Security Center AutoVu.™

SharpZ3 Administrator Guide 13.0

Genetec™

Legal notices

Document information

About this guide

This guide provides you with a complete source of information about the SharpZ3 web portal and how to configure your SharpZ3 cameras. It explains the basic settings you must configure before your SharpZ3 can be used.

You can customize your AutoVu™ SharpZ3 system to fit several different deployment types (for example, parking enforcement or law enforcement).

Depending on the type of deployment you require, you might not need to perform all of the steps listed in this document. For installation and configuration information related to your AutoVu™ solution, follow the steps in the appropriate deployment overview.

WARNING: Only AutoVu™-certified personnel should set up and install AutoVu™ systems. Read all of the procedures in this guide before installing an AutoVu™ system. Failure to follow the supplied instructions or information might result in loss of data or damage to hardware and will void the warranty.

Notes and notices

The following notes and notices might appear in this guide:

- **Tip:** Suggests how to apply the information in a topic or step.
- **Note:** Explains a special case or expands on an important point.
- **Important:** Points out critical information concerning a topic or step.
- **Caution:** Indicates that an action or step can cause loss of data, security problems, or performance issues.
- **Warning:** Indicates that an action or step can result in physical harm, or cause damage to hardware.

IMPORTANT: Content in this guide that references information found on third-party websites was accurate at the time of publication, however, this information is subject to change without prior notice from Genetec Inc.

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Chapter 5: Updating the system

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Getting started

This section includes the following topics:

About Security Center AutoVu™

The AutoVu™ automatic license plate recognition (ALPR) system automates license plate reading and identification, making it easier for law enforcement and for municipal and commercial organizations to locate vehicles of interest and enforce parking restrictions. Designed for both fixed and mobile installations, the AutoVu™ system is ideal for a variety of applications and entities, including law enforcement, municipal, and commercial organizations.

Depending on the Sharp hardware you install, you can use AutoVu™ in a fixed configuration such as on a pole in a parking lot, or in a mobile configuration such as on a patrol vehicle.

You can use AutoVu™ for the following:

- Scofflaw and wanted vehicle identification
- City-wide surveillance
- Parking enforcement
- Parking permit control
- Vehicle inventory
- Security
- Access control

AutoVu™ system architecture

AutoVu™ Sharp cameras capture license plate images, and send the data to Genetec Patroller™ or Security Center to verify against lists of vehicles of interest (hotlists) and vehicles with permits (permit lists).

The following diagram shows how a typical AutoVu™ system works:

Security Center

**Security Center
(LPR Manager role)**   **Security Desk**

IP Network

Manually   Wirelessly   Direct transfer
of LPR data

Offload
LPR Data

- Configure
- Control
- Update

Patroller

Fixed SharpV
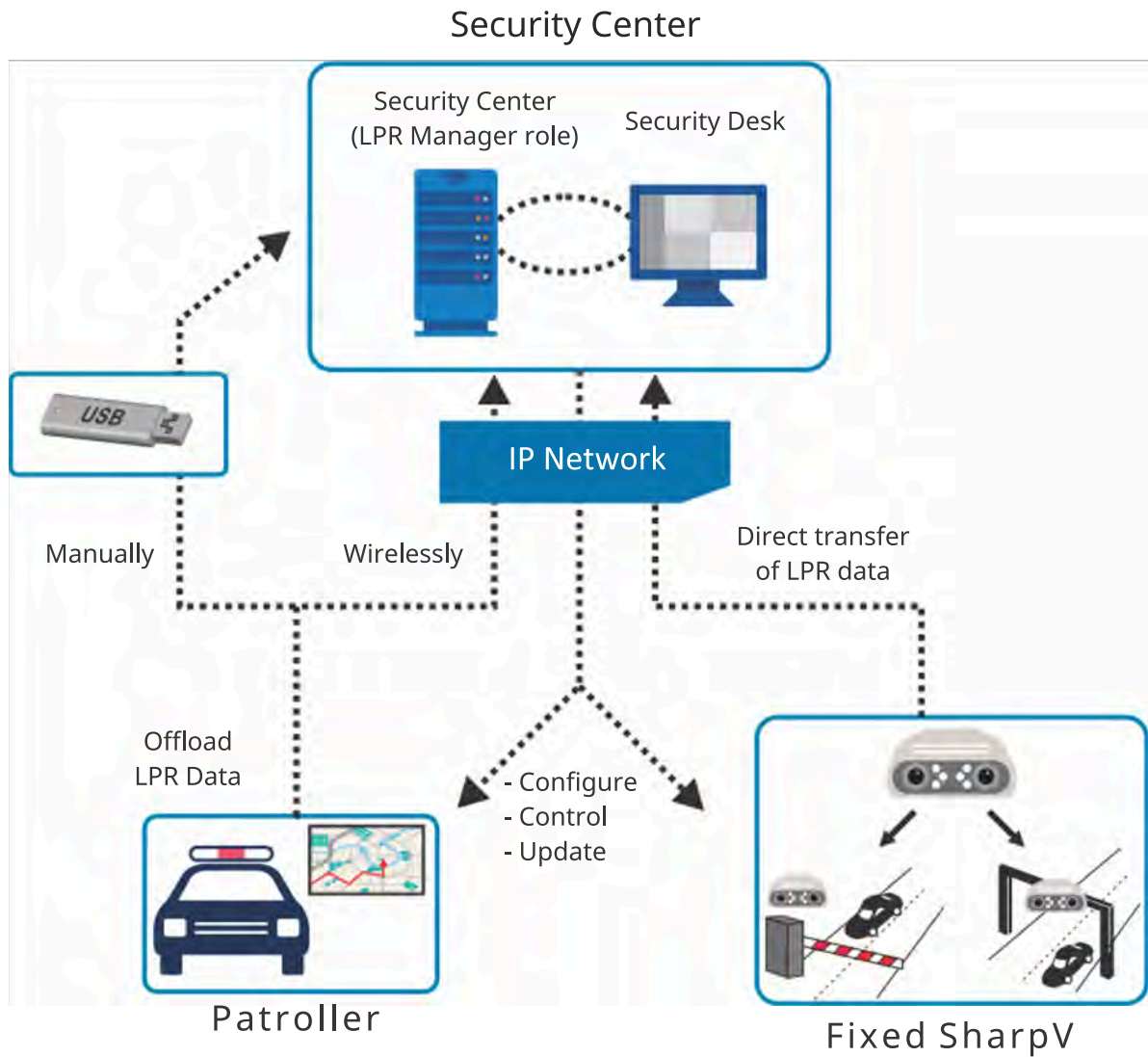
Example

Watch this video to learn more. Click the **Captions** icon (**CC**) to turn on video captions in one of the available languages. If using Internet Explorer, the video might not display. To fix this, open the **Compatibility View Settings** and clear **Display intranet sites in Compatibility View**.

ALPR using machine learning

Sharp cameras running SharpOS 13 use machine learning to classify license plates and to perform character recognition.

AutoVu™ Machine Learning Core (AutoVu™ MLC)

Although off-the-shelf machine learning solutions are commercially available for ALPR, their results can be unpredictable. With our hardware and software engineering expertise, we have built the AutoVu™ MLC from the ground up. This includes developing a deep neural network (DNN), training the system with Sharp camera images, and optimizing the system to run on AutoVu™ hardware. As a result, depending on the regional contexts, you can expect up to a 50% reduction in plate capture errors and character recognition errors when compared to widely used classical algorithms. The AutoVu™ MLC represents a significant reduction in the time that operators spend manually correcting plate reads.

As the AutoVu™ MLC continues to develop, we will apply it to more aspects of the ALPR process. You will be able to take advantage of these improvements with future SharpOS releases.

Specifications for the SharpZ3

Refer to the technical, mechanical, and environmental specifications when planning and deploying a SharpZ3 system.

SharpZ3 camera specifications

Specification	Details
ALPR camera sensors	1456(H) x 1088(V) progressive scan @30fps, monochrome, global shutter
ALPR capture range	Up to 63-foot (19-meter) range with retro-reflective license plates
ALPR camera lens options	8mm, 12mm, 16mm, 25mm
Context camera sensor	1456(H) x 1088(V) progressive scan @30 fps - Color - B&W night mode with 940nm illuminator - Global shutter - JPEG still images and MJPEG video streaming
Context camera lens	Based on ALPR lens configuration: 4mm, 6mm, 8mm, 12mm
Illuminator	Pulsed LED illuminator (740nm, 850nm, 940nm, 590nm)
Water-resistance | sealing	IEC 60529 IPx6, IPx7 | IEC 60529 IP6x
Dimensions	1.65 (h) x 5.12 (w) x 3.56 (d) inches (4.2 x 13 x 9 cm) | Excludes cabling and mounting bracket
Weight	1.2 lbs (0.54 kg)
Color	Available in black/white

SharpZ3 base unit specifications

Specification	Details
I/O	Base unit: 2x 10/100/1000 Base-T Ethernet ports (RJ45) 4x digital inputs (triggers), 0~32Vdc, opto-coupled 4x dry-contact outputs (relays): 2x 0.25A solid state relays, 2x 8A electromechanical relays 1x regulated 12V AUX output power, 200ma
Mounting options	Horizontal and vertical
Dimensions	3.6 (h) x 8.6 (w) x 9.3 (d) inches (9.1 x 21.8 x 23.6 cm). Excludes cabling, cable racks and mounting brackets

Specification	Details
Weight	Base unit: 4.4 lbs (2.0 kg)
	ALPR module: 2-ports: 4.1 lbs (1.9 kg)
	ALPR module: 4-ports: 4.4 lbs (2.0 kg)
Processors	Intel Atom Processor E3950
	Intel Myriad X VPU (machine-learning co-processor)
Power	12/24Vdc nominal (9 to 32 Vdc)
	Optional modules:
	2x ALPR base unit module: Typical power consumption: 50W
	4x ALPR base unit module: Typical power consumption: 98W

SharpZ3 system certification (camera and base unit)

Specification	Details
Vibration	IEC 60068-2-64
Shock resistance	IEC 60068-2-27
Electromagnetic immunity and emissions	FCC part 15 Sub-part B | ICES-003 Issue 4 | CISPR32 / EN55032 | CISPR35 / EN55035 | CISPR25 / EN55025 | EN 50498
CE marking	EMC Directive 2014/30/EU; Automotive EMC Directive 2004/104/EC; RoHS Directive 2011/65/EU
Temperature	-40°F to 122°F (-40°C to 50°C) operating; -40°F to 185°F (-40°C to 85°C) storage
	-40°F to 149°F (-40°C to 65°C) base unit operating, w/optional cooling pack
	Certifications: IEC 60068-2-1 Category Ad | IEC 60068-2-2 Category Bd | IEC 60068-2-14 Category Na
	Includes hi-temp auto-shutoff protection

Part numbers

AU-Z3-W-12F12F-850
(A)   (B)   (C)   (D)   (E)

Component	Signification
A	SharpZ3 prefix
B	Color: **W** (white) or **B** (black)

Component	Signification	
C	Primary ALPR lens:	• **Focal length:** 8 mm, 12 mm, 16 mm, 25 mm
D	Secondary ALPR lens:	• **Filter:** F: Monochrome sensor with filter M: Monochrome sensor without filter C: Color sensor with filter
E	LED	• **Illumination:** 590 nm, 740 nm, 850 nm, 940 nm

Genetec™ server configurations for AutoVu™ systems

Depending on the requirements of the system, you can install the AutoVu™ system on one server or distribute the load over multiple servers.

Single server

In a single-server system, the LPR Manager, Archiver, and Directory roles are configured on the same server. For better performance, you can configure separate Archiver roles for ALPR and video.

Recommended server configuration

Small system server configuration
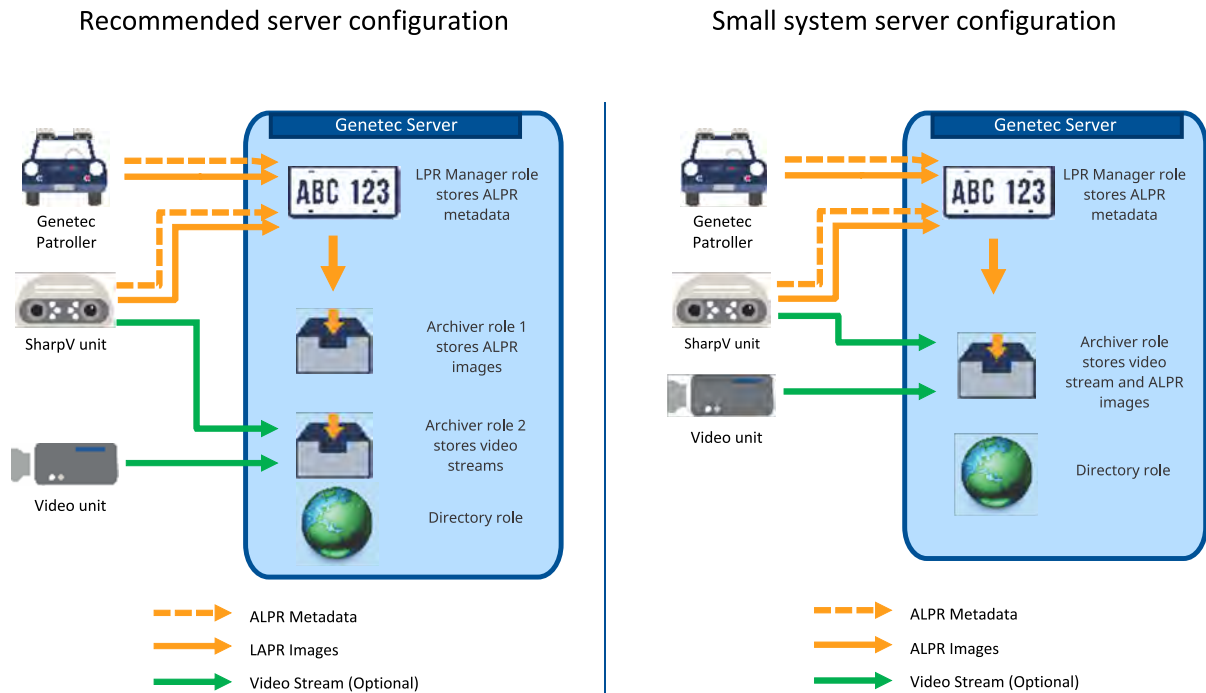
Multiple servers

In a multiple-server system, the Archiver role is installed on a separate server from the LPR Manager and Directory roles. For better performance, you can configure separate Archiver roles for ALPR and video.

Recommended server configuration

Genetec server 1

Directory role

ABC 123

LPR Manager role stores ALPR metadata

Archiver role stores ALPR images

Genetec Patroller

SharpV unit

Video unit

Genetec server 2

Archiver role stores video streams

- - - → ALPR Metadata
──→ ALPR Images
──→ Video Stream (Optional)

Small system server configuration

Genetec server 1

Directory role

ABC 123

LPR Manager role stores ALPR metadata

Genetec Patroller

SharpV unit

Video unit

Genetec server 2

Archiver role stores video streams and ALPR images

- - - → ALPR Metadata
──→ ALPR Images
──→ Video Stream (Optional)
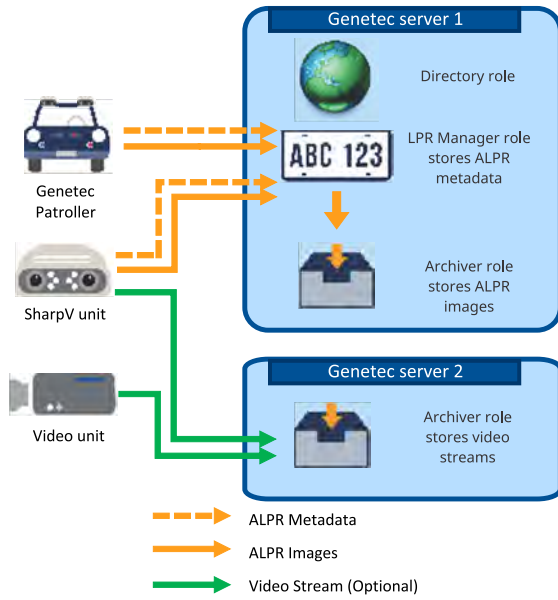
Storage requirement for ALPR images

The images associated with the reads and hits are stored on disk in G64 files by an Archiver. You can estimate the disk space required to store these images if you know the average number of reads and hits processed by the LPR Manager per day.

For every license plate read or hit processed by the LPR Manager, the Archiver stores a set of four images:

- One context camera image (in either high resolution or low resolution)
- One ALPR camera image (cropped to show only the license plate)
- One context camera thumbnail image
- One ALPR camera thumbnail image

The size of the image set depends on the model of the Sharp camera and whether the context camera is configured to take images in high resolution or low resolution.

Use the following formula to estimate the disk space you need for the desired image retention periods.

```
Disk space = (ReadsPD x ImageSize x ReadIRP) + (HitsPD x ImageSize x HitIRP)
```

where:

- **ReadsPD:** Average number of reads per day.
- **ImageSize:** Estimated image size per read (depends on the Sharp model and configuration).
- **ReadIRP:** Read image retention period (see LPR Manager's **Properties** tab).
- **HitsPD:** Average number of hits per day.
- **HitIRP:** Hit image retention period (see LPR Manager's **Properties** tab).

If your patrol vehicles are equipped with wheel imaging cameras, double the number of hits per day in your formula (there is typically one wheel image per hit).

The following table gives you the rough estimates of the image size per read based on the Sharp model and configuration.

Type of image	Sharp VGA or XGA	SharpV	SharpZ3
High-resolution configuration			
Context camera image	~50 KB	~120 KB	~160 KB
ALPR camera image (cropped)	~3 KB	~3 KB	~2 KB
Context camera thumbnail image	~3 KB	~3 KB	~2 KB
ALPR camera thumbnail image	~1 KB	~1 KB	~1 KB
Total image size per read:	~57 KB	~127 KB	~165 KB
Low-resolution configuration			
Context camera image	~18 KB	-	-
ALPR camera image (cropped)	~3 KB	~3 KB	-
Context camera thumbnail image	~3 KB	~3 KB	-

Type of image	Sharp VGA or XGA	SharpV	SharpZ3
ALPR camera thumbnail image	~1 KB	~1 KB	-
Total image size per read:	~25 KB	-	-

Supported ALPR contexts

ALPR contexts are created for specific regions in order to optimize ALPR for the license plates of that region.

Asia-Pacific

NOTE: To help us improve the performance of regional contexts, click **Configuration** > **Connectivity** > **Product improvement** and register this camera to participate in the **Product improvement program**.

ALPR contexts are available for the following license plates:

- Australia (optimized for New South Wales)
- Hong Kong
- India
- Japan
- Mongolia
- Northern territory (Australia)
- New Zealand
- Queensland (Australia)
- Singapore
- Sri Lanka[20]
- Turkmenistan
- Vietnam
- Western Australia

Caribbean and Latin America

- Argentina
- ArgentinaMulti[17]
- Bahamas
- Bermuda
- Brazil
- Cayman Islands
- Chile
- Colombia
- Costa Rica
- Dominican Republic
- Mexico
- Mexico Jalisco
- Paraguay
- Peru
- St-Maarten

Europe/Middle East/Africa

- Abu Dhabi
- Abu Dhabi WithPrefix[18]
- Algeria
- Arabic Peninsula[1]
- Azerbaijan
- Bahrain
- Belgium[9]
- BelgiumMulti[10]
- BelgiumMultiVanity[11]
- Denmark
- Dubai
- DubaiWithPrefix[18]
- Europe[2]
- Europe One and Two Lines[3]
- France
- Great Britain
- General European context
- Germany
- Iceland
- Ireland
- Italy
- Ivory Coast
- Jordan
- Kazakhstan
- Kuwait
- Lebanon
- Monaco
- Morocco
- Netherlands
- Norway
- Oman[4]
- Poland
- Portugal
- Qatar
- QatarMilitary[12]
- Romania
- Saudi Arabia
- Sharjah
- Sharjah WithPrefix[18]
- Slovakia
- South Africa
- Spain
- Sweden
- Switzerland
- Turkey
- TurkeyOnly[13]
- United Arab Emirates[5]
- United Arab Emirates WithPrefix[18]

North America

- Alabama
- Alberta
- Arizona
- British Columbia
- British Columbia Fixed[14]
- California
- Colorado
- Connecticut
- Delaware
- Florida
- General US context
- Georgia
- Georgia_3Chars[21]
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- KentuckyIndiana
- Louisiana
- Maine
- Manitoba
- Maryland
- Massachusetts
- MassachusettsIR[15]
- Michigan
- Minnesota
- Mississippi
- Montana
- Nebraska
- Nevada
- New Brunswick
- Newfoundland
- New Hampshire
- New Jersey
- New Mexico
- New York
- New York City[16]
- North Carolina
- North Dakota
- Northeast states[6]
- Nova Scotia
- Ohio
- Oklahoma
- Ontario
- Oregon
- Pennsylvania
- PennsylvaniaDelaware[6]
- Prince Edward Island
- Quebec
- Rhode Island
- Saskatchewan
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah and Neighbors[8]
- Vermont
- Virginia
- Washington State[19]
- Wisconsin
- Wyoming
- Yukon

[1]Includes Saudi Arabia, Bahrain, Kuwait, and UAE.

[2]General European context for one-line plates.

[3]General European context for one-line and two-line plates.

[4]Only standard Omani plates are supported (wide-format, black-on-white, and black-on-yellow). License plates issued by neighboring countries are not supported.

[5]Includes Abu Dhabi, Dubai, and Sharjah plates.

[6]Includes Delaware, New York, Pennsylvania, and Vermont plates.

[7]Includes Pennsylvania, Delaware, Florida, Vermont, and New York plates.

[8]Includes Utah, Oregon, Montana, and North Dakota plates.

[9]Supports one-line plates with five or more characters.

[10]Supports one-line and two-line plates with five or more characters.

[11]Supports one-line and two-line plates with three or more characters. Note that this context can produce many false positive reads.

[12]Exposure settings are optimized for non-reflective military plates. Note that performance with standard plates might be reduced.

[13]Excludes the letters Q, W, and X. Note that foreign plates that contain these characters are not read correctly.

[14]Optimized for fixed installations.

[15]Optimized for SharpZ3 cameras with 850nm IR illuminators.

[16]Exposure settings are optimized for non-reflective taxi plates. Note that performance with standard plates might be reduced.

[17]Supports standard and motorcycle plates.

[18]*WithPrefix* includes characters that are present on the plate, but are separate from the license plate read.

[19]Specialized ALPR contexts available for ABMER (590 nm) and IR (850nm) illuminators.

[20]Supports Latin characters only.

[21]Supports plates with three or more characters. Note that using this context might increase the false positive count.

Supported plate origin recognition

In addition to reading the number on a license plate, the SharpZ3 can also read the state, province, or country. Plate origin recognition is performed on a best-effort basis, and is not necessarily available for the same plates that have a supported ALPR context.

Plate origin recognition is supported for the following plates:

Europe/Middle East/Africa

- Abu Dhabi (AD)
- Ajman (AJ)
- Bahrain (BRN)
- Belgium (B)
- Denmark (DK)
- Dubai (DUB)
- France (F)
- Fujairah (FUJ)

- Germany (D)
- Great Britain (GB)
- Italy (I)
- Kuwait (KWT)
- Netherlands (NL)
- Norway (N)
- Poland (PL)
- Portugal (P)

- Ras al Khaimah (RAK)
- Romania (RO)
- Saudi Arabia (KSA)
- Sharjah (SHJ)
- Slovakia (SK)
- Switzerland (CH)
- Spain (E)
- Umm al Qaiwain (UAQ)

North America

- Alabama (AL)
- Alberta (AB)
- Arizona (AZ)
- Arkansas (AR)
- British Columbia (BC)
- California (CA)
- Colorado (CO)
- Connecticut (CT)
- Delaware (DE)
- District of Columbia (DC)
- Florida (FL)
- Georgia (GA)
- Hawaii (HI)
- Idaho (ID)
- Illinois (IL)
- Indiana (IN)
- Iowa (IA)
- Kansas (KS)
- Kentucky (KY)

- Louisiana (LA)
- Maine (ME)
- Manitoba (MB)
- Maryland (MD)
- Massachusetts (MA)
- Michigan (MI)
- Minnesota (MN)
- Mississippi (MS)
- Missouri (MO)
- Montana (MT)
- Nebraska (NE)
- Nevada (NV)
- New Brunswick (NB)
- Newfoundland and Labrador (NL)

- New Hampshire (NH)
- New Jersey (NJ)
- New Mexico (NM)
- New York (NY)
- North Carolina (NC)
- North Dakota (ND)
- Nova Scotia (NS)
- Ohio (OH)
- Oklahoma (OK)
- Ontario (ON)
- Oregon (OR)
- Pennsylvania (PA)
- Price Edward Island (PEI)
- Rhode Island (RI)

- Quebec (QC)
- Saskatchewan (SK)
- South Carolina (SC)
- South Dakota (SD)
- Tennessee (TN)
- Texas (TX)
- US Government (GOV)
- Utah (UT)
- Vermont (VT)
- Virginia (VA)
- Washington (WA)
- West Virginia (WV)
- Wisconsin (WT)
- Wyoming (WY)
- Yukon (YT)

2

Introduction to the Sharp portal

This section includes the following topics:

About the Sharp Portal

The Sharp Portal is a web-based administration tool used to configure Sharp cameras for AutoVu™ systems. From a web browser, you log on to a specific IP address (or the Sharp name in certain cases) that corresponds to the Sharp you want to configure. When you log on, you can configure options such as selecting the ALPR context (for example, Alabama, Oregon, Quebec), selecting the read strategy (for example, fast moving or slow moving vehicles), viewing the Sharp's live video feed, and more.

NOTE: On a SharpZ3 unit that includes a four-camera ALPR module, each set of two cameras is configured in a separate Sharp Portal which is available from a link on the *Maintenance* page.
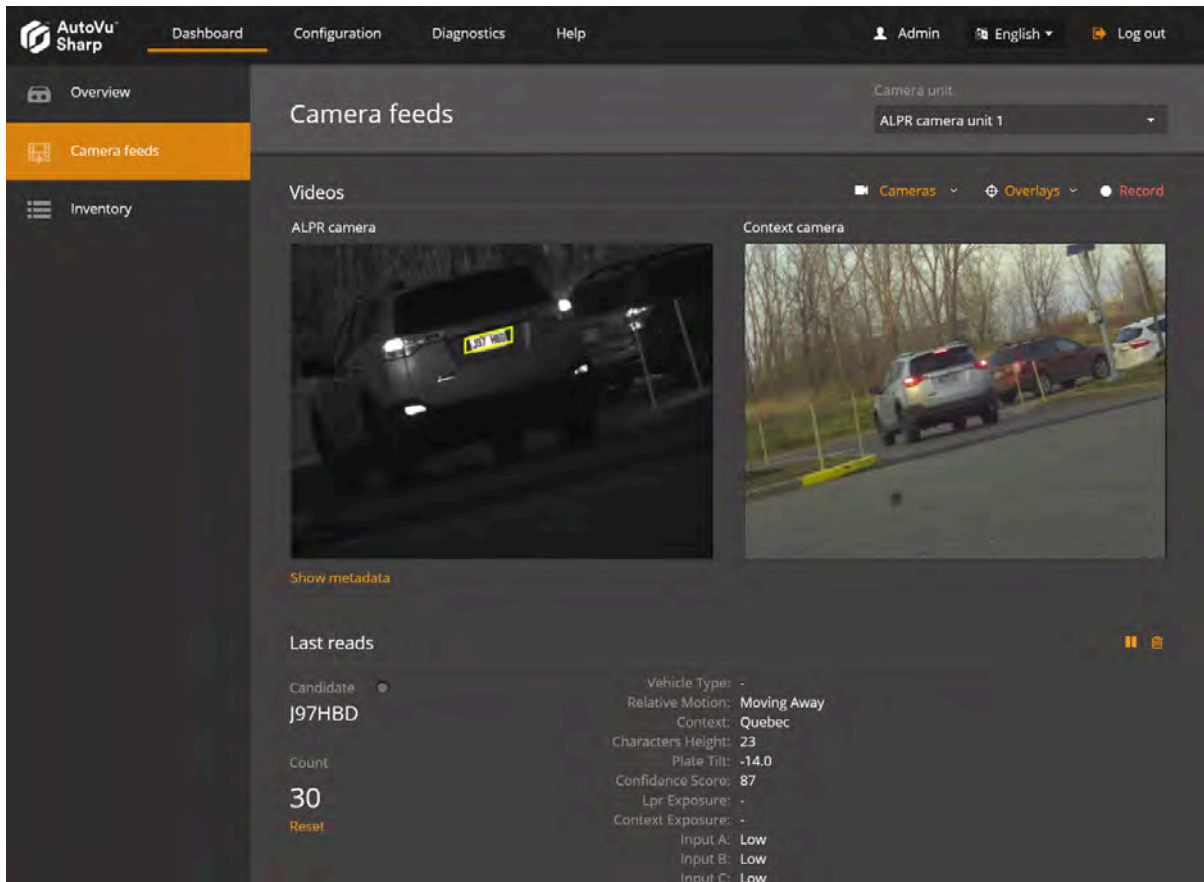
Benefits of the Sharp Portal

- **Open Sharp Portals in many tabs:** Web browsers use tab-based browsing, which provides you with a simple way to configure multiple SharpZ3 cameras. You can have many instances of the Sharp Portal open within the same Web browser.
- **Secure connection:** You can log on to the Sharp Portal securely using an HTTPS protocol with SSL encryption.
- **Use Favorites:** You can easily monitor and configure all the SharpZ3 units on your network. For example, if you have multiple SharpZ3 units on your network, you can add them all to your Web browser's Favorites folder, and then rename them (for example, SharpNorthParkingLot) for quick configuration and maintenance.

Logging on to the Sharp Portal

To configure SharpZ3 cameras, you must log on to the Sharp Portal.

Before you begin

- You need to know the IP address or name of the SharpZ3 camera you want to connect to:
  - **SharpZ3 name:** You can find the SharpZ3 name (for example, SharpZ312345) on the label on the back of the unit.
  - **Fallback IP address:** The fallback IP address is 192.168.10.100. The fallback IP address is only available if the camera is in DHCP mode (default). After camera startup, the camera searches for a DHCP server. If no DHCP server is present on the network after two minutes, the fallback IP address is made available.

What you should know

- You can access the Sharp Portal using the following browsers:
  - Microsoft Edge version 41 and later
  - Google Chrome version 46 and later
- To ensure that camera feeds are displayed correctly, only open one instance of the Sharp Portal at a time.

  To log on to the Sharp Portal:
1 Open your Web browser, and go to `https://<SharpZ3 name or IP address>`.

  A two-camera ALPR module is configured through one Sharp Portal; a four-camera ALPR module is configured through two Sharp Portals.
  - **Sharp Portal 1 (camera ports 1 and 2):** http://192.168.10.100/
  - **Sharp Portal 2 (camera ports 3 and 4):** http://192.168.10.101/

2 Enter the **Username** and **Password**.
  - If you have already logged on and changed the default password, enter your **Username** and **Password** and click **Connect**.
  - If this is the first time you are logging on to the Sharp Portal for this unit, enter the default credentials
    - **Username:** admin
    - **Password:** Genetec

3   Click **Connect**.
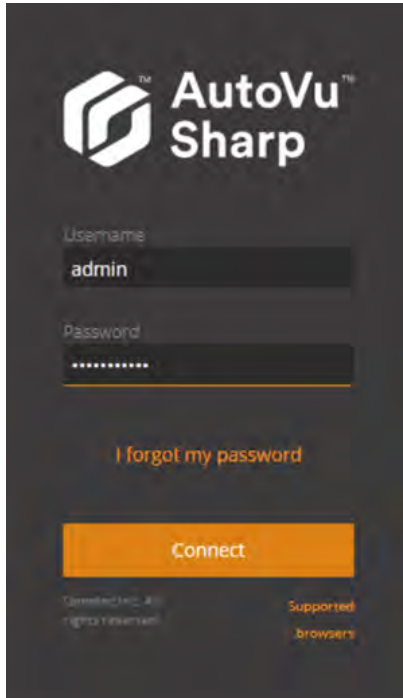
4   Select the power line frequency that corresponds to the installation location.

- **60 Hz:** Generally used in North America and South America
- **50 Hz:** Generally used in Africa, Australia, Asia, and Europe

NOTE: For more information on the power line frequency used in your installation location, click here.

5 Click **Enter context name** and select which regional context to use.

   NOTE: You can change the regional context when you configure analytics for the SharpZ3.
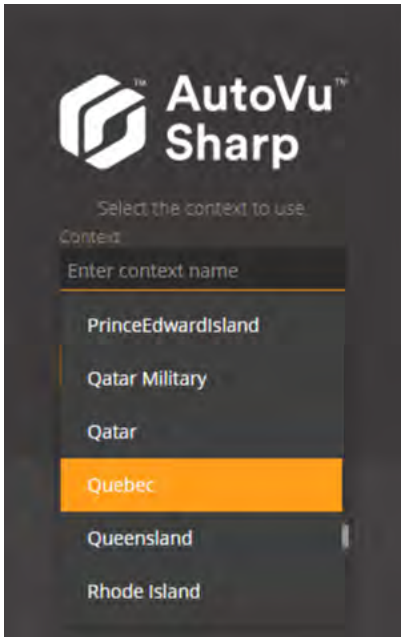
6 Click **Next**.
7 Enter and confirm a new password.

   NOTE: You cannot modify the username.

8 Click **Next**.
9 You are redirected to the logon page. Enter the **Username** and new **Password**, then click **Connect**.

10 Click **Connect**.
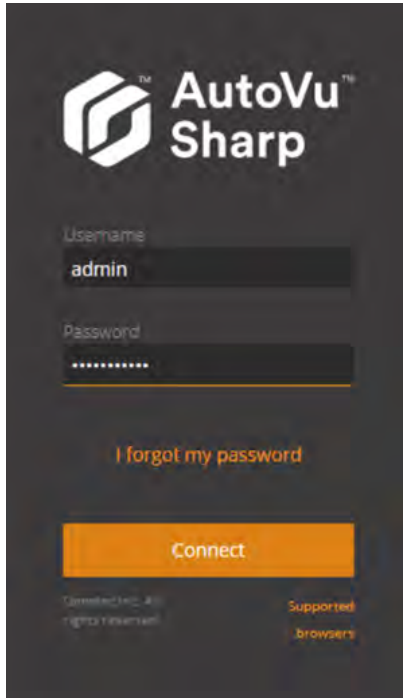
After successfully logging on, the Sharp Portal opens to the **Overview** page of the **Dashboard** menu.

Changing your logon password in the Sharp Portal

For security reasons, you might need to change the logon password for the Sharp unit. You can do this in the Sharp Portal.

What you should know

A two-camera ALPR module is configured through one Sharp Portal; a four-camera ALPR module is configured through two Sharp Portals.

- **Sharp Portal 1 (camera ports 1 and 2):** http://192.168.10.100/
- **Sharp Portal 2 (camera ports 3 and 4):** http://192.168.10.101/

Sharp Portal 1

Sharp Portal 2

To change your password:

1 Log on to the Sharp Portal.
2 From the **Configuration** menu, select the **Security** page.
3 In the **Access** section, click **Modify password**.
4 Enter your old password, then enter and confirm your new password.
5 Click **Apply**.

Sharp Portal interface overview

To familiarize yourself with the Sharp Portal, you can take a tour of the main areas of the user interface.

A	Sharp Portal address	Type the SharpZ3 name or the IP address. The format is `https://Sharp12345` or `https://192.168.10.100`
B	Menu	Shows the main categories of the Sharp Portal.
C	Current user	Shows the current user, language selection, and log out command.
D	Pages	Shows the available pages for the selected portal menu.

| E | Sections | Shows the available information, status, or settings for the selected portal page. |
| F | Additional information | Orange text indicates that the text is clickable. This can indicate a hyperlink, can trigger actions, or can display additional information. |

Viewing camera feeds

You can use the camera feed to test and align Sharp cameras.

To view the Sharp unit camera feed:

1   Log on to the Sharp Portal.

2   From the **Dashboard** menu, select the *Camera feeds* page.

The *Camera feeds* page displays the feeds from the selected Sharp unit and recent license plate reads from the unit.

The following options are available in the *Camera feeds* page:

- **Camera unit:** Select which Sharp camera or auxiliary camera to view.
- **Cameras:** Displays the resolution and the lens focal range available for cameras connected to the SharpZ3 unit.
- **Overlays:**

  - **Crosshairs:** Select this option to display crosshairs in the ALPR or context camera window.
  - **Bounding box:** Select this option to display the yellow bounding box around detected plates in the ALPR camera window.

- **Record:** Click the **Record** button to capture a series of context and ALPR images directly from the *Camera feeds* window and save them to your computer as a .zip file for debugging purposes.

  NOTE:

  - Using the **Record** feature increases CPU usage.
  - To use this feature, you cannot use the camera's auto-generated certificate. You must install a self-signed certificate that includes the IP address of the camera.

3   From the **Camera unit** menu, select a camera group to view its live feeds.

After you finish

To reduce network bandwidth, after you have finished viewing the camera feeds, select **No camera** from the **Cameras** menu, or navigate to a different page of the Sharp Portal.

Related Topics
Camera alignment

SharpZ3 hardware inventory

The **Dashboard** > **Inventory** page in the Sharp Portal displays information on SharpZ3 system hardware.

The *Inventory* page is available from the **Dashboard** menu. The page displays the status of the hardware components of the system and allows you to identify camera units by blinking their LEDs. You can see the installed expansion modules and available expansion module slots.

NOTE: To see the most recent information in the *Inventory* page, you must refresh the web page.

The *Inventory* page provides the following information:

- **Module:** Displays the name of the component.
- **Version:** Displays the component's firmware version.
- **Identification:** Displays a unique identifier of the component, such as its name or serial number.

  NOTE: The serial number is also printed on the component sticker.
- **Status:** Displays the health status of the component.
- **Blink LED:** Blinks the LED on SharpZ3 cameras or the SharpZ3 base unit.

Rebooting the SharpZ3 ALPR module

Certain configuration procedures require you to reboot the SharpZ3 ALPR module. You can do this from the Sharp Portal.

What you should know

- Following these steps will reboot the SharpZ3 base unit as well as the two camera ports associated with the Sharp Portal. To reboot the entire SharpZ3 system, you must power cycle the base unit.
- A two-camera ALPR module is configured through one Sharp Portal; a four-camera ALPR module is configured through two Sharp Portals.
  - **Sharp Portal 1 (camera ports 1 and 2):** http://192.168.10.100/
  - **Sharp Portal 2 (camera ports 3 and 4):** http://192.168.10.101/

Sharp Portal 1

Sharp Portal 2

To reboot the SharpZ3 system:

1 Log on to the Sharp Portal.
2 From the **Configuration** menu, select the *Maintenance* page.
3 Click the **Reboot unit** button.

   The connection to the Sharp Portal is momentarily lost.
4 Wait approximately 2 minutes to allow the system to reboot and the Sharp Portal to restart.

Synchronizing the SharpZ3 clock

You can configure the SharpZ3 to synchronize time and date settings with the computer you are using to access the Sharp Portal, or with an NTP server.

What you should know

By default, the SharpZ3 synchronizes its time and date settings with the active extension defined in the **Configuration** > **Connectivity** > **Extension** page. Alternatively, you can manually configure the date and time selection in the **Configuration** > **General settings** > **Date and time** page.

To synchronize the SharpZ3 clock:

1   Log on to the Sharp Portal.
2   From the **Configuration** menu, select **General settings > Date and time**.
3   Select one of the following options:

- **NTP server:** The camera synchronizes with an NTP server that is typically either a foreign computer or a server within your organization that synchronizes itself with an external NTP server. The latter is recommended if synchronization is crucial to your organization. Click **Server** and enter the URL or IPv4 address of the machine running the NTP server. Click **Test connection** to tests the connection between the camera and the NTP server. The camera synchronizes with the NTP server every hour.

- **Active extension (Patroller):** If you select **Active extension (Patroller)**, the camera's date and time are synchronized with the Genetec Patroller™ server that the camera is connected to. The camera synchronizes with the server upon connection, then again every 10 minutes.

   NOTE: If you have not yet configured the active extension (see Configuring where the SharpZ3 sends its ALPR data on page 48), you can select **Active extension**, and it will be updated when you configure the extension.

   NOTE: The **Active extension** option displays whichever extension is currently selected for the camera in *Configuration > Extensions*, however, selecting this option has no effect if you are using an extension type other than Patroller (not valid for FTP, HTTP, and so on).

4   Click **Save**.

Configuring battery monitoring

By default, power to the SharpZ3 base unit and connected devices continues to be supplied for 60 seconds after the vehicle engine is turned off. You can configure how power is managed when the system shuts down.

What you should know

WARNING: Configuring incorrect battery monitoring settings can render the unit temporarily unusable or impair the battery.

To configure battery monitoring:

1 Log on to the Sharp Portal.
2 Click **Configuration** > **General settings** > **Power options**.
3 Click **Show Advanced**.
4 Configure **Battery Monitoring** settings.

- **Turn on voltage:** Input voltage threshold below which the unit does not turn on.
- **Ignition cut-off delay:** Grace period between ignition cut-off and trunk unit power-down.
- **Undervoltage:** Input undervoltage threshold that causes a unit shut-off if maintained for a certain time.

NOTE: The voltages in the following table are measured at the base unit power connector. Note that there is an approximate 5 -7 V drop between the battery and the base unit power connector.

Parameter	Minimum	Maximum	Default
Turn on voltage	9.5 V	25.5 V	12 V
Ignition cut-off delay	10 seconds	30 minutes	60 seconds
Undervoltage	9 V	25.5 V	10.3 V

NOTE:

- The **Turn on voltage** and **Undervoltage** parameters have a precision of 0.1 V. For example, a voltage of 20.789456 V is rounded to 20.7 V.
- The **Ignition cut-off delay** parameter is rounded down to the nearest 10. For example, a cut-off time of 48 seconds is rounded to 40 seconds.

5   Click **Save**.

3
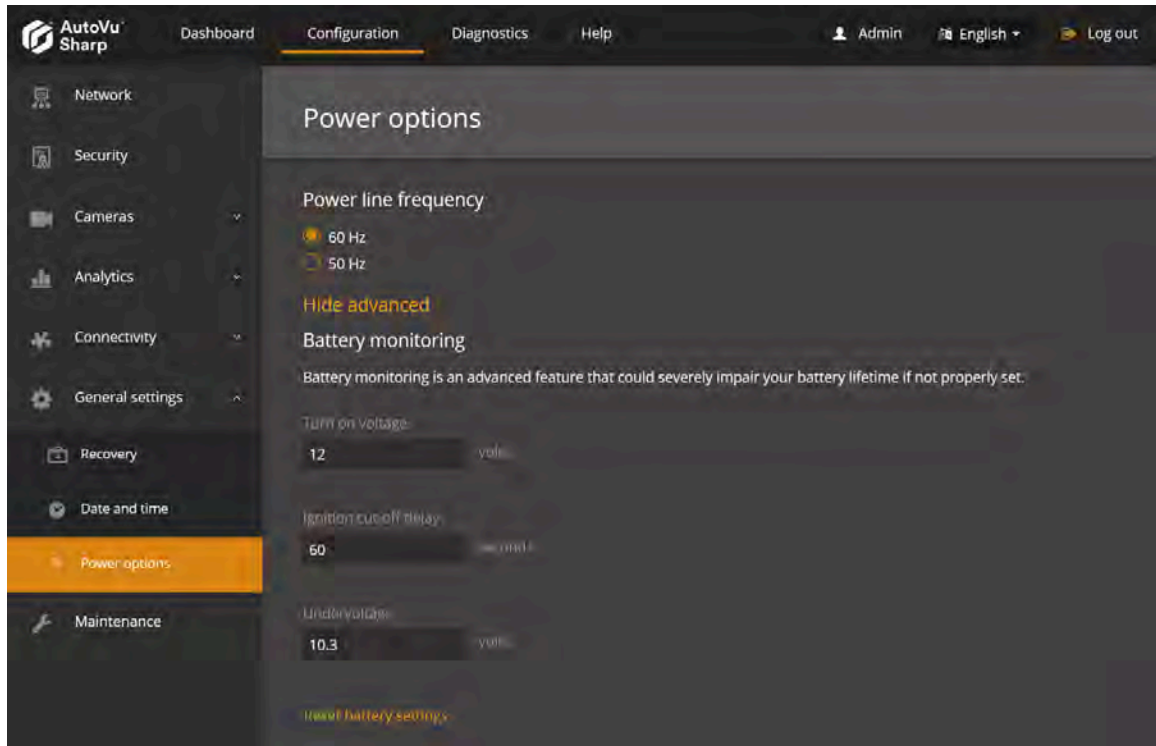
SharpZ3 camera configuration

This section includes the following topics:

Security configuration in the Sharp Portal

SharpZ3 cameras must communicate using TLS encryption (HTTPS) using either the certificate that is auto-generated on the SharpZ3, a new self-signed certificate, or a signed certificate from your own public key infrastructure (PKI) or from a Certificate Authority such as VeriSign.

Consider the following:

- The first time you log on to the Sharp Portal, a self-signed certificate is generated and HTTPS is activated by default.
- You must install the certificate on all machines that communicate with the SharpZ3 camera. This includes the servers hosting the LPR Manager, the Archiver, and all machines that connect to the Sharp Portal
- You can install multiple certificates and then select a certificate to activate.

    IMPORTANT: If the current certificate is a signed certificate, deleting the certificate signing request prevents the certificate from being reinstalled.

- To capture context and ALPR images directly from the SharpZ3 using the **Record** button on the *Camera feeds* window of the Sharp Portal, you cannot use the camera's auto-generated certificate. You must install a signed or self-signed certificate that includes the IP address of the camera as the *common name*.
- If the IP address of the SharpZ3 changes, you must regenerate and reinstall the signed or self-signed certificate.

Installing the SharpZ3 auto-generated certificate

If the SharpZ3 unit uses its auto-generated certificate for HTTPS communication, you must install the certificate on all machines that communicate with the Sharp unit.

Before you begin

Read about how the Sharp Portal must be encrypted.

What you should know

- To capture context and ALPR images directly from the SharpZ3 using the **Record** button on the *Camera feeds* window of the Sharp Portal, you cannot use the camera's auto-generated certificate. You must install a signed or self-signed certificate that includes the IP address of the camera as the *common name*.
- IPv6 static addresses are not supported.

    To install the auto-generated certificate on a workstation:

1   On the machine where you want to register the certificate, log on as an Administrator.
2   Log on to the Sharp Portal.
3   From the **Configuration** menu, select the *Security* page.
4   Click the certificate with the **Friendly name**: *Genetec Portal Auto Generated*.

    The *Certificate details* are displayed.

5 Click **Download certificate** and save the certificate file as prompted by your browser.
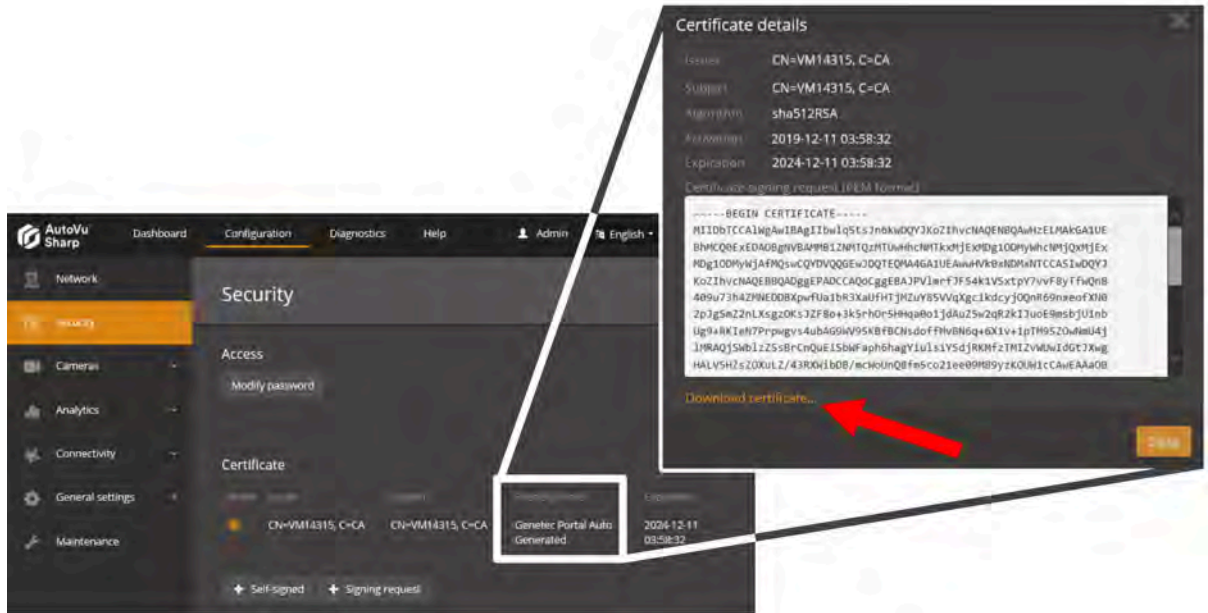
6 Double-click the *certificate.cer* file and click **Install Certificate**.
7 The *Certificate Import Wizard* prompts you to select a store location. Select **Local Machine** and click **Next**.
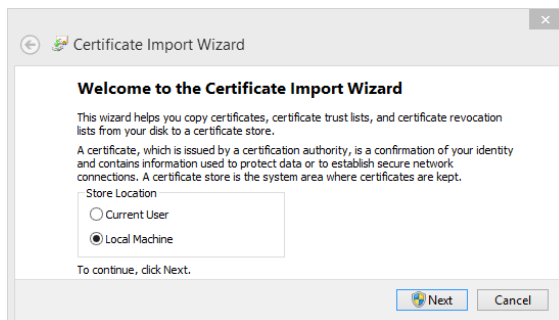
8 The wizard prompts you to select the certificate store you want to use. Select **Place all certificates in the following store** and click **Browse**.
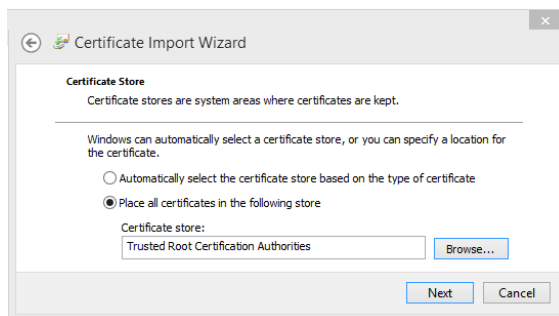
9　From the **Select Certificate Store** window, select **Trusted root certification Authorities** and click **OK**.
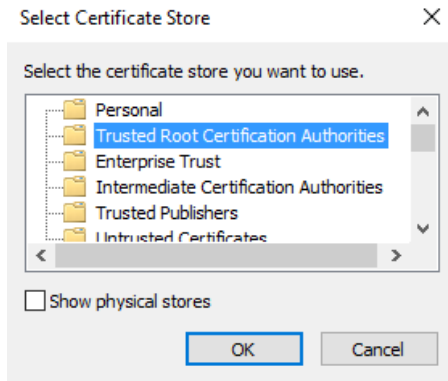
10　Click **Next** to continue, and click **Finish** to close the wizard.

The system displays the message: *The import was successful*.

11　Close all web browsers and open the Windows Task Manager to ensure that no browser processes are running in the background.

12　Log on to the Sharp Portal. You are automatically logged on in HTTPS mode.

A lock icon (🔒) in the browser's address bar indicates that you are now logged on to the SharpZ3 with a secure connection.

Installing a self-signed certificate

If the SharpZ3 unit uses a self-signed certificate for HTTPS communication, you must install the certificate on all machines that communicate with the Sharp unit.

Before you begin

Read about how the Sharp Portal must be encrypted.

What you should know

IPv6 static addresses are not supported.

To encrypt connection to the Sharp Portal using a self-signed certificate:

1　On the machine where you want to register the certificate, log on as an Administrator.

2　Log on to the Sharp Portal.

3　From the **Configuration** menu, select the *Security* page.

4　From the **Certificate** section, select **+ Self-signed**.

5　Enter the required information for the certificate and click **OK**.

- The **Country** field requires a two-letter country code.
- If you are also using the certificate to connect to the Archiver, the **Sharp's common name** (Sharp's IP address if connecting to the Archiver) defined in the certificate must be the Sharp unit's IP address, not the Sharp name.

The message *Operation succeeded* is displayed and the signing request is added to the certificate list.

6　Click the **Active** button for the certificate.

7　Click **Save and reboot** and click **OK** to confirm the reboot.

NOTE: Depending on the browser you are using, you might receive warnings because the certificate is not signed by a trusted certificate authority.

To install the certificate on a workstation:

1 Click on the certificate to display the *Certificate details*.
2 Click **Download certificate** and save the certificate file as prompted by your browser.
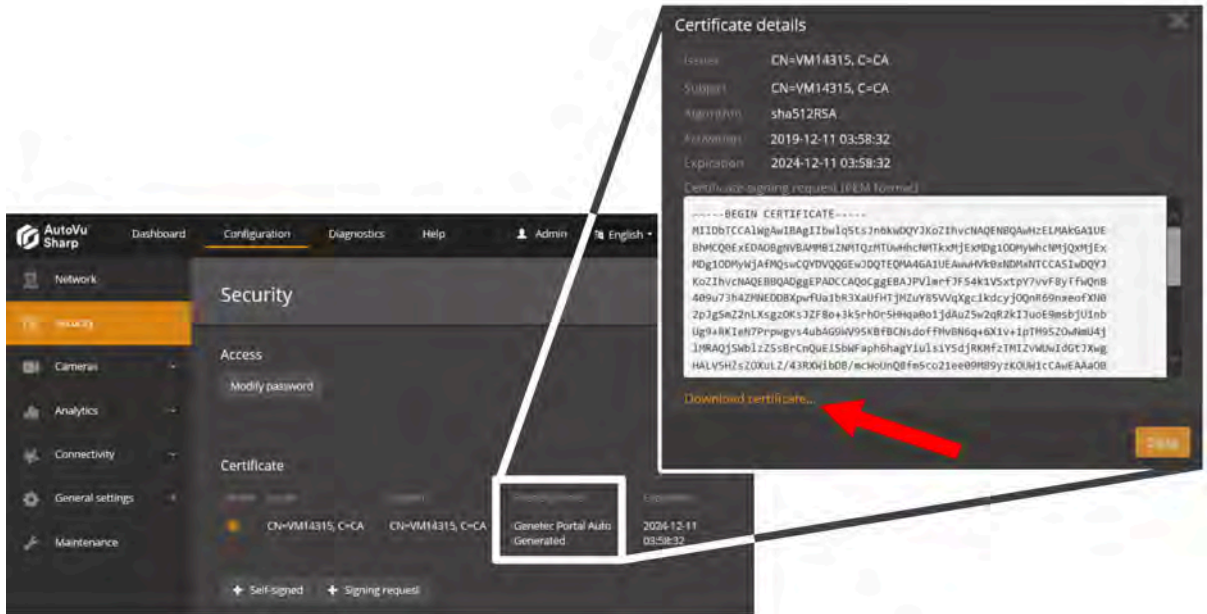
3 Double-click the *certificate.cer* file and click **Install Certificate**.
4 The *Certificate Import Wizard* prompts you to select a store location. Select **Local Machine** and click **Next**.
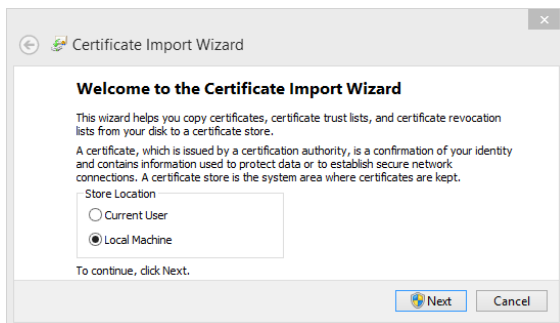
5 The wizard prompts you to select the certificate store you want to use. Select **Place all certificates in the following store** and click **Browse**.
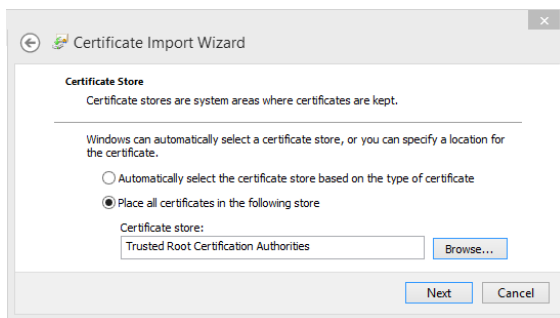
6   From the **Select Certificate Store** window, select **Trusted root certification Authorities** and click **OK**.
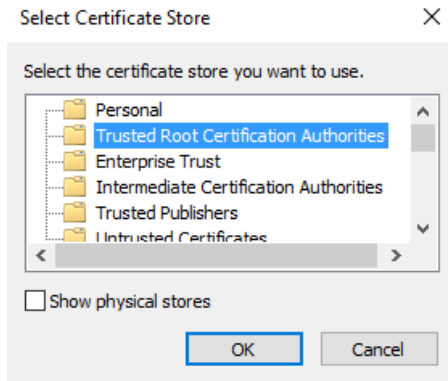
7   Click **Next** to continue, and click **Finish** to close the wizard.

The system displays the message: *The import was successful*.

8   Close all web browsers and open the Windows Task Manager to ensure that no browser processes are running in the background.

9   Log on to the Sharp Portal. You are automatically logged on in HTTPS mode.

A lock icon (🔒) in the browser's address bar indicates that you are now logged on to the SharpZ3 with a secure connection.

Installing a signed certificate

If the SharpZ3 unit uses a signed certificate from your own public key infrastructure (PKI) or from a Certificate Authority such as VeriSign, you must install the certificate on all machines that communicate with the SharpZ3 unit.

Before you begin

Read about how the Sharp Portal must be encrypted.

What you should know

IPv6 static addresses are not supported.

To encrypt the connection to the Sharp Portal using a signed certificate:

1   On the machine where you want to register the certificate, log on as an Administrator.

2   Log on to the Sharp Portal.

3   From the **Configuration** menu, select the *Security* page.

4   Click **+ Signing request**.

5   Enter the required information for the certificate signing request and click **OK**.

NOTE:

- The **Country** field requires a two-letter country code.
- If you are also using the certificate to connect to the Archiver, the **Sharp's common name** (Sharp's IP address if connecting to the Archiver) defined in the certificate must be the Sharp unit's IP address, not the Sharp name.

The message *Operation succeeded* is displayed and the signing request is added to the certificate list with *not signed* displayed for the **Issuer**.

6   Click on the certificate to display the *Certificate details*.

7   Click **Copy to clipboard**.
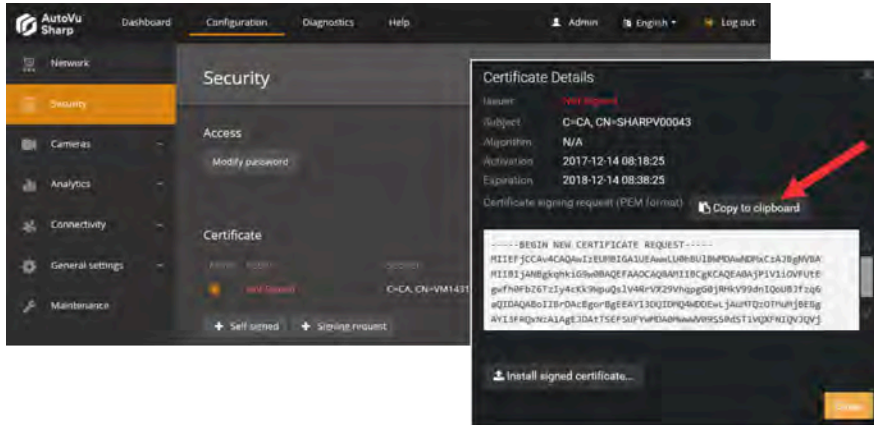
8   Send the certificate signing request to a certificate authority.

   IMPORTANT: Do not delete the signing request if it has been used to request a certificate.

   You will receive an SSL certificate signed by the certificate authority.

9   In the *Certificate Details* window, click **Install signed certificate** then browse to the certificate location and click **Open**.

10 Click **Save**.

   The system displays the message: *Installed signed certificate... successful*.

11 Refresh the browser (F5).

   The certificate is displayed in the **Certificate** list.

12 Click the **Active** button for the certificate.

13 Click **Save and reboot** and click **OK** to confirm the reboot.

When the system comes back online, notice that the URL displays that you are in HTTPS mode. A lock icon (🔒) in the browser's address bar indicates that you are now logged on to the SharpZ3 with a secure connection.

About SharpZ3 exposure adjustment

We recommend that you keep the default SharpZ3 exposure settings. If you notice that license plates are often under-exposed (too dark) or over-exposed (too bright), you can adjust the exposure settings. However, there are many factors to consider in order to account for changing lighting conditions.

IMPORTANT: Modifying the SharpZ3 exposure settings can greatly impact ALPR performance. Vanity plates, or plates that are damaged or dirty can have different reflective properties. Improving the exposure using a stationary test plate can result in reduced ALPR performance on every-day traffic which includes plates with a wide range of reflective properties. You must test the system after modifying these settings.

Consider the following:

- In a correctly-exposed license plate image, the characters and the plate state are dark and well-defined, and the background is white or very bright.

Under-exposed   Correctly-exposed   Over-exposed

- In the ALPR image, it is normal that the surroundings of the plate are under-exposed while the plate itself is correctly-exposed. Make sure that the plate is correctly exposed and ignore the quality of the surroundings.
- Modifying settings to improve read performance at night can have a negative impact on read performance during the day, and vice versa. Therefore, you must test the settings both at night and during the day (under sun illumination).
- If the SharpZ3 is expected to read both embossed and flat license plates, perform the day instructions with the flat plate and the night instructions with the embossed plate.

Setting custom SharpZ3 ALPR camera exposure levels

If the default exposure settings do not produce acceptable results, you can adjust the SharpZ3 ALPR camera exposure settings.

Before you begin

- Read about SharpZ3 exposure adjustment.
- Ensure that the lighting conditions match what is expected during normal camera operation.

    To adjust the SharpZ3 ALPR camera exposure settings

1. Place a stationary license plate as close to the camera as possible while still being within range for the camera to capture plate reads.
2. Log on to the Sharp Portal.
3. From the **Configuration** menu, click **Cameras** > **Exposure**.
4. From the **Cameras** menu, click the **ALPR camera** you want to calibrate.
5. From the **Exposure** menu, click **Range (outdoor)**.

    Gain and **Exposure time** settings are displayed.

    NOTE: The ranges for the **Exposure time** and **Gain** settings must be large enough to allow good quality images in all lighting conditions, but you should reduce the range as much as possible. If the range is too large, it increases the risk of over-exposure or under-exposure. It is normal that the SharpZ3 constantly varies the exposure of the ALPR camera in order to get a correct exposure of a plate.

    TIP: If you want to test using specific exposure settings rather than a range, use the **Fixed (indoor)** configuration from the **Exposure** menu. However, the setting should be set back to **Range (outdoor)** for normal operation so that the camera can adapt its exposure to varying lighting conditions.

6 With the plate close to the camera, set the **Gain** value to the minimum default value and adjust the **Exposure time** until you are satisfied with the plate image.

7 With the plate further from the camera, check to see that the plate is not too dark. If it is, increase the **Exposure time**.

8 (Optional) If you reach the maximum possible **Exposure time** and you are still not satisfied with your plate image, increase the **Gain**.

9 When you are satisfied with the appearance of the plate images in the video feed window, click **Save**.

The system displays the message *Configuration saved successfully*.

After you finish

Modifying the exposure settings can greatly impact ALPR performance. Test the system after modifying these settings.

Troubleshooting outdoor exposure issues for the SharpZ3 ALPR camera

You can resolve exposure adjustment issues that result in under-exposed or over-exposed license plate images in SharpZ3 installations.

If ALPR images (or some specific plate models) are always too dark at night:

1 Perform the exposure calibration at night.

2 Increase the maximum **Shutter time** value until you are satisfied with the ALPR images.

3 If you reach the maximum **Shutter time** level and the ALPR images are still too dark, increase the maximum **Gain** value.

If ALPR images are often too dark at night:

In this case, the exposure setting range might be too large, causing exposure to be too low. To reduce the range, start by increasing the minimum values. Because higher minimum values might lead to over-exposure for daytime reads, perform the adjustment during the day.

In this case, the exposure setting range might be too large, causing exposure to be too low. You can reduce the range by increasing the minimum values, but you should do this carefully because increasing the minimum values can cause over-exposure during the day. Therefore, this adjustment should be done during the day.

1 Make the adjustment under sun illumination.

2 Increase the minimum **Exposure time** value as much as possible without compromising image quality.

3 If the minimum **Exposure time** value reaches its maximum value, then you can increase the minimum **Gain** value. Test to make sure image quality is still satisfactory.

If ALPR images (or some specific plate models) are always too dark even under sunlight:

1 Increase the maximum **Exposure time** level as much as possible without over-exposing the plate.

2 If the maximum **Exposure time** reaches its maximum value and the plate is still under-exposed, increase the maximum **Gain** value one step at the time until you are satisfied with the images.

If ALPR images (or some specific plate models) are always too bright under sunlight:

1 Make the adjustment under sun illumination.

2 Decrease the minimum **Gain** value until you are satisfied with the plate images.

3   If you reach the minimum **Gain** level and the ALPR images are still too bright, decrease the minimum **Exposure time** value.

If ALPR images are often too bright under sunlight:

In this case, the **Exposure time** range might be too large, causing exposure to be too high. You can reduce the range by decreasing the maximum values, but you should do this carefully because decreasing the maximum values can cause under-exposure at night. Therefore, this adjustment should be done during the night.

1   Make the adjustment at night.
2   Decrease the maximum **Gain** value as much as possible without compromising image quality.
3   If the maximum **Gain** value reaches its minimum value, then you can decrease the maximum **Exposure time** value. Test to make sure image quality is still satisfactory.
4   If you reach the minimum **Exposure time** level and you are still not satisfied with the image quality, perform the complete day and night exposure adjustment again.

Troubleshooting outdoor exposure issues for the SharpZ3 context camera

You can resolve exposure adjustment issues that result in under-exposed or over-exposed context images in a SharpZ3 installation.

If context images are blurry on fast-moving vehicles:
1   Make the adjustment at night.
2   Decrease the maximum **Exposure time** value until the blur caused by vehicle motion is acceptable.

If context images are noisy during the night:
1   Make the adjustment at night.
2   (Optional) Select **Allow illuminator**. This allows the camera to turn on the IR illuminator under dark conditions, but removes color from the image as the light level diminishes.
3   Decrease the maximum **Gain** value. This prevents the camera from amplifying the noise, but it can result in darker images.
4   (Optional) Increase the maximum **Exposure** time. Note that this can increase the blur caused by vehicle motion.

If context images are too dark during the night:
1   Make the adjustment at night.
2   (Optional) Select **Allow illuminator**. This allows the camera to turn on the IR illuminator under dark conditions, but this progressively removes color from the image as the light level diminishes.
3   Increase the maximum **Exposure time** value until you are satisfied with the image quality. However, do not exceed the level that causes unacceptable motion blur on fast-moving vehicles.
4   If you reach the maximum **Exposure time** value and the image is still too dark, increase the maximum **Gain** value.

If context images are too bright during the day:
1   Make the adjustment under sun illumination.
2   Decrease the minimum **Gain** value until you are satisfied with the image quality.
3   If you reach the minimum **Gain** value and the image is still too bright, decrease the minimum **Exposure time** value.

Configuring SharpZ3 position and location

Based on the position of the patrol vehicle when a license plate is read, the SharpZ3 system can calculate the location of the target vehicle. To improve geocoding precision, you must define the exact location of the SharpZ3 cameras on the patrol vehicle roof.

What you should know

- To configure the camera orientation, you must measure the angle of the SharpZ3 cameras. For best results, use a digital level.
- The vehicle image on the *Camera position and orientation* page in the Sharp Portal dynamically updates to show the approximate position of the camera.

  To configure the position of the SharpZ3 cameras:

1 Log on to the Sharp Portal.
2 From the **Configuration** menu, click **Cameras** > **Position and orientation**.
3 From the **Cameras** menu, select the first SharpZ3 camera you want to configure.
4 Click **Enable** to turn on the feature for the camera.
5 Enter **Position** measurements in centimeters to indicate where the front of the camera is in respect to the GNSS antenna.

   IMPORTANT: Take your measurements from the GNSS antenna to the front of the camera. Do not measure from the center of the vehicle.

   As you enter positive or negative values, the camera moves on the vehicle image. This helps you to confirm that you have entered the correct positive or negative values.
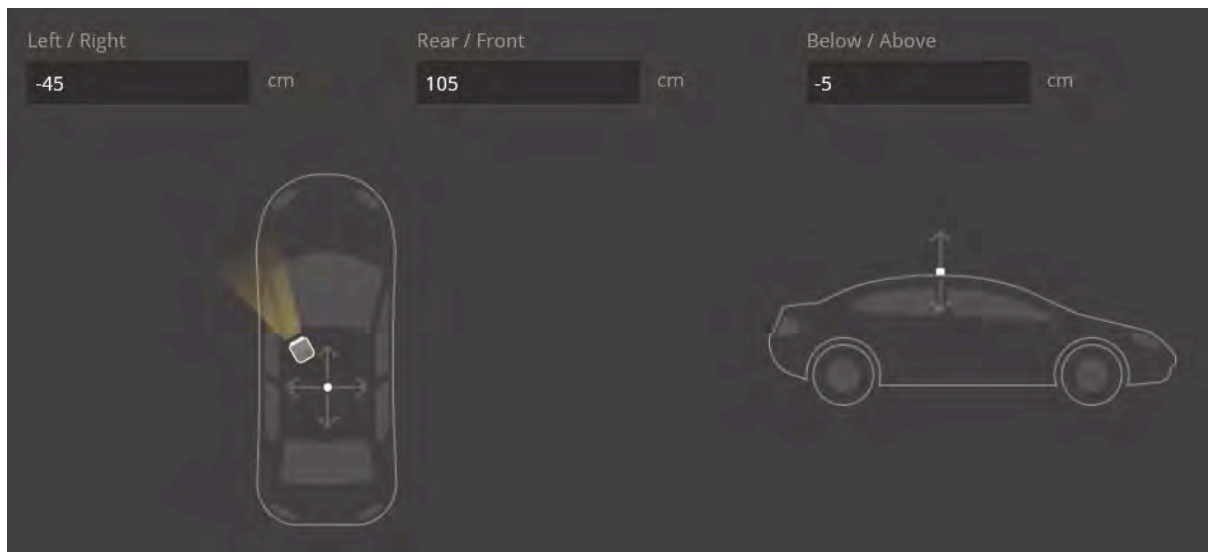
6 Measure the camera's pan, tilt, and roll using a digital level and enter the **Orientation** values.

7 Click **Save**.

After you finish

Repeat these steps for the remaining SharpZ3 cameras.

Configuring wheel-imaging and auxiliary cameras

If the SharpZ3 system includes the AUX PoE expansion module, you can connect additional context cameras to the system or you can install wheel-imaging cameras on the patrol vehicle.

Before you begin

Connect wheel-imaging cameras or auxiliary cameras to the PoE expansion module.

What you should know

- On the *Auxiliary cameras* page, you can associate up to two wheel-imaging cameras with SharpZ3 cameras. Typically, left and right wheel-imaging cameras are associated with left and right SharpZ3 cameras. However, you can also associate one wheel-imaging camera with more than one SharpZ3 camera.
- If you are using the Aux PoE module to power third-party hardware, no configuration is required in the Sharp Portal.

  To configure auxiliary cameras on a SharpZ3 system:

1 Log on to the Sharp Portal.
2 From the **Configuration** menu, click **Cameras** > **Auxiliary cameras**.

  The page lists the SharpZ3 ALPR cameras that are installed on the base unit.

3 Click the **Assigned auxiliary camera** field for a SharpZ3 camera and select the auxiliary context camera or wheel-imaging camera that you want to associate with the SharpZ3 camera.

  NOTE:

  - The same wheel-imaging camera can be associated with more than one SharpZ3 camera, typically one per car side.
  - The **Assigned auxiliary camera** field displays expansion module slot and port, for example, *EXP 1 - AUX PoE port 1*.
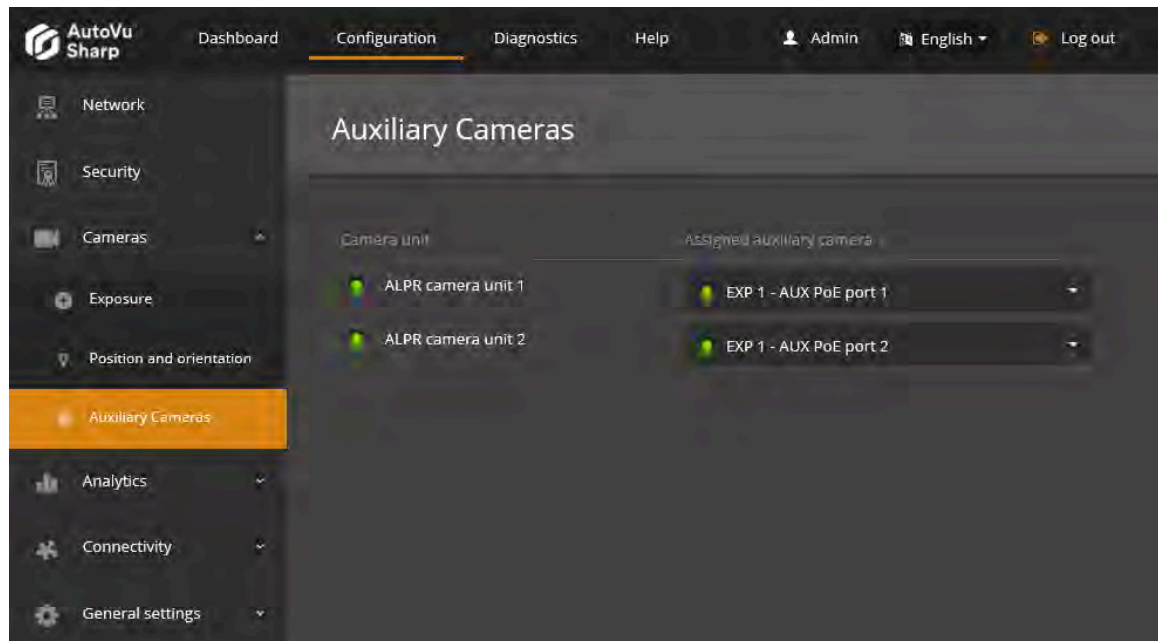
4 Click **Save**.

After you finish

Configure wheel imaging settings in Genetec Patroller™. For more information, see the *Patroller Administroator Guide*.

Configuring SharpZ3 analytics

To ensure the highest license plate read accuracy, you must let the SharpZ3 system know what type of license plates to expect in the image. If required, you can also configure the system to extract additional information from the image, such as the license plate origin and the vehicle type.

To configure SharpZ3 analytics:

1   Log on to the Sharp Portal.
2   From the **Configuration** menu, click **Analytics** > **ALPR settings**.
3   From the **Context** menu, select which license plates will be most commonly read by the SharpZ3.

   NOTE: For more information on the available regional contexts, see Supported ALPR contexts on page 12.

   TIP: To help us improve the performance of regional contexts, click **Configuration** > **Connectivity** > **Product improvement** and register this camera to participate in the **Product improvement program**.

4   From the **Reading mode** menu, select one of the following reading modes:

   • **Continuous:** Select this to capture plate reads continuously. This is the default setting.
   • **Conditional:** Select this to capture plate reads continuously as long as the selected input signal meets the defined high or low condition.
   • **Single read on trigger:** Select this option to force the unit to capture a plate read after a signal is received from an electrical trigger, or after a Security Center event-to-action or hot action. In SharpV fixed installations, this configuration is useful for controlling vehicle access to gated parking lots. You can configure the plate read capture to occur before or after the trigger is activated.
   • **Multiconditional:** Using this option, you can configure the system to generate reads from a specific camera only while an input's status meets the defined high or low condition. This option is required if using the AutoVu™ car camera switch.

5   From the **Read strategy** list, select a read strategy:

   • **Slow moving vehicle:** Applicable for use in typical city, law enforcement, or mobile parking enforcement.
   • **Fast moving vehicle:** Applicable for installations where vehicles travel at moderate to high speeds. For example, use this read strategy for law enforcement installations where vehicles might be traveling at high speeds in opposite directions.

6   Under **Analytics**, select the contents of the plate you would like the SharpZ3 to attempt to read. You can select the following:

   NOTE: You can add the state, vehicle make, and confidence score as annotation fields in Security Center to query for this information in Security Desk reports.

   • **State:** Select this option if you want the SharpZ3 unit to attempt read the license plate origin. Depending on the region, this can refer to the issuing state, province, or country.

   NOTE: For more information , see Supported plate origin recognition on page 15.

   • **Vehicle make:** Select this option if you want the SharpZ3 unit to attempt to read the vehicle's make from the brand or logo (Honda, Toyota, and so on).

   NOTE: This setting is not recommended for MLPI installations.

   • **Confidence score:** The SharpZ3 assigns a confidence score percentage to each license plate read. This value indicates how confident the SharpZ3 is in the accuracy of the read.

NOTE: License plates that contain similar characters such as *8* and *B* are more difficult to read and generally produce reads with a lower confidence score.
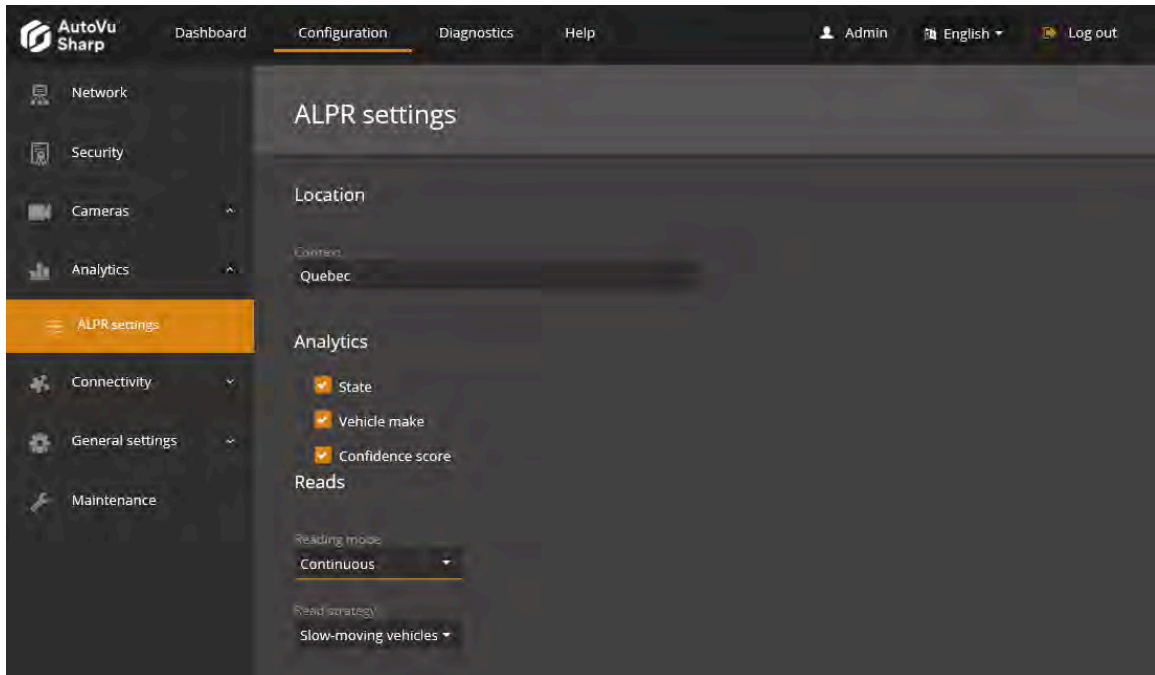
7   Click **Save**.

Configuring where the SharpZ3 sends its ALPR data

Depending on what type of Sharp camera installation you are configuring, license plate reads can be sent to, Genetec Patroller™, or to an FTP or HTTP server.

What you should know

- The default extension depends on the hardware you are installing. For example, if you log on to the Sharp Portal for a SharpZ3, the default extension is *Patroller*.
- For FTP and HTTP extensions, plate reads and images are automatically stored if the connection is lost, however, you can disable edge storage using the **Retain data when the connection is lost** setting in the extension configuration. To reduce cellular data usage, you can also configure whether the ALPR and context images are exported.

To configure the SharpZ3 extension:

1   Log on to the Sharp Portal.
2   From the **Configuration** menu, click **Connectivity** > **Extension**.
3   From the **Extension type** menu, select one of the following:

- **FTP:** Use this option to send ALPR data to an FTP server. You can configure the FTP XML template which can be integrated by third-party applications. For more information, see Configuring the SharpZ3 FTP extension on page 51.
- **HTTP/HTTPS:** Use this option to send ALPR data to an HTTP server. You can configure the system to send the data in XML or JSON format. For more information and examples of the exported XML and JSON files, see Configuring the SharpZ3 HTTP/HTTPS extension on page 54.
- **Patroller:** Sends ALPR data to Genetec Patroller™. Configure the following:

    - **Discovery port:** Port on which the SharpZ3 listens for discovery requests. This port number must match the discovery port entered on the Genetec Patroller™ Config Tool *Cameras* page.
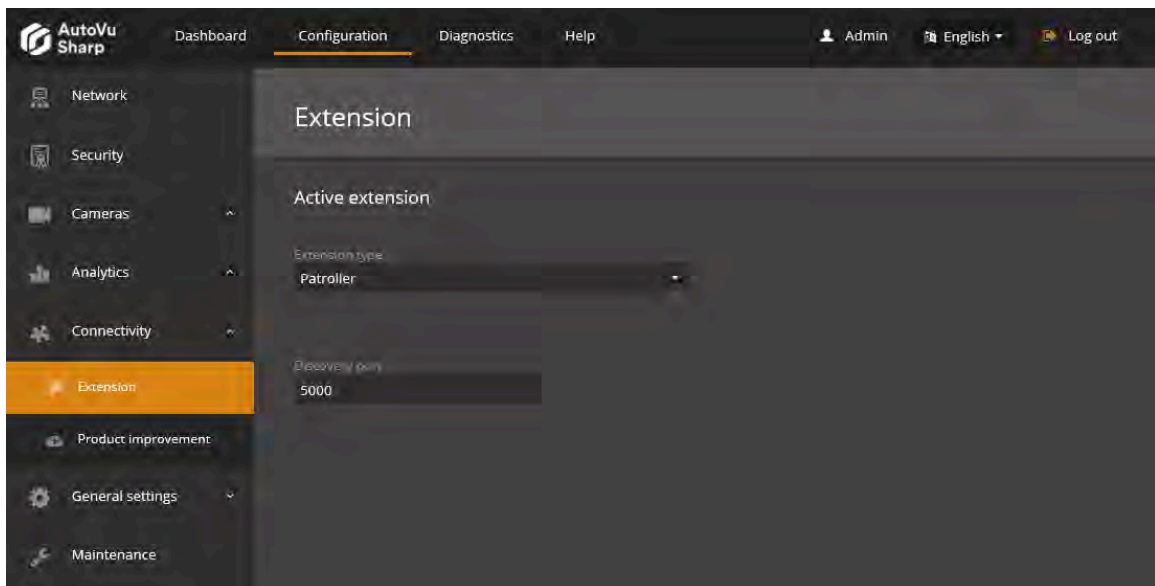
4   Click **Save**.

Configuring SharpZ3 network settings

You can configure the SharpZ3 to use Dynamic Host Configuration Protocol (DHCP) or a static IP address.

What you should know

DHCP is used by default if no option is selected.

To configure the SharpZ3 network settings:

1 Log on to the Sharp Portal.
2 From the **Configuration** menu, select the *Network* page.
3 Select one of the following:

- **Use DHCP:** Select this option to connect the SharpZ3 to a DHCP server, which assigns the required IP address. On a network with DHCP and DNS servers, you can connect using the SharpZ3 name (for example, SharpZ31234) rather than the IP address (for example, 192.186.10.100).

  When a SharpZ3 is configured in DHCP and no DHCP server can be reached, the default fall-back IPv4 address is 192.168.10.100. On a four-camera ALPR module, the second group of two cameras has a default fall-back address of 192.168.10.101.

- **Use static IP address:** Select this option to use a static address for the SharpZ3.

  WARNING: If your modified IP address or Subnet mask is not compatible with your current IP settings, the unit will be unreachable.

  IMPORTANT: You must use a fixed IP address if you want to stream video to the Security Center Archiver role. You can do this using a static IP address or a reserved IP address on the DHCP server. You can modify the following:

  - **IP address:** Type the new IP address you want to assign to the SharpZ3. The default is 10.0.0.1.
  - **Subnet mask:** Type the new **Subnet mask** if applicable. The default is 255.255.0.0.
  - **Gateway:** Type the new **Gateway** if applicable. The default is 10.0.0.0.
  - **DNS:** Type the new **DNS** if applicable. The default is 10.0.0.0.

4 Click **Save**.

SharpZ3 communication ports

For SharpZ3 cameras to communicate with Security Center, the correct communication ports must be defined.

IMPORTANT: Exposing the AutoVu™ system to the internet is strongly discouraged without hardening your system first. Before exposing your system, implement the advanced security level described in the *Security Center Hardening Guide* to help protect your system from Internet-based threats.

The following table lists the default network ports used by the SharpZ3 system. For a full list of ports used by AutoVu™ applications in Security Center, see the *Security Center Administrator Guide*.

To connect to the Sharp Portal:

Application	Inbound	Outbound	Port usage
Portal Server (Sharp unit)	TCP 443		Secure communication port (HTTPS)

To connect to Genetec Patroller™:

Application	Inbound	Outbound	Port usage
Genetec Patroller™ (in-vehicle computer)	TCP 4546		Communication with Time server
	TCP 8001		Communication with Simple Host
		UDP 5000	Sharp camera discovery
		TCP 8731	LPR Manager connection

Product improvement program (Sharp unit) :

Application	Inbound	Outbound	Port usage
Product improvement program		TCP 443	Product improvement program data (HTTPS)

Configuring the SharpZ3 FTP extension

You can configure the SharpZ3 to send ALPR data to an FTP server instead of to Genetec Patroller™. ALPR data that is sent to an FTP server can then be processed by third-party applications.

What you should know

- The connection to the FTP server is made using passive mode. This means that the ports configured on the FTP server for that purpose must all be opened in the firewall and routers located between the Sharp units and the FTP server.
- You can only configure one extension for the SharpZ3 unit.

    To configure the SharpZ3 for FTP:

1   .
2   From the **Configuration** menu, click **Connectivity** > **Extension**.
3   From the **Active extension** section, select **FTP** from the **Extension type** menu.
4   Configure the following:

    - **Server:** Enter the server name and location of the FTP server.

        NOTE: The appropriate rights on that location must be granted to the chosen user on the FTP server. The target directory must also be present and be writable by that user.

    - **Username:** Enter the username for the server.
    - **Password:** Enter the password for the username.
    - **Content Template:** ALPR data is sent in XML format, using the template shown. You can change certain elements if you choose.
    - **Export context images:** Export the context image (in JPEG format).

    - **Export ALPR images:** Export the plate image (in JPEG format).
    - **Retain data when the connection is lost:** Select this option for plate reads to be saved locally in the SharpZ3 database if the connection with the server is lost. The system attempts to reconnect with the server every 30 seconds. Stored reads are pushed to the server when the connection is reestablished.

        IMPORTANT: If there are any plate reads in the SharpZ3 database, clearing this check box and saving the configuration deletes the plate reads.

5   Click **Test connection** to verify that the server can be reached and that the credentials are valid.

6 Click **Send sample** to send a test plate to verify that the system can connect to the server using these settings.
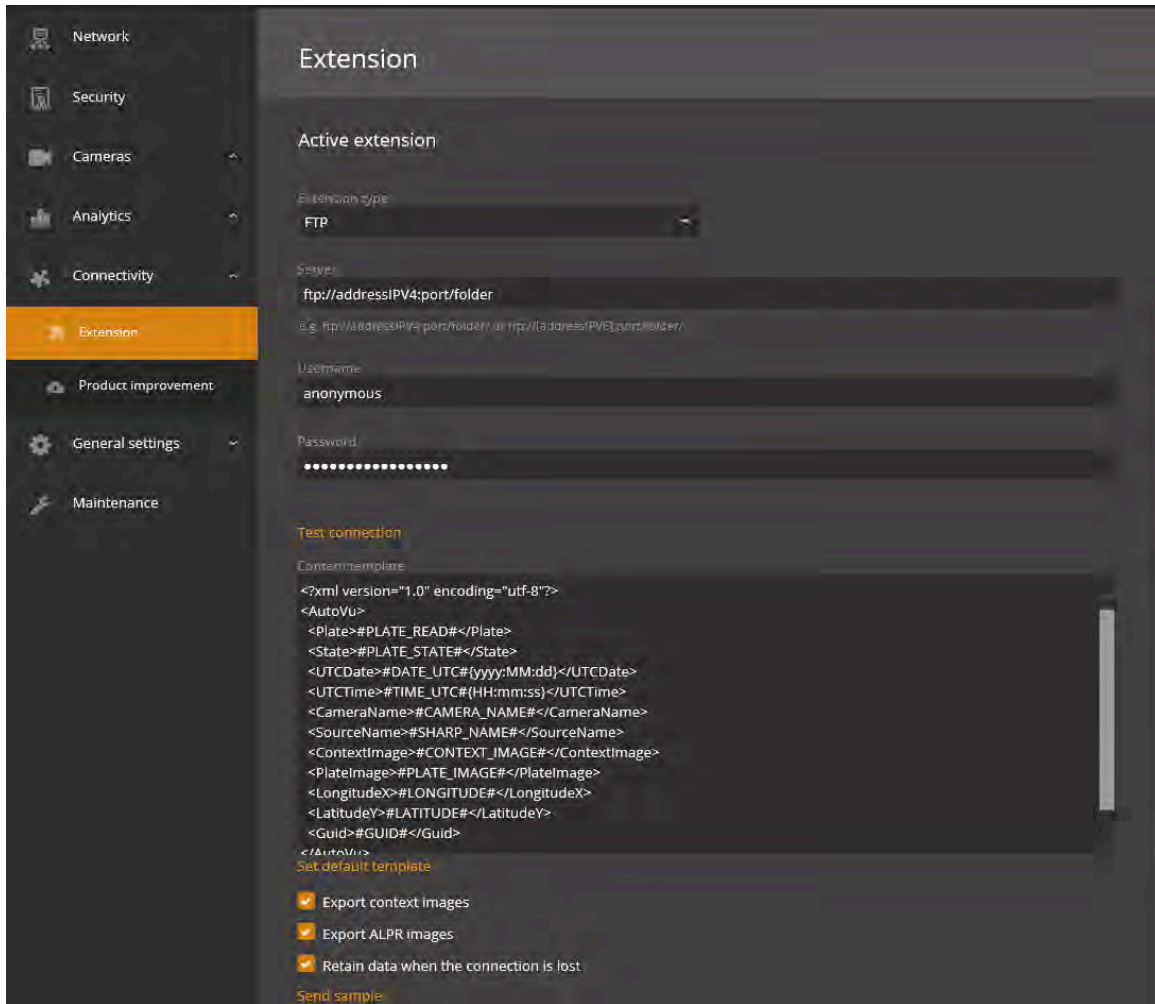
7 Click **Save**.

Modifications you can make to the SharpZ3 FTP XML template

The XML code defines the structure of the XML files generated by the SharpZ3. You can re-sort or remove any of the fields. The XML file name consists of the SharpZ3 name and a unique identification number (for example, SHARP12345_6ee17b00-82c1-466b-9fd6-003417bc82c4_lpr.xml).

Template:

```
<?xml version="1.0" encoding="utf-8"?>
<AutoVu>
  <Plate>#PLATE_READ#</Plate>
  <State>#PLATE_STATE#</State>
  <UTCDate>#DATE_UTC#{yyyy:MM:dd}</UTCDate>
  <UTCTime>#TIME_UTC#{HH:mm:ss}</UTCTime>
  <CameraName>#CAMERA_NAME#</CameraName>
  <SourceName>#SHARP_NAME#</SourceName>
  <ContextImage>#CONTEXT_IMAGE#</ContextImage>
  <PlateImage>#PLATE_IMAGE#</PlateImage>
  <LongitudeX>#LONGITUDE#</LongitudeX>
  <LatitudeY>#LATITUDE#</LatitudeY>
  <Guid>#GUID#</Guid>
```

```
</AutoVu>
```

Note the following:

- Hotlist matching is not supported.
- `UTCDate` and `UTCTime` display the Windows date and time properties.
- `CameraName` displays the name of the camera, for example, `Context Camera`.
- `SourceName` is the SharpZ3 name (for example, Sharp12345).
- `ContextImage` and `PlateImage` images are encoded into JPEG and then converted to Base64 (text) for transport and storage in XML / JSON. To use them, you must transform them back into JPEG binary (Base64 -> array of bytes).
- `Guid` is the unique identification of the event read.
- You can add the following custom fields to the template:

  - **Confidence score:** The SharpZ3 assigns a confidence score percentage to each license plate read. This value indicates how confident the SharpZ3 is in the accuracy of the read. You can add the confidence score associated with the plate read to the XML using the following field:

    `<ConfidenceScore>#CUSTOM_FIELDS#{Confidence Score}</ConfidenceScore>`

    NOTE: License plates that contain similar characters such as *8* and *B* are more difficult to read and generally produce reads with a lower confidence score.

  - **Relative Motion:** When the SharpZ3 reads a plate, it detects and displays if the vehicle is approaching or moving away. To use this field, add the following line to the XML:

    `<RelativeMotion>#CUSTOM_FIELDS#{Relative Motion}</RelativeMotion>`.

  - **State Name:** The SharpZ3 attempts to read the plate's origin in addition to the plate number (some plates include the issuing state or province). This may not be possible for all types of license plates. To use this field, add `<State>#CUSTOM_FIELDS#{State Name}</State>` to the XML, and then select *State* on the *Analytics* page of the **Configuration** menu in the Sharp Portal.

    NOTE: The ALPR context you are using must support the state name feature.

  - **Vehicle Type:** Certain license plates include character symbols that identify specific vehicle types (for example, taxi, transport, and so on). If the SharpZ3 can read these symbols, it displays the vehicle type along with the other read and hit information. To use this field, add the following line to the XML:

    `<VehicleType>#CUSTOM_FIELDS#{Vehicle Type}</VehicleType>`.

Configuring the SharpZ3 HTTP/HTTPS extension

You can configure the SharpZ3 to send ALPR data to an HTTP server instead of to Genetec Patroller™. ALPR data that is sent to an HTTP/HTTPS server can then be integrated by third-party applications.

What you should know

You can only configure one extension for the SharpZ3 camera.

To configure the SharpZ3 for HTTP/HTTPS:

1   Log on to the Sharp Portal.
2   From the **Configuration** menu, click **Connectivity** > **Extension**.
3   From the **Active extension** section, select **HTTP/HTTPS** from the **Extension type** menu.
4   Configure the following:

- **Server:** Enter the server name and location of the third party receiving HTTP server.
- **Format:** Select the format you want to send the ALPR data in. You can select either **JSON** or **XML** format.
- **Username:** Enter the username for the server.
- **Password:** Enter the password for the username.
- **Export context images:** Export the context image (in JPEG format).

- **Export ALPR images:** Export the plate image (in JPEG format).
- **Retain data when the connection is lost:** Select this option for plate reads to be saved locally in the SharpZ3 database if the connection with the server is lost. The system attempts to reconnect with the server every 30 seconds. Stored reads are pushed to the server when the connection is reestablished.

    IMPORTANT: If there are any plate reads in the SharpZ3 database, clearing this check box and saving the configuration deletes the plate reads.
- **Anonymize ALPR data:** The camera *hashes* the license plate using the SHA-1 algorithm. When you add an alphanumeric *salt (cryptography)* to the license plate number, it increases the security of the hashed output. Adding the same salt on all of the cameras in a network means that the same license plate produces an identical hash on all cameras. This allows the external system to recognize the identical hashes as a the same vehicle while still maintaining privacy.

    IMPORTANT: If the salt is changed after it is set, it must also be changed on all other cameras. Changing the salt breaks the link between old reads and new reads.
- **Ignore certificate errors:** Select this option when sending ALPR data to an HTTPS server that does not have a trusted certificate. The SharpZ3 does not send the ALPR data to an HTTPS server that does not have a trusted certificate unless you select this option.

5   Click **Send sample** to send a test plate to verify that the system can connect to the server using these
     settings.

6   Click **Save**.

Examples of JSON and XML ALPR events for the SharpZ3 HTTP extension

When you send ALPR data to an HTTP server, you can configure the SharpZ3 system to send the data in XML
or JSON format.

JSON format sample:

The following is an example of a license plate read event in JSON format.

NOTE: The binary image data has been removed from the example.

```
{ "ContextCameraName" : "Context Camera",
  "ContextImage" : "",
  "Id" : "32cf870a-46aa-4cfd-914b-00062d98e93a",
  "Latitude" : 0.0,
  "Longitude" : 0.0,
  "LprCameraName" : "LPR camera",
  "PlateAnalytics" : [ { "Key" : "State Name",
        "Score" : -1.0,
        "Value" : "-"
    },
    { "Key" : "Vehicle Type",
        "Score" : 1.0,
        "Value" : "-"
    },
    { "Key" : "Relative Motion",
        "Score" : -1.0,
```

```
            "Value" : "-"
        },
        { "Key" : "Context",
          "Score" : 1.0,
          "Value" : "US"
        },
        { "Key" : "Characters Height",
          "Score" : 1.0,
          "Value" : "70"
        }
      ],
    "PlateImage" : "",
    "PlateRead" : "AA7D2",
    "SourceUrl" : "SharpZ312345",
    "Timestamp" : "2020-03-12T08:42:45.797"
}
```

XML format sample:

The following is an example of a license plate read event in XML format.

NOTE: The binary image data has been removed from the example.

```
<Plate>
  <ContextCameraName>Context Camera</ContextCameraName>
  <ContextImage/>
  <Id>32cf870a-46aa-4cfd-914b-00062d98e93a</Id>
  <Latitude>0.0</Latitude>
  <Longitude>0.0</Longitude>
  <LprCameraName>LPR camera</LprCameraName>
  <PlateAnalytics>
    <PlateAnalytics>
      <Key>State Name</Key>
      <Score>-1.0</Score>
      <Value>-</Value>
    </PlateAnalytics>
    <PlateAnalytics>
      <Key>Confidence Score</Key>
      <Score>1</Score>
    <Value>100</Value>
    </PlateAnalytics>
  </PlateAnalytics>
  <PlateImage/>
  <PlateRead>AA7D2</PlateRead>
  <SourceUrl>SharpZ312345</SourceUrl>
  <Timestamp>2020-03-12T21:35:04.8627622+00:00</Timestamp>
</Plate>
```

Plate read event parameters

The following parameters are included in JSON and XML files that are exported to the HTTP server:

Parameter	Value type	Description
ContextCameraName	String	Name of the color context camera that generated the read event.
ContextImage	Binary	Color context image of the scene. Base64 encoded JPEG image.
Id	Guid	Unique identifier for the read event.
Latitude	Double	Decimal latitude of the SharpZ3 camera.
Longitude	Double	Decimal longitude of the SharpZ3 camera.

Parameter	Value type	Description
LprCameraName	String	Name of the license plate recognition camera that generated the read event.
PlateAnalytics	Array of analytics	Each analytic object is composed of a data triplet. This array is of variable size. The amount of analytic objects received depends on the SharpZ3 camera's configuration.
Key (analytic triplet)	String	Name of the analytic.
Score (analytic triplet)	Float (-1.0 or 1.0)	Indicates if the analytic value is reliable (1.0) or not (-1.0).
Value (analytic triplet)	String	Value of the analytic.
PlateImage	Binary	Black and white cropped license plate image. Base64 encoded JPEG image.
PlateRead	String	Detected license plate number.
SourceUrl	String	Unique name of the SharpZ3 camera.
Timestamp	DateTime	Date and time of the read event (UTC) in the following format: yyyy-MM-ddTHH:mm:ss:fff.

Configuring Syslog for SharpZ3 log files

For installations that include multiple SharpZ3 units, the *Syslog* feature allows you to configure a central repository for all SharpZ3 log entries.

Before you begin

- You must have a Syslog server that is accessible by the SharpZ3 unit.

What you should know

- The SharpZ3 syslog feature is compliant with the RFC 5424 protocol.
- Whether you use the syslog feature or not, SharpZ3 logs are available on Sharp Portal under **Diagnostics** > **Logs**.
- When you activate the Syslog server, logs are sent to that server, but are still recorded locally as usual.

    To configure a syslog repository for SharpZ3 log files:

1   Log on to the Sharp Portal.
2   From the **Configuration** menu, click **General settings** > **Recovery**.
3   Select the **Use Syslog server** checkbox.
4   Configure the following:

    - **Use Syslog server:** Select this option to configure a central repository for all SharpZ3 log entries.

        - **Server:** Enter the IP address or name of the server.
          NOTE: Syslog server configurations do not support IPv6 addresses.
        - **Port:** Enter the port number of the syslog server.
        - **Network protocol:** Select UDP or TCP.

5   Click **Test connection** to verify that the server can be reached.
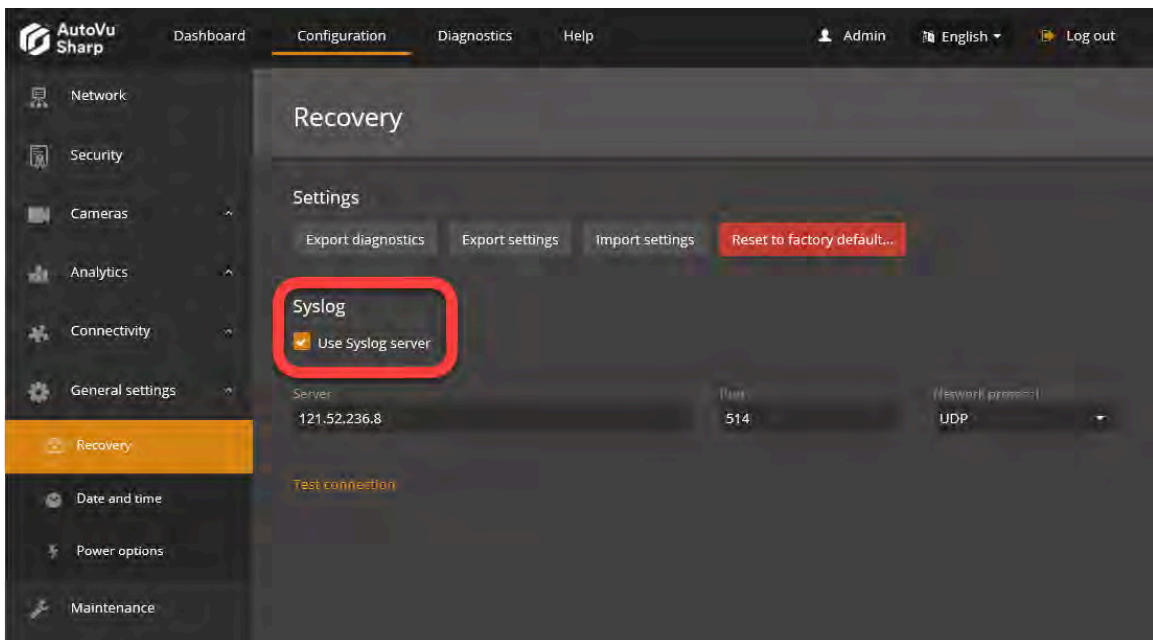
6   Click **Save**.

Importing and exporting settings

You can export SharpZ3 settings for use as diagnostic information if required by the AutoVu™ Support team. You can also use the exported settings file to restore the configuration of the SharpZ3 unit or to copy the configuration to another unit.

What you should know

- You can only import settings from the same Sharp model, for example, a SharpV can only import settings from another SharpV.
- You cannot export a configuration from a newer SharpOS version to an older SharpOS version.
- **WARNING:** When you import settings to a SharpZ3, the camera's current configuration is lost with some exceptions, including:
  - Sharp Portal password
  - Network static configuration
  - Certificates
  - Product improvement program registration
- Battery monitoring settings are unaffected by the import operation.

  To export SharpZ3 settings:

1 Log on to the Sharp Portal of the SharpZ3 that you want to export settings from.
2 From the **Configuration** menu, click **General settings > Recovery**.
3 From the **Settings** section, select one of the following options:
   - **Export diagnostics:** Export a file that includes SharpZ3 diagnostics and SharpZ3 settings.
   - **Export settings:** Exports configuration and diagnostic settings as a .zip file. You can use the .zip file for technical support, or you can import the settings to another Sharp unit for quick configuration
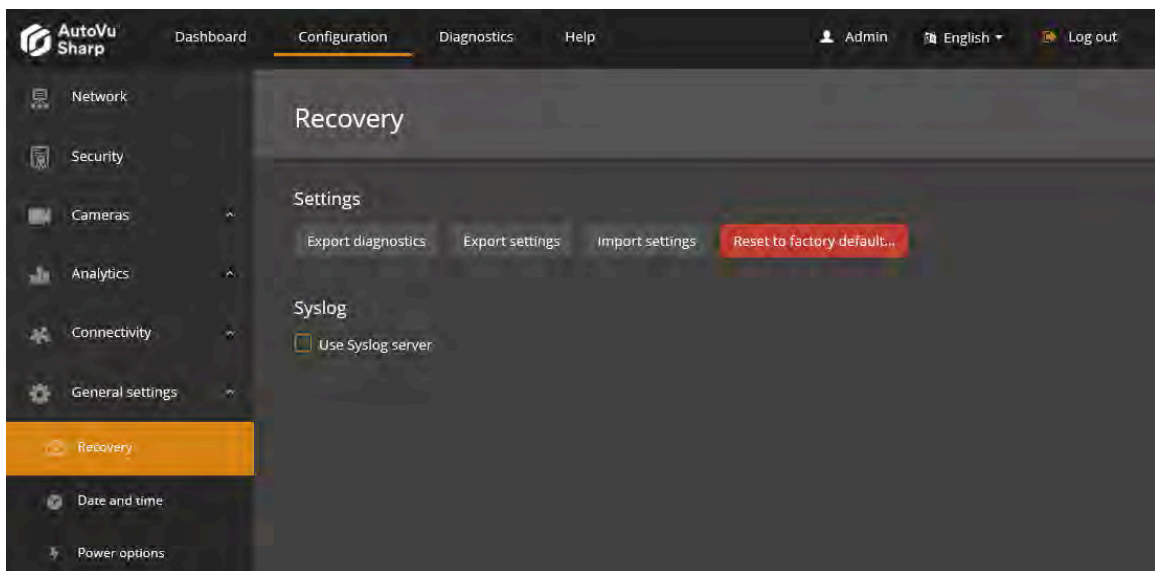
  The system prepares the files and displays the message "Download succeeded".
4 Save the diagnostics .zip file to a location that is accessible to the browser that is used to view the portal and to the Windows user that will be importing the file. The file is named with the date and time the file was created, for example, `Diagnostics-2020-02-25_12_49_36`.

  To import SharpZ3 settings:

1 Log on to the Sharp Portal of the SharpZ3 that you want to import settings to.

2   From the **Configuration** menu, click **General settings > Recovery**.

3   From the **Settings** section, click **Import settings**.

4   Enter the path and filename, or browse to the ZIP file with the SharpZ3 settings you want to import and click **Yes, import**.

5   Follow the on-screen instructions and import the settings to the camera.

4

Troubleshooting for SharpZ3 installation

This section includes the following topics:

-

Resetting a lost password for the Sharp Portal

If you forget your password to the Sharp Portal, you can reset the password using the **I forgot my password** button on the Sharp Portal logon screen.

Before you begin

To reset a lost password, you need the yellow *Important information* sticker that was shipped with the Sharp unit. If you do not have the sticker, you must contact the AutoVu™ Support team.

What you should know

- As a step in the password reset procedure, you must press the reset button on the Sharp unit. Alternatively, if you do not have physical access to the camera, you are given the option to present a known license plate to the camera.
- You can use this procedure for Sharp unit cameras running SharpOS 12.3 SR1 or later.

5

Updating the system

This section includes the following topics:

- "Updating a Sharp unit from the SharpOS 13 Sharp Portal" on page 64

Updating a Sharp unit from the SharpOS 13 Sharp Portal

To benefit from the most recent security improvements, it is recommended to upgrade the unit's SharpOS and platform software from the Sharp Portal.

Before you begin

If you are updating a SharpZ3 unit, ensure that all of the SharpZ3 cameras are connected to the ALPR module on the base unit.

What you should know

- You can update the Sharp unit's platform package or SharpOS package.

    - **Platform package:** Updates Windows 10 with the latest security patches.
    - **SharpOS package:** Updates the SharpOS installed on the Sharp.

        IMPORTANT: When the SharpOS is updated, any plate reads that are stored locally on the Sharp unit are deleted.

- **IMPORTANT:** If you need to update both the SharpOS software and the platform software, update the SharpOS first.

- On a SharpZ3 unit that includes a four-camera ALPR module, each set of two cameras is configured in a separate Sharp Portal which is available from a link on the *Maintenance* page. It is recommended that you update both portals with the same platform and SharpOS packages.

    To update the unit's SharpOS or platform package:

1 Log on to the Sharp Portal.

2 To verify that the firmware needs to be updated, click **Dashboard** > **Overview**. If **Firmware** shows the message *Out of date*, continue with the update steps.
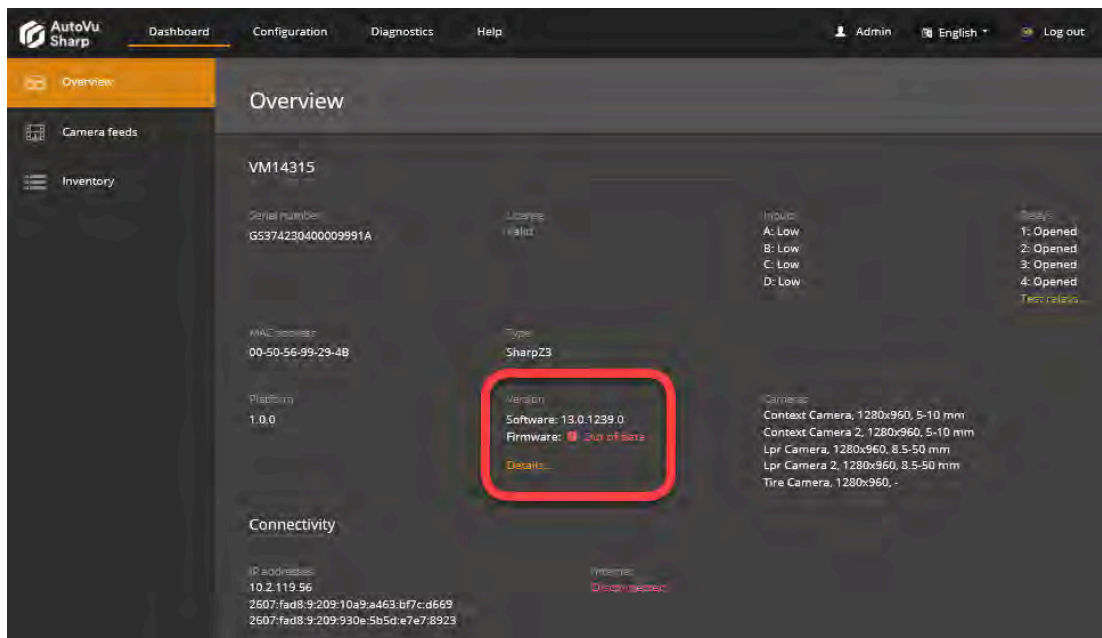
3 Download the update package from GTAP. Save the *.gpack* file on the local machine you are using to log on to the Sharp Portal.

4 From the **Configuration** menu, select **Maintenance**.

5 In the *Packages* section, click the **Update** button for the platform or SharpOS.

6   In the *Update package* dialog box, choose when to run the update.

- Click **Now** to run the update immediately.
- Click **Specific date** to schedule the update for off-peak hours.

7   Click **Add a package**, find the update *.gpack* file, and then click **Open**.

8   Acknowledge the warnings and click **Update** or click **Schedule** if you set a specific date for the update.

   IMPORTANT:

- Whether you configure the update for **Now** or for a **Specific date**, the package is transferred to the Sharp unit immediately. Do not close or navigate away from the browser page until the transfer is complete.
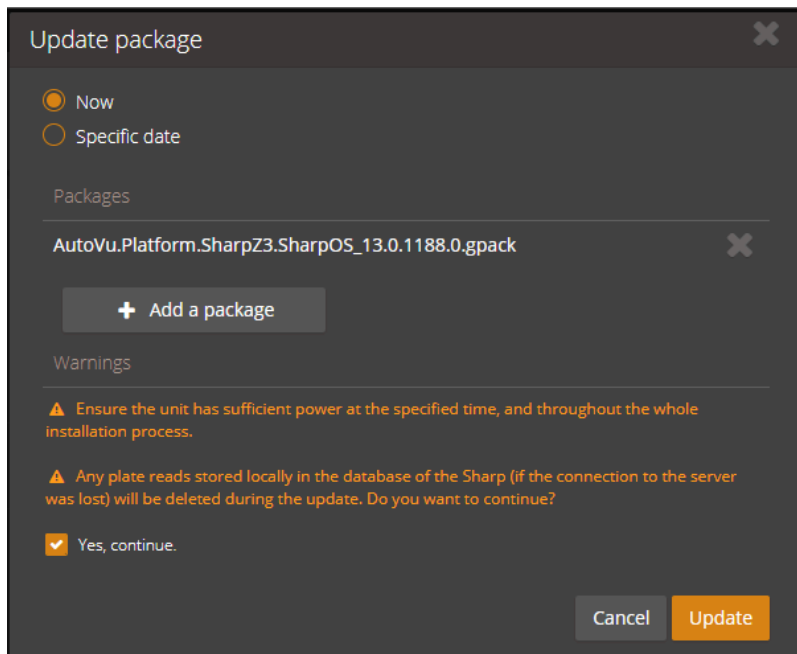
The files are transferred to the Sharp unit and the update process begins.

NOTE: At certain points in the update process, the progress bar might not move for several minutes. It can take up to 30 minutes to complete the update.

If the update is successful, the new platform version is displayed and the **History** displays that the update *Succeeded*.
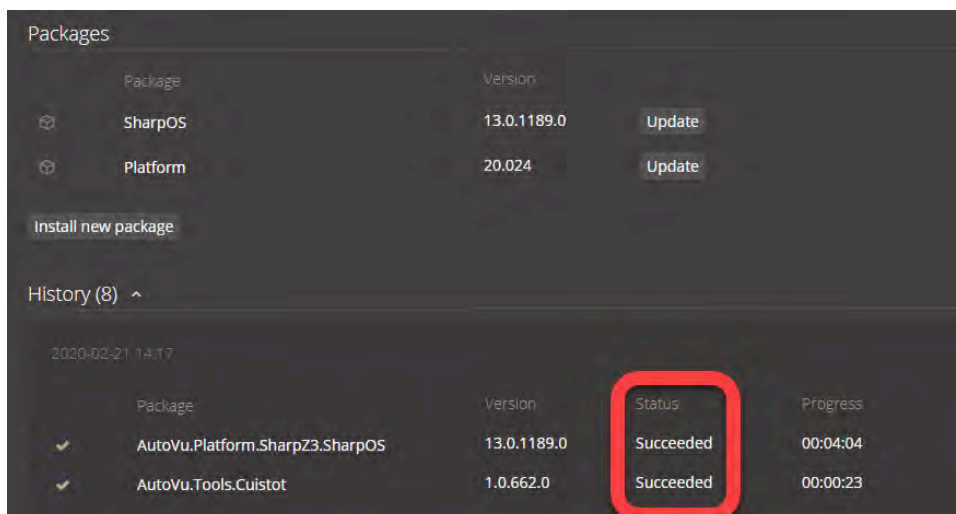
After you finish

If you are updating a SharpZ3 system that includes a four-camera ALPR module, each group of two cameras is configured on a separate Sharp Portal. It is recommended that you update both portals at the same time. A link is provided at the top of the *Maintenance* page to direct you to the second Sharp Portal.

6
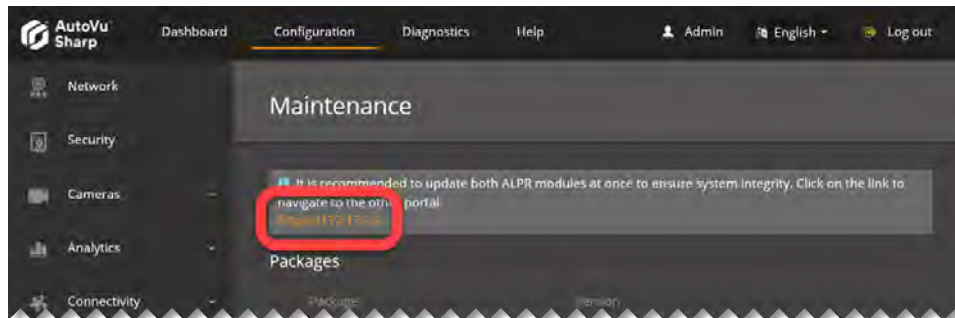
Sharp Portal reference

This section includes the following topics:

Sharp Portal - Overview page

This section lists the settings found in the *Overview* page of the Sharp Portal and provides general information about the SharpZ3, such as serial number, license, IP address, input and relay status, and so on.

To navigate to the *Overview* page, click **Configuration** > **Overview**.

Camera info

The following information is displayed:

- **Serial number:** Displays the SharpZ3 hardware serial number.
- **License:** Displays whether the SharpZ3 license is valid, invalid, or missing.
- **Inputs:** Displays the inputs on the SharpZ3 and whether the input is in a **High** or **Low** state. A high-state input is indicative of a voltage of 5.75 V or higher. A low-state input is indicative of a voltage of 4.80 V or lower.
- **Relays:** Displays the SharpZ3 relays and whether the relay state is **Opened** or **Closed**. The SharpZ3 has two 0.25 A solid-state relays and two 8 A electromechanical relays.
- **Test relays:** Click to toggle your configured relay between **Opened** and **Closed** to validate the configuration.
- **Mac address:** Displays the MAC address of the SharpZ3. This information might be requested if you contact technical support.
- **Type:** Displays the type of Sharp unit.
- **Platform:** Displays the software image installed on the SharpZ3. If you contact technical support, you might be asked to provide this number.
- **Version:**
  - **Software:** Displays the SharpOS version currently installed.
  - **Firmware:** Displays the update status of the Sharp unit.
  - **Details:** Provides additional information about the versions of the files and components included in the package.
  Displays the SharpOS package version. You can use this information to confirm that your SharpZ3 is up to date.
- **Cameras:** Displays the resolution and the lens focal range available for cameras connected to the SharpZ3 unit.

Connectivity

The following information is displayed:

- **IP addresses:** Displays the IPv4 and IPv6 address of the SharpZ3.
- **Internet:** Displays whether the SharpZ3 is connected to the Internet.

Storage and usage

You can view information about reads stored on the SharpZ3, CPU usage, and memory usage. Indicator lines, usually green or orange, are provided so you can see the status. If an indicator line stays red for a prolonged period of time, it indicates either high CPU activity or that there is a problem.

- **Reads stored:** Indicates the reads stored in the database of the SharpZ3. The number of reads is also displayed.
- **Memory:** Displays information on the system's RAM memory.
- **CPU (Total):** Indicates the total CPU usage of the SharpZ3. Click **Show details** to see the usage for each CPU.

Last activities

- **Unit rebooted:** Indicates the last time the unit was restarted.
- **Software restarted:** Indicates the last time the PlateReader software was restarted.

Sharp Portal - Camera feeds page

This section lists the settings found in the *Camera feeds* page of the Sharp Portal. Use the *Camera feeds* page to view the live feeds of the context camera, ALPR camera, and auxiliary cameras.

NOTE: Some of the fields described in this section do not apply to auxiliary cameras.

To navigate to the *Camera feeds* page, click **Dashboard** > **Camera feeds**.

Camera feeds

The **Camera feeds** section displays the live video feeds for any two of the connected camera units or auxiliary cameras such as wheel-imaging cameras. You can also view information about the live video feed such as the **FPS**, **Resolution**, **Exposure time**, and so on.

Videos

- **Camera unit:** Select which Sharp camera or auxiliary camera to view.
- **Cameras:** Displays the resolution and the lens focal range available for cameras connected to the SharpZ3 unit.
- **Overlays:**
    - **Crosshairs:** Select this option to display crosshairs in the ALPR or context camera window.
    - **Bounding box:** Select this option to display the yellow bounding box around detected plates in the ALPR camera window.
- **Record:** Click the **Record** button to capture a series of context and ALPR images directly from the *Camera feeds* window and save them to your computer as a .zip file for debugging purposes.

    NOTE:

    - Using the **Record** feature increases CPU usage.
    - To use this feature, you cannot use the camera's auto-generated certificate. You must install a self-signed certificate that includes the IP address of the camera.

Metadata

- **FPS (actual/average):** Displays the FPS of the context camera. This is the framerate processed by the LPR engine.
- **Resolution:** Displays the resolution of the camera's video feed.
- **Exposure time:** Displays the **Exposure** time of the video frame.
- **Gain:** Displays the **Gain** of the video frame.
- **Illuminator:** (Context camera only) Displays the intensity of light of the illuminator (as a percentage) on the Context camera.

Last reads

- **Candidate:** Every read detected is displayed in this field as a potential read candidate. The camera can read up to 30 frames (reads) per second. The **Read strategy** configured on the **Analytics** page determines which read candidate will be used as the final read.

NOTE:

- The list contains the reads that have been made in this portal session. Exiting the session resets the list.
- The list is of limited length and older reads are automatically removed.
- Clicking on an entry pauses the list. Clicking Play resumes the list refresh and adds new reads that were received while the list was paused.
- The **Count** field accounts for all incoming reads and does not distinguish between camera units.

Sharp Portal - Inventory page

This section lists the settings found in the *Inventory* page of the Sharp Portal. Use the *Inventory* page to view a list of hardware components along with their firmware versions and status.

To navigate to the *Inventory* page, click **Dashboard** > **Inventory**.

The following information is displayed:

NOTE: Additional functionality is available for certain hardware components, such as blinking the LED or connecting to a configuration portal.

- **Module:** Displays the name of the component.
- **Version:** Displays the component's firmware version.
- **Identification:** Displays a unique identifier of the component, such as its name or serial number.

  NOTE: The serial number is also printed on the component sticker.
- **Status:** Displays the health status of the component.

Sharp Portal - Network page

This section lists the settings found in the *Network* page of the Sharp Portal. Use the *Network* page to configure the SharpZ3 to use Dynamic Host Configuration Protocol (DHCP) or a static IP address.

To navigate to the *Network* page, click **Configuration** > **Network**.

IPv4 network settings

NOTE: DHCP is used by default if no option is selected.

- **Use DHCP:** Select this option to connect the SharpZ3 to a DHCP server, which assigns the required IP address. On a network with DHCP and DNS servers, you can connect using the SharpZ3 name (for example, SharpZ31234) rather than the IP address (for example, 192.186.10.100).

  When a SharpZ3 is configured in DHCP and no DHCP server can be reached, the default fall-back IPv4 address is 192.168.10.100. On a four-camera ALPR module, the second group of two cameras has a default fall-back address of 192.168.10.101.

- **Use static IP address:** Select this option to use a static address for the SharpZ3.

  WARNING: If your modified IP address or Subnet mask is not compatible with your current IP settings, the unit will be unreachable.

  IMPORTANT: You must use a fixed IP address if you want to stream video to the Security Center Archiver role. You can do this using a static IP address or a reserved IP address on the DHCP server.
  You can modify the following:

  - **IP address:** Type the new IP address you want to assign to the SharpZ3. The default is 10.0.0.1.
  - **Subnet mask:** Type the new **Subnet mask** if applicable. The default is 255.255.0.0.
  - **Gateway:** Type the new **Gateway** if applicable. The default is 10.0.0.0.
  - **DNS:** Type the new **DNS** if applicable. The default is 10.0.0.0.

Sharp Portal - Security page

This section lists the settings found in the *Security* page of the Sharp Portal. Use the *Security* page to change the password and to manage certificates and permissions.

To navigate to the *Security* page, click **Configuration** > **Security**.

Access

• **Modify password:** Click **Modify password** to change the password for the SharpZ3.

    NOTE: If you forget your password, you can reset it from the logon page.

Certificate

Displays the signed and self-signed certificates that have been installed in the trusted root store of the SharpZ3. You can install multiple certificates and select which certificate to activate.

To activate a certificate, select the **Active** button for the certificate and click **Save and reboot**.

To delete a certificate click **X** and click **Save**.

NOTE: You can delete certificates, but you must leave at least one certificate on the SharpZ3.

• **+ Self-signed:** Click to create a self-signed certificate. In the *Create a self-signed certificate* dialog box, you must enter a two-letter **Country** code, the **Common name** of the SharpZ3, one or more **IP addresses**, and you must define the **Validity (in years)**. The other fields are optional.

    NOTE:

    • If you use a self-signed certificate, you must also install the certificate on your client machine. For example, the machine used to log on to the Sharp Portal.

    • If a certificate signature is issued by a certificate authority that is not included in the list of Windows of third-party root certificate authorities (CA), or if your organization has its own public key infrastructure (PKI) which manages signatures, you must add the CA to the platform software running on the SharpZ3 so that the host can validate the chain of trust. For more information, see KBA-78971: Adding a certificate to a pre-12.8 SharpV from an unknown certificate authority on the Genetec™ TechDoc Hub.

• **+ Signing request:** Click to create a certificate signing request. A certificate signing request must be created for your server before you can order a signed certificate from a trusted Certificate Authority. You must enter a two letter **Country** code, the **Common name** of the SharpZ3, and the **IP address** in the *Create a certificate signing request* dialog box. The other fields are optional.

    IMPORTANT: If the SharpZ3 has been added to the Security Center Archiver and is being used to monitor video, you must enter the IP address of the SharpZ3 and not the SharpZ3 name.

    NOTE: The signing request is deleted when the certificate is signed.

Permissions

• **Accept remote reboot requests:** Select this option so that the SharpZ3 can be rebooted from Security Center.

• **Remote assistance:** Click **Enable for 1 hour** to grant remote access for technical support. The time and date when access expires is displayed.

    NOTE: After one hour, the remote assistance session ends. If the AutoVu™ Support team needs additional time to resolve the issue, you can extend the remote assistance session.

Unit

• **Run in covert mode:** Select this option to turn off the LED on the Sharp camera unit, making it less noticeable.

IMPORTANT: Selecting this option does not mean that the LED will never be illuminated. For example, if there is a serious error with the SharpZ3, the LED will blink to indicate that there is a problem.

- **Enable Read Trigger API compatibility mode:** Select this option if using software-trigger-activated reading in Security Center releases prior to 5.8.

Sharp Portal - Exposure page

This section lists the settings found in the *Exposure* page of the Sharp Portal. Use the *Exposure* page to adjust the exposure of the license plates in the ALPR image.

To navigate to the *Exposure* page, click **Configuration** > **Cameras** > **Exposure**.

The following information is displayed:

- **Select your camera:** Select the camera to configure.
- **Exposure:** Choose from the following:
    - **Default:** Select this option to have the SharpZ3 automatically adjust the exposure settings.
    - **Fixed (indoor):** Select this option when constant lighting conditions are available. Use the sliders to adjust the **Gain** and **Exposure time**, until the overall brightness and clarity you want for the image is achieved.
    - **Range (outdoor):** Select this option for variable lighting conditions outdoors. Use the sliders to adjust the **Gain** and **Exposure time**, until the overall brightness and clarity you want for the image is achieved.
- **(Context camera only) Allow illuminator:** Select this to enable the IR illuminator in low light conditions. If **Exposure** is set to **Fixed (indoor)**, the IR illuminator is fixed to On or Off depending on **Allow illuminator** check box. If **Exposure** is set to **Range (outdoor)**, the illuminator is automatically turned On or Off depending on light conditions. However, the IR illuminator can be completely turned off by clearing the **Allow illuminator** check box.

Sharp Portal - Position and orientation page

This section lists the settings found in the *Position and orientation* page of the Sharp Portal. Use the *Position and orientation* page to define SharpZ3 camera positions on the patrol vehicle roof.

To navigate to the *Position and orientation* page, click **Configuration** > **Cameras** > **Position and orientation**.

The following information is displayed:

• **Enable:** When enabled, the system estimates the GNSS position of the license plate of the target vehicle.

Position

• **Left/right:** Define how far the camera is installed to the left (0 to -400 cm) or to the right (0 to 400 cm) of the GNSS antenna.
• **Rear/front:** Define how far the camera is installed to the rear (0 to -1000 cm) or to the front (0 to 1000 cm) of the GNSS antenna.
• **Below/above:** Define how far the camera is installed below (0 to -400 cm) or above (0 to 400 cm) the GNSS antenna.

Orientation

• **Pan:** Define how far the camera is panned to the left (-90°) or to the right (90°) from a straight forward view (0°).
• **Tilt:** Define how far the camera is tilted to the up (45°) or down (-45°) from a level installation (0°).
• **Roll:** Define how far the camera is rolled counter-clockwise (-45°) or clockwise (45°) from a level installation (0°).

Sharp Portal - Auxiliary cameras page

This section lists the settings found in the *Auxiliary cameras* page of the Sharp Portal. Use the *Auxiliary cameras* page to configure the ports of the SharpZ3 Aux PoE expansion module.

To navigate to the *Auxiliary cameras* page, click **Configuration** > **Cameras** > **Auxiliary cameras**.

The following information is displayed:

- **Camera Unit:** Lists the installed SharpZ3 cameras.
- **Assigned auxiliary camera:** Select which auxiliary camera is associated with a SharpZ3 camera. This is generally used for associating wheel-imaging cameras.

Sharp Portal - ALPR settings page

This section lists the settings found in the *ALPR settings* page of the Sharp Portal Use the *ALPR settings* page to configure the analytics used for the license plates read by the SharpZ3.

To navigate to the *ALPR settings* page, click **Configuration** > **Analytics** > **ALPR settings**.

Location

- **Context:** Select which plate origin the SharpZ3 is reading.

Analytics:

- **State:** Select this option if you want the SharpZ3 unit to attempt read the license plate origin. Depending on the region, this can refer to the issuing state, province, or country.
- **Vehicle make:** Select this option if you want the SharpZ3 unit to attempt to read the vehicle's make from the brand or logo (Honda, Toyota, and so on).

  NOTE: This setting is not recommended for MLPI installations.
- **Confidence score:** The SharpZ3 assigns a confidence score percentage to each license plate read. This value indicates how confident the SharpZ3 is in the accuracy of the read.

  NOTE: License plates that contain similar characters such as *8* and *B* are more difficult to read and generally produce reads with a lower confidence score.

Reads

- **Reading mode:** Select one of the following reading modes:
  - **Continuous:** Select this for plates to be captured continuously. This is the default setting.
  - **Conditional:** When this option is selected, the SharpZ3 captures plate reads continuously as long as the selected input signal meets the condition defined (high/low). You must select an input and specify whether the state is high or low.
  - **Multiconditional:** Generates reads from a specific camera only while an input's status meets the defined high or low condition. This option is required if using the AutoVu™ car camera switch.

Read strategy

- **Slow moving vehicle:** Applicable for use in typical city, law enforcement, or mobile parking enforcement.
- **Fast moving vehicle:** Applicable for installations where vehicles travel at moderate to high speeds. For example, use this read strategy for law enforcement installations where vehicles might be traveling at high speeds in opposite directions.

Sharp Portal - Extension page

This section lists the settings found in the *Extension* page of the Sharp Portal. Use the *Extension* page to configure where the SharpZ3 sends ALPR data.

To navigate to the *Extension* page, click **Configuration** > **Connectivity** > **Extension**.

Extension type: None

- **None:** Plate reads are stored locally on the SharpZ3 and can only be retrieved using the Reads API which is an external application.

Extension type: FTP

Sends ALPR data to an FTP server. Configure the following:

- **Server:** Enter the server name and location of the FTP server.

  NOTE: The appropriate rights on that location must be granted to the chosen user on the FTP server. The target directory must also be present and be writable by that user.
- **Username:** Enter the username for the server.
- **Password:** Enter the password for the username.
- **Content Template:** ALPR data is sent in XML format, using the template shown. You can change certain elements if you choose.
- **Set default template:** Reverts to the default template values.
- **Export context images:** Export the context image (in JPEG format).
- **Export ALPR images:** Export the plate image (in JPEG format).
- **Retain data when the connection is lost:** Select this option for plate reads to be saved locally in the SharpZ3 database if the connection with the server is lost. The system attempts to reconnect with the server every 30 seconds. Stored reads are pushed to the server when the connection is reestablished.

  IMPORTANT: If there are any plate reads in the SharpZ3 database, clearing this check box and saving the configuration deletes the plate reads.
- **Send sample:** Verifies that the system can connect to the server and send a sample read file using the configured settings.

HTTP / HTTPS

- **Server:** Enter the server name and location of the FTP server.

  NOTE: The appropriate rights on that location must be granted to the chosen user on the FTP server. The target directory must also be present and be writable by that user.
- **Format:** Select the format you want to send the ALPR data in. You can select either **JSON** or **XML** format.
- **Username:** Enter the username for the server.
- **Password:** Enter the password for the username.
- **Anonymize ALPR data:** The camera *hashes* the license plate using the SHA-1 algorithm. When you add an alphanumeric *salt (cryptography)* to the license plate number, it increases the security of the hashed output. Adding the same salt on all of the cameras in a network means that the same license plate produces an identical hash on all cameras. This allows the external system to recognize the identical hashes as a the same vehicle while still maintaining privacy.

  IMPORTANT: If the salt is changed after it is set, it must also be changed on all other cameras. Changing the salt breaks the link between old reads and new reads.
- **Ignore certificate errors:** Select this option when sending ALPR data to an HTTPS server that does not have a trusted certificate. The SharpZ3 does not send the ALPR data to an HTTPS server that does not have a trusted certificate unless you select this option.
- **Export context images:** Export the context image (in JPEG format).

- **Export ALPR images:** Export the plate image (in JPEG format).
- **Retain data when the connection is lost:** Select this option for plate reads to be saved locally in the SharpZ3 database if the connection with the server is lost. The system attempts to reconnect with the server every 30 seconds. Stored reads are pushed to the server when the connection is reestablished.

  IMPORTANT: If there are any plate reads in the SharpZ3 database, clearing this check box and saving the configuration deletes the plate reads.

Patroller

Sends ALPR data to Genetec Patroller™. Configure the following:

- **Discovery port:** Port on which the SharpZ3 listens for discovery requests. This port number must match the discovery port entered on the Genetec Patroller™ Config Tool *Cameras* page.

Sharp Portal - Product improvement program page

This section lists the settings found in the *Product improvement program* page of the Sharp Portal. Use the *Product improvement program* page to configure the delay period to send images from SharpZ3 camera to servers at Genetec Inc.

To navigate to the *Product improvement program* page, click **Configuration** > **Connectivity** > **Product improvement**.

Product improvement program

- **Activate program:** Select one of the following activation modes:
  - **Not Active:** Select this option if you are not participating in the program.
  - **Always activated (recommended):** Select this option if you are participating in the program. When this option is selected, the SharpZ3 camera sends images to Genetec Inc. cloud systems continuously as long as there is an established connection.
  - **Activated for:** Select this option if you want send images for a support case. You can choose a delay period from the menu.
    NOTE: When a delay period has been selected and the program is active, an expiration date and time is displayed.
  - **Support case number (optional):** If you activate the program for a support case, enter the support case number provided by Genetec™ Technical Support.
- **Agreement:** Select the check box to agree to terms and conditions of the product improvement program feature.

Sharp Portal - Recovery page

This section lists the settings found in the *Recovery* page of the Sharp Portal. Use the *Recovery* page to import or export settings and to configure a Syslog server.

To navigate to the *Recovery* page, click **Configuration** > **General settings** > **Recovery**.

Settings

- **Export diagnostics:** Export a file that includes SharpZ3 diagnostics and SharpZ3 settings.
- **Export settings:** Exports configuration and diagnostic settings as a .zip file. You can use the .zip file for technical support, or you can import the settings to another Sharp unit for quick configuration
- **Import settings:** Imports configuration settings from a .zip file exported from another Sharp. You can use this .zip file to quickly configure your Sharp. After you import the settings, the Plate Reader service restarts automatically.

  IMPORTANT: You can only import settings from a similar Sharp (same model and SharpOS version).

- **Reset to factory default:** Click to reset the SharpZ3 to use the factory default settings. A message confirms the reset and offers to optionally clear the network settings as well. Note that some settings are never cleared, such as battery settings and certificates.

Syslog

- **Use Syslog server:** Select this option to configure a central repository for all SharpZ3 log entries.
  - **Server:** Enter the IP address or name of the server.
    NOTE: Syslog server configurations do not support IPv6 addresses.
  - **Port:** Enter the port number of the syslog server.
  - **Network protocol:** Select UDP or TCP.

Sharp Portal - Date and time page

This section lists the settings found in the *Date and time* page of the Sharp Portal. Use the *Date and time* page to configure how you want to configure the internal clock of the SharpZ3.

To navigate to the *Date and time* page, click **Configuration** > **General settings** > **Date and time**.

The following information is displayed:

- **Settings:** Select one of the following settings.

  - **NTP server:** The camera synchronizes with an NTP server that is typically either a foreign computer or a server within your organization that synchronizes itself with an external NTP server. The latter is recommended if synchronization is crucial to your organization. Click **Server** and enter the URL or IPv4 address of the machine running the NTP server. Click **Test connection** to tests the connection between the camera and the NTP server. The camera synchronizes with the NTP server every hour.

  - **Active extension (Patroller):** If you select **Active extension (Patroller)**, the camera's date and time are synchronized with the Genetec Patroller™ server that the camera is connected to. The camera synchronizes with the server upon connection, then again every 10 minutes.
    NOTE: If you have not yet configured the active extension (see Configuring where the SharpZ3 sends its ALPR data on page 48), you can select **Active extension**, and it will be updated when you configure the extension.
    NOTE: The **Active extension** option displays whichever extension is currently selected for the camera in *Configuration > Extensions*, however, selecting this option has no effect if you are using an extension type other than Patroller (not valid for FTP, HTTP, and so on).

- **Date and time format:** Select the date and time format to be used in the Sharp Portal.

  - **International:** Selecting the International option displays the date and time in the format: YYYY-MM-DD HH:MM:SS

  - **Imperial:** Selecting the Imperial option displays the date and time in the format: DD/MM/YYYY H:MM:SS AM/PM

Sharp Portal - Power options page

This section lists the settings found in the *Power options* page of the Sharp Portal. Use the *Power options* page to configure the camera based on the power grid of the installation location.

To navigate to the *Power options* page, click **Configuration** > **General settings** > **Power options**.

The following information is displayed:

- **Power line frequency:** Select the power line frequency that corresponds to the installation location.

    - **60 Hz:** Generally used in North America and South America
    - **50 Hz:** Generally used in Africa, Australia, Asia, and Europe

NOTE: For more information on the power line frequency used in your installation location, click here.

Advanced:

- **Turn on voltage:** Input voltage threshold below which the unit does not turn on.
- **Ignition cut-off delay:** Grace period between ignition cut-off and trunk unit power-down.
- **Undervoltage:** Input undervoltage threshold that causes a unit shut-off if maintained for a certain time.

Sharp Portal - Maintenance page

This section lists the settings found in the *Maintenance* page of the Sharp Portal. Use the *Maintenance* page to update software or reboot the unit.

To navigate to the *Maintenance* page, click **Configuration** > **Maintenance**.

- **Update:** Update the SharpOS software or the platform OS with latest security updates.
- **Free up space:** Space is freed up by deleting log files, untransmitted reads, and clearing the update cache.
- **Reboot unit:** Click to restart the SharpZ3.

    NOTE: If you are rebooting a SharpZ3 system that includes a four-camera ALPR module, each group of two cameras is configured on a separate Sharp Portal. Rebooting the unit only reboots the stack associated with the current portal. To reboot the entire system, you must power cycle the base unit.

- **Blink LED:** Click to blink the LED on the SharpZ3 for about a minute. This is useful when you have multiple units and you want to physically identify the one you are configuring.

Sharp Portal - Logs page

This section lists the settings found in the *Logs* page of the Sharp Portal. Use the *Logs* page to run reports and generate logs about the status of the SharpZ3. You can filter by a specific source, message, and so on. Log reports can also be exported to a .zip file by selecting **Export settings** on the *Maintenance* page.

To navigate to the *Logs* page, click **Diagnostics** > **Logs**.

- **Severity:** Click the icons to choose which severity types you want to include in the report query. You can choose from the following:

  - Error
  - Warning
  - Information
  - Debug
  - Performance

- **Source:** Select the source that you want to include in the report query.
- **Message:** Enter a message. Only logs containing the message string entered are displayed on the query.
- **Time:** Select a time range.
- **Search:** Click to run the query.
- **Pause:** Click to pause the auto-refresh on the query. This is useful when you want to stop new entries from coming in so you can focus on a particular entry. Click **Resume** to activate the auto-refresh on the query.
- **Download all logs in a text file:** Click to download in a text file.

  NOTE: The filters on this page apply only to the visual report. The log file always contains a full, unfiltered list of events.

Sharp Portal - Log sources page

This section lists the settings found in the *Log sources* page of the Sharp Portal. Use the *Log sources* page to activate sources and to specify the level of verbosity.

To navigate to the *Log sources* page, click **Diagnostics** > **Log sources**.

- **Sources to log:** Select the sources from which to generate a log. For example, if you only want to generate log events related to Plate Reader, select **Plate Reader** from the list.

  NOTE:

  - A source that contains *Verbose* in its name might generate a lot of disk activity.
  - When a log entry contains an exception, a small box icon is displayed under the **Exception** column. Click on the box to see the exception details.

Glossary

action An action is a user-programmable function that can be triggered as an automatic response to an event, such as door held open for too long or object left unattended, or that can be executed according to a specific time table.

area An area entity represents a concept or a physical location (room, floor, building, site, and so on) used for grouping other entities in the system.

automatic enrollment Automatic enrollment is when new IP units on a network are automatically discovered by and added to Security Center. The role that is responsible for the units *broadcasts* a discovery request on a specific port, and the units listening on that port respond with a message that contains the connection information about themselves. The role then uses the information to configure the connection to the unit and enable communication.

AutoVu™ The AutoVu™ automatic license plate recognition (ALPR) system automates license plate reading and identification, making it easier for law enforcement and for municipal and commercial organizations to locate vehicles of interest and enforce parking restrictions. Designed for both fixed and mobile installations, the AutoVu™ system is ideal for a variety of applications and entities, including law enforcement, municipal, and commercial organizations.

capture rate The capture rate measures the speed at which a license plate recognition system can take a photo of a passing vehicle and detect the license plate in the image.

certificate Designates one of the following: (1) *digital certificate*; (2) *SDK certificate*.

Config Tool Config Tool is the Security Center administrative application used to manage all Security Center users and to configure all Security Center entities such as areas, cameras, doors, schedules, cardholders, patrol vehicles, LPR units, and hardware devices.

context camera A context camera is a camera connected to an LPR unit that produces a wider angle color image of the vehicle whose license plate was read by the LPR camera.

contract permit parking Contract permit parking is a parking scenario where only drivers with monthly permits can park in the parking zone. A whitelist is used to grant permit holders access to the parking zone.

Copy configuration tool The Copy configuration tool helps you save configuration time by copying the settings of one entity to many others that partially share the same settings.

covert hit	A covert hit is a read (captured license plate) that is matched to a covert hotlist. Covert hits are not displayed on the Genetec Patroller™ screen, but can be displayed in Security Desk by a user with proper privileges.
covert hotlist	Covert hotlists allow you to ensure the discretion of an ongoing investigation or special operation. When a hit is identified, only the authorized officer at the Security Center station is notified, while the officer in the patrol vehicle is not alerted. This enables enforcement officials to assign multiple objectives to the vehicle and back-end systems, while not interrupting the priorities of officers on duty.
custom event	A custom event is an event added after the initial system installation. Events defined at system installation are called system events. Custom events can be user-defined or automatically added through plugin installations. Unlike system events, custom events can be renamed and deleted.
custom field	A custom field is a user-defined property that is associated with an entity type and is used to store additional information that is useful to your organization.
Daily usage per Patroller	Daily usage per Patroller is a type of investigation task that reports on the daily usage statistics of a selected patrol vehicle (operating time, longest stop, total number of stops, longest shutdown, and so on) for a given date range.
dashboard	A dashboard is one of the three panels that belong to the canvas in Security Desk. It contains the graphical commands (or widgets) pertaining to the entity displayed in the current tile.
database server	A database server is an application that manages databases and handles data requests made by client applications. Security Center uses Microsoft SQL Server as its database server.
Directory	The Directory role identifies a Security Center system. It manages all entity configurations and system-wide settings. Only a single instance of this role is permitted on your system. The server hosting the Directory role is called the *main server*, and must be set up first. All other servers you add in Security Center are called *expansion servers*, and must connect to the main server to be part of the same system.
Directory Manager	The Directory Manager role manages the Directory failover and load balancing in order to produce the high availability characteristics in Security Center.
Directory server	A Directory server is any one of the multiple servers simultaneously running the Directory role in a high availability configuration.

discovery port	A discovery port is a port used by certain Security Center roles (Access Manager, Archiver, LPR Manager) to find the units they are responsible for on the LAN. No two discovery ports can be the same on one system.
district	A district is a type of parking regulation characterizing an overtime rule. A district is a geographical area within a city. A vehicle is in violation if it is seen within the boundaries of the district over a specified period of time.
enforce	To enforce is to take action following a confirmed hit. For example, a parking officer can enforce a scofflaw violation (unpaid parking tickets) by placing a wheel boot on the vehicle.
entity	Entities are the basic building blocks of Security Center. Everything that requires configuration is represented by an entity. An entity can represent a physical device, such as a camera or a door, or an abstract concept, such as an alarm, a schedule, a user, a role, a plugin, or an add-on.
entity tree	An entity tree is the graphical representation of Security Center entities in a tree structure, illustrating the hierarchical nature of their relationships.
event	An event indicates the occurrence of an activity or incident, such as access denied to a cardholder or motion detected on a camera. Events are automatically logged in Security Center. Every event has an entity as its main focus, called the event source.
event-to-action	An event-to-action links an action to an event. For example, you can configure Security Center to trigger an alarm when a door is forced open.
expansion server	An expansion server is any server machine in a Security Center system that does not host the Directory role. The purpose of the expansion server is to add to the processing power of the system.
failover	Failover is a backup operational mode in which a role (system function) is automatically transferred from its primary server to a secondary server that is on standby. This transfer between servers occurs only if the primary server becomes unavailable, either through failure or through scheduled downtime.
false positive read	False positive plate reads can occur when a license plate recognition system mistakes other objects in an image for license plates. For example, lettering on a vehicle or street signs can sometimes create false positive plate reads.
federated entity	A federated entity is any entity that is imported from an independent system through one of the Federation™ roles.

federated system	A federated system is a independent system (Omnicast™ or Security Center) that is unified under your local Security Center via a Federation™ role, so that the local users can view and control its entities, as if they belong to the local system.
Federation™	The Federation™ feature joins multiple, independent Genetec™ IP security systems into a single virtual system. With this feature, Security Center users can view and control entities that belong to remote systems, directly from their local Security Center system.
Fuzzy matching	Environmental factors such as dirt or snow can partially obstruct license plate characters and increase the likelihood of partial plate reads occurring. In addition, similarly shaped letters and numbers, like "2" and "Z" or, "8", "B", and "0", can also reduce plate read accuracy. Fuzzy matching lets AutoVu™ compare reads not only to exact matches in hotlists, but also to potential or probable matches.
Genetec™ Server	Genetec™ Server is the Windows service that is at the core of Security Center architecture, and that must be installed on every computer that is part of the Security Center's pool of servers. Every such server is a generic computing resource capable of taking on any role (set of functions) you assign to it.
geocoding	Geocoding is the process of finding associated geographic coordinates (latitude and longitude) from a street address.
georeferencing	Georeferencing is the process of using an object's geographic coordinates (latitude and longitude) to determine its position on a map.
ghost Patroller	A ghost Patroller is an entity automatically created by the LPR Manager when the AutoVu™ license includes the XML Import module. In Security Center, all LPR data must be associated to a Genetec Patroller™ entity or an LPR unit corresponding to a fixed Sharp camera. When you import LPR data from an external source via a specific LPR Manager using the XML Import module, the system uses the ghost entity to represent the LPR data source. You can formulate queries using the ghost entity as you would with a normal entity.
Geographic Information System	Geographic Information System (GIS) is a system that captures spatial geographical data. Map Manager can connect to third-party vendors that provide GIS services in order to bring maps and all types of geographically referenced data to Security Center.
Hardware inventory	Hardware inventory is a type of maintenance task that reports on the characteristics (unit model, firmware version, IP address, time zone, and so on) of access control, video, intrusion detection, and LPR units in your system.

hash function	In cryptography, a hash function uses a mathematical algorithm to take input data and return a fixed-size alphanumeric string. A hash function is designed to be a one-way function, that is, a function which is infeasible to revert.
hit	A hit is a license plate read that matches a hit rule, such as a hotlist, overtime rule, permit, or permit restriction. A Genetec Patroller™ user can choose to reject or accept a hit. An accepted hit can subsequently be enforced.
hit rule	Hit rule is a type of LPR rule used to identify vehicles of interest (called "hits") using license plate reads. The hit rules include the following types: hotlist, overtime rule, permit, and permit restriction.
Hits	Hits is a type of investigation task that reports on hits reported within a selected time range and geographic area.
hot action	A hot action is an action mapped to a PC keyboard function key (Ctrl+F1 through Ctrl+F12) in Security Desk for quick access.
hotlist	A hotlist is a list of wanted vehicles, where each vehicle is identified by a license plate number, the issuing state, and the reason why the vehicle is wanted (stolen, wanted felon, Amber alert, VIP, and so on). Optional vehicle information might include the model, the color, and the vehicle identification number (VIN).
Hotlist and permit editor	Hotlist and permit editor is a type of operation task used to edit an existing hotlist or permit list. A new list cannot be created with this task, but after an existing list has been added to Security Center, users can edit, add, or delete items from the list, and the original text file is updated with the changes.
illuminator	An illuminator is a light in the Sharp unit that illuminates the plate, thereby improving the accuracy of the images produced by the LPR camera.
incident	An incident is an unexpected event reported by a Security Desk user. Incident reports can use formatted text and include events and entities as support material.
Incidents	Incidents is a type of investigation task that allows you to search, review, and modify incident reports.
Inventory report	Inventory report is a type of investigation task that allows you to view a specific inventory (vehicle location, vehicle length of stay, and so on) or compare two inventories of a selected parking facility (vehicles added, vehicles removed, and so on).
I/O linking	I/O (input/output) linking is controlling an output relay based on the combined state (normal, active, or trouble) of a group of monitored inputs. A standard application is to sound a buzzer (through an output relay) when any window on the ground

floor of a building is shattered (assuming that each window is monitored by a "glass break" sensor connected to an input).

IPv4

IPv4 is the first generation Internet protocol using a 32-bit address space.

IPv6

IPv6 is a 128-bit Internet protocol that uses eight groups of four hexadecimal digits for address space.

Law Enforcement

Law Enforcement is a Genetec Patroller™ software installation that is configured for law enforcement: the matching of license plate reads against lists of wanted license plates (hotlists). The use of maps is optional.

license key

A license key is the software key used to unlock the Security Center software. The license key is specifically generated for each computer where the Directory role is installed. To obtain your license key, you need the *System ID* (which identifies your system) and the *Validation key* (which identifies your computer).

license plate inventory

A license plate inventory is a list of license plate numbers of vehicles found in a parking facility within a given time period, showing where each vehicle is parked (sector and row).

license plate read

A license plate read is a license plate number captured from a video image using LPR technology.

license plate recognition

License plate recognition (LPR) is an image processing technology used to read license plate numbers. LPR converts license plate numbers cropped from camera images into a database searchable format.

live hit

A live hit is a hit matched by the Genetec Patroller™ and immediately sent to the Security Center over a wireless network.

live read

A live read is a license plate captured by the patrol vehicle and immediately sent to Security Center over a wireless network.

load balancing

Load balancing is the distribution of workload across multiple computers.

logical ID

Logical ID is a unique ID assigned to each entity in the system for ease of reference. Logical IDs are only unique within a particular entity type.

Logons per Patroller

Logons is a type of investigation task that reports on the logon records of a selected patrol vehicle.

long term

Long term is a type of parking regulation characterizing an overtime rule. The *long term* regulation uses the same principle as the *same position* regulation, but the parking period starts on one calendar date and ends on another calendar date. No more than one overtime rule can use the long term regulation in the entire system.

LPR camera	A License Plate Recognition (LPR) camera is a camera connected to an LPR unit that produces high resolution close-up images of license plates.
LPR context	An LPR context is an LPR optimization that improves license plate recognition performance for license plates from a specific region (for example, New York) or from a group of regions (for example, Northeast states).
LPR Manager	The LPR Manager role manages and controls the patrol vehicle software (Genetec Patroller™), Sharp cameras, and parking zones. The LPR Manager stores the LPR data (reads, hits, timestamps, GPS coordinates, and so on) collected by the devices.
SharpZ3 ALPR module	ALPR modules are available for the SharpZ3 trunk unit which can support either two or four SharpZ3 cameras.
LPR rule	LPR rule is a method used by Security Center and AutoVu™ for processing a license plate read. An LPR rule can be a hit rule or a parking facility.
LPR unit	An LPR unit is a device that captures license plate numbers. An LPR unit typically includes a context camera and at least one LPR camera.
macro	A macro is a type of entity that encapsulates a C# program that adds custom functionalities to Security Center.
main server	The main server is the only server in a Security Center system hosting the Directory role. All other servers on the system must connect to the main server to be part of the same system. In a high availability configuration where multiple servers host the Directory role, it is the only server that can write to the Directory database.
manual capture	Manual capture is when license plate information is entered into the system by the user and not by the LPR.
map link	A map link is a map object that brings you to another map with a single click.
map mode	Map mode is a Security Desk canvas operating mode that replaces tiles and controls with a geographical map showing all active, georeferenced events in your system. Switching to Map mode is a feature of AutoVu™ and Genetec Mission Control™, and requires a license for one of these products.
map object	Map objects are graphical representations of Security Center entities or geographical features, such as cities, highways, rivers, and so on, on your maps. With map objects, you can interact with your system without leaving your map.
map view	A map view is a defined section of a map.

Mobile Data Computer	Mobile Data Computer is a tablet computer or ruggedized laptop used in patrol vehicles to run the Genetec Patroller™ application. The MDC is typically equipped with a touch-screen with a minimum resolution of 800 x 600 pixels and wireless networking capability.
Mobile License Plate Inventory	Mobile License Plate Inventory (MLPI) is the Genetec Patroller™ software installation that is configured for collecting license plates and other vehicle information for creating and maintaining a license plate inventory for a large parking area or parking garage.
Mobile Admin	(Obsolete as of SC 5.8 GA) Mobile Admin is a web-based administration tool used to configure the Mobile Server.
Mobile Server	The Mobile Server role provides Security Center access on mobile devices.
Monitoring	The *Monitoring* task is a type of operation task that you can use to monitor and respond to real-time events that relate to selected entities. Using the *Monitoring* task, you can also monitor and respond to alarms.
network	The network entity is used to capture the characteristics of the networks used by your system so that proper stream routing decisions can be made.
network address translation	Network address translation is the process of modifying network address information in datagram (IP) packet headers while in transit across a traffic routing device, for the purpose of remapping one IP address space into another.
network view	The network view is a browser view that illustrates your network environment by showing each server under the network they belong to.
new wanted	A new wanted is a manually entered hotlist item in Genetec Patroller™. When you are looking for a plate that does not appear in the hotlists loaded in the Genetec Patroller™, you can enter the plate in order to raise a hit if the plate is captured.
notification tray	The notification tray contains icons that allow quick access to certain system features, and also displays indicators for system events and status information. The notification tray display settings are saved as part of your user profile and apply to both Security Desk and Config Tool.
OCR equivalence	OCR equivalence is the interpretation of OCR (Optical Character Recognition) equivalent characters performed during license plate recognition. OCR equivalent characters are visually similar, depending on the plate's font. For example, the letter "O" and the number "0", or the number "5" and the letter "S". There are

several pre-defined OCR equivalent characters for different languages.

SharpZ3 expansion module   Up to three expansion modules can be added to the SharpZ3 base unit. The modules add additional functionality to the base system. For example, you can add modules for precise navigation, PoE ports for wheel imaging cameras, and so on.

output behavior   An output behavior is a type of entity that defines a custom output signal format, such as a pulse with a delay and duration.

overtime rule   An overtime rule is a type of entity that defines a parking time limit and the maximum number of violations enforceable within a single day. Overtime rules are used in city and university parking enforcement. For university parking, an overtime rule also defines the parking area where these restrictions apply.

Parking Enforcement Essential   Parking Enforcement Essential is a Genetec Patroller™ software installation configuration that is similar to the City Parking Enforcement configuration, but excludes features such as shared permits, zone auto-selection, Plate link, and wheel imaging. You can configure the system for either overtime enforcement or permit enforcement, but you cannot configure both enforcement types.

parking facility   A parking facility is a type of entity that defines a large parking area as a number of sectors and rows for the purpose of inventory tracking.

parking lot   A parking lot is a polygon that defines the location and shape of a parking area on a map. By defining the number of parking spaces inside the parking lot, Security Center can calculate its percentage of occupancy during a given time period.

parking zone   The parking zones that you define in Security Center represent off-street parking lots where the entrances and exits are monitored by Sharp cameras.

partition   A partition is a type of entity that defines a set of entities that are only visible to a specific group of users. For example, a partition could include all areas, doors, cameras, and zones in one building.

partition administrator   (Obsolete) Beginning in Security Center 5.7 GA, privileges that used to be exclusive to administrators can now be granted individually, making the concept of *partition administrator* obsolete.

patrol vehicle   A patrol vehicle monitors parking lots and city streets for parking violations or wanted vehicles. A patrol vehicle includes one or more Sharp automatic license plate recognition (ALPR)

cameras and an in-vehicle computer running Genetec Patroller™ software.

Patroller
1. Genetec Patroller™ is the AutoVu™ software application installed on an in-vehicle computer. Genetec Patroller™ connects to Security Center and is controlled by the LPR Manager. Genetec Patroller™ verifies license plates read from LPR cameras against lists of vehicles of interest (hotlists) and vehicles with permits (permit lists). It also collects data for time-limited parking enforcement. Genetec Patroller™ alerts you of hotlist or permit hits so that you can take immediate action.
2. Type of entity that represents a patrol vehicle equipped with an in-vehicle computer running Genetec Patroller™ software.

Patroller Config Tool
Genetec Patroller™ Config Tool is the Genetec Patroller™ administrative application used to configure Patroller-specific settings, such as adding Sharp cameras to the in-vehicle LAN, enabling features such as Manual Capture or New Wanted, and specifying that a username and password are needed to log on to Genetec Patroller™.

Patroller tracking
Patroller tracking is a type of investigation task that allows you to replay the route followed by a patrol vehicle on a given date on a map, or view the current location of patrol vehicles on a map.

permit
A permit is a type of entity that defines a single parking permit holder list. Each permit holder is characterized by a category (permit zone), a license plate number, a license issuing state, and optionally, a permit validity range (effective date and expiry date). Permits are used in both city and university parking enforcement.

permit hit
A permit hit is a hit that is generated when a read (license plate number) does not match any entry in a permit or when it matches an invalid permit.

permit restriction
A permit restriction is a type of entity that applies time restrictions to a series of parking permits for a given parking area. Permit restrictions can be used by patrol vehicles configured for University Parking Enforcement and for systems that use the AutoVu™ Free-Flow feature.

Plate Reader
Plate Reader is the software component of the Sharp unit that processes the images captured by the LPR camera to produce license plate reads, and associates each license plate read with a context image captured by the context camera. The Plate Reader also handles the communications with the Genetec Patroller™ and the LPR Manager. If an external wheel imaging camera is connected to the Sharp unit, the Plate Reader also captures wheel images from this camera.

plugin	A plugin (in lowercase) is a software component that adds a specific feature to an existing program. Depending on the context, plugin can refer either to the software component itself or to the software package used to install the software component.
plugin role	A plugin role adds optional features to Security Center. A plugin role is created by using the *Plugin* role template. By default, it is represented by an orange puzzle piece in the *Roles* view of the *System* task. Before you can create a plugin role, the software package specific to that role must be installed on your system.
primary server	Primary server is the default server chosen to perform a specific function (or role) in the system. To increase the system's fault-tolerance, the primary server can be protected by a secondary server on standby. When the primary server becomes unavailable, the secondary server automatically takes over.
private IP address	A private IP address is an IP address chosen from a range of addresses that are only valid for use on a LAN. The ranges for a private IP address are: 10.0.0.0 to 10.255.255.255, 172.16.0.0 to 172.16.255.255, and 192.168.0.0 to 192.168.255.255. Routers on the Internet are normally configured to discard any traffic using private IP addresses.
private task	A private task is a saved task that is only visible to the user who created it.
privilege	Privileges define what users can do, such as arming zones, blocking cameras, and unlocking doors, over the part of the system they have access rights to.
public task	A public task is a saved task that can be shared and reused among multiple Security Center users.
read rate	The read rate measures the speed at which a license plate recognition system can correctly detect and read all of the characters in an image of a license plate.
Reads	Reads is a type of investigation task that reports on license plate reads performed within a selected time range and geographic area.
Reads/hits per day	Reads/hits per day is a type of investigation task that reports on license plate reads performed within a selected time range and geographic area.
Reads/hits per zone	Reads/hits per zone is a type of investigation task that reports on the number of reads and hits per parking area for a selected date range.
Report Manager	Report Manager is a type of role that automates report emailing and printing based on schedules.

report pane	Report pane is one of the panes found in the Security Desk task workspace. It displays query results or real-time events in a tabular form.
reverse geocoding	Reverse geocoding is an AutoVu™ feature that translates a pair of latitude and longitude into a readable street address.
role	A role is a software component that performs a specific job within Security Center. To execute a role, you must assign one or more servers to host it.
salt (cryptography)	In cryptography, a salt is data that is used as an additional input to the information you want to encrypt or protect with a hash function, so that the original information is nearly impossible to guess, even when the attacker knows what algorithm is being used.
same position	Same position is a type of parking regulation characterizing an overtime rule. A vehicle is in violation if it is seen parked at the exact same spot over a specified period of time. Genetec Patroller™ must be equipped with GPS capability in order to enforce this type of regulation.
schedule	A schedule is a type of entity that defines a set of time constraints that can be applied to a multitude of situations in the system. Each time constraint is defined by a date coverage (daily, weekly, ordinal, or specific) and a time coverage (all day, fixed range, daytime, and nighttime).
scheduled task	A scheduled task is a type of entity that defines an action that executes automatically on a specific date and time, or according to a recurring schedule.
Software Development Kit	The Software Development Kit (SDK) allows end-users to develop custom applications or custom application extensions for Security Center.
secondary server	A secondary server is any alternate server on standby intended to replace the primary server in the case the latter becomes unavailable.
Security Center	Security Center is a truly unified platform that blends IP video surveillance, access control, license plate recognition, intrusion detection, and communications within one intuitive and modular solution. By taking advantage of a unified approach to security, your organization becomes more efficient, makes better decisions, and responds to situations and threats with greater confidence.
Security Center Federation™	The Security Center Federation™ role connects a remote, independent Security Center system to your local Security Center. That way, the remote system's entities and events can be used in your local system.

Security Desk	Security Desk is the unified user interface of Security Center. It provides consistent operator flow across all of the Security Center main systems, Omnicast™, Synergis™, and AutoVu™. The unique task-based design of Security Desk lets operators efficiently control and monitor multiple security and public safety applications.
server	A server is a type of entity that represents a server machine on which the Genetec™ Server service is installed.
Server Admin	Server Admin is the web application running on every server machine in Security Center that allows you to configure the settings of Genetec Server. Server Admin also allows you to configure the Directory role on the main server.
SharpOS	SharpOS is the software component of a Sharp unit. SharpOS is responsible for everything related to plate capture, collection, processing, and analytics. For example, a SharpOS update can include new LPR contexts, new firmware, Sharp Portal updates, and updates to the Sharp's Windows services (Plate Reader, HAL, and so on).
Sharp Portal	Sharp Portal is a web-based administration tool used to configure Sharp cameras for AutoVu™ systems. From a web browser, you log on to a specific IP address (or the Sharp name in certain cases) that corresponds to the Sharp you want to configure. When you log on, you can configure options such as selecting the ALPR context (for example, Alabama, Oregon, Quebec), selecting the read strategy (for example, fast moving or slow moving vehicles), viewing the Sharp's live video feed, and more.
Sharp unit	The Sharp unit is a proprietary LPR unit of Genetec Inc. that integrates license plate capturing and processing components, as well as digital video processing functions, inside a ruggedized casing.
SharpZ3	SharpZ3 is a proprietary mobile ALPR system designed by Genetec Inc. that integrates license plate cameras and a trunk unit that is responsible for ALPR processing as well as communication with the Genetec Patroller™ software running on the in-vehicle computer.
SharpZ3 ALPR module	ALPR modules are available for the SharpZ3 trunk unit which can support either two or four SharpZ3 cameras.
SharpZ3 base unit	The SharpZ3 base unit is the processing component of the SharpZ3 system. The base unit includes the ALPR module and up to three expansion modules that are used to add features to the system such as precise navigation, PoE ports for wheel imaging cameras, and so on.

SharpZ3 expansion module	Up to three expansion modules can be added to the SharpZ3 base unit. The modules add additional functionality to the base system. For example, you can add modules for precise navigation, PoE ports for wheel imaging cameras, and so on.
standard schedule	A standard schedule is a type of schedule entity that may be used in all situations. Its only limitation is that it does not support daytime or nighttime coverage.
system event	A system event is a predefined event that indicates the occurrence of an activity or incident. System events are defined by the system and cannot be renamed or deleted.
System status	System status is a type of maintenance task that monitors the status of all entities of a given type in real time, and allows you to interact with them.
task	A task is the central concept on which the entire Security Center user interface is built. Each task corresponds to one aspect of your work as a security professional. For example, use a monitoring task to monitor system events in real-time, use an investigation task to discover suspicious activity patterns, or use an administration task to configure your system. All tasks can be customized and multiple tasks can be carried out simultaneously.
taskbar	A taskbar is a user interface element of the Security Center client application window, composed of the Home tab and the active task list. The taskbar can be configured to appear on any edge of the application window.
task workspace	A task workspace is an area in the Security Center client application window reserved for the current task. The workspace is typically divided into the following panes: canvas, report pane, controls, and area view.
tile	A tile is an individual window within the canvas, used to display a single entity. The entity displayed is typically the video from a camera, a map, or anything of a graphical nature. The look and feel of the tile depends on the displayed entity.
timeline	A timeline is a graphic illustration of a video sequence, showing where in time, motion, and bookmarks are found. Thumbnails can also be added to the timeline to help the user select the segment of interest.
transient parking	Transient parking is a parking scenario where the driver must purchase parking time as soon as the vehicle enters the parking lot.
SharpZ3 base unit	The SharpZ3 base unit is the processing component of the SharpZ3 system. The base unit includes the ALPR module and up to three expansion modules that are used to add features

to the system such as precise navigation, PoE ports for wheel imaging cameras, and so on.

unit
A unit is a hardware device that communicates over an IP network that can be directly controlled by a Security Center role. We distinguish four types of units in Security Center:

- Access control units, managed by the Access Manager role
- Video units, managed by the Archiver role
- LPR units, managed by the LPR Manager role
- Intrusion detection units, managed by the Intrusion Manager role

Unit discovery tool
Starting with Security Center 5.4 GA the Unit discovery tool has been replaced by the Unit enrollment tool.

Unit replacement
Unit replacement is a tool that is used to replace a failed hardware device with a compatible one, while ensuring that the data associated to the old unit gets transferred to the new one. For an access control unit, the configuration of the old unit is copied to the new unit. For a video unit, the video archive associated to the old unit is now associated to the new unit, but the unit configuration is not copied.

University Parking Enforcement
University Parking Enforcement is a Genetec Patroller™ software installation that is configured for university parking enforcement: the enforcement of scheduled parking permits or overtime restrictions. The use of maps is mandatory. Hotlist functionality is also included.

unreconciled read
A unreconciled read is a MLPI license plate read that has not been committed to an inventory.

user
A user is a type of entity that identifies a person who uses Security Center applications and defines the rights and privileges that person has on the system. Users can be created manually or imported from an Active Directory.

user group
A user group is a type of entity that defines a group of users who share common properties and privileges. By becoming member of a group, a user automatically inherits all the properties of the group. A user can be a member of multiple user groups. User groups can also be nested.

user level
A user level is a numeric value assigned to users to restrict their ability to perform certain operations, such as controlling a camera PTZ, viewing the video feed from a camera, or staying logged on when a threat level is set. Level 1 is the highest user level, with the most privileges.

validation key
A validation key is a serial number uniquely identifying a computer that must be provided to obtain the license key.

vehicle identification number	A vehicle identification number (VIN) is an identification number that a manufacturer assigns to vehicles. This is usually visible from outside the vehicle as a small plate on the dashboard. A VIN can be included as additional information with license plate entries in a hotlist or permit list, to further validate a hit and ensure that it is the correct vehicle.
wheel imaging	Wheel imaging is a virtual tire-chalking technology that takes images of the wheels of vehicles to prove whether they have moved between two license plate reads.
whitelist	A whitelist is a hotlist that is created for the purpose of granting a group of license plates access to a parking lot. A whitelist can be compared to an access rule where the secured area is the parking lot. Instead of listing the cardholders, the whitelist applies to license plate credentials.
widget	A widget is a component of the graphical user interface (GUI) with which the user interacts.
Zone occupancy	Zone occupancy is a type of investigation task that reports on the number of vehicles parked in a selected parking area, and the percentage of occupancy.

Where to find product information

You can find our product documentation in the following locations:

- **Genetec™ TechDoc Hub:** The latest documentation is available on the TechDoc Hub. To access the TechDoc Hub, log on to Genetec™ Portal and click TechDoc Hub. Can't find what you're looking for? Contact documentation@genetec.com.
- **Installation package:** The Installation Guide and Release Notes are available in the Documentation folder of the installation package. These documents also have a direct download link to the latest version of the document.
- **Help:** Security Center client and web-based applications include help, which explains how the product works and provide instructions on how to use the product features. To access the help, click **Help**, press F1, or tap the **?** (question mark) in the different client applications.

Technical support

Genetec™ Technical Assistance Center (GTAC) is committed to providing its worldwide clientele with the best technical support services available. As a customer of Genetec Inc., you have access to TechDoc Hub, where you can find information and search for answers to your product questions.

- **Genetec™ TechDoc Hub:** Find articles, manuals, and videos that answer your questions or help you solve technical issues.

  Before contacting GTAC or opening a support case, it is recommended to search TechDoc Hub for potential fixes, workarounds, or known issues.

  To access the TechDoc Hub, log on to Genetec™ Portal and click TechDoc Hub. Can't find what you're looking for? Contact documentation@genetec.com.

- **Genetec™ Technical Assistance Center (GTAC):** Contacting GTAC is described in the Genetec™ Lifecycle Management (GLM) documents: Genetec™ Assurance Description and Genetec™ Advantage Description.

Additional resources

If you require additional resources other than the Genetec™ Technical Assistance Center, the following is available to you:

- **Forum:** The Forum is an easy-to-use message board that allows clients and employees of Genetec Inc. to communicate with each other and discuss many topics, ranging from technical questions to technology tips. You can log on or sign up at https://gtapforum.genetec.com.

- **Technical training:** In a professional classroom environment or from the convenience of your own office, our qualified trainers can guide you through system design, installation, operation, and troubleshooting. Technical training services are offered for all products and for customers with a varied level of technical experience, and can be customized to meet your specific needs and objectives. For more information, go to http://www.genetec.com/support/training/training-calendar.

Licensing

- For license activations or resets, please contact GTAC at https://gtap.genetec.com.
- For issues with license content or part numbers, or concerns about an order, please contact Genetec™ Customer Service at customerservice@genetec.com, or call 1-866-684-8006 (option #3).
- If you require a demo license or have questions regarding pricing, please contact Genetec™ Sales at sales@genetec.com, or call 1-866-684-8006 (option #2).

Hardware product issues and defects

Please contact GTAC at https://gtap.genetec.com to address any issue regarding Genetec™ appliances or any hardware purchased through Genetec Inc.