

Camera View Requirements

Background

iCetana relies heavily on camera placement, image quality and feed stability in order to effectively generate anomalies. This guide is designed to give an overview of these requirements to assist clients, integrators and distribution partners in designing and implementing an effective iCetana system.

Most of the considerations for camera setup apply not only to iCetana, but to surveillance in general. Typically, a well laid out camera network that is optimized for surveillance will be suitable for iCetana. In general, cameras should be placed high and have a clear view of the area they are observing.

Perspective should be carefully considered so that the surveillance area is well spread across the field of view, clear and not distorted or adversely weighted near to far.

Camera image quality should be considered so that the image is clear and stable. This means that the camera should be in focus, without obscurities such as dirt or other material on the lens. Stability of the camera itself is an important aspect, with cameras firmly mounted to a stable platform to minimize the opportunity for camera shake induced by wind, vehicle movement or other vibration.




Finally, the camera feed stability is critically important for optimal detection of anomalies. The feed should have a consistent frame rate of at least 5 frames per second. This can be affected by a number of issues such as networking, lighting and camera configuration, number of feeds being serviced by the camera, resolution and day/night mode(s).

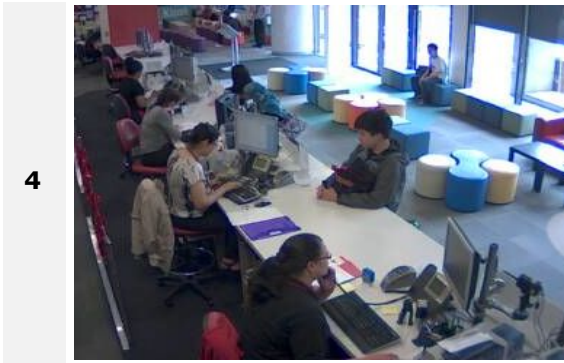
Ideal scenes for iCetana

The iCetana system works with most fixed IP cameras. The camera placement should be such that the camera has a clear, unobstructed view of the area under surveillance with good image quality. The camera should be mounted as such that it will not be affected by environmental factors such as wind, rain, sun, blocking foliage, etc that may cause the camera to move, shake, or be occluded by.

Camera Position

Mounting cameras high provides a clearer overview of the scene and results in less distortion from perspective. Below are variety of scenes used with iCetana with comments on the positive and negative aspects of each scene with respect to camera placement.

1		<p>Camera is mounted high.</p> <ul style="list-style-type: none"> • Scene is clear and unobstructed. • Nearfield and far field are moderately evenly weighted. • Street lamp in scene provides good lighting at night. • Apply bucket filter for environmental effects as outdoor scene.
2		<p>Camera is mounted high.</p> <ul style="list-style-type: none"> • Scene is clear and unobstructed. • Apply bucket filter for environmental effects as outdoor scene.
3		<p>Camera is mounted as high as practical.</p> <ul style="list-style-type: none"> • Default settings.



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Camera is mounted high as practical.

- Lighting effects through window from sunshine could cause issues, particularly if blinds are opened and closed on an irregular cycle.
- *Consider bucket filter for environmental effects from window.*



5

Camera is mounted low.

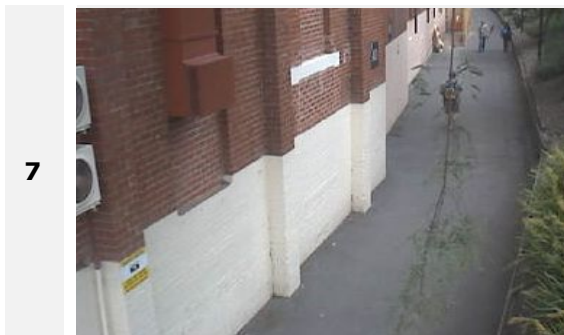
- Camera is zoomed in and does not provide a clear overview of the area.
- *Default settings.*



6

Camera is mounted low.

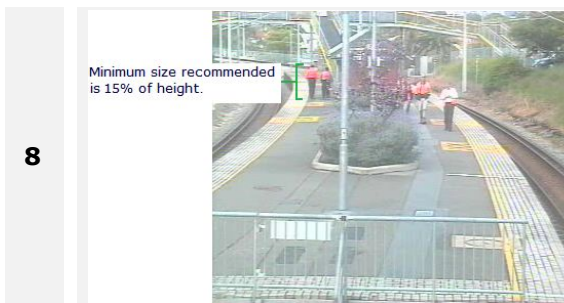
- Foreground staircase is a disproportionately large part of scene.
- *Consider bucket filter for environmental effects from window.*



7

Camera is mounted high, has clear overview.

- Foliage in front of camera.
- Apply bucket filter for environmental effects as outdoor scene.
- Consider masking foliage.



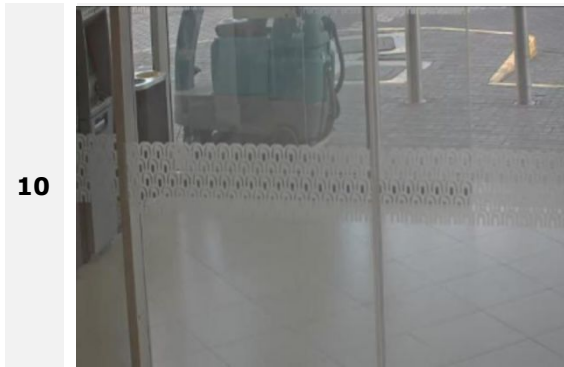
8

- People at far end of platform are very small due to perspective.
- *Apply bucket filter for environmental effects as outdoor scene.*



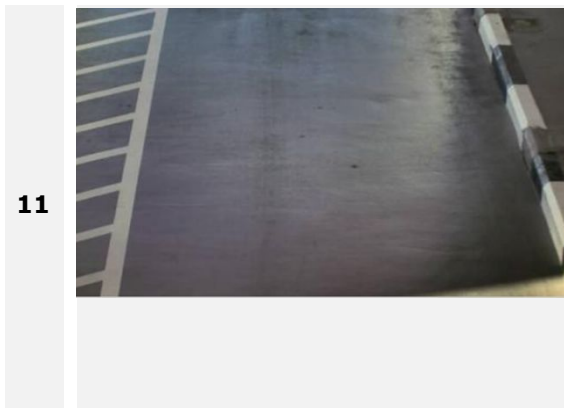
Camera is mounted low, which has caused near objects to appear disproportionately large (more than 85% of scene).

- Camera is ideally setup for facial recognition, but not ideal for iCetana.
- Apply bucket filter for environmental effects as outdoor scene.



Camera is setup for facial recognition at sliding door.

- People take up large part of scene (more than 85%) and pass through doors rapidly. Not ideal for iCetana.
- Apply bucket filter for environmental effects as outdoor scene component.
- Increase window size to 30s to smooth effect of large motion over short duration.




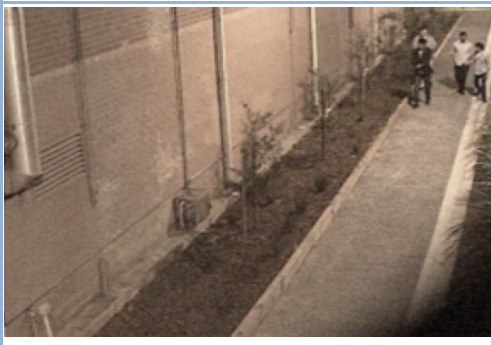

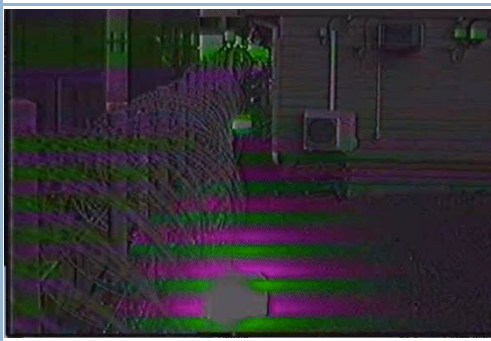
Camera is setup for license plate recognition.




- Vehicles take up large part of scene (more than 85%) and pass through scene rapidly. Not ideal for iCetana.
- Consider bucket filter for environmental effects as outdoor scene component.
- Increase window size to 30s to smooth effect of large motion over short duration.

Image Quality

iCetana requires a reasonable visual standard from camera views. Image quality can be affected by lighting, analogue camera interference, focus, etc. It is also important to consider the difference in views between daytime and night time, as a well-lit scene during the day may not be well-lit at night.

Below are a variety of scenes with comments on their suitability for iCetana.

1		<p>Scene is well lit, clear and suitable for iCetana.</p> <ul style="list-style-type: none"> • Apply bucket filter for environmental effects as outdoor scene
2		<p>Scene is well lit (sodium vapour lighting), slightly grainy but well suited to iCetana.</p> <ul style="list-style-type: none"> • Apply bucket filter for environmental effects as outdoor scene.
3		<p>Scene is poorly lit, and image quality is also very grainy.</p> <ul style="list-style-type: none"> • Scene will work with iCetana, but is not optimal. • Apply bucket filter for environmental effects as outdoor scene.
4		<p>Analogue camera receiving interference. Scene is poorly lit.</p> <ul style="list-style-type: none"> • Not ideal for iCetana. • Apply bucket filter for environmental effects as outdoor scene.

<p>5</p>		<p>Camera image is blurry/out of focus.</p> <ul style="list-style-type: none"> • Large amount of foliage in front of camera. • Apply bucket filter for environmental effects as outdoor scene. • Consider applying masking to foliage. • Focus camera.
<p>6</p>		<p>Grease or other substance on lens of camera.</p> <ul style="list-style-type: none"> • Clean camera. • Default settings. If scene is very quiet/low motion and generating excessive/long detections, consider lowering alpha threshold for scene, setting to single interval training (if there is no day/night variation) and increasing window to 30s.
<p>7</p>		<p>Image quality is good, however location has very low motion.</p> <ul style="list-style-type: none"> • Consider setting to single interval training model, disable holiday intervals, lower alpha threshold, increase training model motion threshold if problematic detections are generated.

Camera Feed

iCetana requires constant access to the IP video feed from each camera or the Video Management System as MJPEG or H.264 at 5 fps or higher (4CIF/D1 through to 720P is the ideal range for video resolution). Care should be taken with system design to ensure that there is adequate 24-hour end to end bandwidth from the camera/VMS to the iCetana servers.

Note: Lower settings may preserve bandwidth and storage, however, lower resolution and lower frame rate may make it more difficult to see fast motion across a camera scene, or detect smaller objects towards the background of the scene.

In consideration of this, iCetana requires that objects/people do not move across the field of view in less than 5 seconds (else difficult for operator to see).

**Information correct as of 1st April 2018, but subject to change without notice.
For Further information please contact your iCetana representative.**