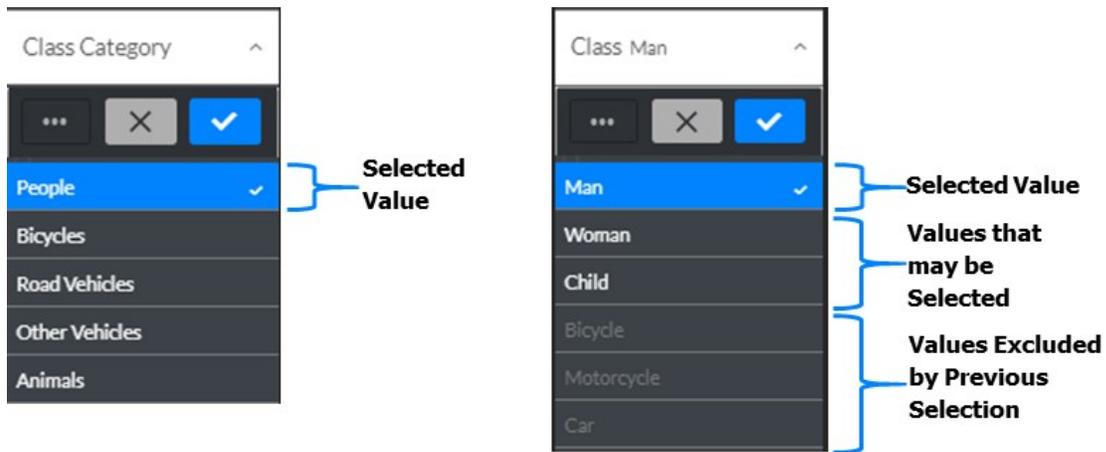


**Note:** For Arabic, Danish, Finnish, Thai and Vietnamese, the translation is partial in RESEARCH dashboards. (The UI is not translated, but internal values are translated.)

## Filters

### Filter Selection States

When you make selections, the colors of selection fields and their values change according to whether fields are selected or excluded and what values can be selected for them. For example, when selecting **People** in the **Class Category** filter, the values shown below will appear in the **Class** filter.



## Filter Expression Search

You can use expressions to perform searches and make selections in filter panes and selectable items. Search expressions are evaluated for each field value in the search field (see example below).

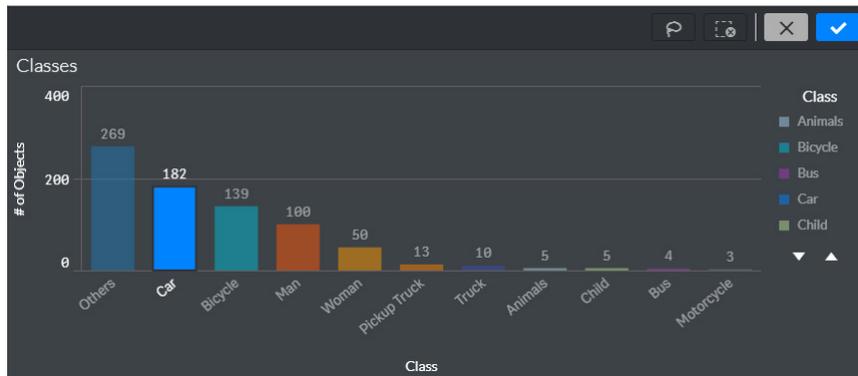


## Chart Filters

There are different ways to select filters in charts. To confirm a selection, click  outside the visualization or press **Enter**; to cancel a selection, click  or press **Esc**.

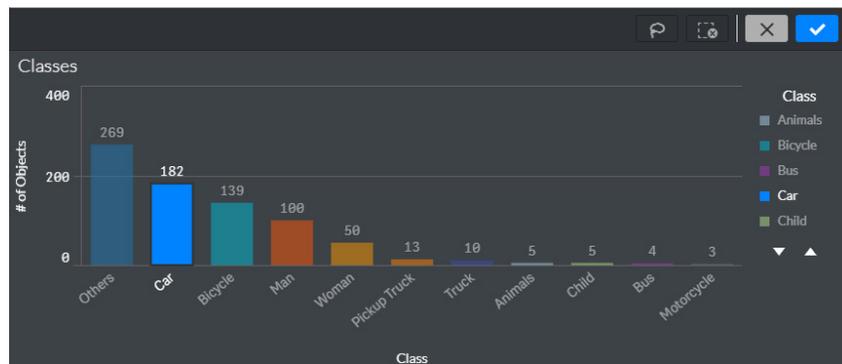
### Click Selection

You can select or deselect bars by clicking them one at a time.



## Legend Selection

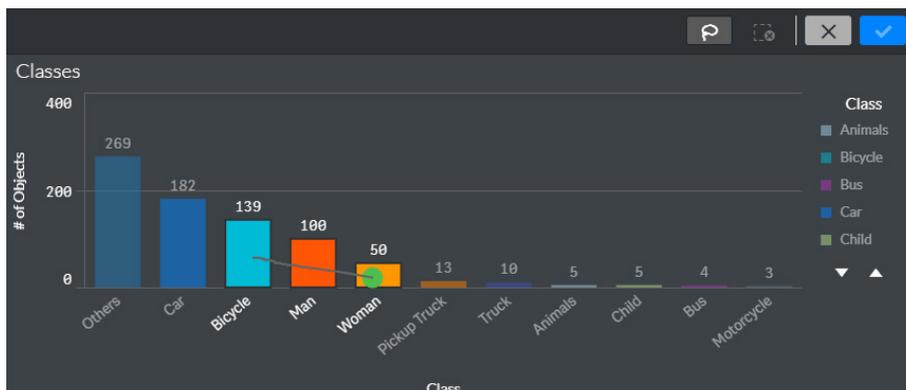
You can also select and deselect legend items one at a time by clicking them.



## Draw Selections

You can alternatively select bars by drawing one or more lines in the chart as follows:

1. Click inside the visualization.
2. Click the lasso selection tool.
3. Draw a freehand line to select several values/data points at a time.



## Range Selection

Make selections on either the x or y axis as follows:

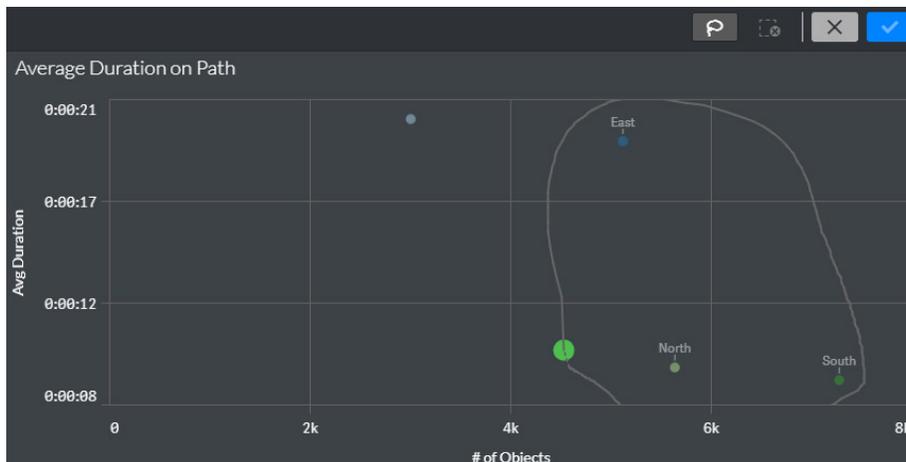
1. Click inside the visualization.
2. Draw your selections on the desired axis.



## Lasso Selection

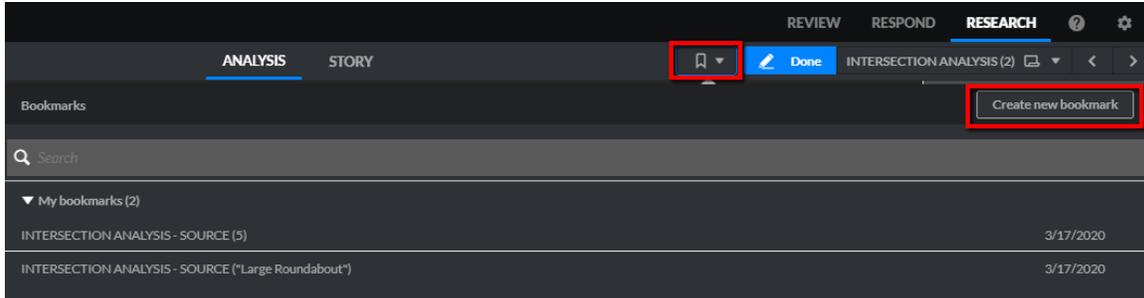
Draw a freehand lasso to enclose an area as follows:

1. Click inside the visualization.
2. Click the lasso selection tool.
3. Draw a freehand circle to capture and select data points.  
Be sure to close off the selected area by returning to the selection starting point in your freehand drawing.



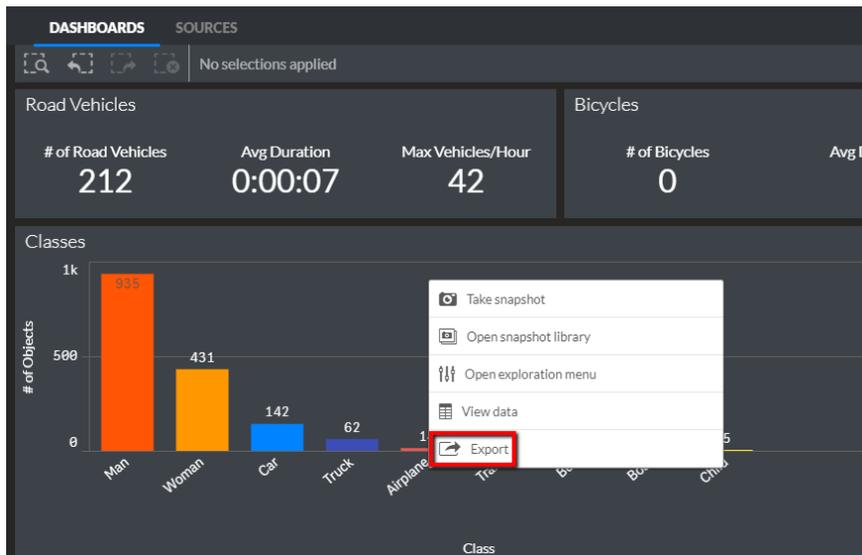
## Bookmarks

You can add bookmarks to save your selections within the sheet. A bookmark can later restore your filters and dashboard selection. To create or restore a bookmark, click  and then click the **Create new bookmark** button.



## Exporting Charts

To export a chart, right-click on the chart and select **Export**.



Then select whether to export the chart as an image or PDF or whether to export the data as an .xlsx file (**Export data**).



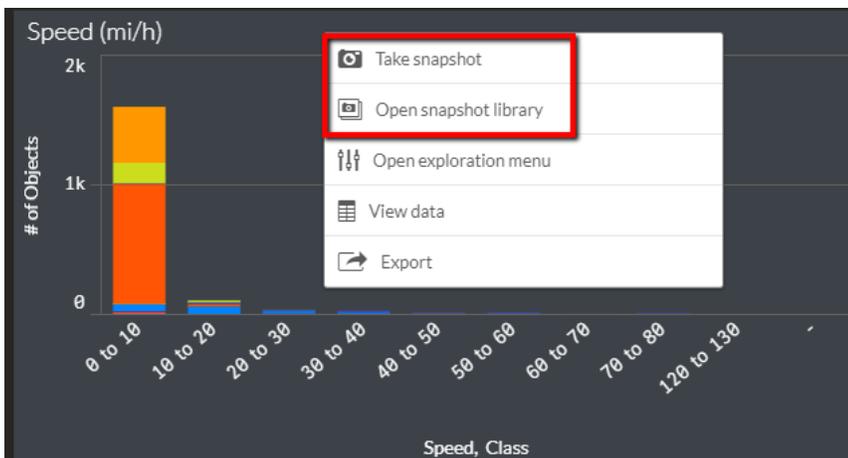
## Taking Snapshots

If you hover over a chart, you will see three icons in the right-hand corner.



Click the camera icon to take a snapshot of the chart.

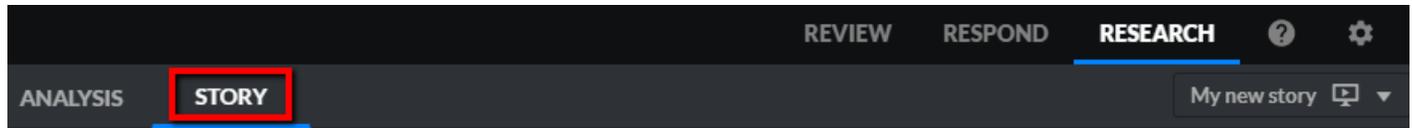
You can also right-click on the chart and take a snapshot by clicking the **Take snapshot** option. You can then click the **Open snapshot library** option to view the images that you saved.



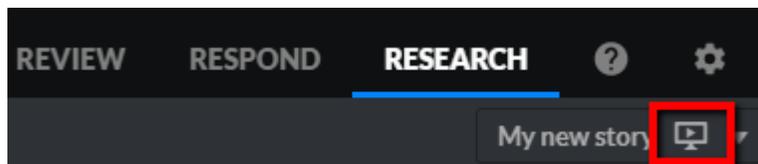
## Creating a Story (Presentation)

You can create customized stories (presentations) that include snapshots of your charts and embed sheets for an interactive story.

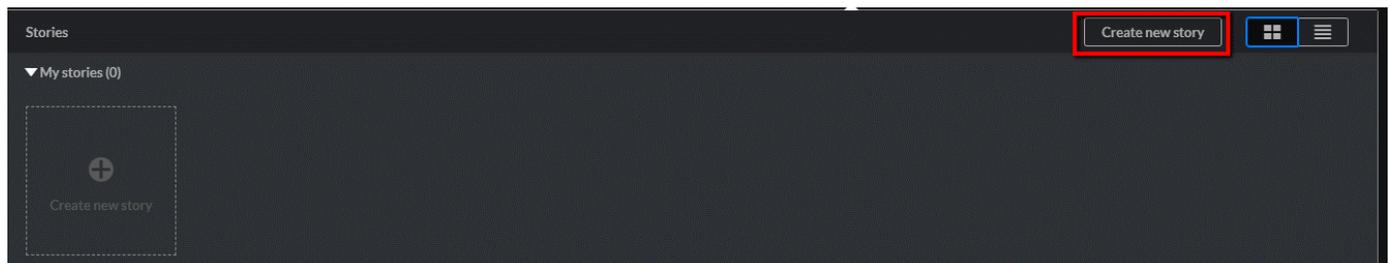
1. From the toolbar, click the **Story** tab.



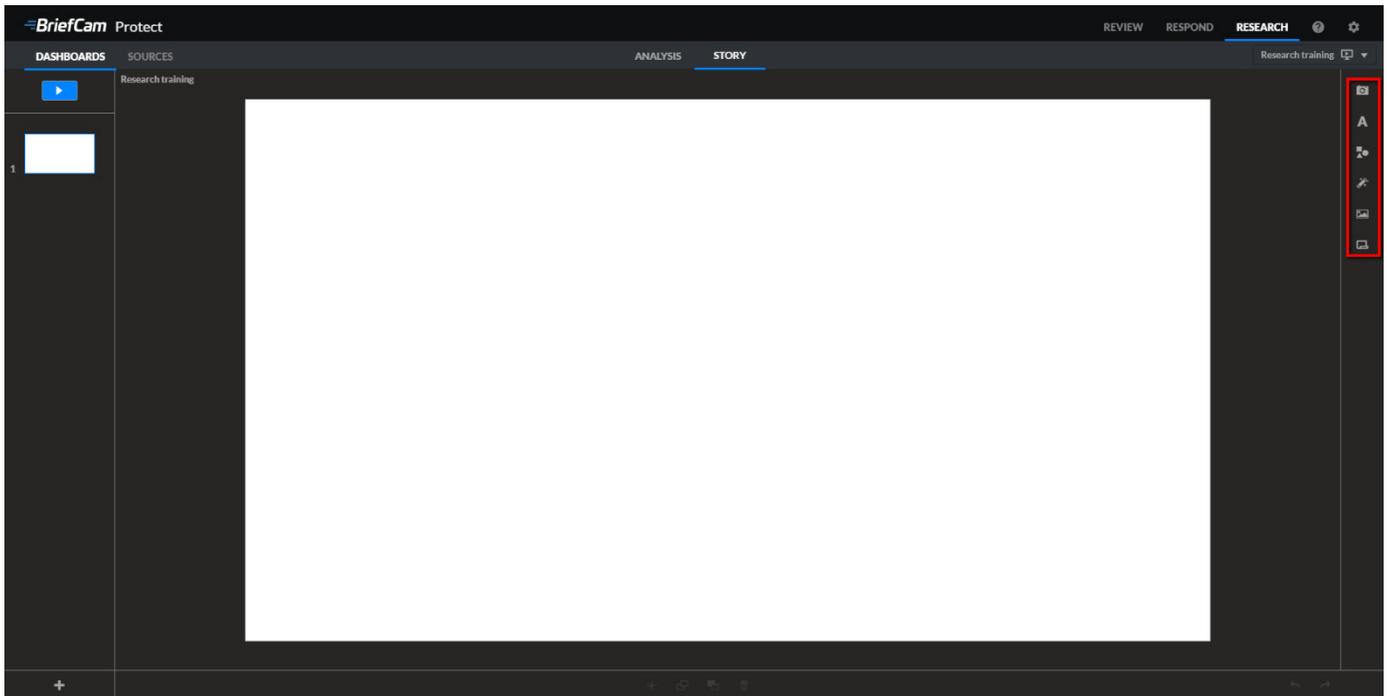
2. Click the story icon.



3. Click the **Create new story** button.



4. In the **Title** field, give your story a name and click **Enter**.
5. Click on your new story.
6. Use the icons on the right-hand of the screen to create your story. For example, click the Snapshot library (📷) icon to add one of your snapshots to the presentation or the Sheet library (📄) icon to add a live data sheet into your story.

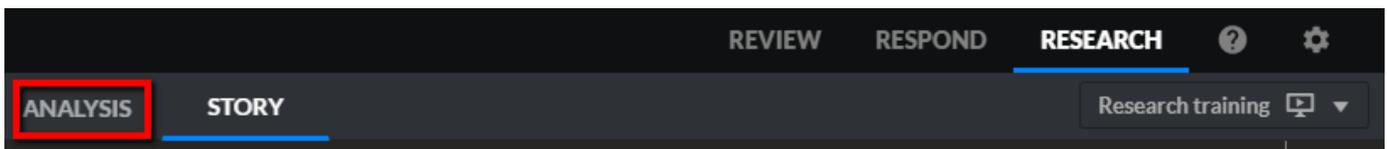


7. You can also use the icons at the bottom of the screen.



8. Click the play () button to play the story.

9. To get to the dashboards, click the **Analysis** tab.



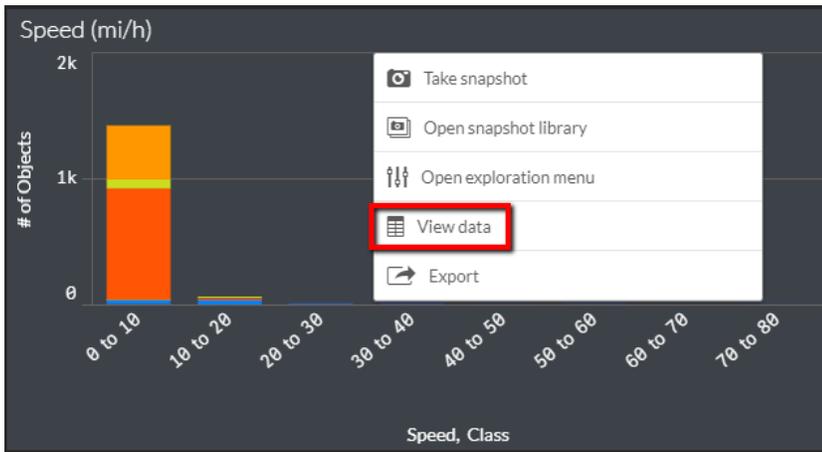
## Editing Properties with the Exploration Menu

From any chart, click the **Exploration menu**  icon to zoom into the chart and make changes to the properties without having to go into Edit mode.

To close the menu, click the  icon.

## Viewing a Chart's Data

You can quickly view any chart's data in a table format by right-clicking on the chart and selecting the **View data** option.



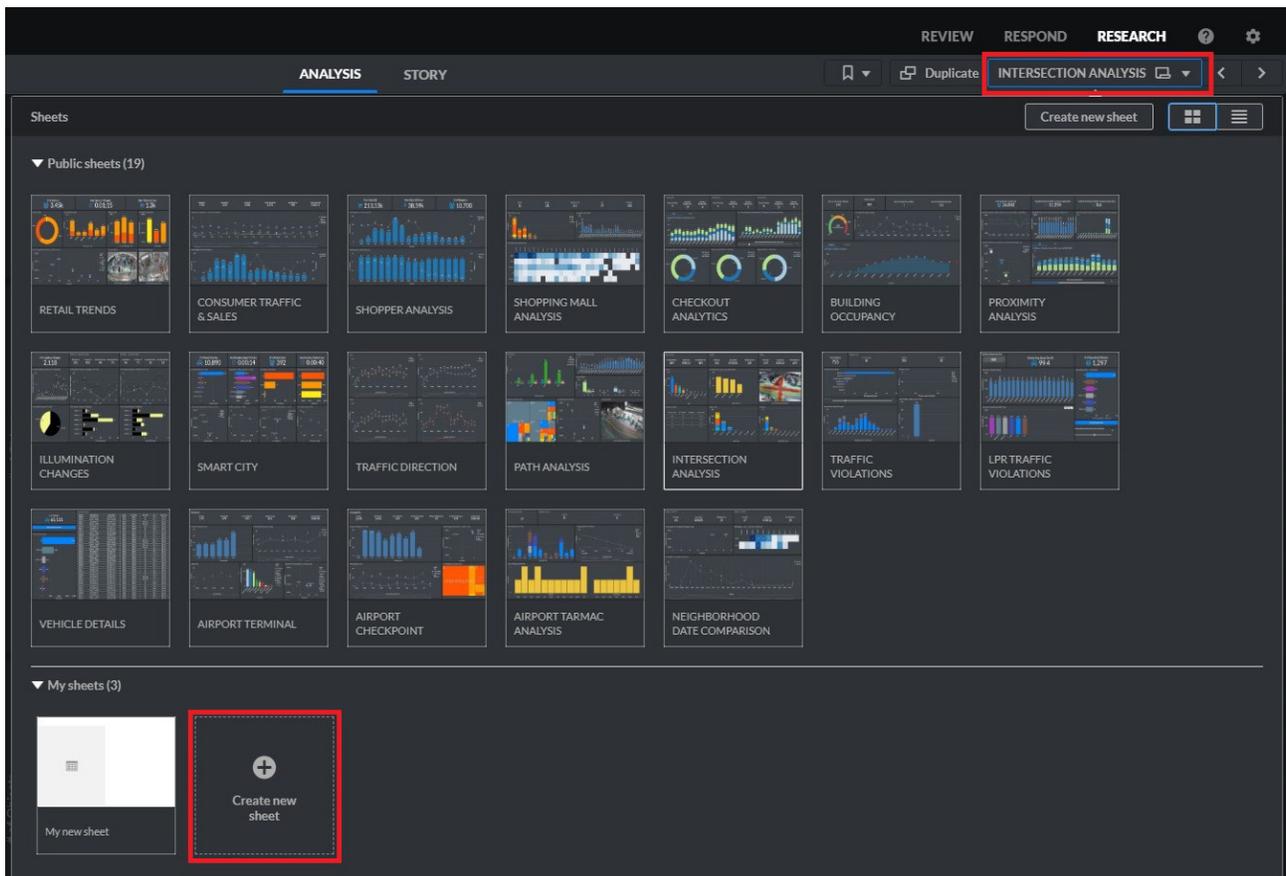
The chart's data will be displayed in a table similar to the image below.

Speed (mi/h)				
Speed	Q	Class	Q	# of Objects
0 to 10		Man		880
0 to 10		Woman		428
0 to 10		Unknown		71
0 to 10		Car		31
0 to 10		Airplane		3
0 to 10		Child		3
0 to 10		Boat		1
0 to 10		Truck		1
10 to 20		Car		31
10 to 20		Man		15
10 to 20		Unknown		11
10 to 20		Truck		5

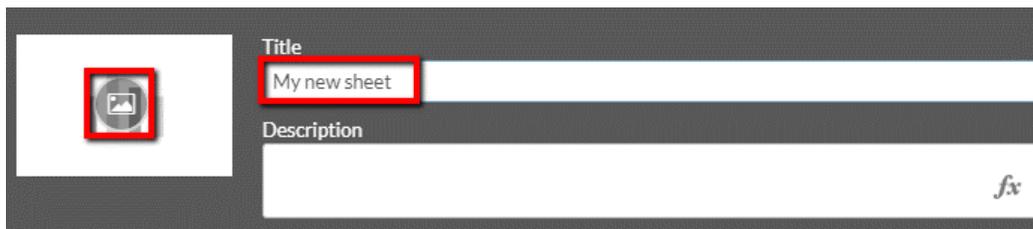
## Creating Your Own Analytics

### Creating a New Sheet

1. Click the sheets section on the top right of the screen.
2. Click **Create new sheet**.



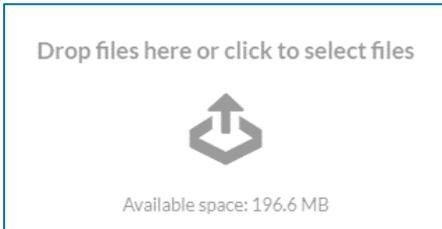
3. Give a title to the sheet.
4. If you want, you can add a thumbnail by clicking the thumbnail image.



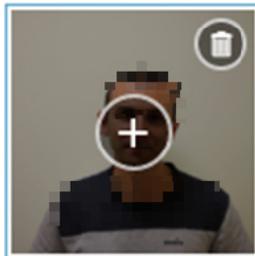
5. Select an image from the list or you can add your own image by clicking the **Upload media** option.

Media library	
In app	Airport Checkpoint.jpg
Default	Airport Tarmac Analysis.jpg
	Airport Terminal.jpg
	Building Occupancy.jpg
	Compare Two Dates.jpg
	Consumer Traffic & Sales.jpg
	H2.jpg
	Intersection Analysis.jpg
	Lighting Changes.jpg
	M1.jpg
	Marc.png
	Path Analysis.jpg
	Retail Trends.jpg
	Screenshot_1.png
	Screenshot_2.png
Upload media	Shopper Analysis.jpg

6. To select a file of your own, drop a file or click to select the file.



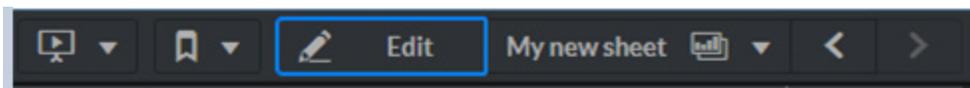
7. Click on the image and click the insert (+) button.



S1.JPG

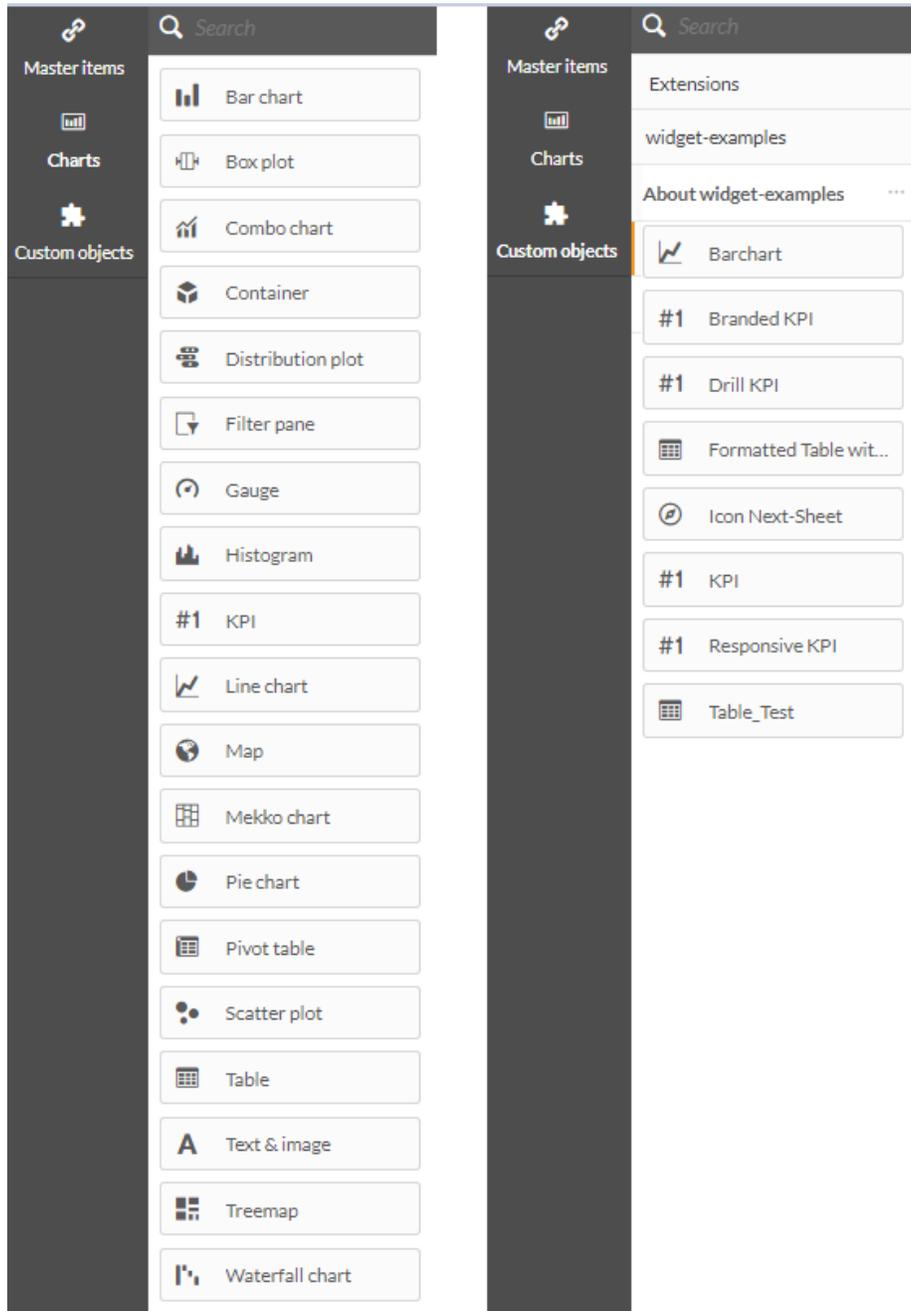
8. Press **Enter**.

9. Open the dashboard and click **Edit** to edit the new sheet.



## Adding Visualizations

To create a new visualization (bar chart, pie chart, etc.), drag an object from the left-hand **Charts** or **Custom Objects** panel to the sheet.



The table below provides brief descriptions of the available charts:

Chart	Description
<b>Bar chart</b>	The bar chart displays a bar for each dimension value. The bar length corresponds to its numerical measure value.
<b>Box plot</b>	The box plot is suitable for comparing range and distribution for groups of numerical data, illustrated by a box with whiskers, and a center line in the middle.
<b>Combo chart</b>	The combo chart combines bars and lines in the same chart. The bars and lines have different axes to enable comparisons of percentages and sums.
<b>Container</b>	The container is an object that lets you add visualizations in a limited space using tabs. You can also show or hide the visualizations inside the container based on conditions.
<b>Distribution plot</b>	The distribution plot is suitable for comparing range and distribution for groups of numerical data. Data is plotted as value points along an axis.
<b>Filter pane</b>	The filter pane allows you to control what data is shown in the visualizations on a sheet. The filter pane can filter the data of several dimensions at once.
<b>Gauge</b>	The gauge is used to display the value of a single measure lacking dimensions.
<b>Histogram</b>	The histogram is suitable for visualizing distribution of numerical data over a continuous interval, or a certain time period. The data is divided into bins.
<b>KPI</b>	The KPI is used to present central performance figures. You can add a link to a sheet.
<b>Line chart</b>	The line chart displays data lines between values. Line charts are often used to visualize trends in data over intervals of time.
<b>Map</b>	The map is used to combine geographical data and measure values, such as sales in a region or store.
<b>Mekko chart</b>	The mekko chart is suitable for comparing groups, while being able to compare category items contained within these groups. The dimension axis shows the groups, while the measure axis shows the normalized percentage value for each category item. The size of each group shows its value.

Chart	Description
<b>Pie chart</b>	The pie chart shows the relationship between a single dimension and a single measure.
<b>Pivot table</b>	The pivot table presents dimensions and measures as rows and columns of a table. The pivot table allows you to analyze data in multiple dimensions simultaneously. The data in a pivot table can be grouped based on a combination of the dimensions, and partial sums can be shown.
<b>Scatter plot</b>	The scatter plot presents values from two measures. This is useful when you want to show data in which each instance has two numbers, for example, country (population and population growth). An optional third measure can be used and is reflected in the size of the bubbles. When showing large data sets colors will be used instead of bubble size to represent the measure size.
<b>Table</b>	The table displays values in record form so that each row of the table contains fields calculated using measures. Typically, a table includes one dimension and multiple measures.
<b>Text &amp; image</b>	Use the text & image visualization to add text, images, measures and links to a sheet. To add an image, enable the <b>Use Background Image</b> setting, click on the image, and select an image from the list or add your own image by clicking the <b>Upload media</b> option (then click the image and the plus icon).
<b>Treemap</b>	The treemap shows hierarchical data. A treemap can show a large number of values simultaneously within a limited space.
<b>Waterfall chart</b>	The waterfall chart is suitable for illustrating how an initial value is affected by intermediate positive and negative values. The starting and the final values are represented by whole bars, and intermediate values by floating bars. You can also show subtotals in the chart.

The table below provides brief descriptions of the available extensions in the custom objects:

Extensions	Description
<b>Climber KPI</b>	Presents KPIs, such as trendlines and navigation from your dashboard to details on other sheets.
<b>Climber Selection Bar</b>	Horizontal selection bar with initial selection capabilities via clicks and swipes.
<b>Date picker</b>	Select a single date or a range of dates from a calendar.
<b>Dynamic table</b>	A table with support for sortable columns and the ability to limit the number of records that are retrieved.
<b>Export Button</b>	Export data to an XLS or CSV file without having to load the data to the memory, which impacts performance.
<b>Heatmap chart</b>	A two-dimensional heatmap.
<b>Menubar</b>	A menu bar with vertical and horizontal buttons, selections and trigger-based actions.
<b>Sheet Events</b>	Trigger actions (related to fields, bookmarks and variable) when a dashboard is opened.
<b>Simple KPI</b>	Display one or more KPIs using measures and one dimension.
<b>Simple Table (w/ Links)</b>	A simple table with conditional logic for detecting hyperlinks, images and raw HTML input.
<b>SimpleFieldSelect</b>	Enables field and variable selections, including the ability to set the background color of the dashboard, hide the title bar, modify all borders, remove the Insights button and more.
<b>Word Cloud Chart</b>	Visualize text data or free form text. Single words are displayed with their size based on a measure value. You can customize your chart with different shapes, fonts, layouts, and color schemes.

## Adding Dimensions and Measures

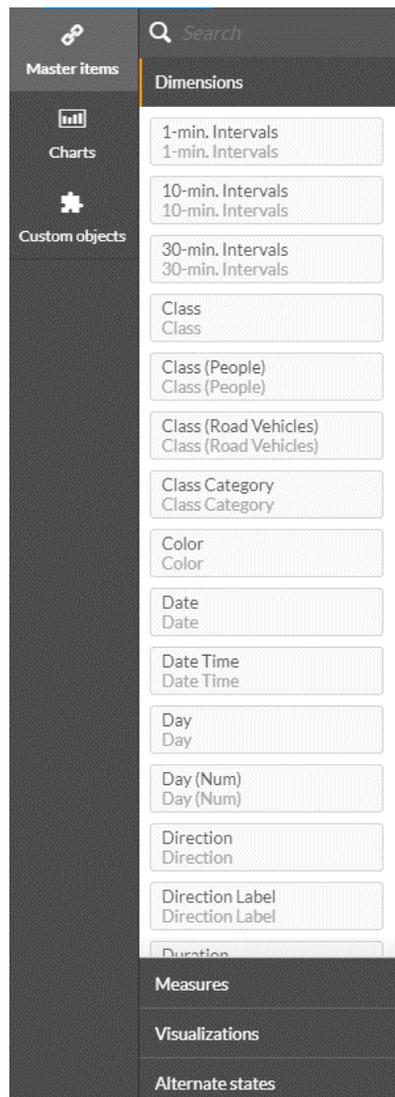
Once a visualization (bar chart, pie chart, etc.) has been added, you should complete it by selecting the relevant measures and dimensions from the **Master items** menu.

A visualization consists of at least one measure or one dimension; in most cases, a visualization has both, and sometimes it has more than one dimension or measure.

### Dimensions

You need to be in Edit  to see the **Master items**.

Dimensions determine how the data in a visualization are grouped (this often refers to time, class, etc.).



The table below provides a brief description of each of the dimensions available:

Dimension Name	Description	Sample values
<b>1-min. Intervals</b>	Aggregate of the data in 1-minute time intervals	02:10, 02:11, 02:12
<b>5-min. Intervals</b>	Aggregate of the data in 5-minute time intervals	04:10, 04:15, 04:20
<b>10-min. Intervals</b>	Aggregate of the data in 10-minute time intervals. People counting has its own dimension for this functionality.	03:10, 03:20, 03:30
<b>30-min. Intervals</b>	Aggregate of the data in 30-minute time intervals. People counting has its own dimension for this functionality.	04:00, 04:30, 05:00
<b>Class</b>	Object class	Man, Woman, Car, Truck
<b>Class (People)</b>	Only "People" object classes, meaning: Man, Woman and Child	Man, Woman, Child
<b>Class (Road Vehicles)</b>	Only "Road Vehicles" object classes, meaning: Motorcycle, Car, Pickup Truck, Van, Truck, Bus	Motorcycle, Car, Pickup Truck, Van, Truck, Bus
<b>Class Category</b>	Contains the following class categories: <ul style="list-style-type: none"> <li>• People: Man, Woman, Child</li> <li>• Bicycles: Bicycle</li> <li>• Road Vehicles: Motorcycle, Car, Pickup Truck, Van, Truck, Bus</li> <li>• Other Vehicles: Train, Airplane, Boat</li> <li>• Illumination Changes: Lights On, Lights Off</li> <li>• Animals: Animals</li> </ul>	People, Bicycles, Road Vehicles, Other Vehicles, Animals
<b>Color</b>	Object main color	Black, Green, Orange

Dimension Name	Description	Sample values
<b>Custom Dimensions</b>	Custom dimension name (as configured in the Sources module). This includes the Path, Area and Line Crossing filters. For people counting, use the <b>People Counting: Area</b> dimension.	Shoes, Accessories, North, East
<b>Date</b>	Object date. People counting has its own dimension for this functionality.	19/03/2018
<b>Date Time</b>	Object date time. People counting has its own dimension for this functionality.	19/03/2018 13:03
<b>Day</b>	Object day. People counting has its own dimension for this functionality.	Mon, Tue, Wed
<b>Day (Num)</b>	Object day number (for example, 19 if the date is 19/03/2018). People counting has its own dimension for this functionality.	1,2,15,17,19
<b>Direction</b>	Object direction in degrees	18°, 45°
<b>Direction Label</b>	Object general direction: <ul style="list-style-type: none"> <li>Up: <math>0^\circ &lt; \text{direction} &lt; 45^\circ</math> or <math>315^\circ &lt; \text{direction} &lt; 360^\circ</math></li> <li>Right: <math>45^\circ \leq \text{direction} \leq 135^\circ</math></li> <li>Down: <math>135^\circ &lt; \text{direction} &lt; 225^\circ</math></li> </ul> Left: $225^\circ \leq \text{direction} \leq 315^\circ$	Up, Right, Down, Left
<b>Duration</b>	Object duration in seconds, calculated as the difference between Object start time and Object end time in the frame	0:00:02
<b>Dwell (Sec)</b>	Objects having dwelled for a user-specified period of time or more, in seconds	11, 21

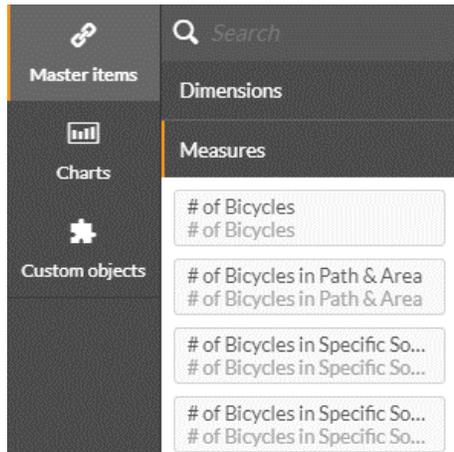
Dimension Name	Description	Sample values
<b>Hour</b>	Object time in hour range format. People counting has its own dimension for this functionality.	04:00-05:00, 21:00-22:00
<b>Hour (hh)</b>	Object time in hour format. People counting has its own dimension for this functionality.	06:00
<b>Hour (Num)</b>	Object time in hour number format. People counting has its own dimension for this functionality.	16, 21
<b>License Plates</b>	Objects detected as license plates	6DN3168, 1049189
<b>Month</b>	Object time in month format. People counting has its own dimension for this functionality.	Mar, Apr
<b>Month (Num)</b>	Object time in month number format. People counting has its own dimension for this functionality.	3, 4
<b>Object End Time</b>	Object end time in the frame	19/03/2018 13:04:11
<b>Object Start Time</b>	Object start time in the frame	19/03/2018 13:00:02
<p><b>Note:</b> People Counting has separate filters, dimensions and measures. People Counting data will not be seen together with other objects' data. For example, if you filter on a specific date it will not affect the data of the people counting.</p>		
<b>People Counting: 10-min. Intervals</b>	Aggregate of the data in 10-minute time intervals for people counting	03:10, 03:20, 03:30
<b>People Counting: 30-min. Intervals</b>	Aggregate of the data in 30-minute time intervals for people counting	04:00, 04:30, 05:00
<b>People Counting: Area</b>	Custom area dimension name (as configured in the Sources module) for people counting	Shoes, Accessories, North, East

Dimension Name	Description	Sample values
<b>People Counting: Date</b>	Date that people were counted	19/03/2018
<b>People Counting: Date Time</b>	Date and time that people were counted	19/03/2018 13:03
<b>People Counting: Day</b>	Day of the week that people were counted	Mon, Tue, Wed
<b>People Counting: Day (Num)</b>	Number of the day that people were counted (for example, 19 if the date is 19/03/2018)	1,2,15,17,19
<b>People Counting: Hour</b>	Time, in hour range format, that people were counted	04:00-05:00, 21:00-22:00
<b>People Counting: Hour (hh)</b>	Time, in hour format, that people were counted	06:00
<b>People Counting: Hour (Num)</b>	Time, in hour number format, that people were counted	16, 21
<b>People Counting: Month</b>	Time, in month format, that people were counted	Mar, Apr
<b>People Counting: Month (Num)</b>	Time, in month number format, that people were counted	3, 4
<b>People Counting: Source</b>	Source name (as configured in the Sources module) for people counting	Airport, Floor A
<b>People Counting: Time Drill Down-Time</b>	Time drill down within object visualization for people counting, according to: Date, Hour, 30-min, 10-min	
<b>People Counting: Week #</b>	Time, in week number format, that people were counted	9, 14, 20

Dimension Name	Description	Sample values
<b>Size</b>	Object size in meters or feet (as per user settings)	1.8, 0.5
<b>Source</b>	Source name (as configured in the Sources module). People counting has its own dimension for this functionality.	Airport, Floor A
<b>Speed</b>	Object speed in km/hour or miles/hour (as per user settings)	10, 78, 111
<b>Time Drill Down</b>	Time drill down within object visualization, according to: Date, Hour, 30-min, 10-min, 5-min, 1-min. People counting has its own dimension for this functionality.	
<b>Tolerance</b>	<p>Allows users to select the threshold of the object quality included in the dashboard. The threshold impacts the detection sensitivity: Loose, Normal, Strict. For example, Loose tolerance might include in the dashboard, items that are not detected as objects, such as shadows and lighting.</p> <p>Note that this dimension does not affect the tolerance of the Custom Dimensions, which can be set when editing the Custom Dimension and will be applicable from the time it was set.</p>	Loose, Normal, Strict
<b>Week #</b>	Object time in week number format. People counting has its own dimension for this functionality.	9, 14, 20

## Measures

Measures are the results of calculations (these are often aggregates, such as sum, count, or average).



The following table provides a brief description of each of the measures available:

Measure Name	Description	Sample Values
<b># of Bicycles</b>	Total count of objects identified as bicycles	104, 50
<b># of Bicycles in Custom Dimensions</b>	Total count of objects identified as bicycles within the custom dimensions, areas, paths or line crossing. An object can be counted in more than one area/path/line crossing.	104, 50
<b># of Bicycles in Specific Source</b>	Total count of objects identified as bicycles in a specific source. To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.  Expression: count({\$<Source={'SourceExample'},[Class Category ID]={1}>}ObjectID)	104, 50

Measure Name	Description	Sample Values
<b># of Bicycles in Specific Source and Custom Dimensions</b>	<p>Total count of objects identified as bicycles in a specific source and path, area or line crossing.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name.</p> <p>Expression:  <code>count({\$&lt;Source={'SourceExample'}, [Path &amp; Area]={'CustomDimensionsExample'},[Class Category ID]={1}&gt;}ObjectID)</code></p>	104, 50
<b># of Illumination Changes</b>	<p>Total count of objects identified as illumination changes (Lights on, Lights off)</p>	104, 50
<b># of Illumination Changes in Area</b>	<p>Total count of objects identified as illumination changes within the custom dimension, area. An object can be counted in more than one area.</p>	104, 50
<b># of Illumination Changes in Specific Source</b>	<p>Total count of objects identified as illumination changes in a specific source.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>count({\$&lt;Source={'SourceExample'},[Class Category ID]={5}&gt;}ObjectID)</code></p>	104, 50

Measure Name	Description	Sample Values
<b># of Illumination Changes in Specific Source and Area</b>	<p>Total count of objects identified as illumination changes in a specific source and area.</p> <p>This measure is used, for example, to count the number of illumination changes in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" with the requested Source name and the "CustomDimensionsExample" with the Area name.</p> <p>Expression:  <code>count({\$&lt;Source={'SourceExample'},[Path &amp; Area]='{CustomDimensionsExample}',[Class Category ID]={5}&gt;}ObjectID)</code></p>	104, 50
<b># of License Plates</b>	<p>Total count of objects identified by license plates.</p>	104, 50
<b># of License Plates in Custom Dimensions</b>	<p>Total count of objects identified by license plates within the custom dimensions, areas, paths or line crossing. An object can be counted in more than one area/path/line crossing.</p>	104, 50
<b># of License Plates in Specific Source</b>	<p>Total count of objects identified by license plates in a specific source.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>count({\$&lt;[Source]='{SourceExample}'&gt;}LPR)</code></p>	104, 50
<b># of License Plates in Specific Source and Custom Dimensions</b>	<p>Total count of objects identified as license plates in a specific source and path, area or line crossing.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name.</p> <p>Expression:  <code>count({\$&lt;[Path &amp; Area]='{CustomDimensionsExample}',[Source]='{SourceExample}'&gt;}LPR)</code></p>	104, 50

Measure Name	Description	Sample Values
<b># of Objects</b>	Total count of objects	104, 50
<b># of Objects in Custom Dimensions</b>	Total count of objects within the custom dimensions, areas, paths or line crossings. An object can be counted in more than one area/path/line crossing.	104, 50
<b># of Objects in Specific Source</b>	<p>Total count of objects in a specific source.</p> <p>This measure is used, for example, to count objects from different sources in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression: count({\$&lt;Source={'SourceExample'}&gt;}ObjectID)</p>	104, 50
<b># of Objects in Specific Source and Custom Dimensions</b>	<p>Total count of objects in a specific source and path, area or line crossing.</p> <p>This measure is used, for example, to count the number of objects in different areas in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name.</p> <p>Expression: count({\$&lt;Source={'SourceExample'}, [Path &amp; Area]={'CustomDimensionsExample'}&gt;}ObjectID)</p>	104, 50
<b># of People</b>	Total count of objects identified as people (Man, Woman, Child)	104, 50
<b># of People in Custom Dimensions</b>	Total count of objects identified as people within the custom dimensions, areas, paths or line crossings. An object can be counted in more than one area/path/line crossing.	104, 50

Measure Name	Description	Sample Values
<b># of People in Specific Source</b>	<p>Total count of objects identified as people in a specific source.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression: count({\$&lt;Source={'SourceExample'},[Class Category ID]={0}&gt;}ObjectID)</p>	104, 50
<b># of People in Specific Source and Custom Dimensions</b>	<p>Total count of objects identified as people in a specific source and path, area or line crossing.</p> <p>This measure is used, for example, to count the number of people in different areas in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name.</p> <p>Expression: count({\$&lt;Source={'SourceExample'},[Path &amp; Area]={CustomDimensionsExample'},[Class Category ID]={0}&gt;}ObjectID)</p>	104, 50
<b># of Road Vehicles</b>	<p>Total count of objects identified as road vehicles (Motorcycle, Car, Pickup Truck, Van, Truck, Bus)</p>	104, 50
<b># of Road Vehicles in Custom Dimensions</b>	<p>Total count of objects identified as road vehicles within the custom dimensions: areas, paths or line crossings. An object can be counted in more than one area/path/line crossing.</p>	104, 50
<b># of Road Vehicles in Specific Source</b>	<p>Total count of objects identified as road vehicles in a specific source.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression: count({\$&lt;Source={'SourceExample'},[Class Category ID]={2}&gt;}ObjectID)</p>	104, 50

Measure Name	Description	Sample Values
<b># of Road Vehicles in Specific Source and Custom Dimensions</b>	<p>Total count of objects identified as road vehicles in a specific source and path, area or line crossing.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name.</p> <p>Expression:  <code>count({\$&lt;Source={'SourceExample'},[Path &amp; Area]={'CustomDimensionsExample'},[Class Category ID]={2}&gt;}ObjectID)</code></p>	104, 50
<b># of Speeding Road Vehicles</b>	Total count of objects identified as road vehicles (Motorcycle, Car, Pickup Truck, Van, Truck, Bus) whose speed exceeds the speed specified on the Speed Limit Slider (available in the visualization folder)	104, 50
<b>Avg # of Objects</b>	Average object count (per day)	104, 50
<b>Avg # of Objects in Custom Dimensions</b>	Average object count (per day) within the custom dimensions: areas, paths or line crossings. An object can be counted in more than one area/path/line crossing.	104, 50
<b>Avg # of Objects in Custom Dimensions by Hour</b>	Average object count (per hour) within the custom dimensions: areas, paths or line crossings. An object can be counted in more than one area/path/line crossing.	104, 50

Measure Name	Description	Sample Values
<b>Avg # of Objects in Specific Source</b>	<p>Average object count (per day) in a specific source.</p> <p>This measure provides the average object count from different sources in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name (in two places).</p> <p>Expression:  <code>count(distinct {\$&lt;Source={'SourceExample'}&gt;}ObjectID)/count(distinct {\$&lt;Source={'SourceExample'}&gt;}Date)</code></p>	104, 50
<b>Avg # of Objects in Specific Source and Custom Dimensions</b>	<p>Average object count (per day) within the custom dimensions, areas, paths or line crossings. An object can be counted in more than one area/path/line crossing.</p> <p>This measure provides the average object counts in different areas/paths/line crossings in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name, respectively.</p> <p>Expression:  <code>count(distinct {\$&lt;Source={'SourceExample'},[Path &amp; Area]={'CustomDimensionsExample'}&gt;}ObjectID)/count(distinct {\$&lt;Source={'SourceExample'},[Path &amp; Area]={'CustomDimensionsExample'}&gt;}Date)</code></p>	104, 50
<b>Avg # of Proximity Violation Contacts</b>	<p>Average number of people who have passed the proximity threshold with the selected person.</p>	104, 50

Measure Name	Description	Sample Values
<b>Avg # of Proximity Violation Contacts in Specific Source</b>	<p>Average number of people who have passed the proximity threshold with the selected person in a specific source.</p> <p>This measure provides the average count of proximity threshold violations from different sources in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>avg({\$&lt;Source={'SourceExample'}&gt;}NumOfContacts)</code></p>	104, 50
<b>Avg Duration</b>	Average object duration in seconds	0:00:14
<b>Avg Duration Bicycles</b>	Average duration in seconds of objects identified as bicycles	0:00:14
<b>Avg Duration in Custom Dimensions</b>	Average duration in seconds of objects within the custom dimensions: areas, paths or line crossings	0:00:14
<b>Avg Duration in Specific Source</b>	<p>Average duration in seconds of objects within a specific source.</p> <p>This measure provides the average duration of different Sources in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name (in two places).</p> <p>Expression:  <code>interval(sum({\$&lt;Source={"SourceExample"}&gt;} Duration) / count({\$&lt;Source={"SourceExample"}&gt;}ObjectID))</code></p>	0:00:14

Measure Name	Description	Sample Values
<b>Avg Duration in Specific Source and Custom Dimensions</b>	<p>Average object duration time in seconds of objects within the custom dimensions: areas, paths or line crossings.</p> <p>This measure provides the average duration of different areas/path in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name, respectively.</p> <p>Expression:  <code>interval(sum({\$&lt;Source={'SourceExample'},[Path &amp; Area]={'CustomDimensionsExample'}&gt;} Duration) / count({\$&lt;Source={'SourceExample'},[Path &amp; Area]={'CustomDimensionsExample'}&gt;}ObjectID))</code></p>	0:00:14
<b>Avg Duration License Plates</b>	Average duration in seconds of objects with detected license plates	0:00:14
<b>Avg Duration People</b>	Average duration in seconds of objects identified as people (Man, Woman, Child)	0:00:14
<b>Avg Duration Road Vehicles</b>	Average duration in seconds of objects identified as road vehicles (Motorcycle, Car, Pickup Truck, Van, Truck, Bus)	0:00:14
<b>Avg Max Proximity</b>	Average maximum distance that a person had with other people for a certain amount of time.	5.25, 6.40

Measure Name	Description	Sample Values
<b>Avg Max Proximity in Specific Source</b>	<p>Average maximum distance that a person had with other people for a certain amount of time in a specific source.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>num(avg({\$&lt;Source={'SourceExample'}&gt;}\$(vMaxProximity)),vProximityNum)</code></p>	5.25, 6.40
<b>Avg Min Proximity</b>	<p>Average minimum distance (in meters) that a person had with other people for a certain amount of time.</p>	3.16, 4.70
<b>Avg Min Proximity in Specific Source</b>	<p>Average minimum distance (in meters) that had a person had with other people for a certain amount of time in a specific source.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>num(avg({\$&lt;Source={'SourceExample'}&gt;}\$(vMinProximity)),vProximityNum)</code></p>	3.16, 4.70
<b>Avg Speed</b>	Average speed per object in km/hour	0:00:14
<b>Avg Size</b>	Average size per object in meters or feet (as per user settings)	1.8, 0.5
<b>Max Bicycles/Hour</b>	Maximum count of objects per hour, identified as bicycles	15
<b>Max Illumination Changes /Hour</b>	Maximum count of illumination changes per hour	15
<b>Max License Plates/Hour</b>	Maximum count of license plates per hour	15

Measure Name	Description	Sample Values
<b>Max Objects/Hour</b>	Maximum count of objects per hour	15
<b>Max Objects/Hour in Custom Dimensions</b>	Maximum count of objects within the custom dimensions: areas, paths or line crossings, per hour	15
<b>Max Objects/Hour in Specific Source</b>	<p>Maximum count of objects in a specific source, per hour.</p> <p>This measure is used, for example, to present the maximum number of objects per hour in different sources in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>max( {\$&lt;[Source Filters]='{SourceExample}',Source=&gt;} aggr(count( {\$&lt;[Source Filters]='{SourceExample'},Source=&gt;}ObjectID),Hour,Date))</code></p>	15
<b>Max Objects/Hour in Specific Source and Custom Dimensions</b>	<p>Maximum count of objects in a specific source within the custom dimensions: areas, paths or line crossings, per hour.</p> <p>This measure is used, for example, to present the maximum number of objects in a specific source per hour of different areas/paths/line crossings in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the strings "SourceExample" and "CustomDimensionsExample" with the requested Source name and Path, Area or Line Crossing name, respectively.</p> <p>Expression:  <code>max( {\$&lt;[Source Filters]='{SourceExample'},[Path &amp; Area]='{CustomDimensionsExample'},Source=&gt;} aggr(count( {\$&lt;[Source Filters]='{SourceExample'},[Path &amp; Area]='{CustomDimensionsExample'},Source=&gt;}ObjectID),Hour,Date))</code></p>	15

Measure Name	Description	Sample Values
<b>Max People/Hour</b>	Maximum count of objects identified as people (Man, Woman, Child), per hour. People counting has its own measure for this functionality.	15
<b>Max Road Vehicles/Hour</b>	Maximum count of objects identified as road vehicles (Motorcycle, Car, Pickup Truck, Van, Truck, Bus), per hour	15
<p><b>Note:</b> People Counting has separate filters, dimensions and measures. People Counting data will not be seen together with other objects' data. For example, if you filter on a specific date it will not affect the data of the people counting.</p>		
<b>People Counting: Avg # of People</b>	Average people count (per day)	104, 50
<b>People Counting: Avg # of People in Area</b>	Average people count (per day) within the custom area dimensions. A person can be counted in more than one area.	104, 50
<b>People Counting: Avg # of People in Specific Source</b>	<p>Average people count (per day) in a specific source.</p> <p>This measure provides the average people count from different sources in the same sheet.</p> <p>To use this measure, unlink the measure, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression:  <code>Avg({{\$&lt;[SourceHC]='{SourceExample}'&gt;}totalCountSource)</code></p>	104, 50

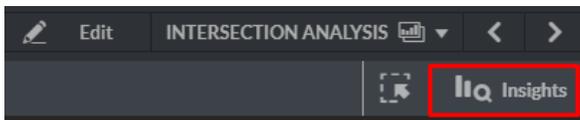
Measure Name	Description	Sample Values
<b>People Counting: Avg # of People in Specific Source and Area</b>	<p>Average people count (per day) in a specific source within the custom area dimension. An object can be counted in more than one area.</p> <p>This measure provides the average object counts in different areas in the same sheet.</p>	104, 50
<b>People Counting: Max # of People/Hour</b>	<p>Calculates the average # of people per hour and then finds the maximum value.</p> <p>This measure is used, for example, to present the maximum number of people per hour in the same sheet.</p>	15
<b>People Counting: Max # of People/Hour in Area</b>	<p>Calculates the average # of people per hour within the custom area dimensions and then finds the maximum value.</p> <p>This measure is used, for example, to present the maximum number of people per hour of different areas in the same sheet.</p> <p>Expression: max(aggr(Avg(totalCountRule),HourHC,DateHC))</p>	15
<b>People Counting: Max # of People/Hour in Specific Source</b>	<p>Calculates the average # of people per hour in a specific source and then finds the maximum value.</p> <p>This measure is used, for example, to present the maximum number of people per hour in different sources in the same sheet.</p> <p>To use this measure, unlink the measure within the visualization object, then replace the string "SourceExample" with the requested Source name.</p> <p>Expression: max(aggr(Avg({\$&lt;[SourceHC]='SourceExample'}&gt;}totalCountSource),HourHC,DateHC))</p>	15

Measure Name	Description	Sample Values
<b>People Counting: Max # of People/Hour in Specific Source and Area</b>	<p>Calculates the average # of people per hour in a specific source within the custom area dimensions and then finds the maximum value.</p> <p>This measure is used, for example, to present the maximum number of people in a specific source per hour of different areas in the same sheet.</p> <p>To use this measure, unlink the measure, then replace the strings "SourceExample" and "AreaExample" with the requested Source name and Area name, respectively.</p> <p>Expression:  <code>max(aggr(Avg({\$&lt;[SourceHC]='{SourceExample}', [RuleHC] = '{AreaExample}'&gt;}totalCountRule),HourHC,DateHC))</code></p>	15

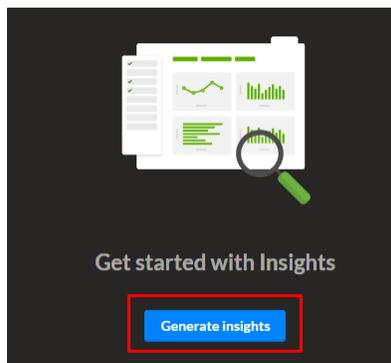
## Insight Advisor

The Insight Advisor uses a cognitive engine to suggest and prioritize charts and analytics, based on previous selections.

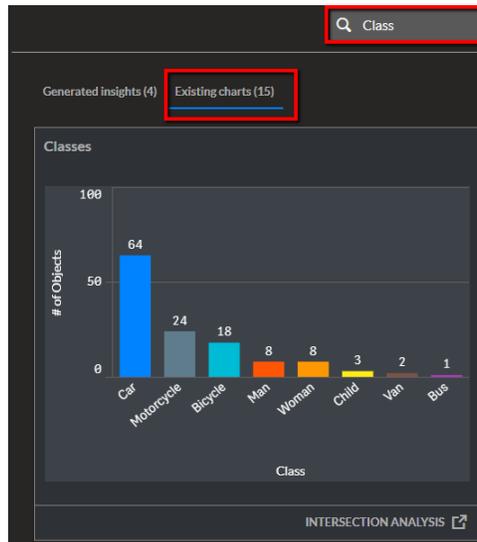
- From a sheet, click **Insights**.



- To generate charts:
  - Based on an analysis of your data, click **Generate insights**.



- Based on specific data, select which master items to use (dimensions and measures) or search for them by name in the **Existing charts** tab.



3. Click **Add to sheet** to add an insight chart.



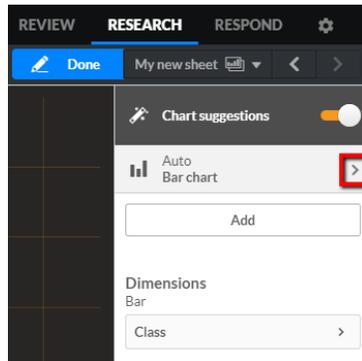
## Chart Suggestions

BriefCam will suggest charts for you based on measures and dimensions that you add to the dashboard. This is useful if you are not sure what chart to use.

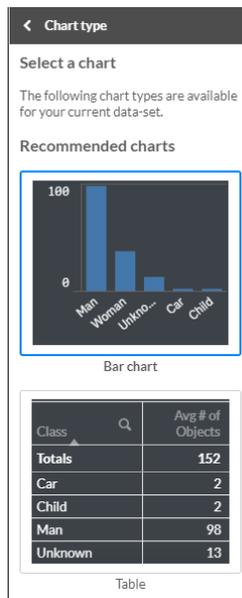
1. While editing a dashboard, drag a dimension and/or a measure onto the dashboard.
2. BriefCam will suggest a chart for you.



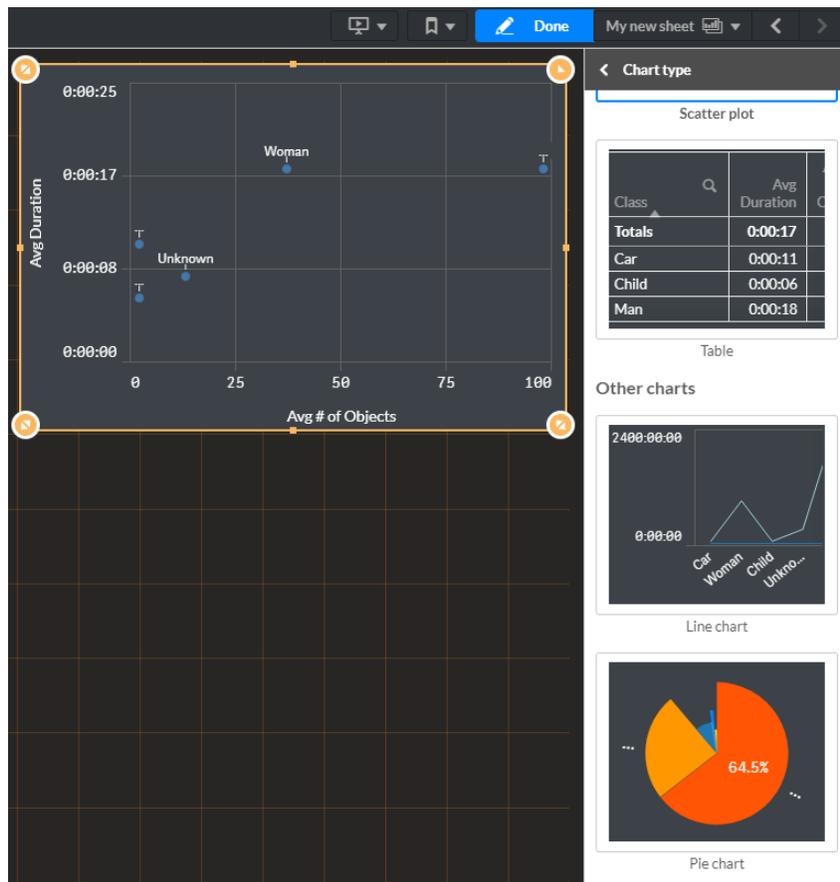
- To see other suggestions, click the arrow to the right of the word **Auto** (as shown in the image below).



- You can select one of the other recommended charts by clicking on it.

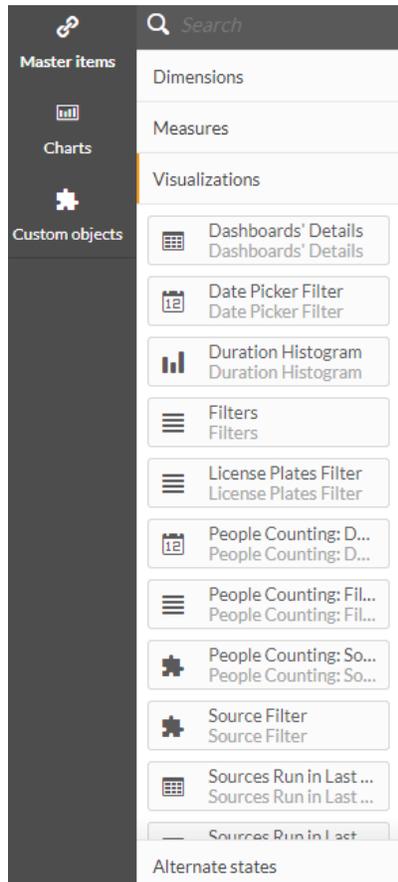


As you add or remove fields, the suggested visualization adjusts itself based on your changes.



## OOTB (Out-of-the-box) Visualizations

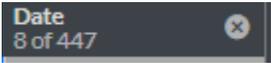
You can reuse common visualizations by dragging an object from the left-hand side **Master items/ Visualizations** menu to the sheet.



Currently, the available out-of-the-box visualizations are:

Visualization name	Description
<b>Dashboards' Details</b>	A table that presents all the names and IDs of the dashboards. This is useful for changing the default dashboard that opens when opening the RESEARCH module. To change the default, contact your administrator.
<b>Date Picker Filter</b>	Add this filter to select a specific time range within a sheet. People counting has its own visualization for this functionality. Note: In version 5.4.1, the Date Picker was enhanced. If you used a previous Date Picker Filter in your dashboards, replace it with the new Date Picker Filter.
<b>Duration Histogram</b>	Histogram (spread) chart of different objects' durations.

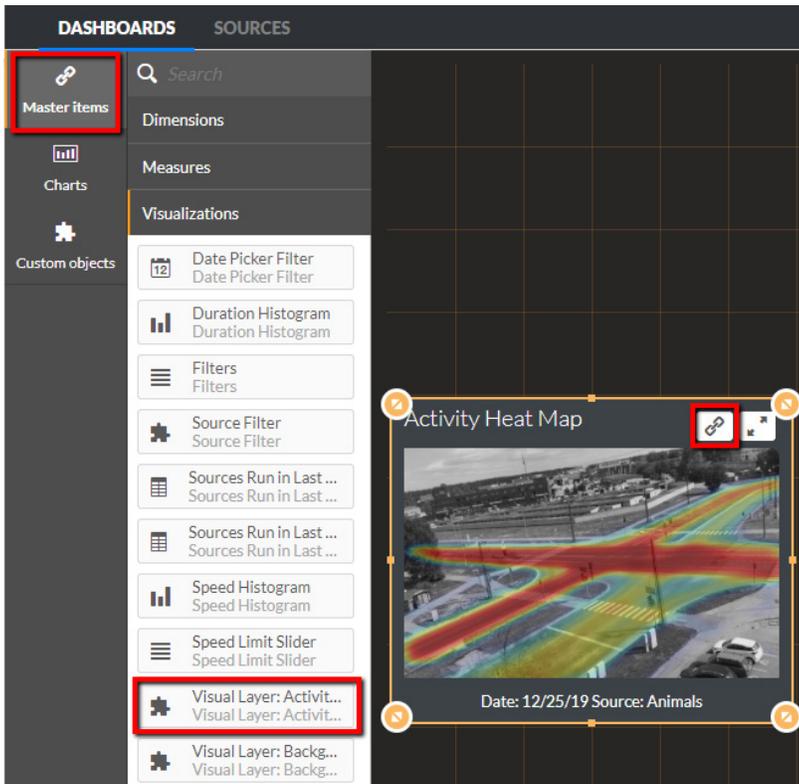
Visualization name	Description
<b>Filters</b>	<p>Add these filters to filter different attributes within a sheet: Source, Day, Hour, Class Category, Class, Color, Size, Speed, Dwell (Sec), Direction, Direction Label, Custom Dimensions, Tolerance, Reset Filters.</p> <p>People counting has its own visualization for this functionality.</p>
<b>License Plates Filter</b>	Add this filter to select license plates from a list (or search).
<b>People Counting: Date Picker Filter</b>	Add this filter to select a specific time range within a sheet for people counting.
<b>People Counting: Filters</b>	Add these filters to select different People Counting attributes within a dashboard, such as People Counting: Hour (Num).
<b>People Counting: Source Filter</b>	This lets you set preset dashboard filters for people counting. For more information, see the Source Filter item below.
<b>Source Filter</b>	<p>This lets you set preset dashboard filters (across users). Add this filter to filter the sheet according to specific Sources and other filters by default.</p> <p>People counting has its own visualization for this functionality.</p> <p>To use this filter to filter on a specific Source, drag it to the sheet, unlink it and, in the Value string under the Actions menu, replace the "SourceExample" string with the requested Source name.</p> <p>Close and reopen the dashboard for the new filter to take effect.</p> <p>The dashboard will automatically open filtered according to the source and any other filters that you set using this visualization. The Source filter will be displayed in the top left of the dashboard with the source ID.</p> 
<b>Source Run in Last 30 Days</b>	Add this table to monitor the number of objects loaded per Source and Date. The table is sorted by the last update date and contains only sources whose data was loaded in the last 30 days.

Visualization name	Description
<b>Source Run in Last 30 Days (by hour)</b>	Add this table to monitor the number of objects loaded per Source, Date <b>and Hour</b> . The table is sorted by the last update date and contains only sources whose data was loaded in the last 30 days.
<b>Speed Histogram</b>	Histogram (spread chart) of different objects' speeds.
<b>Speed Limit Slider</b>	Use the Speed Limit Slider together with the "# of Speeding Road Vehicles" measure to count Road Vehicles whose speed exceeds the limit specified on the slider.
<b>Time Range Filter</b>	<p>The dashboard will automatically open filtered according to the time range that you set using this visualization. This filter is useful when you want a dashboard to always show a certain time range relative to today without having to manually set the timer range every time the dashboard is opened.</p> <p>The Time Range filter will be displayed in the top left of the dashboard.</p>  <p>The default filter is the last 30 days.</p> <p>To change the default:</p> <ol style="list-style-type: none"> <li>1. Drag the filter to the sheet.</li> <li>2. Unlink the visualization by right-clicking on the filter, selecting <b>Unlink visualization</b> and clicking <b>OK</b>.</li> <li>3. Go to the <b>Actions</b> menu's <b>Value</b> field and click the expression icon (fx).</li> <li>4. Uncomment the expression for the relevant time range (by removing the two slashes before the row) and comment out the default. For example, if you want the time range to be set to the last 90 days, find the row that says: <b>// Last 90 days</b> and remove the // from the row below it. The two rows should now look like this: <pre>// Last 90 days ='&gt;=' &amp; Date(Today()-90) &amp; '&lt;=' &amp; Date(Today())</pre> </li> <li>5. Close and reopen the dashboard for the new filter to take effect.</li> </ol>

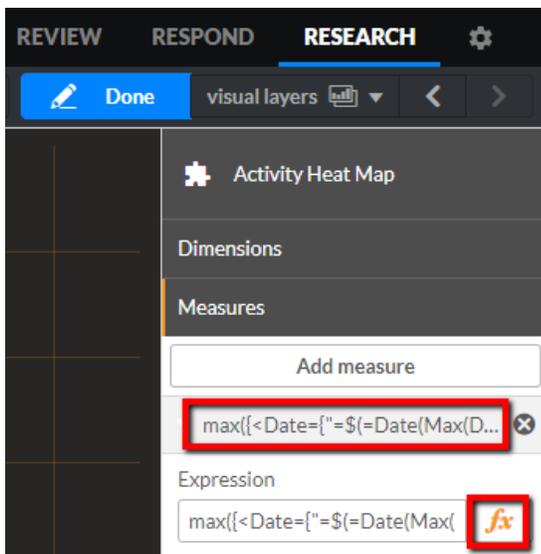
Visualization name	Description
<b>Visual Layer: Activity Heat Map</b>	Add the activity heat map image of a Research source. If a source is not selected, BriefCam will display the most recent image that comes first alphabetically. To display the heat map for a different source, add the Filters visualization and select the required source. See also <a href="#">Displaying a Specific Visual Layer</a> .
<b>Visual Layer: Background Changes</b>	Add the background changes heat map image of a Research source. If a source is not selected, BriefCam will display the most recent image that comes first alphabetically. To display the background changes for a different source, add the Filters visualization and select the required source. See also <a href="#">Displaying a Specific Visual Layer</a> .
<b>Visual Layer: Common Paths</b>	Add the common paths heat map image of a Research source. If a source is not selected, BriefCam will display the most recent image that comes first alphabetically. To display the common paths for a different source, add the Filters visualization and select the required source. See also <a href="#">Displaying a Specific Visual Layer</a> .
<b>Visual Layer: Dwell Heat Map</b>	Add the dwell heat map image of a Research source. If a source is not selected, BriefCam will display the most recent image that comes first alphabetically. To display the dwell heat map for a different source, add the Filters visualization and select the required source. See also <a href="#">Displaying a Specific Visual Layer</a> .

## Displaying a Specific Visual Layer

1. Open the **Master items**, and drag a Visual Layer visualization, such as **Visual Layer: Activity Heat Map** onto the dashboard.
2. Unlink the visualization by clicking on the unlink () button and click **OK**.



3. In the properties, open the **Measures** section and click on the expression.
4. Click on the expression ( *fx* ) button.

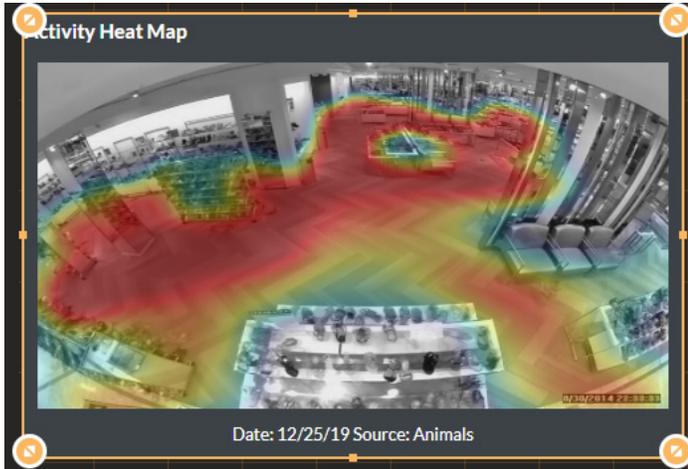


5. Delete the existing expression and enter the following string:

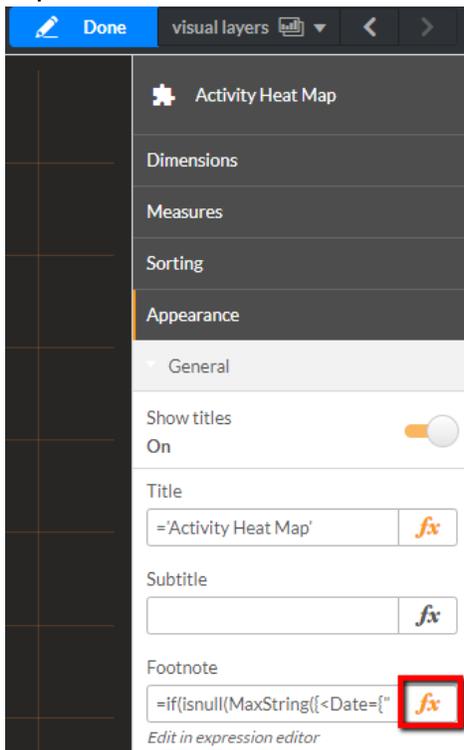
=max({<Date="{="=\$(<Date(Max(Date),'DD/MM/YYYY')</Date>)},[Source] = {"Source Name"}>> Date)

- In the {"Source Name"} string, replace the words **Source Name** with the name of your source, such as {"Shoe Store"}, and click **Apply**.

The image on the dashboard will change. However, notice that the footer at the bottom did not change.



- To change the footer, go to the **Appearance** section and from the **Footnote** field, click the expression button.



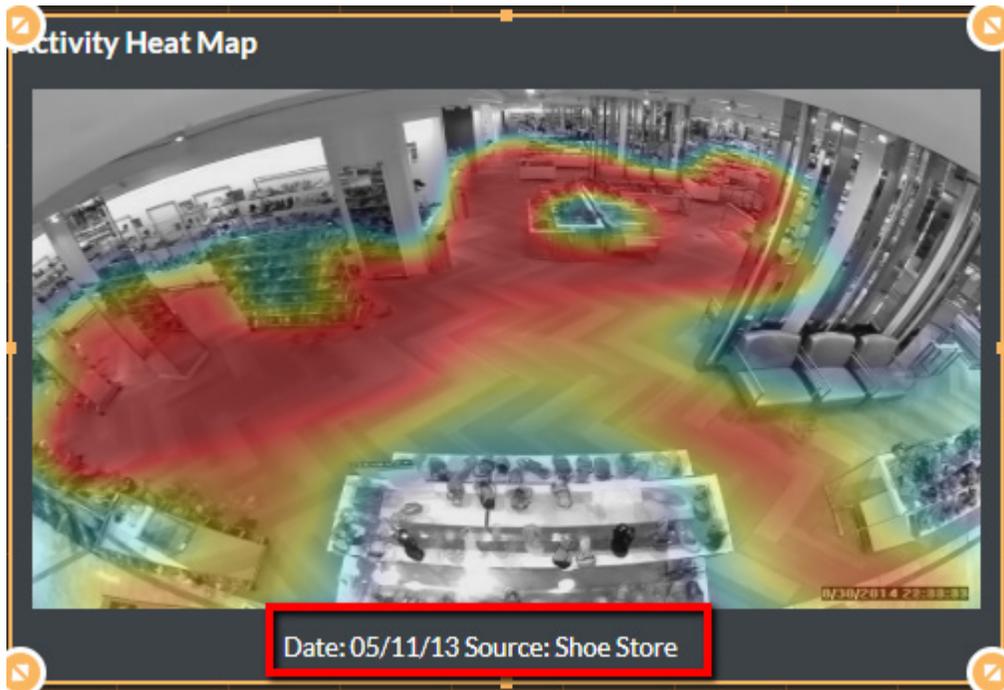
- Delete the expression and copy and paste the following string:

```
=if(isnull(MaxString({<Date="{=$ (=Date(Max(Date),'DD/MM/YYYY'))"}>},
[Activity_Heat_Map_URL]-="{ "-">}Source)),MaxString({<Master_Item_Name="{No Image Found"}>,Master_Item_Type="{Others"}>,Materlanguage="{(vLanguage)}>}Master_Item_Label)
,'Date: ' & max({<Date="{=$ (=Date(Max(Date),'DD/MM/YYYY'))"}>,[Source] = {"Source Name"}>}, [Activity_Heat_Map_URL]-="{ "-">}date(Date,VDate)) & ' Source: ' &
MinString({<Date="{=$ (=Date(Max(Date),'DD/MM/YYYY'))"}>,[Source] = {"Source Name"}>}, [Activity_Heat_Map_URL]-="{ "-">}Source))
```

Note that the string above is for Activity Heat Map visual layers. For other visual layers, see the strings at the end of this section.

- In the two instances of the **“Source Name”** string, replace the words **Source Name** with the name that you want to appear in the footnote, such as **“Shoe Store”**, and click **Apply**.

The footnote on the dashboard will change (as shown in the image below).



The footnote strings for the other visual layers are as follows:

**Background Changes Footnote**

```
=if(isnull(MaxString({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}", [Background_Changes_URL]-
="{ "-">}Source})),MaxString({<Master_Item_Name="{No Image
Found}",Master_Item_Type="{Others}",Materlanguage="{$(vLanguage)}>}Master_Item_Label),'Date: ' &
max({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}",[Source] = {"Source Name"},
[Background_Changes_URL]-="{ "-">}date(Date,VDate)) & ' Source: ' &
MinString({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}",[Source] = {"Source Name"},
[Background_Changes_URL]-="{ "-">}Source}))
```

**Common Paths Footnote**

```
=if(isnull(MaxString({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}", [Common_Path_URL]-="{ "-">}
Source})),MaxString({<Master_Item_Name="{No Image
Found}",Master_Item_Type="{Others}",Materlanguage="{$(vLanguage)}>}Master_Item_Label),'Date: ' &
max({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}",[Source] = {"Source Name"},
[Common_Path_URL]-="{ "-">}date(Date,VDate)) & ' Source: ' &
MinString({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}",[Source] = {"Source Name"},
[Common_Path_URL]-="{ "-">}Source}))
```

**Dwell Heat Map Footnote**

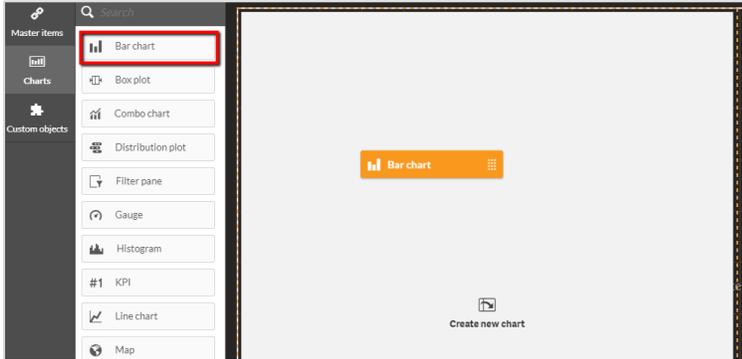
```
=if(isnull(MaxString({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}", [Dwell_Heat_Map_URL]-="{ "-">}
Source})),MaxString({<Master_Item_Name="{No Image
Found}",Master_Item_Type="{Others}",Materlanguage="{$(vLanguage)}>}Master_Item_Label),'Date: ' &
max({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}",[Source] = {"Source Name"},
[Dwell_Heat_Map_URL]-="{ "-">}date(Date,VDate)) & ' Source: ' &
MinString({<Date="{="=$(&Date(Max(Date),'DD/MM/YYYY'))"}",[Source] = {"Source Name"},
[Dwell_Heat_Map_URL]-="{ "-">}Source}))
```

## Sample Workflows

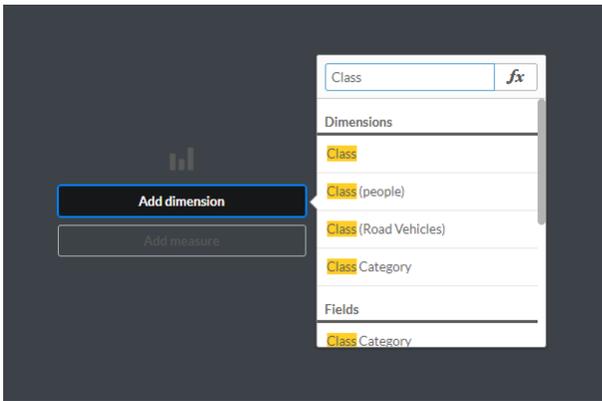
### Creating a Dashboard

Create a new sheet as explained in [Creating a New Sheet](#), then follow the steps described below.

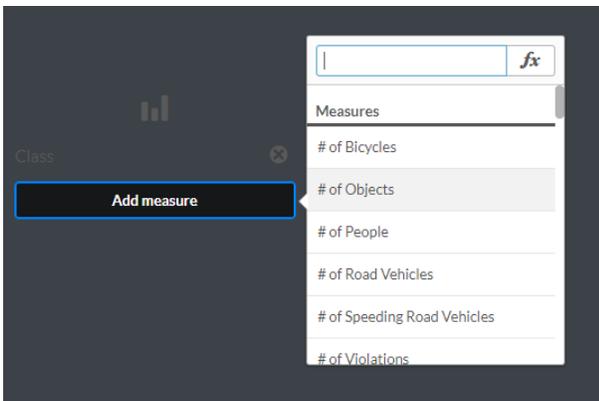
1. Drag a **Bar chart** to the sheet.



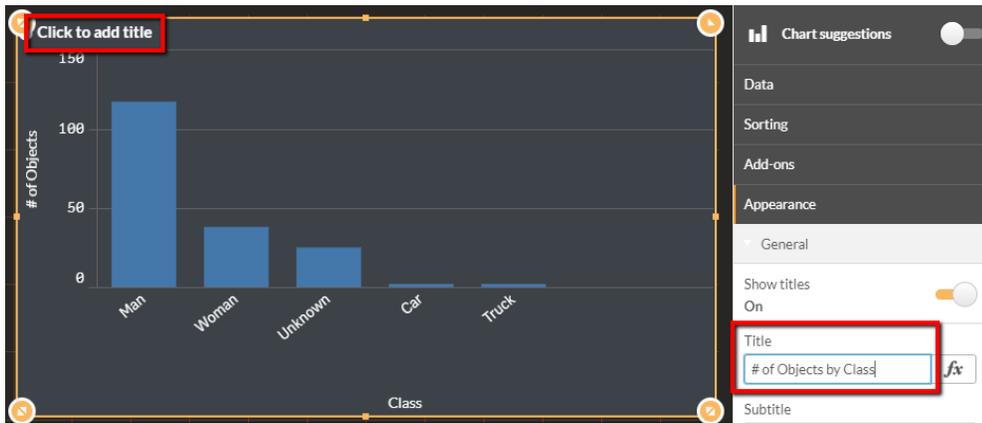
2. Click **Add dimension** and select **Class**.



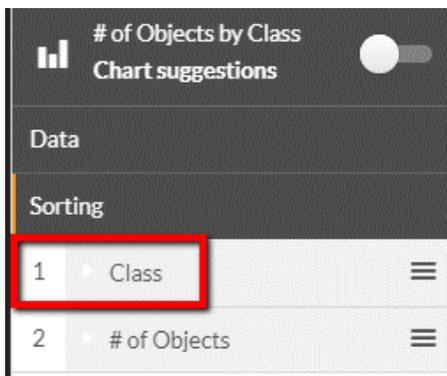
3. Click **Add Measure** and select **# of Objects**.



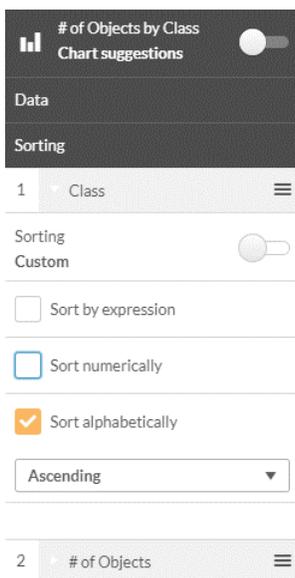
4. Add a title to the chart.



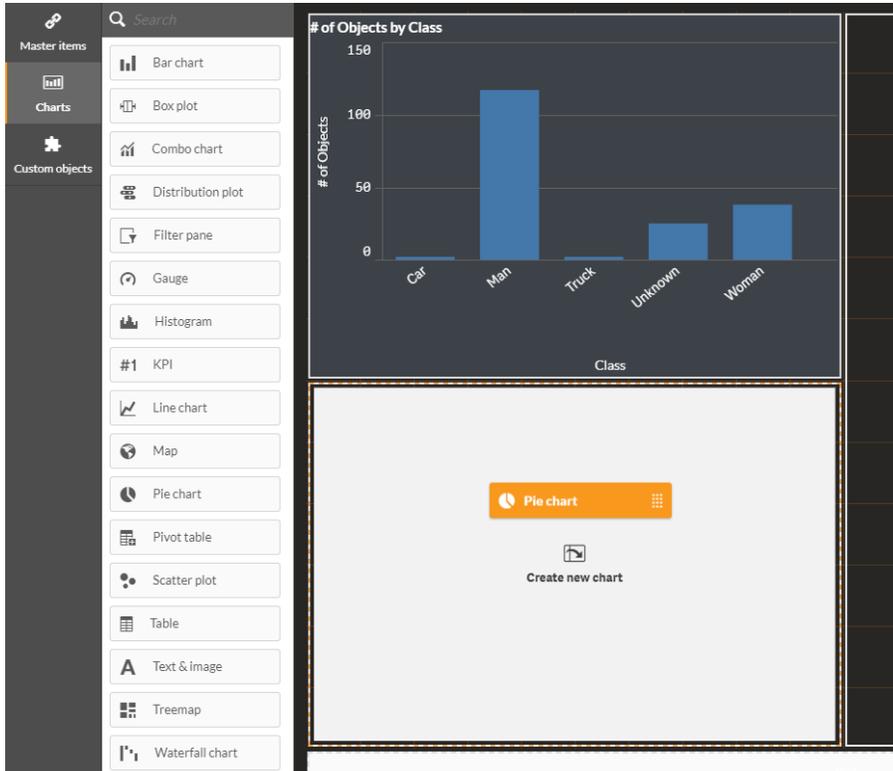
- Change sorting by dragging items on the right-hand menu, so that **Class** precedes **# of Objects**.



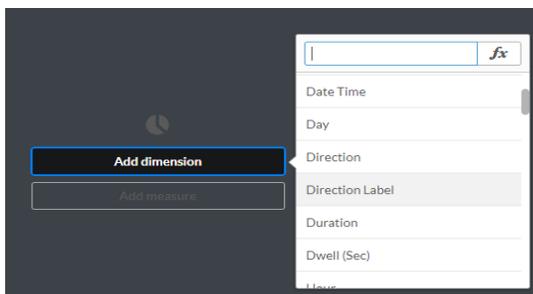
- Expand **Class**, select **Custom** sorting and check **Sort alphabetically**.



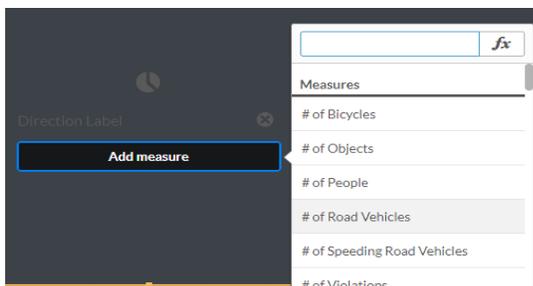
7. Drag a **Pie chart** onto the dashboard.



8. Click **Add dimension** and select **Direction Label**.



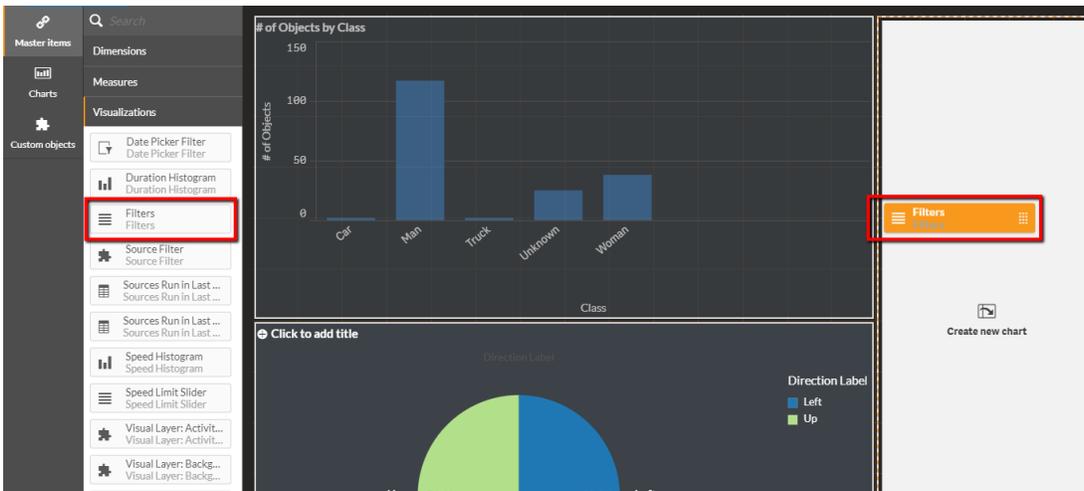
9. Click **Add measure** and select **# of Road Vehicles**.



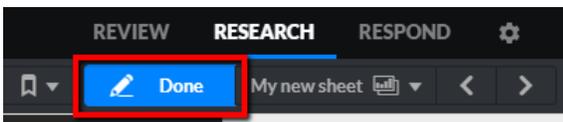
10. If you do not see a legend, change **Show Legend** to **Enabled**.



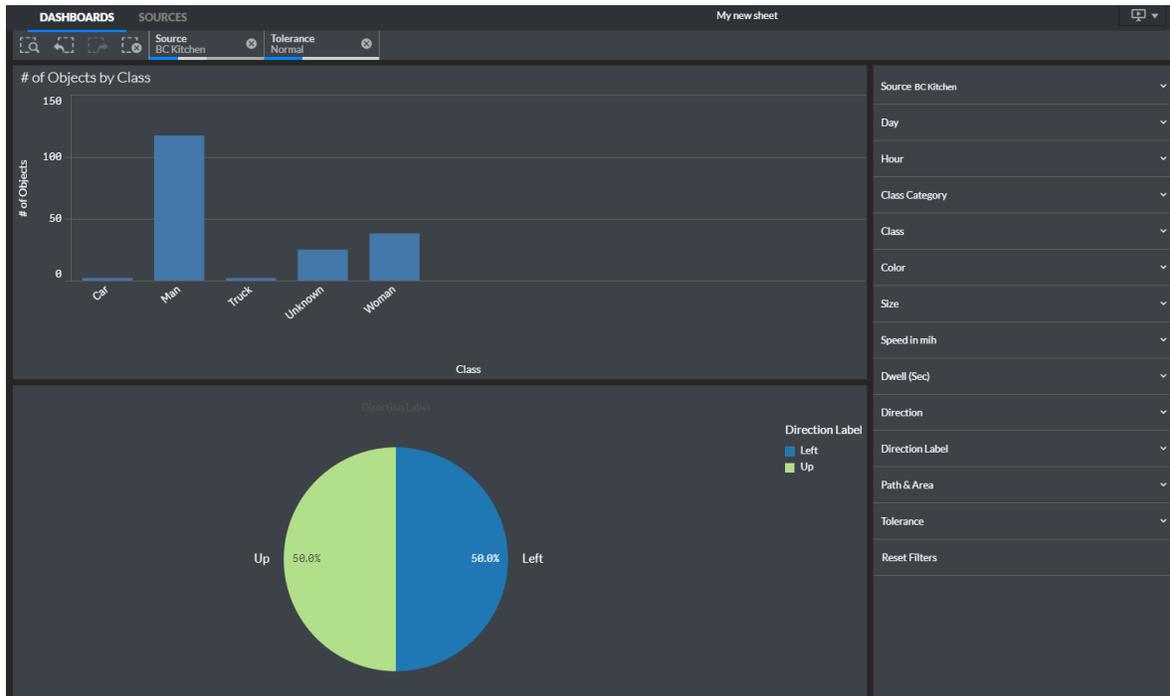
11. Drag the **Filters** visualization to the dashboard.



12. Click the **Done** button.



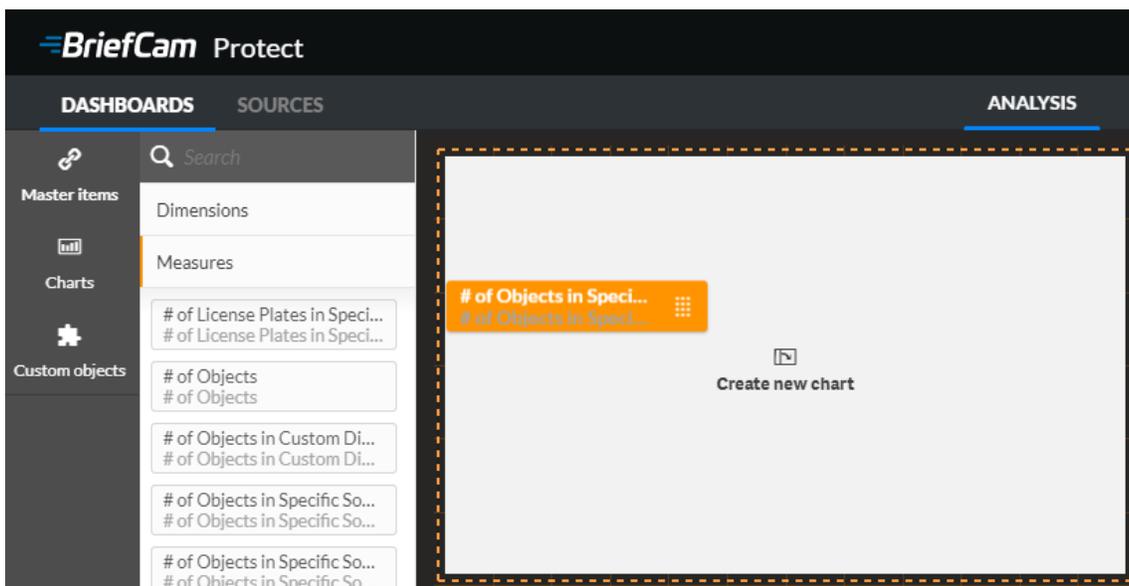
Congratulations! You've created a new dashboard.



## Multi-Camera Dashboard

To create a Multi-Camera Dashboard that presents object counts from multiple sources in the same sheet, follow the steps described below:

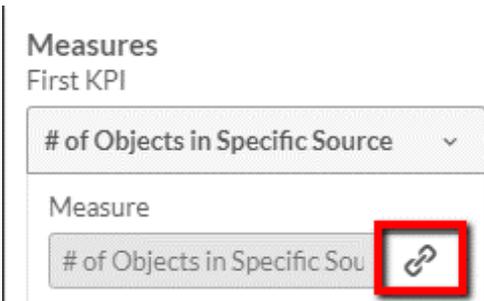
1. Drag the **# of Objects in Specific Source** measure to the sheet.



- The result will currently be 0 objects.



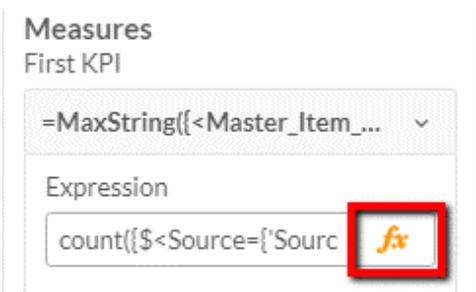
- Unlink the measure within the visualization object by clicking the unlink (  ) icon.



- Click **OK**.



- In the **Expression** field, click the function (  ) button.



- Replace the string **SourceExample** with the requested Source name.

```
1 count({$<Source={'SourceExample'}>}ObjectID)|
1 count({$<Source={'Intersection 1'}>}ObjectID)|
```

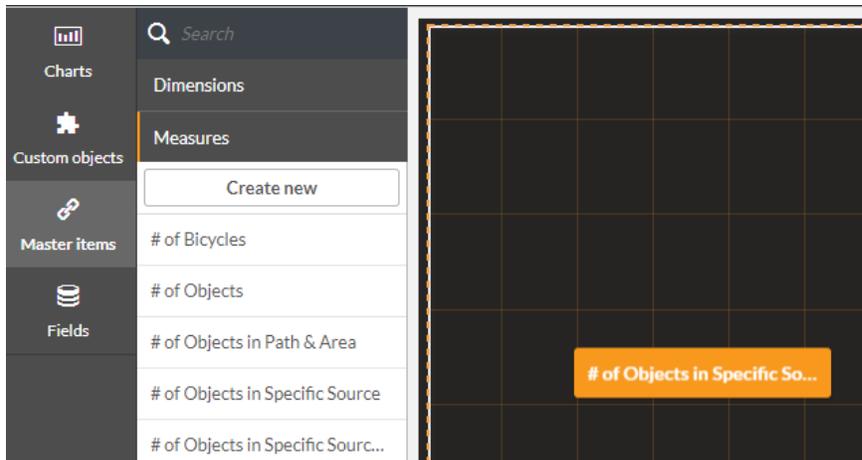
7. See the result.



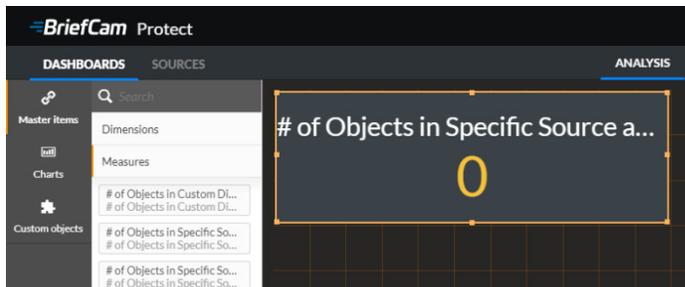
### Multi-Path, Area or Line Crossing Dashboard

To create a Multi-Path, Area or Line Crossing Dashboard that presents object counts from multiple paths/areas/line crossings in the same sheet, follow the steps described below:

1. Drag the **# of Objects in Specific Source and Custom Dimensions** measure to the dashboard.



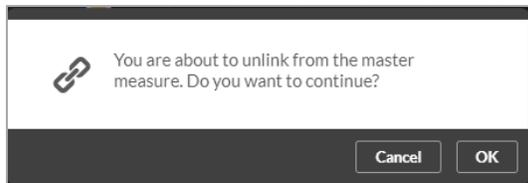
2. The result will currently be 0 objects.



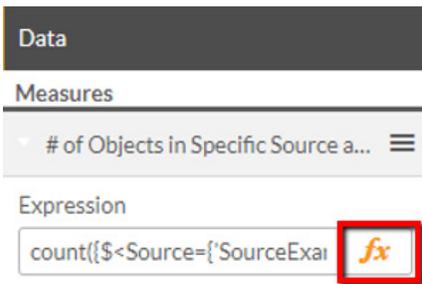
- Unlink the measure within the visualization object by clicking the unlink (  ) icon.



- Click **OK**.



- In the Expression field, click the function (  ) button.



- Replace the string "SourceExample" and "CustomDimensionsExample" with the requested Source and Custom Dimension name.

```
1 count({$<Source={'SourceExample'}, [Path & Area]={'CustomDimensionsExample'}}>ObjectID)
```

---

```
1 count({$<Source={'Intersection 1'}, [Path & Area]={'North'}}>ObjectID)
```

- See the result.



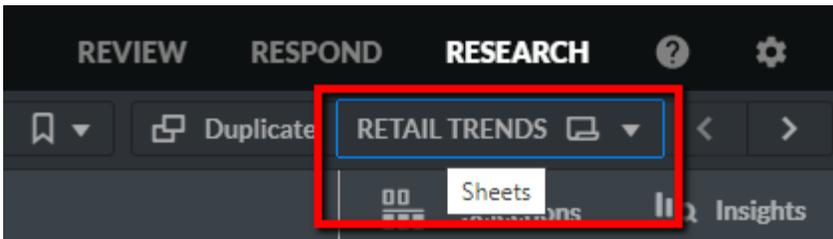
## Sharing Sheets

The following sheet types are available in **Sheets** view:

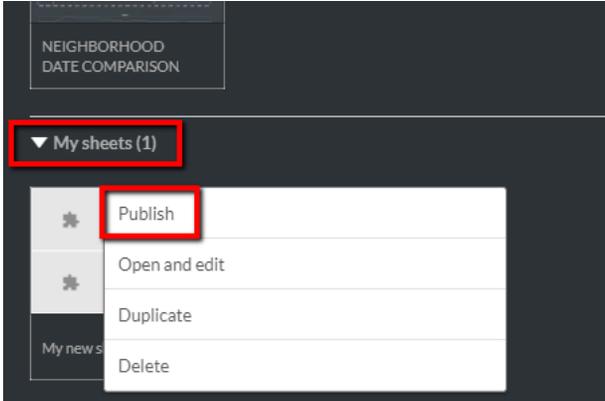
- **Base sheets** – out-of-the-box sheets for quick and easy onboarding.
- **Community** – sheets shared by other users in your organization.
- **Published by me** – sheets shared by your user account with the community.
- **My sheets** – sheets created by your user account that are visible only to you.

To publish a sheet to share with the community, follow the steps described below.

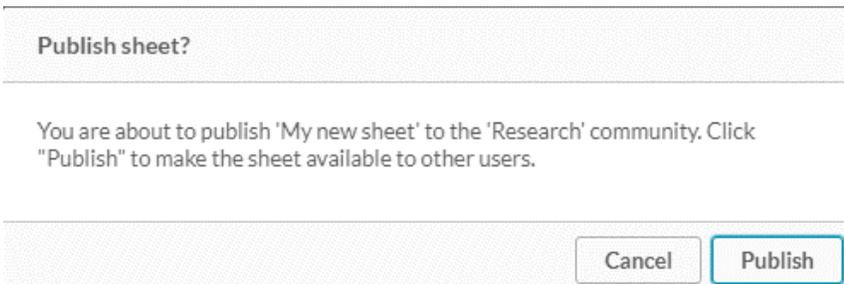
1. Open the **Sheets** view.



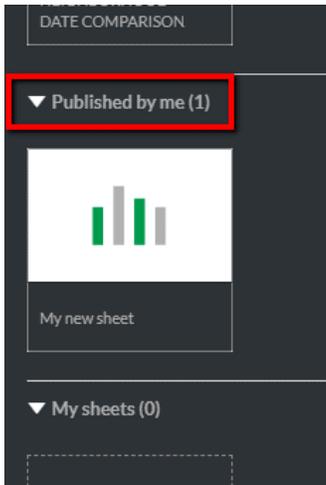
2. Right-click the dashboard (sheet) you want to share and click **Publish**.



3. Click **Publish**.



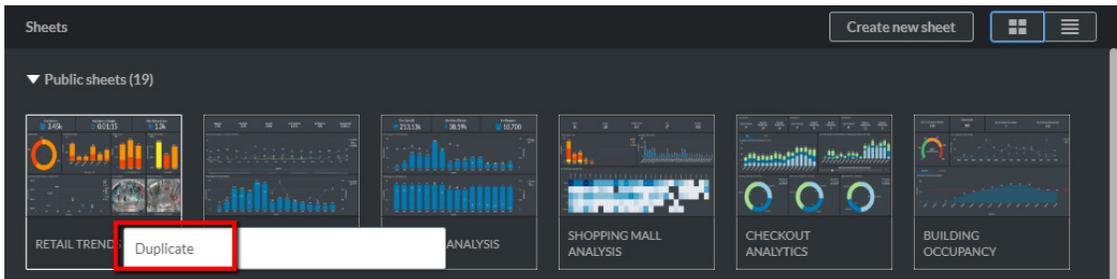
The dashboard will now appear in the **Published by me** section. (Other users will see the dashboard in the **Community** section.)



## Reusing Existing Sheets

To reuse an existing sheet, follow the steps described below.

1. Right-click on the sheet you want to reuse and click **Duplicate**.



2. Give a name to the duplicated sheet and click **Edit** on the duplicated sheet.
3. You can now replace and add different measures and dimensions by dragging a measure or dimension from the **Master Items** over the relevant visualization.



## Synchronization of Sources and Dashboards

If you do not set a time for the task to run, an automation process updates BI platform data as per the sources configured in the **Sources** tab.

The process is triggered by one of the following conditions:

The time set in the **Run Task at** field.

If that field was not set, five minutes have elapsed since the end of a scheduled source period (for example, if the source is scheduled to run between 8:00 and 19:00 daily, updating will start at 19:05).

If a specific camera has been configured as a source, and a user has requested that it be processed within the REVIEW or RESPOND solution, the RESEARCH platform will also be updated during processing (with a latency of a few minutes).

Processing time depends on a range of parameters such as video length, the number of objects, etc.

In addition to processing, the RESEARCH platform's update process runs every 5 minutes and loads data incrementally to the RESEARCH platform.

Here is an example of the synchronization.

If you have a source scheduled from 10:00 – 14:00 (10 am to 2 pm), it will run five minutes later at 14:05 (2:05 pm).

Let's assume that the processing runs so that:

- At 14:10 (2:10 pm) you have 1,000 objects. In the dashboard at 14:10 (2:10 pm) or a minute later, you will also see 1,000 objects.
- At 14:25 (2:25 pm), the processing ends and you have 2,500 objects. However, in the dashboard you still see only 1,000 objects per this source.
- At 14:30 (2:30 pm) or a minute later, you will have 2,500 objects in the dashboard.

## Differences Between REVIEW and RESEARCH Data

REVIEW data is based on probability data, which means that an object can appear under multiple attribute values. For example, if an object is detected wearing a shirt with a red and blue pattern, the object will appear in the REVIEW solution when filtering to both red and blue.

RESEARCH data is based on the maximum value of all object attribute probability values. In the example described above, if the main color of the shirt detected is red, the object will be associated only with the color red in the RESEARCH solution.

In another example, if an object has been classified with 40% probability as a **Man** and 60% probability as a **Woman**, the object will be included when objects are filtered to both the **Man** and **Woman** classes in the REVIEW solution. In the RESEARCH solution, that same object will only be included when objects are filtered to the **Woman** class.

Therefore, filter results may differ between the REVIEW and RESEARCH solutions.

## External Sources

External sources are data files consisting of data from non-video sources that are generated outside of the BriefCam platform.

This data can be displayed on the same dashboard widgets and graphs as data extracted from video, and by that assist in the later analysis of correlations between the external data and foot-traffic, vehicle-traffic, duration, paths, areas or any other analysis that can be done only based on video metadata BriefCam extracts.

The correlation between the external data video data is done with one of five data integration templates as described below.

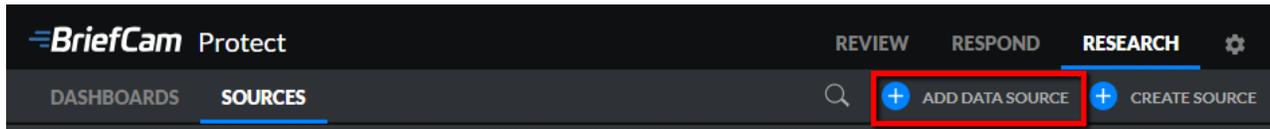


External sources can be ingested into BriefCam based on files in a self-served manner or integrated into a continuous data source through ODBC, Oracle, MySQL or other databases. The latter can be done with BriefCam's assistance through professional service.

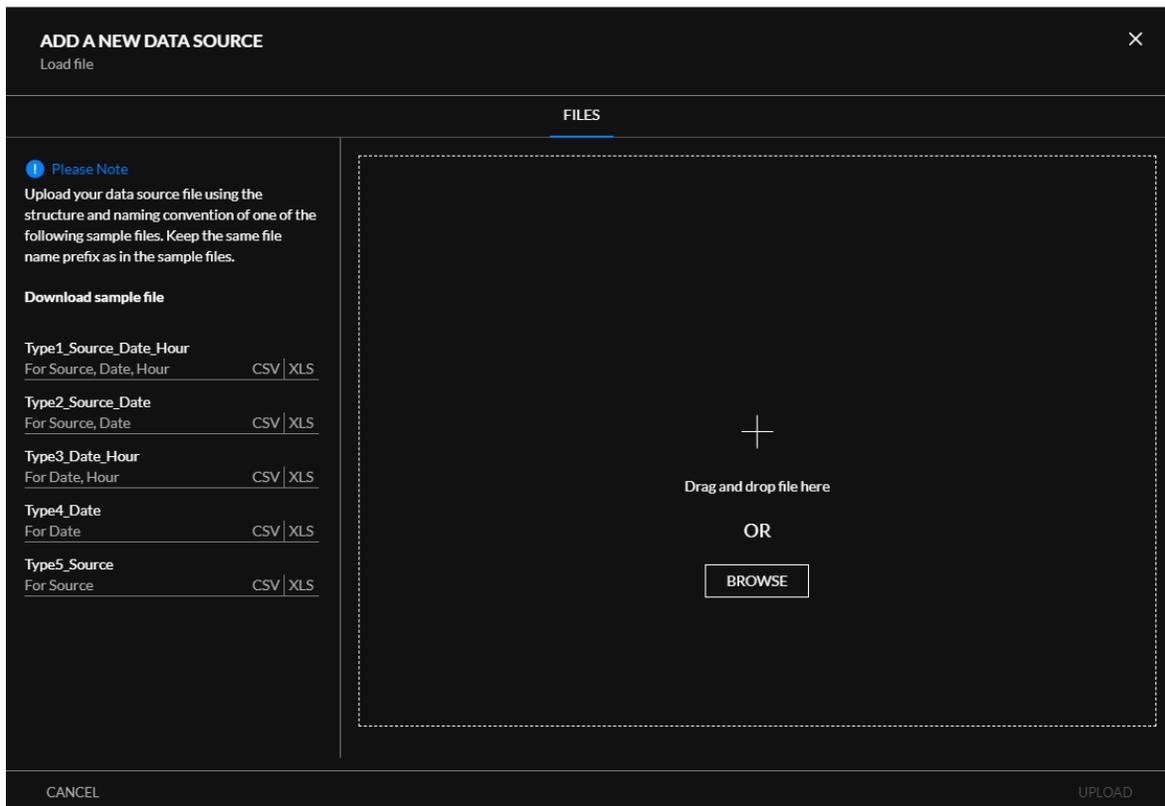
---

## Adding an External Source

To add an external .csv or .xls file, click the **Add Data Source** button.



Decide which elements (source, date, and/or hours) from your external source will be the link to the data in BriefCam. Download the template that includes those elements in its description.



Enter your data into the template files by following the steps in the **External Source File Format Instructions** section.

You can either drag and drop video source files to the dialog or click **Browse** to bring up a standard file selection dialog.

Click **Upload**.

The data will be available within the Dashboards on the next BI platform run (usually every 5 minutes).

## External Source File Format Instructions

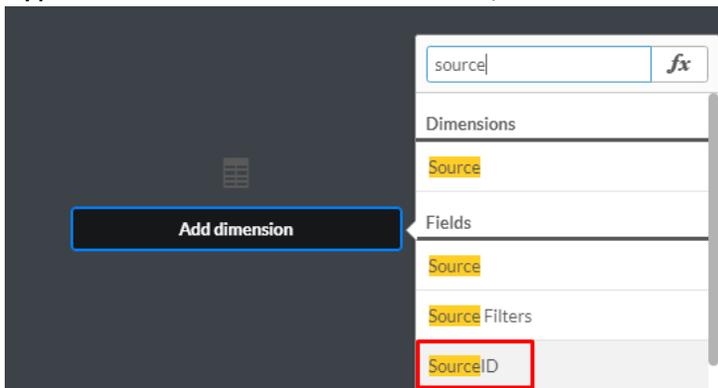
- Keep the structure and header names of the template so that BriefCam will know how to import the data. Each file type contains key columns which the data will be matched according to, and optional additional columns that contain the customer's external data:

Type	Matching Key			External Data	
	Source	Date	Hour	Dimension_1..10	Measure_1..10
<b>Type1</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Optional	Optional
<b>Type2</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Optional	Optional
<b>Type3</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Optional	Optional
<b>Type4</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Optional	Optional
<b>Type5</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Optional	Optional

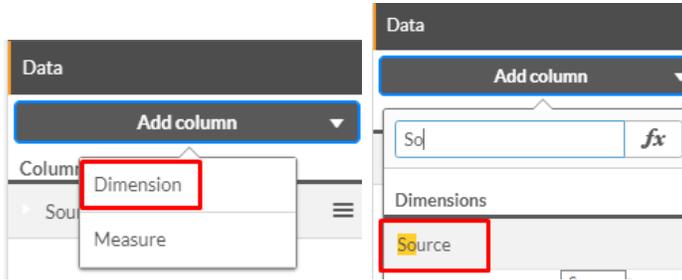
The cells that are marked with a check box in the table above need to be filled in with the values from your sources in BriefCam.

The format of the columns should be as follows:

- Source**  
The **Source** column needs to contain the source ID, for example: 22. See the example below to determine how to find your source's ID.
  - Create a new sheet, drag a table chart onto the sheet, and click **Add dimension**.
  - Type **source** and from the **Fields** list, select **SourceID**.



- Add the **Source** dimension to the table.



- You'll now have a table with the sources' IDs and names.

SourceID	Q	Source	Q
1		Shoe Store	
5		Handbag Store	

- **Date** – Add another column with the **Date** dimension.
  - For XLS – MM/DD/YYYY, for example: 09/24/2018 ((If you're not sure if the month or day is appearing first, add another dimension: **Month**, to the table)
  - For CSV – DD/MM/YYYY, for example: 24/09/2018
- **Hour** – Add another column with the **Hour** dimension.
  - Hour (hh) in 24H format, for example: 13:00, 09:00 (you should add the leading zero).
- **# of People** – Add another column with the **# of People** measure.

You now have a table with the Source, SourceID, Date, Hour and # of People.

Click to add title								
Source	Q	SourceID	Q	Date	Q	Hour (hh)	Q	# of People
<b>Totals</b>								<b>2036</b>
Handbag Store		5		03/01/18		01:00 PM		337
Handbag Store		5		03/01/18		02:00 PM		397
Handbag Store		5		03/01/18		03:00 PM		334
Shoe Store		1		03/01/18		01:00 PM		324
Shoe Store		1		03/01/18		02:00 PM		349
Shoe Store		1		03/01/18		03:00 PM		295

The columns of the table should be matched to the Excel columns as shown in the image below.

Source	SourceID	Date	Hour (hh)	# of People
<b>Totals</b>				2036
Handbag Store	5	03/01/18	01:00 PM	337
Handbag Store	5	03/01/18	02:00 PM	397
Handbag Store	5	03/01/18	03:00 PM	334
Shoe Store	1	03/01/18	01:00 PM	324
Shoe Store	1	03/01/18	02:00 PM	349
Shoe Store	1	03/01/18	03:00 PM	295

source	date	Hour	Dimension_1	Dimension_2	Dimension_3	Dimension_4	Dimension_5	Dimension_6	Dimension_7	Dimension_8	Dimension_9	Dimension_10	Measure_1
5	3/1/2018	13:00	Dan										300
5	3/1/2018	14:00	Dan										325
5	3/1/2018	15:00	Dan										422
1	3/1/2018	13:00	Jeanette										136
1	3/1/2018	14:00	Jeanette										176
1	3/1/2018	15:00	Jeanette										233

Add data in at least one dimension or measure. You can enter whatever values you want in these columns, but it's important that you don't change the name of the text in the first row. It's also a good idea to make a list of what each of the dimensions and measures stand for in a separate document. For example, Dimension 1 = Employee name.

- **Dimension 1..10**

These are optional columns to import textual data into the dashboards, so that the data can be grouped accordingly, such as the department or manager name.

- **Measure 1..10**

These are optional columns to import numeric data into the dashboards, so that the data can be aggregated accordingly, such as total sales and number of employees.

Remember that the file name must include the correct prefix from the following prefixes:

- **Type1\_Source\_Date\_Hour** for files with a Source, Date and Hour columns.
- **Type2\_Source\_Date** for files with a source and dates.
- **Type3\_Date\_Hour** for files with a source and hours.
- **Type4\_Date** for files with dates.
- **Type5\_Source** for files with a source.

## Adding External Data Sources to Dashboards

The following is an example of how to add an external data source to the dashboards.

1. Click the **Add Data Source** button.
2. Upload your file. The data will be available when the RESEARCH platform is updated (about every 5 minutes).
3. Click on the table that you created earlier.
4. Click **Add column** and then **Dimension**.

The screenshot shows a data table with the following columns: Source, SourceID, Date, Hour (hh), and # of People. The table contains data for Handbag Store and Shoe Store at three different times (01:00 PM, 02:00 PM, 03:00 PM). To the right, a 'Data' panel is visible with an 'Add column' dropdown menu open, showing 'Dimension' and 'Measure' as options.

Source	SourceID	Date	Hour (hh)	# of People
Totals				2036
Handbag Store	5	03/01/18	01:00 PM	337
Handbag Store	5	03/01/18	02:00 PM	397
Handbag Store	5	03/01/18	03:00 PM	334
Shoe Store	1	03/01/18	01:00 PM	324
Shoe Store	1	03/01/18	02:00 PM	349
Shoe Store	1	03/01/18	03:00 PM	295

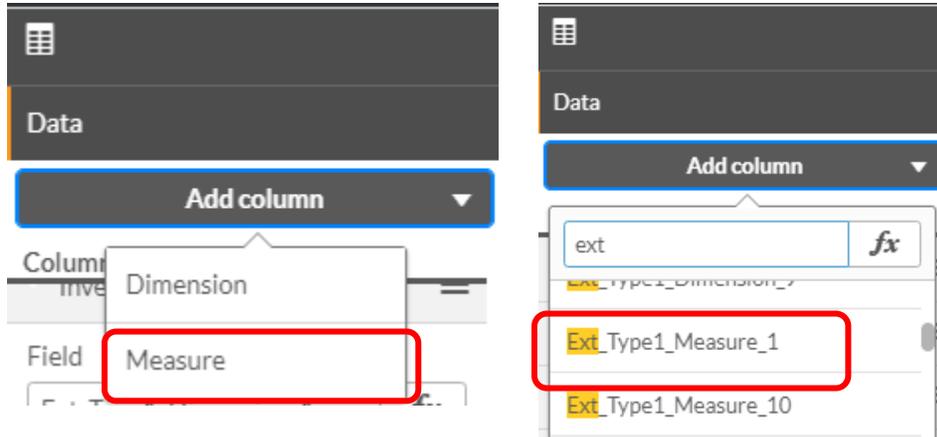
5. Type **ext** and select **Ext\_Type1\_Dimension\_1**.

The screenshot shows a search input field containing the text 'ext'. Below the input, a list of fields is displayed, with 'Ext\_Type1\_Dimension\_1' highlighted in a red box. Other visible fields include 'Ext\_Type1\_Dimension\_10' and 'Ext\_Type1\_Dimension\_2'.

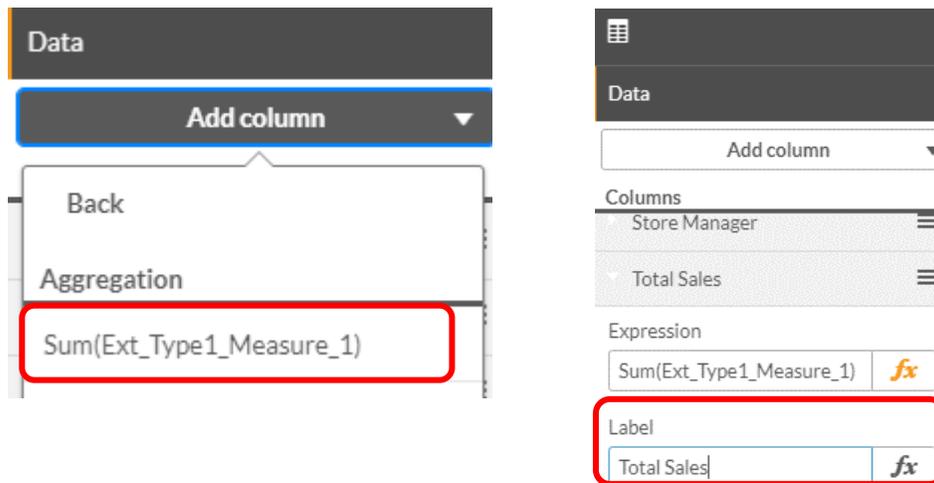
6. Give the extension a meaningful name.

The screenshot shows the 'Add column' dropdown menu. Under the 'Columns' section, 'Store Manager' is selected. The 'Field' input contains 'Ext\_Type1\_Dimension\_1' and the 'Label' input contains 'Store Manager'. Both inputs have a function icon (fx) to their right.

- Click **Add column**, click **Measure** and select **Ext\_Type1\_Measure\_1**.



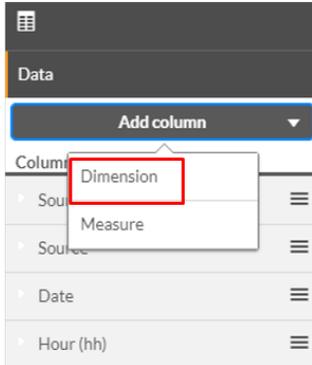
- Set an aggregation, such as **Sum** and give the measure a meaningful name.



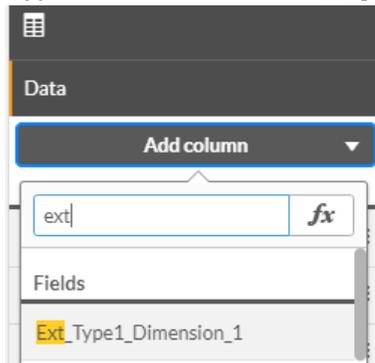
Now you'll add a Tree chart.

- Drag a Tree chart onto the dashboard.
- Add the external data source dimension to the chart:

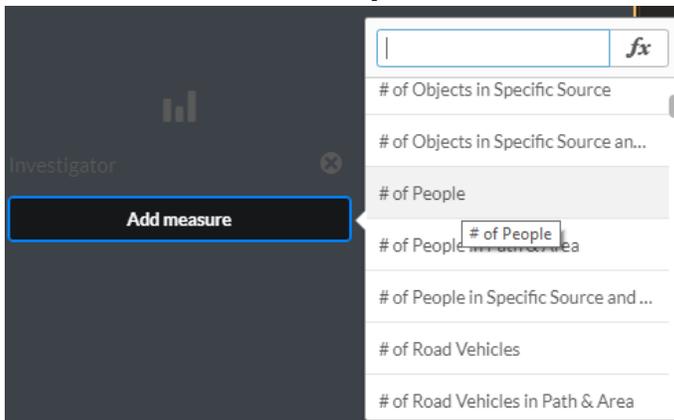
- Click **Add column** and select **Dimension**.



- Type **ext** and select **Ext\_Type1\_Dimension\_1**.



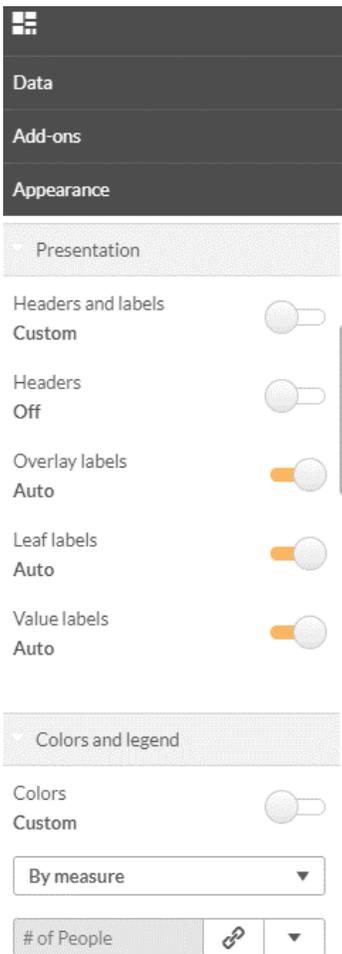
- Add the measure: **# of People**



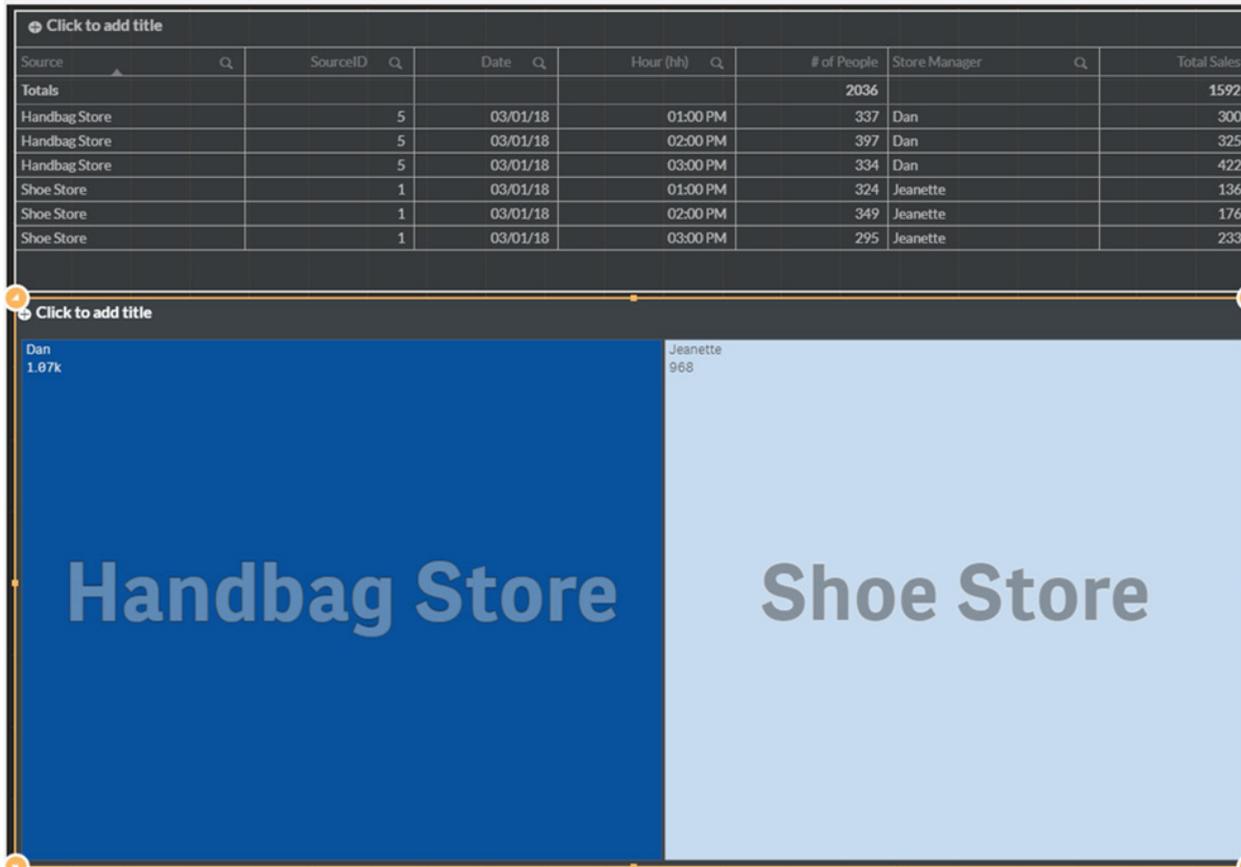
You'll now set the presentation.

1. Set the **Headers** and labels to **Custom**.
2. Set the **Headers** to **Off**.

3. Set the Value labels to Auto.
4. Set the **Colors** to **Custom**.
5. Select By measure.



You now have a tree chart with data from an external source (**Store Manager**) and data from BriefCam (**# of People**) for the two sources (**Handbag Store** and **Shoe Store**)



## Important Notes

- The external data source data is loaded within the dashboards every time that the BI platform runs (usually every 5 minutes). The data is inserted completely every run, meaning a full load and not incremental.
- All the external data source files are loaded to the following shared folder on the Research server: **qlikshare\ExternalData**.
- If the same record exists more than once within the external data source file(s), it will be inserted as only one record within the BI platform.

If within the external data source file(s), there are two different records with the same key, but with different **measures**, then two records will be inserted into the BI platform and their measures can be aggregated within the dashboards.

For example, when loading the following external data source file:

source	Date	Hour	Dimension_1	Dimension_Dimension	Dimension_Dimension	Dimension_Dimension	Dimension_Dimension	Dimension_Dimension	Dimension_Dimension	Dimension_10	Measure_1
1	03/01/18	13:00	Example1								500
1	03/01/18	13:00	Example1								320

The data appears as two records in the dashboards:

SourceID	Date	Hour (hh)	Ext_Type1_Dimension_1	Ext_Type1_Measure_1
1	03/01/18	01:00 PM	Example1	320
1	03/01/18	01:00 PM	Example1	500

And can be aggregated to one record:

SourceID	Date	Hour (hh)	Ext_Type1_Dimension_1	Sum(Ext_Type1_Measure_1)
1	03/01/18	01:00 PM	Example1	820

If within the external data source file(s), there are two different records with the same key, but with different **dimensions**, then two records will be inserted into the BI platform based on the two different dimensions.

For example, when loading the following external data source file:

source	Date	Hour	Dimension_1	Dimension_2
1	03/01/18	13:00	Example1	
1	03/01/18	13:00	Example2	

The data appears as two records in the dashboards:

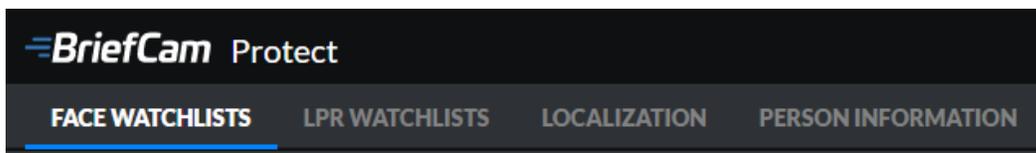
SourceID	Date	Hour (hh)	Ext_Type1_Dimension_1
1	03/01/18	01:00 PM	Example1
1	03/01/18	01:00 PM	Example2

## User Settings

To access and change the **User Settings**, to change your password, or to **log out** from the BriefCam web client, click the gear control (⚙️) at the top right-hand side of the browser page.

- **Note:** The user settings are specific and persistent for each user independently (the settings apply to all solutions – REVIEW, RESEARCH and RESPOND).

Four tabs will appear at the top left of the screen. The **Person Information** tab will only appear for users that are part of the **Data-Manager** group. For more information, see **Person Information**.

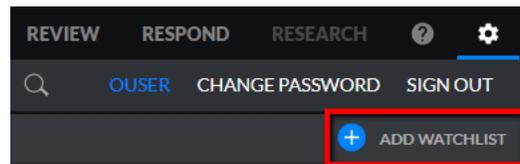


## Face Watchlists

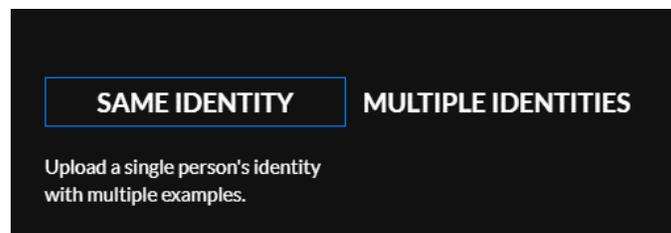
To search for a person in real-time, a watchlist needs to be used.

### To add a face watchlist:

1. Click the **Face Watchlists** tab.
2. In the top right-hand corner of the screen, click **Add Watchlist**.



3. Give the watchlist a name and click **Next**. Select whether to upload files of the same person (**Same Identity**) or for various individuals (**Multiple Identities**).



4. Click **Next** and either browse or drag-and-drop the image files.

Note that if you upload a one-star image, there will be a message at the bottom of the screen asking you to delete images that are less than two-star images.



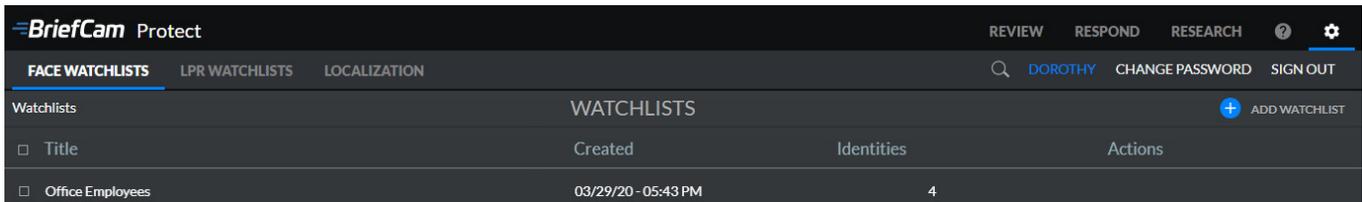
To upload multiple examples of multiple identities, the uploading is done by using the **Same Identity** for each of the identities.

You can also upload multiple faces from a folder. For more information, see **Uploading Multiple Faces from a Folder**. Click **Next**, rename the images if you want and then click **Save**.

The watchlist should now appear in the **Watchlists** area. From the **Actions** column, the lists can be edited, shared and deleted.

When an identity is displayed, you can add additional faces (images) to an identity.

When a watchlist is displayed, you can add an identity.



Faces added to a watchlist remain in the case filter even when the user exits the case.

Watchlists added via the Watchlist tabs are not deleted by the maintenance process. However, an internal watchlist that was created within a case will be deleted once the case is deleted (by maintenance or by the user).

When adding an identity to multiple watchlists, the identity is duplicated to the selected watchlists and it will no longer be the same identity, but duplicates of the original identity.



After deleting or cancelling a same identity watchlist, creating a new same identity watchlist fails. To solve this issue, refresh BriefCam.

## Uploading Multiple Faces from a Monitored Folder

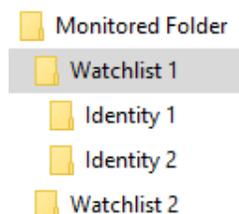
You can upload multiple faces from a monitored folder that will be synced to a watchlist. You can upload multiple faces for identities and multiple identities for each batch.

The monitored folder is on the VS server machine. The default path is:

**C:\briefcam\ServerData\ExternalWatchLists.** Your administrator can change this path for you.

To use this folder on a distributed environment, make sure that the OS user specified to run the VSService has permissions to access the folder. For an all-in-one installation, this is not necessary.

Every 60 minutes the system checks whether there is anything new and then imports it to a watchlist or watchlists. In the **ExternalWatchLists** folder you can create a subfolder using the name of the watchlist. In the subfolder you need to create folders with names of identities and in each identity's folder place at least one photo of the identity's face.



There is an option to either overwrite the watchlist every sync (so if you delete identities from the folder they will be deleted in the system) or merge to only load new items. The default is to overwrite.

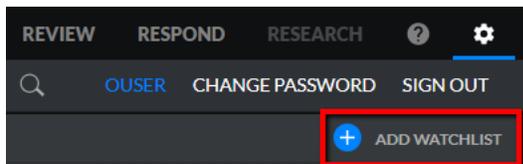
The default settings for this functionality can be changed by an admin.

Note that all images added using a monitored folder will be added to the watchlist, including images that are below the minimum threshold for face matching, such as no-star images (no face detected) and 1-star images (a face was detected but insufficient quality for Face Recognition). BriefCam will ignore the non-matchable images. If you do not want these images to appear on the watchlist, you need to manually delete them from the folder.

## License Plate Recognition (LPR) Watchlists

### To add an LPR watchlist:

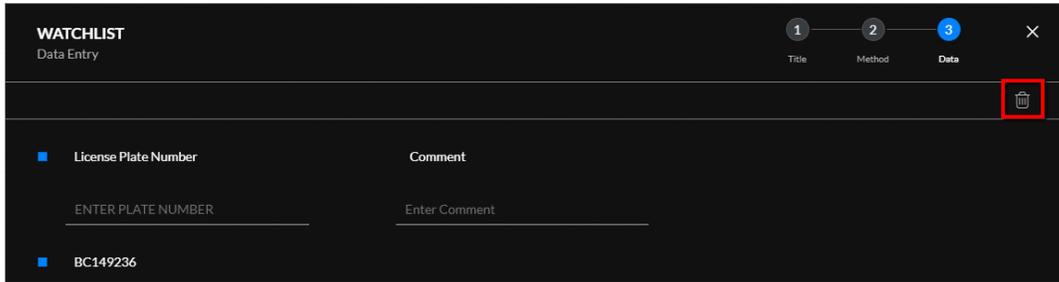
1. Click the **LPR Watchlists** tab.
2. In the top right-hand corner of the screen, click **Add Watchlist**.



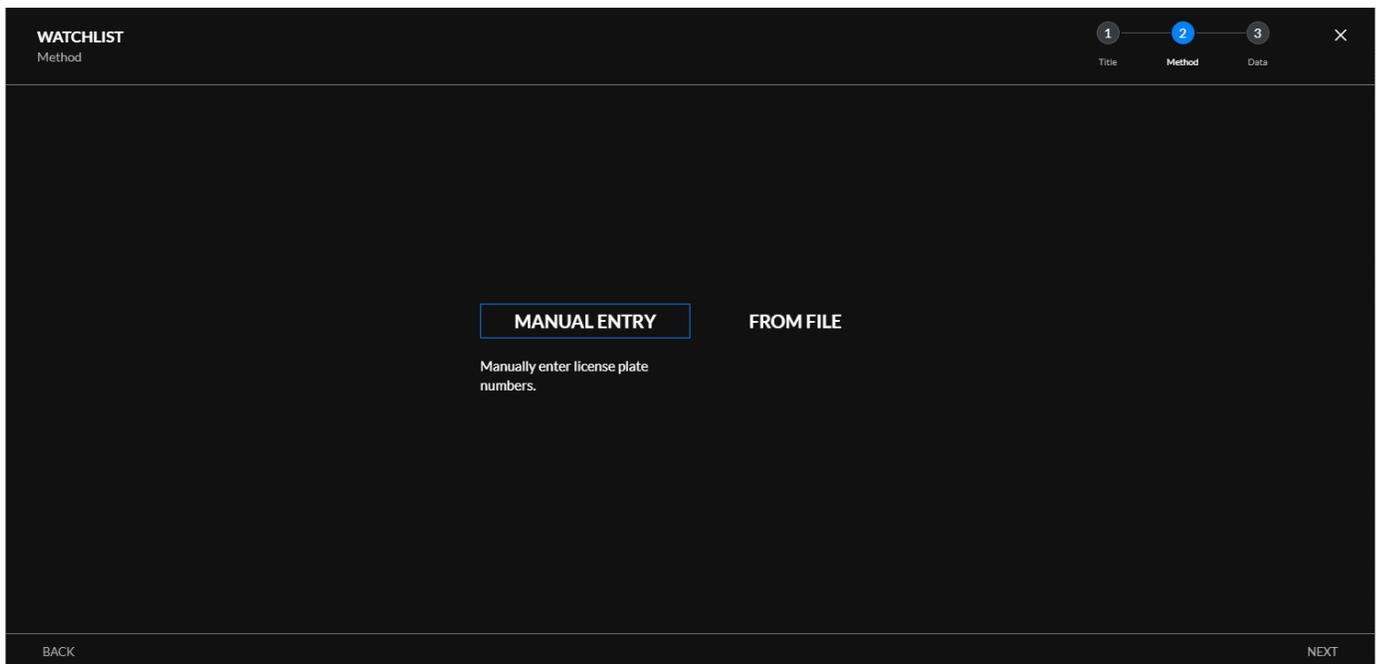
3. Give the watchlists a name and click **Next**.
4. Select whether to manually enter the license plate numbers (**Manual Entry**) or upload them using a file (**From File**) and click **Next**.
  - o If you selected **Manual Entry**, for each license plate, enter license plate number and a comment if you want and then click **Add**.

The license plate number can include letters and numbers (0-9) and the following wildcards – questions marks (?) as well as asterisks (\*) at the beginning or end of a string.

To delete a license plate, click on the check box to the left of the license plate number and click the delete icon.



- If you selected **From File**, upload a CSV file with data about the license plates in two headerless columns: **License Plate Number** and **Description**.

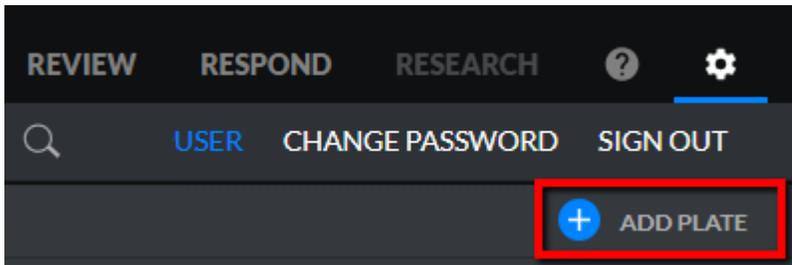


## 5. Click **Save**.

If there is an error in the CSV file that you uploaded (such as too many characters in a license plate), an error will appear with the line number of the first error.

The watchlist should now appear in the **Watchlists** area. From the **Actions** column, the lists can be edited, shared and deleted.

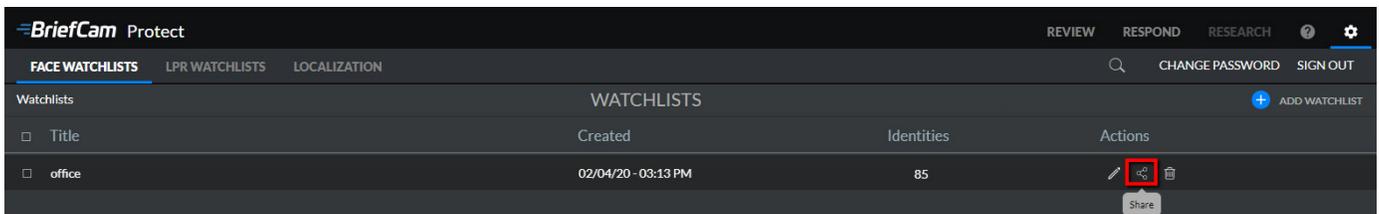
To add additional license plates to an existing watchlist, open the watchlist by clicking the edit icon and click the **Add Plate** button.



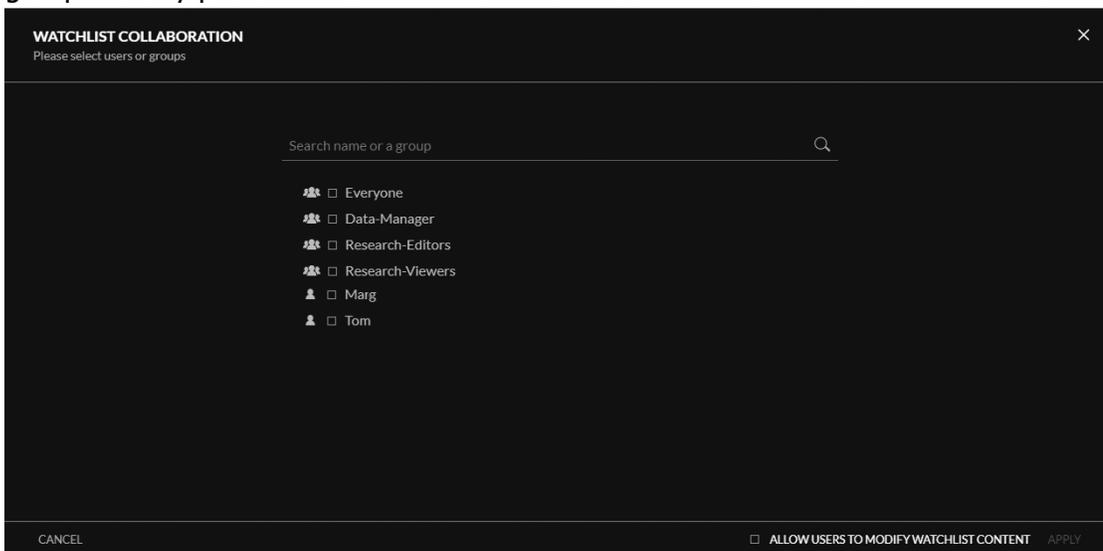
Watchlists added via the Watchlist tabs are not deleted by the maintenance process. However, an internal watchlist that was created within a case will be deleted once the case is deleted (by maintenance or by the user).

## Sharing Watchlists

Click the share icon to share a watchlist. The share icon is only available for watchlists owned by the user.



Once you click **Share**, you can select the groups and/or users that you want to share the watchlist with. You can select the **Allow User to Modify Watchlist Content** checkbox to give the selected users and groups modify permission for the watchlist.



When you click **Share**, the watchlist's share icon will turn to white. 

If it is a watchlist that was shared with you, the colors will be reversed. 

You cannot share external watchlists. View permissions of external watchlists can be assigned by the administrator to users and groups.

From the **Review** tab, you can click the **Face Recognition** filter and you can select the watchlists that you defined in the settings.



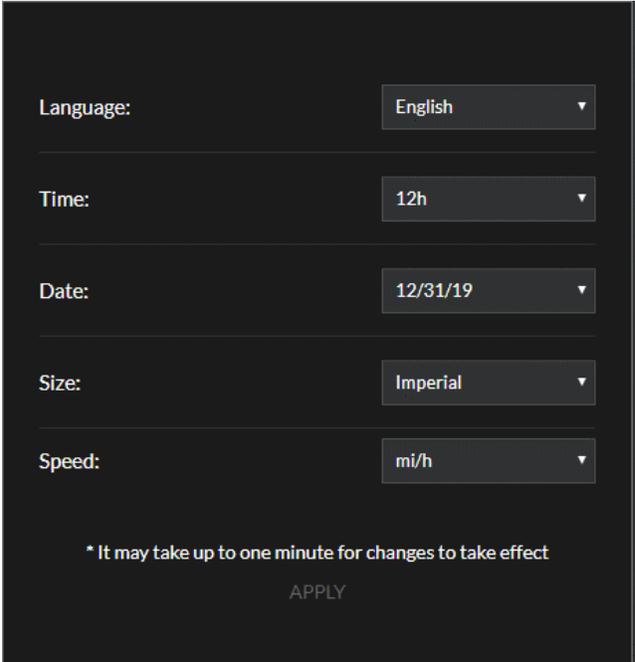
You can upload up to 500 images at a time. If you have more than 500 images, divide them up into batches of up to 500 or upload the images using the monitored folder feature (described below).

When using a Chrome version below 72.0.3626.81, the limit is 125 images per upload.

## Localization

When the **Localization** tab is clicked, the user can change the various options:

- **Language:** The default value is English. Additional supported languages include Arabic, Brazilian Portuguese, Chinese (Simplified), Chinese (Traditional), Danish, Dutch, Finnish, French, German, Italian, Japanese, Korean, Spanish (Latin American), Thai, Turkish, and Vietnamese.
- **Time:** 12h or 24 hours (default value is 12h).
- **Date:** DD/MM/YY or MM/DD/YY (default value is MM/DD/YY).
- **Size:** Imperial or metric (default value is imperial).
- **Speed:** mi/h or km/h (default value is mi/h).



Language: English

Time: 12h

Date: 12/31/19

Size: Imperial

Speed: mi/h

\* It may take up to one minute for changes to take effect

APPLY

The TAG ID at the bottom-right of the screen is a number for support purposes. When contacting a Support representative, you may be asked to provide this number. 

## Person Information

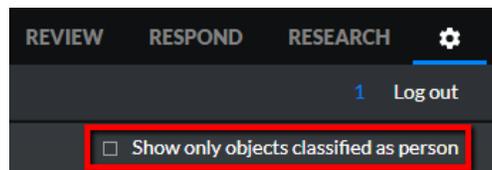
The **Person Information** tab is enabled for users that were added by the administrator to the **Data-Manager** group. This tab allows data managers to view, export and delete data on individuals that are stored in your systems.

In the tab, locate the cameras or files where the person exists. Select the item and click **Next**.

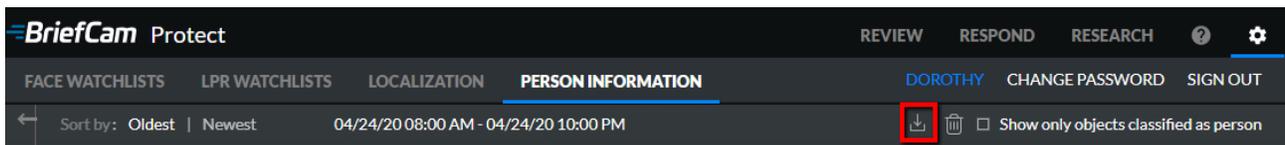
Select the time range where the person appeared and click **Apply**.

Select the clips where the person appeared.

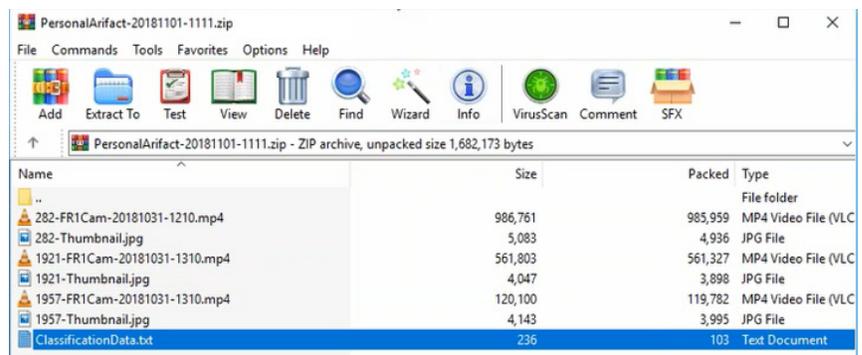
To narrow down your search, you can select the **Show only objects classified as person** checkbox.



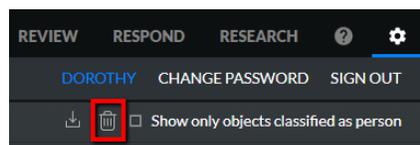
A data manager can download the items and send them as a report by clicking the download icon (📄).



BriefCam creates a zip file that includes the close-up clips (mp4 file), thumbnail (jpg file) and a text file with the metadata of the individual's personal information (the individual's classification, such as gender, as determined by BriefCam's algorithm).



To delete data, mark the items to delete and click the delete icon.



Here is a list of the items that are deleted:

- Object metadata (times, classification, color, speed, size, etc.)
- Object internal binary artifacts (path, bounding boxes, masks, etc.)
- Object visual artifacts – thumbnails and movie clips
- Bookmark data (if there were bookmarks, based on this object) – metadata and thumbnail
- Original video – either uploaded file or footage, fetched from VMS – the minimum required to cover the selected object (depends on the granularity of the actual files). However, it's quite possible that the original video of other objects will also be deleted and in some cases even the entire original video. In that case, the video will no longer be available for other investigation purposes of other people.

## Video Processing Throughput

We tested video processing throughput on various GPUs in both on-demand and real-time with a resolution of 1080p, 15 fps and default complexity.

The results are detailed in the table below.

GPU Throughput	On-demand Hs/H   Real-time channels
Tesla P4	14.6 Hs/H   11
Tesla T4	16.7 Hs/H   16
Quadro RTX4000	23.9 Hs/H   13
Quadro P4000	14.9Hs/H   13
GTX 1080Ti	24.4 Hs/H   22

### Note:

- Hs/H means the number of hours of video that can be processed in a single hour. For example, 8 Hs/H means that 8 hours of video fetched from a particular camera can be processed in 1 hour.
- Throughput refers to number of concurrent on-demand processing speed multiplier or real-time channels per GPU (pending available GPU RAM).

## Supported VMS Platforms and File Formats

BriefCam supports a wide range of VMS platforms and video file formats as listed below:

<b>Supported Video File Formats</b>	.AVI, .MKV, .MPEG4, .MOV, .WMV, .DVR, .ASF, .RT4, .DIVX, .264, .GE5, .TS, .3GP, .DAV, .XBA (single & multi-stream), .MP4, .FLV
<b>Supported Codecs</b>	H.264, H.265/HEVC, MPEG-4, H.263
<b>Supported VMS Platforms</b> (Supported by BriefCam Protect, Insights and Rapid Review)	Avigilon, Axis, Bosch, CASD, Digifort, Digital Watchdog, Exacq, FLIR (formerly DVTEL), Genetec, Geutebruck, IndigoVision, IPConfigure, ISS, March Networks*, Milestone, NX (Network Optix), Panasonic i-PRO Sensing Solutions Corporation of America*, Pelco*, Qognify (formerly Nice and OnSSI/SeeTec), Salient, Synectics*, Teleste, Verint  *This plug was developed by the VMS partner and certified by BriefCam.

## Hardware Video Decoding

BriefCam products decode video using a GPU card in order to speed up video processing and offload the CPU. This feature is supported with the following video stream formats:

- H.264 and H.265 (H.265 is supported for selected VMSs and cameras)
- MPEG-4 and VC-1 with a resolution of up to 2032x1024

## Supported Languages

BriefCam supports the following languages:

<b>Supported Languages</b>	Arabic, Brazilian Portuguese, Chinese (Simplified), Chinese (Traditional), Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Spanish (Latin American), Thai, Turkish, Vietnamese
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