



User Guide for People Analytics



Overview

Verkada's People Analytics solution is designed to make it easier to find meaningful events and save time during critical investigations by enabling users to identify and search for individuals in your camera footage.

Powered by Verkada's industry leading edge-based processing and computer vision technology, Verkada's People Analytics solution includes face search, person attributes, person history, Person of Interest notifications and Occupancy Trends.

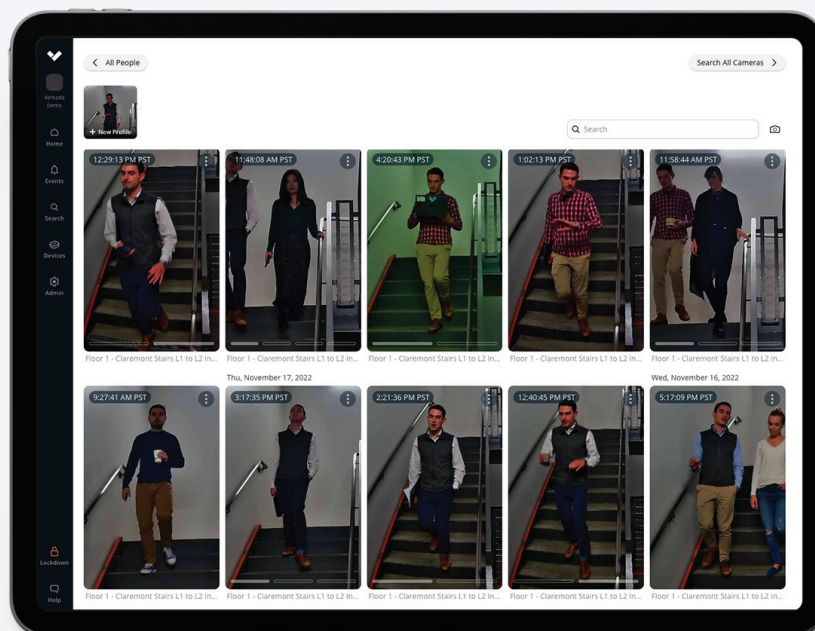
People Analytics delivers high quality results with minimal bandwidth impact. All video, images and data are encrypted at-rest and in-transit and stay within your Command Organization. To use Verkada's People Analytics features, no additional software or hardware is needed.

Responsible use

People Analytics leverages computer vision and facial recognition technologies that are powerful tools which must be used responsibly. These technologies have limitations as they rely on the ability to interpret visual inputs. In addition, factors like distance from the camera, image resolution, camera installation and placement, lighting and facial coverings like masks or hoods will affect performance.

As has been widely reported, the accuracy of facial recognition technology may vary across diverse groups of people. At Verkada, we intentionally do not train our People Analytics models to identify sensitive characteristics such as race, ethnicity, age, or other demographic information.

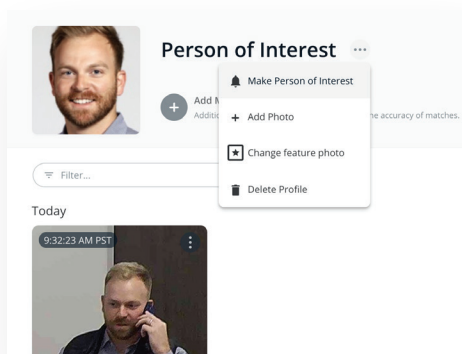
We also set administrative guardrails around the use of People Analytics: it is disabled by default, and after opting in, only users authorized by an Organization's admin may enable or view analytics on a given device.





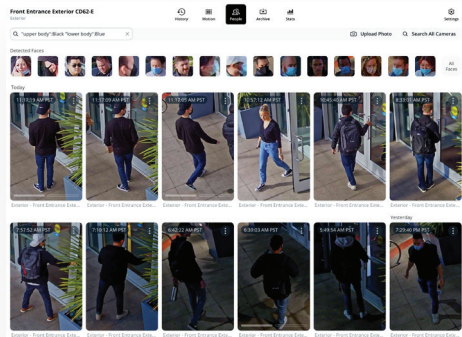
Verkada's People Analytics key features

What can you do with People Analytics? Once your camera is positioned correctly, explore all the use cases possible with this powerful toolkit.



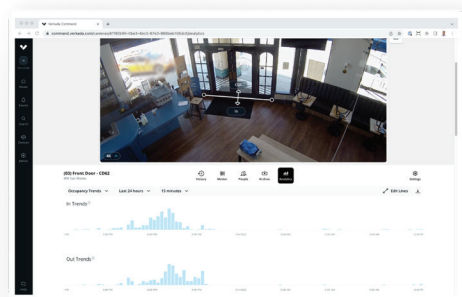
Person of interest notifications

Proactively set alerts for when a person is detected onsite who has a face that matches a preselected individual.



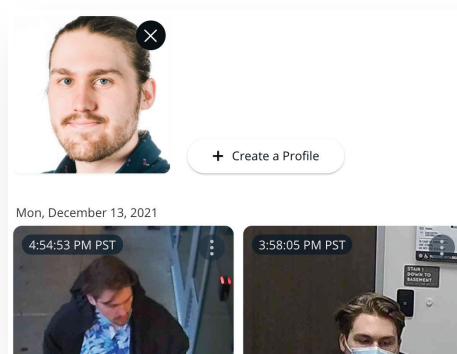
Person attributes

Quickly search through your cameras to find people that match selected attributes, including clothing color, gender appearance, and more.



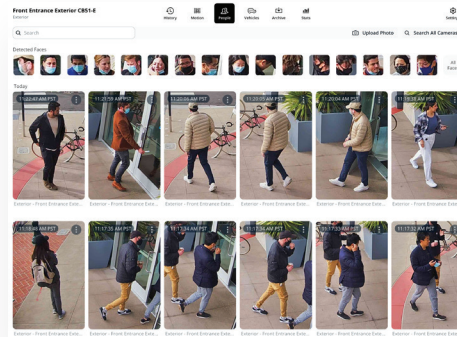
Occupancy trends

Monitor foot traffic in critical locations.



Face search

Search across all your organization's cameras for people that have been detected as a match to an existing or uploaded face.



Person history

View all people that have been captured by your Verkada cameras to speed up investigations.



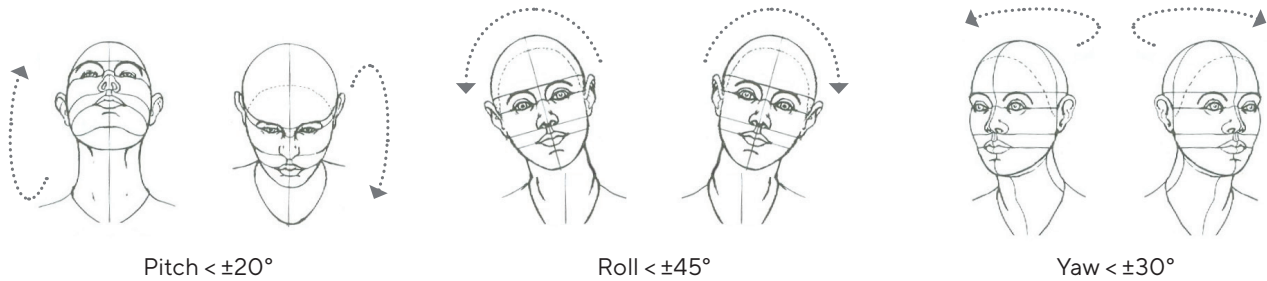
Optimizing analytics performance

Ensure your cameras are positioned according to the following guidelines to get the most consistent results with People Analytics features.

Head angle

For optimal performance with Face Search and Person of Interest alerts, cameras should capture faces head-on, facing the camera, and as close to the camera as possible.

The angle of captured faces must be within the following range of values:



Good face angle



Poor face angle

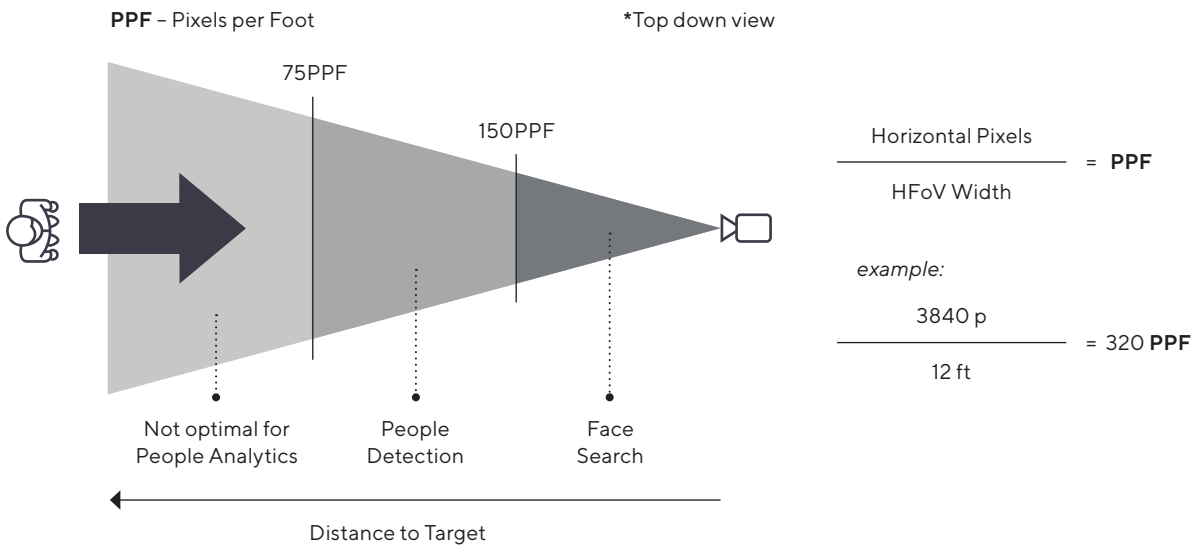


Distance to camera

People and face detection requires a minimum level of detail, expressed quantitatively as pixels per foot (PPF):

- PPF decreases with distance from the camera. The PPF at any given distance varies with the camera’s field of view and the image resolution.
- A PPF of 75 or greater is recommended for People Analytics features like Person Attributes and Person History.
- A PPF of 150 or greater is recommended for face recognition features such as Face Search and Person of Interest alerts.

To calculate the PPF value at the distance you wish to detect people, divide the camera’s horizontal pixel count (available in the camera’s datasheet under Resolution) by the width in feet of the camera’s horizontal field of view (HFOV) at that distance.



This image was taken from a CD61 with a resolution of 3840 x 2160, and the width of the horizontal field of view at the target distance is 12 feet. Using the PPF formula we find that we have a PPF value of 320 at the doorway, which is sufficient for all People Analytics features.



The table below shows the maximum recommended distances for People Recognition and Face Recognition on our camera models.

<h2 style="color: #0070C0;">People Recognition</h2> <p>75 PPF Required (Person History, Person Attributes)</p>	<h2 style="color: #0070C0;">Faces Recognition</h2> <p>150 PPF Required (Face Search, Person of Interest)</p>
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Model Number	0% Optical Zoom	100% Optical Zoom	0% Optical Zoom	100% Optical Zoom	<i>feet</i>
CD31/E	15'	-	8'	-	
CD41/CD42/E	20'	-	10'	-	
CD51/52/E	19'	52'	9'	26'	
CD61/62/E	25'	70'	13'	35'	
CB51-E	21'	48'	10'	24'	
CB51-TE	51'	123'	25'	61'	
CB61-E	31'	67'	15'	34'	
CB61-TE	70'	170'	35'	85'	
CM41/E/S	20'	-	10'	-	
CM61	28'	-	14'	-	
D40	20'	-	10'	-	
CF81-E (Four-Way Split)	17'	-	8.5'	-	
CF81-E (Panoramic)	18'	-	9'	-	



Lighting

Lighting can impact People Analytics performance. Bright and even lighting will provide the most reliable and accurate results. Performance may suffer in low-light scenes as well as those with direct sunlight or high contrast. People Analytics generally performs best with a minimum light level of 250 lux, which can be measured with a standard luxmeter.



Good lighting (500 lux on subject)



Poor lighting (50 lux on subject)

Privacy

Verkada’s People Analytics solution is built with privacy and security in mind. The people search and history results are always kept within your organization and are securely encrypted at rest and in transit.

Verkada is committed to providing customers with full visibility into and control over their security systems. People Analytics features are disabled by default and must be enabled by an administrator with the appropriate role grants. Robust audit logs enable customers to track usage of and changes to their environment in order to ensure compliance with regulation and internal policies. If a more granular level of privacy is needed, cameras can also be configured with Privacy Zones to block certain regions of the scene from being recorded or used with People Analytics.

Compliance and availability

Verkada is committed to ensuring its hardware and features comply with applicable regulations. The following security camera features are not available in the jurisdictions listed below.

Jurisdiction	Face Detection	Gender Appearance	Person of Interest Notifications
Baltimore	X	X	X
Illinois	X	X	X
Portland	X	X	X
Texas	X	X	X