



AutoVu Handbook for SharpV Fixed Installations 12.3

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You can send your comments, corrections, and suggestions about this guide to documentation@genetec.com.

About this guide

This guide provides you with a complete source of information about how to install and configure a AutoVu™ SharpV system for a fixed deployment.

For a list of all Security Center and AutoVu™ documentation, go to the GTAP [Documents](#) page.

AutoVu can be customized in a number of ways, but only the tasks for a SharpV fixed deployment are provided in the order to be performed. Depending on your deployment requirements, you may not need to perform all of the tasks listed. Refer to the *Security Center Administrator Guide* for more advanced configuration tasks and detailed reference information.

WARNING: Only AutoVu-certified personnel should setup and install AutoVu systems. Read all of the procedures in this guide before installing an AutoVu fixed or mobile system. Failure to follow the supplied instructions or information may 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: Topics appearing in this guide that reference information found on third-party websites were accurate at the time of publication, however, this information is subject to change without prior notice to Genetec Inc.

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AutoVu SharpV fixed installation

This section includes the following topics:

- ["About the AutoVu SharpV"](#) on page 2
- ["About the AutoVu SharpV"](#) on page 3
- ["Hardware components for SharpV fixed installation"](#) on page 4
- ["Specifications for the SharpV "](#) on page 6
- ["SharpV fixed deployment overview"](#) on page 10
- ["SharpV positioning guidelines"](#) on page 14
- ["Network cable requirements for SharpV cameras"](#) on page 16
- ["SharpV input/output cable termination"](#) on page 18
- ["Guidelines for mounting a SharpV camera"](#) on page 21
- ["SharpV cable connections"](#) on page 24

About the AutoVu™ SharpV

The AutoVu™ SharpV is an all-in-one specialized automatic license plate recognition (ALPR) device which combines two high-definition cameras with onboard processing and illumination in a ruggedized, environmentally sealed unit.



* Depending on the camera options, the five LPR illuminators might emit light that is visible in dark conditions. The single context camera illuminator does not emit visible light.

About the AutoVu™ SharpV

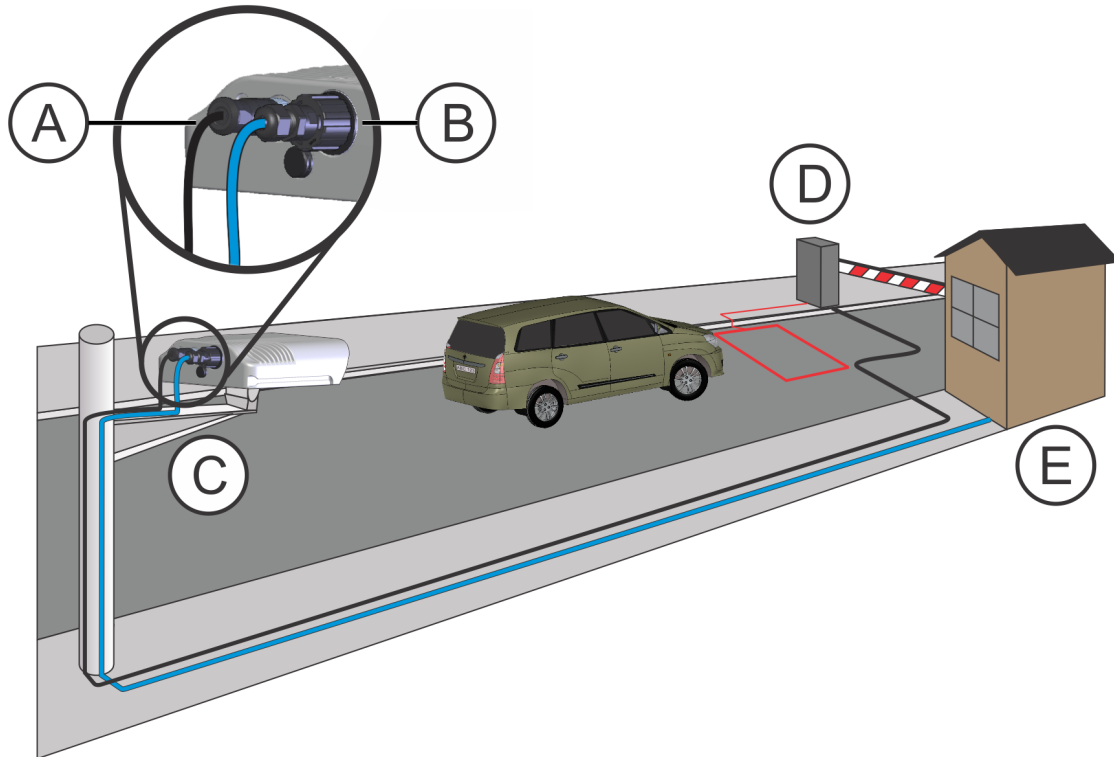
The AutoVu™ SharpV is an all-in-one specialized automatic license plate recognition (ALPR) device which combines two high-definition cameras with onboard processing and illumination in a ruggedized, environmentally sealed unit.



* Depending on the camera options, the five LPR illuminators might emit light that is visible in dark conditions. The single context camera illuminator does not emit visible light.

Hardware components for SharpV fixed installation

Before installing a SharpV system, it is recommended that you familiarize yourself with the hardware components used in a typical installation.



Component	What you should know
A	<p>SharpV: Input / output connection</p> <p>The SharpV includes two inputs and two outputs (I/O). You can configure the SharpV to use an input signal to trigger a license plate read. For more information, see SharpV input/output cable termination on page 18.</p>
B	<p>SharpV: Network cable connection</p> <p>The SharpV connects to the network, using a standard CAT5e network cable (not included). For more information, see Network cable requirements for SharpV cameras on page 16.</p>
C	<p>Mounting bracket</p> <p>A Videotec WBJA (white) or WBJF (black) mounting bracket is included with the SharpV. For a list of compatible mounting brackets, see Available Videotec mounting brackets on page 22.</p>
D	<p>Input / output control</p> <p>Using the SharpV's inputs and outputs, you can configure Security Center to control an entry point based on a valid license plate read. For more information, see SharpV input/output cable termination on page 18.</p>
E	<p>PoE+ power</p> <p>Power is supplied to the SharpV through the network cable, using PoE+.</p> <p>NOTE: PoE+ provides a maximum of 25.5 W of power, compared to the 15.4 W provided by standard PoE.</p>

Required tools and parts for a SharpV fixed installation

Before installing SharpV fixed hardware, make sure that you have the tools and parts required to successfully complete the installation.

- **Depth-controlled cable jacket stripper:** Recommended for stripping the CAT5e and I/O cable jacket to avoid damaging the internal conductors.
- **Wire stripper:** Required for stripping the copper wire insulation.
- **RJ45 crimp tool:** Use a professional quality tool to crimp the network cable's RJ45 connector.
- **2mm hex screwdriver (included):** Required when setting the zoom and focus of the SharpV.
- **CAT5e network cable:** Required for SharpV communication and PoE+ power. For more information, see [Network cable requirements for SharpV cameras](#) on page 16.
- **RJ45 connectors:** One RJ45 connector is included with the IP67 connector assembly. The IP67 connector assembly supports standard shielded or unshielded RJ45 connectors. For more information, see [Network cable requirements for SharpV cameras](#) on page 16.
- **I/O cable (optional):** If you are using the SharpV inputs and outputs to control external devices, you must use an adequate cable. For more information, see [SharpV input/output cable termination](#) on page 18.
- **PoE+ compliant switch, router, or injector:** Required to supply power to the SharpV.

IMPORTANT:

- Power-over-Ethernet; 802.3at Type 2 (25.5 W)
- Not all hardware that is labeled "PoE+" meets the IEEE 802.3at standard that is required for use with the SharpV.
- The switch or injector might have the capability to provide PoE+, but the feature might need to be enabled in the device's configuration settings. If settings exist for PoE+ or for Link Layer Discovery Protocol (LLDP), enable these settings.
- Ensure that the total power consumption of all hardware connected to the PoE+ source does not exceed the power budget of the PoE+ source. Each SharpV camera must be supplied with 25.5 W.

Specifications for the SharpV

Refer to the technical, mechanical, and environmental specifications when planning and deploying a SharpV camera.

Mechanical and environmental specifications

Hardware	Specification
LPR camera sensor	1280 x 960 progressive scan @ 30 fps (LPR), monochrome
Context camera sensor	1280 x 960 progressive scan @ 30 fps, 15 fps (streaming), color (available on Standard model only) NOTE: Information on context cameras is not applicable to SharpV ITS cameras.
Illuminator	Pulsed LED illuminator for effective use in 0 lux (total darkness) environments. Different illumination wavelengths are available.
Capture range	<ul style="list-style-type: none"> • Standard: 2.75 - 18.25 m (9 - 60 ft) • Long range: 18.25 – 35 m (60 - 115 ft)
Power supply	PoE+ (Power-over-Ethernet; 802.3at Type 2 (25.5 W))
Compression	Concurrent MJPEG video compression and JPEG for LPR images
Temperature	-40°C to 60°C (-40°F to 140°F) operating temperature
Water resistance	IEC 60529: IP67
Vibration	As per NEMA TS-2: 5~30 Hz; 0.5g double-amplitude
Electromagnetic immunity and emissions	FCC part 15 Subpart B; ICES-003 Issue 4; CISPR32 / EN55032; CISPR 24 / EN 55024
External I/O	<ul style="list-style-type: none"> • 2 inputs (Opto-isolated, DC polarized) • 2 outputs (Opto-isolated, dry)
External interface	1 x 10/100/1000 Base-T Ethernet port
Dimensions (HxWxD)	63 x 192 x 214 mm (2.5 × 7.6 × 8.5 in.) Height including sunshield for black version: 69 mm (2.7 in.)
Weight	2.29 kg (5.04 lb)
Available colors	Security white or black
EMC Directive (CE marking)	2004/108/EC

Network cable specifications

Hardware	Specification
Cable rating	CAT5e (special connector provided for IP67 rating)
Shielding	Shielded or unshielded
Conductor gauge	24 AWG
Conductor arrangement	Straight-through EIA-568A or EIA-568B
Cable diameter	The RJ45 connector that is shipped with the system accepts CAT5e cable diameters in the range 4.8 - 6.7 mm (0.19 - 0.26 in.).
Cable length	Maximum 100 m (330 ft)
Environmental	The network cable must be waterproof and UV-resistant, with a temperature rating appropriate for your climate.
PoE+ standard	Power-over-Ethernet; IEEE 802.3at Type 2 (25.5 W)

Input / output specifications

Hardware	Specification
Inputs	
Number of inputs	2
Input rating	0 VDC - 30 VDC
Guaranteed ON state threshold	5.75 V
Guaranteed OFF state threshold	4.80 V
Overvoltage protection	Included
Reverse voltage protection	Included
Input type	Opto-isolated, DC polarized
Outputs	
Number of outputs	2
Output rating	30 V / 100 mA
On-state voltage	Von = <1.0 V @ 2 mA Von = <2.5 V @ 100 mA
Overcurrent (overload) protection	Included

Hardware	Specification
Reverse voltage protection	Included
Output type	Opto-isolated, dry

Input / output cable specifications

Hardware	Specification
Cable diameter	The I/O cable assembly is compatible with cable diameters in the range 4 - 8 mm (0.16 - 0.31 in.). NOTE: Two different cable seals are included with the I/O cable assembly. Refer to the manufacturer's instructions to determine which seal to install for the diameter of cable you are using.
Wire gauge	The I/O cable assembly can support a maximum wire gauge of 20 AWG. The cable's voltage rating must be suitable for the SharpV I/O specifications and must conform to electrical codes in your region.
Weather rating	The cable must be waterproof, UV resistant, and must be rated for outdoor installation in accordance with your region.

SharpV mounting specifications

Hardware	Specification
Mounting bolts	Type M6
Mounting hole distance	70 mm (2.76 in.)
Mounting hole depth	9.5 mm (0.37 in.)

Part numbers



Component	Signification
A	SharpV prefix
B	Color: W (white) or B (black)
C	Range: <ul style="list-style-type: none"> S (standard): 2.75 - 18.25 m (9 - 60 ft) L (long range): 18.25 – 35 m (60 - 115 ft)

Component	Signification
D	Illumination: LED illumination in nanometers
E	Camera option: LC (LPR and context) or L (ITS - Intelligent Traffic Systems: LPR only)

SharpV fixed deployment overview

There are many tasks involved in deploying a fixed SharpV system. Use this overview as a reference to guide you through the process.

Preparing for the deployment

These are the tasks to perform before you go on site for the deployment. If you can't complete the tasks on this checklist, contact the your Genetec Inc. representative.

Task	Description	Where to find more information
<ul style="list-style-type: none"> Ensure a proper site survey has been completed. 	<p>The site survey should include the following information:</p> <ul style="list-style-type: none"> Camera name Camera installation height Camera pole distance from the road Road width Camera pan and tilt Camera reading distance (distance from camera to anticipated plate location) Screen shots from the <i>Field of View</i> tool Pictures of the camera location (pole and road) Expected vehicle speed maximums 	<ul style="list-style-type: none"> SharpV positioning guidelines on page 14
<ul style="list-style-type: none"> Fill out the <i>AutoVu fixed Deployment Questionnaire</i>. 	<p>The questionnaire helps you collect the information required to deploy the system, for example, contact information, site information, and details of the AutoVu™ system to be installed.</p>	<ul style="list-style-type: none"> To obtain a copy of the <i>AutoVu Fixed Parking Deployment Questionnaire</i>, contact your Genetec Inc. AutoVu™ representative.
<ul style="list-style-type: none"> Read the product-related release notes. 	<p>The release notes contain information about the current releases, as well as any known issues or limitations.</p>	<ul style="list-style-type: none"> Security Center Release Notes SharpV Release Notes
<ul style="list-style-type: none"> Send installation documentation to the electrical contractor that is responsible for mounting the camera. 	<p>An electrical contractor is required to do the following:</p> <ul style="list-style-type: none"> Mount the camera on the pole, wall, or ceiling. Run conduit from the NEMA box to the camera. Make the electrical connections at the camera and in the NEMA box. 	<p>Refer the Electrician to the <i>How to install and connect an AutoVu™ SharpV camera</i> document, which is included in the SharpV box.</p>

Task	Description	Where to find more information
<ul style="list-style-type: none"> Ensure that the electrical contractor understands where to mount the camera. 	<p>Provide the following information to the electrical contractor:</p> <ul style="list-style-type: none"> Installation location Mounting instructions, for example, top-mount, bottom-mount, or pole-mount Approximate installation angle 	<ul style="list-style-type: none"> Installation information can be provided based on the site survey.
<ul style="list-style-type: none"> Assign an IP address to the camera. 	<p>The SharpV must have a static IP address if you are adding the camera to the Archiver.</p> <p>It is recommended that you do this before the camera is mounted.</p>	<ul style="list-style-type: none"> Configuring SharpV network settings on page 42
<ul style="list-style-type: none"> Apply software updates and pre-configure the camera for installation. 	<p>For example, configure the context and the server IP address.</p> <p>It is recommended that you do this before the camera is mounted.</p>	<ul style="list-style-type: none"> Configuring SharpV analytics on page 56 Configuring where the SharpV sends its LPR data on page 66
<ul style="list-style-type: none"> Install Security Center. 	<p>Security Center should be installed on the server via remote connection before going on site.</p>	<ul style="list-style-type: none"> See the <i>Security Center Installation Guide</i>.
<ul style="list-style-type: none"> Configure the LPR Manager role in Security Center 	<p>The LPR Manager is the role that manages and controls LPR data from SharpV cameras.</p>	<ul style="list-style-type: none"> For information on configuring the LPR Manager, see the <i>Security Center Administrator Guide</i>.
<ul style="list-style-type: none"> (Optional) Create and configure permits in Security Center. 	<p>A permit is a type of entity that defines a single parking permit holder list.</p>	<ul style="list-style-type: none"> For information about permits, see the <i>Security Center Administrator Guide</i>.
<ul style="list-style-type: none"> (Optional) Create and configure hotlists. 	<p>To use hotlist entities in Security Center, you must create the hotlist, map it to a source text file, and configure it for your enforcement scenario.</p>	<ul style="list-style-type: none"> For information on creating hotlists, see the <i>Security Center Administrator Guide</i>.

Task	Description	Where to find more information
<ul style="list-style-type: none"> Confirm that the camera was installed correctly. 	The camera should be mounted, powered, and connected to the network before you arrive on site.	<ul style="list-style-type: none"> Contact the electrical contractor.
<ul style="list-style-type: none"> Configure firewall rules to allow incoming camera connections. 	If the camera must communicate with the customer's network over the Internet, ensure that the firewall port forwarding rules are enabled. Get the public IP address of the server for configuration of the cameras.	<ul style="list-style-type: none"> Confirm with the customer's IT department.

On site tasks

These are the tasks to perform while on site. If you can't complete the tasks on this checklist, contact the your Genetec Inc. representative.

Task	Description	Where to find more information
<ul style="list-style-type: none"> Have your initial site survey on hand to help determine if the camera is installed in the correct location. 	Confirm that the camera placement and cable connections are correct.	<ul style="list-style-type: none"> SharpV camera mounting SharpV network cable connection SharpV I/O cable connections
<ul style="list-style-type: none"> Aim the camera and calibrate the focus and zoom. 	Have your initial site survey on hand to help determine the proper positioning, and angles. This will assist in the aiming of the camera.	<ul style="list-style-type: none"> SharpV positioning guidelines on page 14 Plate read distances for SharpV lenses on page 14 Calibrating the SharpV zoom and focus on page 44.
<ul style="list-style-type: none"> Add the camera in Security Center. 	<p>To receive plate reads in Security Center, you must add the camera to the LPR Manager. To view the context camera video feed in Security Center, you must add the camera to the Archiver.</p> <p>NOTE: Information on context cameras is not applicable to SharpV ITS cameras.</p>	<ul style="list-style-type: none"> Adding a SharpV camera to the LPR Manager on page 68 Adding a SharpV camera to the Archiver on page 69

Task	Description	Where to find more information
<ul style="list-style-type: none"> Test the system. 	At the end of the installation test the system to ensure that the hardware is functional, and perform a read report to test performance.	<ul style="list-style-type: none"> Generate LPR Performance results using the <i>Performance Analyzer Tool</i>.
<ul style="list-style-type: none"> Provide operator training to the end user. 	The <i>Security Desk User Guide</i> describes Security Desk features and commands, and provides instruction on how to perform tasks, such as live monitoring of events, video playback and instant replay, report generation, alarm management, and visitor management.	<ul style="list-style-type: none"> For AutoVu operator training information, see the <i>Security Desk User Guide</i>.

Finalizing the deployment

These are the tasks to perform after the camera is installed and configured. If you can't complete the tasks on this checklist, contact the your Genetec Inc. representative.

Task	Description
<ul style="list-style-type: none"> Prepare a <i>Deployment Field Report</i>. 	<p>You must send the <i>Deployment Field Report</i> to Autovu.deployment@genetec.com</p> <p>The report should include:</p> <ul style="list-style-type: none"> Installation date Contact information Security Center information Hardware information Camera name, serial number from the camera (yellow sticker). Logon password (if different from default). Wiring information Network information Site survey information and any changes to the original site survey LPR performance results Installation photos Completion status (action plan to be provided if not 100% complete) Special notes
<ul style="list-style-type: none"> Follow up with the customer. 	Follow up 1 to 2 weeks after the deployment to ensure customer satisfaction.

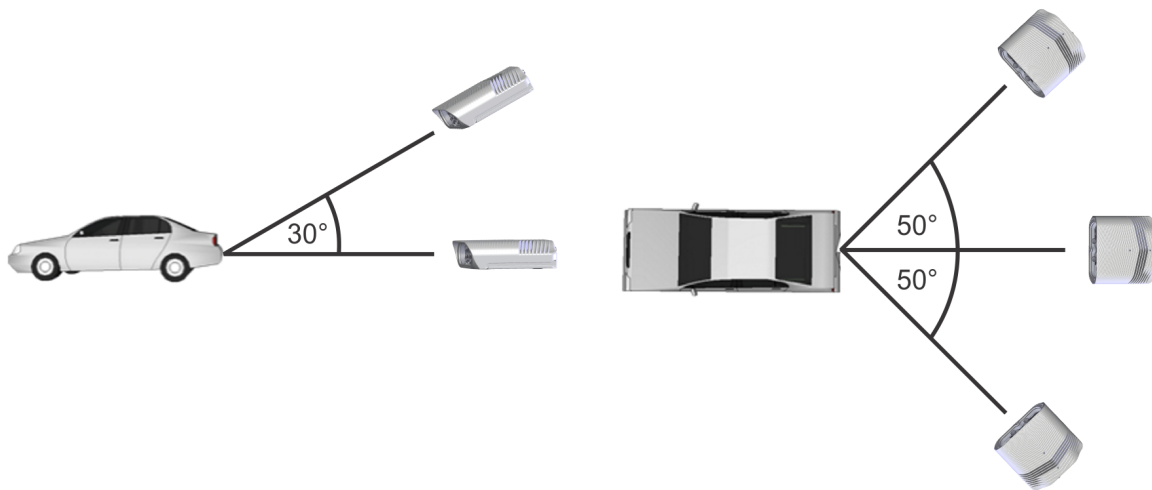
SharpV positioning guidelines

To achieve the most accurate plate reads, you must install the SharpV camera at the correct angle and distance from the area where you expect vehicles to pass.

Consider the following when selecting a position for the SharpV camera:

Camera angle:

To capture plates on vehicles that are traveling at high speeds, such as on a highway, reduce the camera's horizontal and vertical angles. Reducing the angles increases the amount of time a vehicle remains in the camera's field of view and increases the chances of a successful plate read. The angle of the camera can deviate from a straight-on view by up to 30° vertically and up to 50° horizontally.



Distance from plate:

Because the SharpV camera has an adjustable zoom and focus, you can install the camera within a certain distance of the plate read location you have chosen. Using the SharpV Portal, you must then adjust the zoom and focus so that license plate characters are the correct size (pixel height) for accurate plate reads. For more information about setting the zoom and focus, see [Calibrating the SharpV zoom and focus](#) on page 44.

The SharpV is available with lens and illuminator combinations to support the following reading ranges:

- **Standard:** Capture plate reads at a distance of 2.75 - 18.25 m (9 - 60 ft) from the camera.
- **Long-range:** Capture plate reads at a distance of 18.25 – 35 m (60 - 115 ft) from the camera.

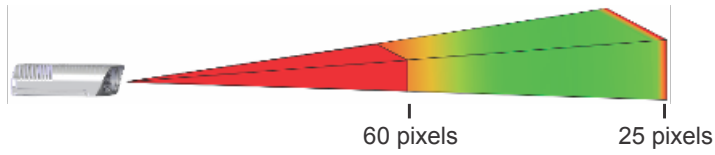
Related Topics

[Calibrating the SharpV zoom and focus](#) on page 44

Plate read distances for SharpV lenses

The maximum plate reading distance and field of view that SharpV cameras can support depend on the lens type and zoom setting of the camera.

For optimal performance, respect the following installation distances for standard and long-range SharpV cameras.



Lens type	Zoom level	60 pixels (maximum)	25 pixels (minimum)
Standard lens	Reading distance	2.75 m (9 ft)	18.25 m (60 ft)
Long-range lens	Reading distance	18.25 m (60 ft)	35 m (115 ft)

Network cable requirements for SharpV cameras

The SharpV connects to the network, using a standard CAT5e network cable (not included). Consult this list of specifications when selecting and preparing the network cable.

Network cable specifications

Hardware	Specification
Cable rating	CAT5e (special connector provided for IP67 rating)
Shielding	Shielded or unshielded
Conductor gauge	24 AWG
Conductor arrangement	Straight-through EIA-568A or EIA-568B
Cable diameter	The RJ45 connector that is shipped with the system accepts CAT5e cable diameters in the range 4.8 - 6.7 mm (0.19 - 0.26 in.).
Cable length	Maximum 100 m (330 ft)
Environmental	The network cable must be waterproof and UV-resistant, with a temperature rating appropriate for your climate.
PoE+ standard	Power-over-Ethernet; IEEE 802.3at Type 2 (25.5 W)

RJ45 IP67 connector assembly

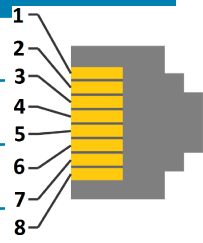
The SharpV is shipped with an IP67-rated RJ45 connector assembly that must be used to weatherproof the network cable termination in outdoor installations. For more information, see the installation instructions included with the RJ45 IP67 connector assembly.

IMPORTANT: You must pass the cable through the cable fitting and the plug housing assembly **before** creating the network cable termination.

Network cable termination

- One RJ45 connector is included with the IP67 connector assembly. The IP67 connector assembly supports standard shielded or unshielded RJ45 connectors.
- Terminate the network cable with a straight-through EIA-568A or EIA-568B conductor arrangement.

Pin #	EIA-T568A	Pin #	EIA-T568B
1	White/Green	1	White/Orange
2	Green	2	Orange
3	White/Orange	3	White/Green
4	Blue	4	Blue
5	White/Blue	5	White/Blue



Pin #	EIA-T568A	Pin #	EIA-T568B
6	Orange	6	Green
7	White/Brown	7	White/Brown
8	Brown	8	Brown

Network cable power

Power is supplied to the SharpV through the network cable, using PoE+. Power the network cable, using one of the following methods:

- **PoE+ switch or router:** Connect a network cable that has a maximum length of 100 m (330 ft) to a PoE+ (Power-over-Ethernet; IEEE 802.3at Type 2 (25.5 W)) Ethernet switch port.
- **PoE+ power injector:** If you are using a non-PoE switch, a PoE+ injector needs to be added between the SharpV and the switch. The total length of the network cable that runs between the SharpV and the switch must not exceed 100 m (330ft).

IMPORTANT:

- Not all hardware that is labeled "PoE+" meets the IEEE 802.3at standard that is required for use with the SharpV.
- The switch or injector might have the capability to provide PoE+, but the feature might need to be enabled in the device's configuration settings. If settings exist for PoE+ or for Link Layer Discovery Protocol (LLDP), enable these settings.
- Ensure that the total power consumption of all hardware connected to the PoE+ source does not exceed the power budget of the PoE+ source. Each SharpV camera must be supplied with 25.5 W.

Lightning protection

The SharpV includes basic lightning surge protection. PoE+ injectors, and PoE+ switches are usually equipped with basic lightning surge protection (verify hardware specifications). For installations in [areas that are subject to frequent high-energy lightning surges](#), it is recommended to protect the network cable using one or more of the following additional protective measures:

- A grounded metallic conduit.
- An external surge protector that is compatible with Gigabit Ethernet (1000BT) PoE+ systems (Power-over-Ethernet; IEEE 802.3at Type 2 (25.5 W)).
- A shielded Ethernet cable that has a grounded RJ45 connector at the PoE+ injector or PoE+ Ethernet switch.

SharpV input/output cable termination

The SharpV includes two inputs and two outputs (I/O). You can configure the SharpV to use an input signal to trigger a license plate read. When using the SharpV in conjunction with Security Center, you can create event-to-actions so that inputs and outputs react to system events.

SharpV I/O specifications

Hardware	Specification
Inputs	
Number of inputs	2
Input rating	0 VDC - 30 VDC
Guaranteed ON state threshold	5.75 V
Guaranteed OFF state threshold	4.80 V
Overvoltage protection	Included
Reverse voltage protection	Included
Input type	Opto-isolated, DC polarized
Outputs	
Number of outputs	2
Output rating	30 V / 100 mA
On-state voltage	Von = <1.0 V @ 2 mA Von = <2.5 V @ 100 mA
Overcurrent (overload) protection	Included
Reverse voltage protection	Included
Output type	Opto-isolated, dry

I/O cable specifications

Hardware	Specification
Cable diameter	The I/O cable assembly is compatible with cable diameters in the range 4 - 8 mm (0.16 - 0.31 in.). NOTE: Two different cable seals are included with the I/O cable assembly. Refer to the manufacturer's instructions to determine which seal to install for the diameter of cable you are using.

Hardware	Specification
Wire gauge	The I/O cable assembly can support a maximum wire gauge of 20 AWG. The cable's voltage rating must be suitable for the SharpV I/O specifications and must conform to electrical codes in your region.
Weather rating	The cable must be waterproof, UV resistant, and must be rated for outdoor installation in accordance with your region.

Lightning protection

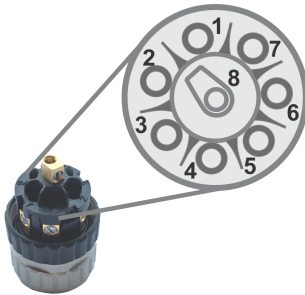
The SharpV I/O cable port includes basic lightning surge protection. For installations in [areas that are subject to frequent high-energy lightning surges](#), it is recommended that you protect the I/O cable using one or more of the following additional protective measures:

- A shielded cable with the shield grounded at the I/O device.
- An external lightning protector for I/Os that complies with the normal voltage range of the circuits to which the I/Os are connected.

I/O cable termination

Terminate the I/O cable with the I/O cable assembly, according to the instructions included with the hardware.

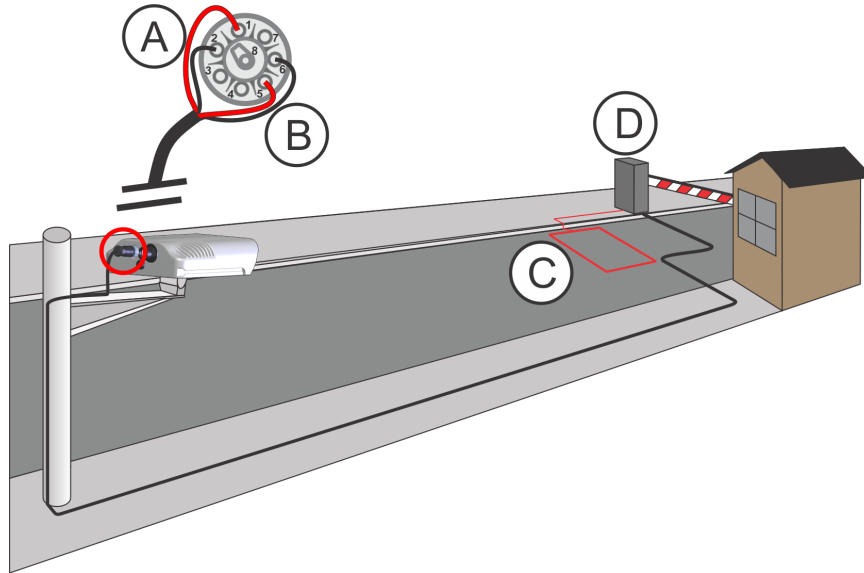
The following pinout diagram corresponds to the SharpV inputs and outputs:



I/O cable assembly pin number	SharpV input or output
Pin #1	Output 1 +
Pin #2	Output 1 -
Pin #3	Output 2 +
Pin #4	Output 2 -
Pin #5	Input 1 +
Pin #6	Input 1 -
Pin #7	Input 2 +
Pin #8	Input 2 -

Example:

In this example, the signal from the inground loop is used to trigger the gate after a plate read. To configure the SharpV inputs and outputs to perform this function, you must create event-to-actions for license plate reads in Security Center. For more information on creating event-to-actions for license plate reads, see the *Security Center Administrator Guide*.

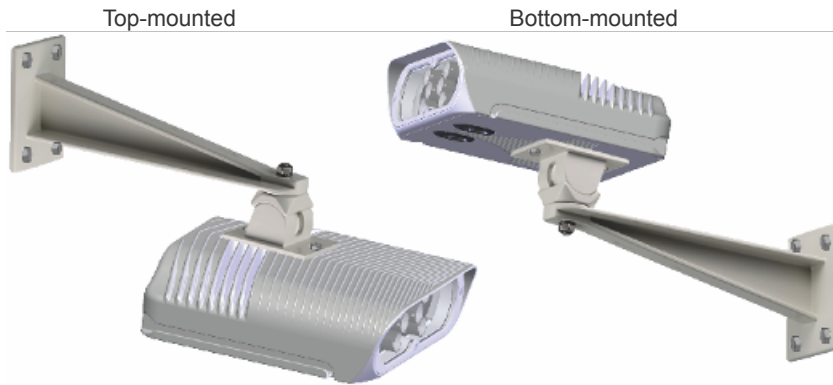


Component	Description
A	Input signal from the inground loop to SharpV input 1 or 2
B	Output signal to the gate controller from SharpV output 1 or 2
C	Inground loop (input device)
D	Gate (output device)

Guidelines for mounting a SharpV camera

Use the mounting bracket that is provided with your SharpV camera to mount the camera in either the top-mounted or bottom-mounted position.

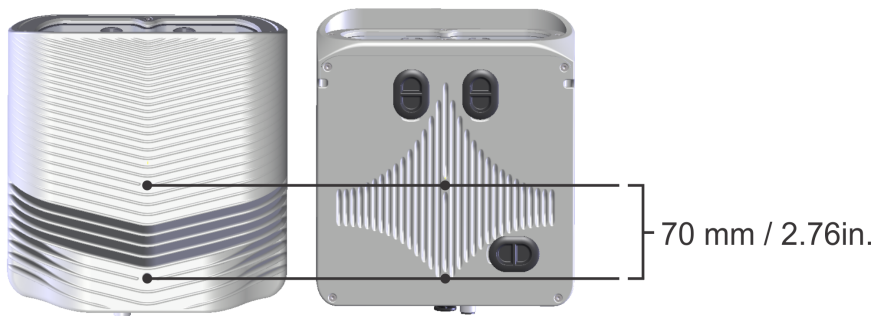
IMPORTANT: Before mounting the camera, make sure that the installation distance and angle respect the SharpV requirements. See [Plate read distances for SharpV lenses](#) on page 14.



Mounting specifications

The supported mounting brackets use the following hole pattern:

Hardware	Specification
Mounting bolts	Type M6
Mounting hole distance	70 mm (2.76 in.)
Mounting hole depth	9.5 mm (0.37 in.)



- The SharpV body is made of cast aluminum. Using excessive force when tightening the mounting bolts can strip the threads and permanently damage the camera.
- If you are installing a black SharpV, two sets of mounting bolts are provided. The longer (25 mm) bolts must only be used for top-mounted installations that include the sunshield. The sunshield is required for black SharpV cameras that are installed outdoors.

WARNING: Only use the longer bolts for top-mounted installations that include the sunshield.

- Always install the provided external serrated lock washers between the bolt head and the flat washer.

WARNING: Failure to install the provided lock washers might cause the mounting bolts to loosen over time. Genetec Inc. is not responsible for any injury resulting from improper mounting.

- The maximum depth of the mounting holes is 9.5 mm (0.37 in.). If you are not using the camera mount that is provided, you must calculate the required length of the mounting bolts to ensure that they penetrate the camera body to a depth in the range 6 mm - 9.5 mm (.24 in. - 0.37 in.). For information about the length of mounting bolts, see [About the SharpV sunshield](#) on page 23.

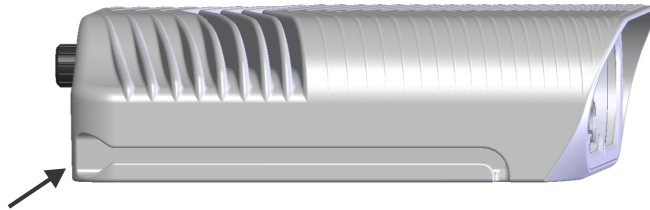
WARNING: The camera body can be permanently damaged if you exceed the recommended bolt penetration depth.

- When tightening the mounting bolts, ensure that the torque does not exceed 4N-m (3ft-lb).

WARNING: The camera body can be permanently damaged if you exceed the maximum bolt torque.

T-slots

The SharpV camera includes t-slots on the side of the camera that support M5 bolts. You can use the t-slots to implement a custom mounting solution.



T-slot for custom mounting solutions.

Available Videotec mounting brackets

A Videotec WBJA (white) or WBJF (black) mounting bracket is included with the SharpV. If the provided bracket is not suitable for the installation, you can purchase a suitable bracket from a Videotec reseller.

For a full list of compatible Videotec mounting brackets, see the [Videotec brackets datasheet](#).

IMPORTANT: If you purchase a Videotec mounting bracket, ensure that the mounting plate of the bracket you have selected has the same thickness as the provided bracket (WBJA/WBJF). If required, add washers to shim accordingly, so that you do not exceed the maximum bolt depth of 9.5 mm (0.37 in.).

Compatible Videotec mounts

The following Videotec mounts are compatible with the SharpV mounting holes:

Camera mount	Description
WBJA	Housing wall bracket with ball joint (white) Available from Genetec Inc.
WBJF	Housing wall bracket with ball joint (black) Available from Genetec Inc.
WFWCA	Parapet mount with ball joint
WCM3A	Ceiling bracket with ball joint
WCM5A	Ceiling mount with ball joint
WCPA	Wall bracket adapting plate

Camera mount	Description
WCWA	Corner adapter for WBJA, WBMA, WBOVA2, PTAC
WSFPA	WBJA, WBMA, WBOVA2, PTAC pole-mount adapter
DBHWGC	Pole adapter diameter in the range of 8.2 - 8.85 in (210 - 225 mm). Requires WCPA for housing installation with WBOV2 or WBJA.

Videotec customer support

For information about compatible Videotec mounts, contact your Videotec representative:

- **Americas:** Tel: +1 518-825-0020 Email: info.usa@videotec.com
- **APAC:** Tel: 852 2333 0601 Email: info.hk@videotec.com
- **EMEA:** Tel: 39 0445 697411 Email: info@videotec.com
- **France and French-speaking countries in Africa:** Tel: 33 1 60491816 Email: info.fr@videotec.com

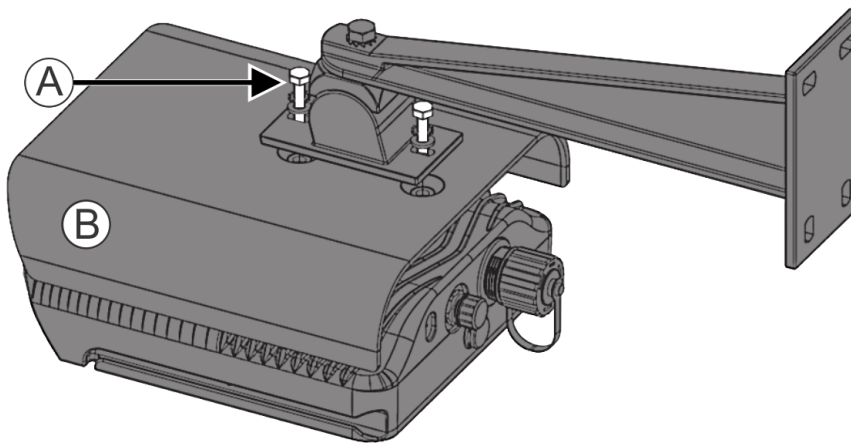
For a full list of contacts, see http://www.videotec.com/en/page_556.html.

About the SharpV sunshield

If you order a black SharpV, it is shipped with a sunshield that is pre-installed on the camera. To avoid damaging the SharpV, you must use the correct mounting screws.

WARNING: For top-mounted installations, when attaching the SharpV to the provided mounting bracket, you must remove the 16 mm bolts and use the provided 25 mm bolts.

WARNING: If you remove the sunshield, discard the 25 mm bolts. Using the 25 mm bolts without the sunshield can damage the mounting hole threads. Genetec Inc. does not honor warranty claims for stripped mounting holes.

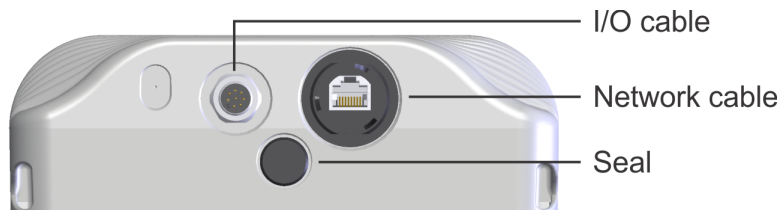


A	Mounting bolts	Use 25 mm bolts only when mounting a SharpV, that has a sunshield, in the top-mounted position.
B	Sunshield	Sunshields are included for black SharpV cameras and are required for outdoor installations.

SharpV cable connections

The SharpV I/O cable and network cable connections are located on the back of the camera.

- For more information on creating the I/O cable termination, see [SharpV input/output cable termination](#) on page 18
- For more information on the network cable connection, see [Network cable requirements for SharpV cameras](#) on page 16



Troubleshooting for SharpV fixed installation

This section includes the following topics:

- ["LED status on the SharpV camera unit"](#) on page 26

LED status on the SharpV camera unit

The status LED on the SharpV camera unit responds according to the status of the system.

The following table describes how the SharpV camera's LED behaves in response to the SharpV system's status:



State	Description	LED (red or green)
Off	Unit is powered-off.	Off
Covert mode	The camera is configured in covert mode. Following camera startup, the LED is deactivated.	Off
Catastrophic failure	The camera is shut down due to a critical error, for example, an over-temperature alarm. In this state, you cannot connect to the camera.	Slow red blinking (0.5 seconds off – 0.5 seconds on)
Major failure	Plate Reader is down. You might be able to connect to the camera and you might be able to see the logs.	Three red blinks per second
Performance issues or minor failure	Plate Reader is running with important performance issues, for example, failure of the illuminator .	One short red blink per second
PoE+ failure	The PoE power supply has failed to negotiate IEEE 802.3at (POE+, or 25.5 W). PlateReader will not run, but the SharpV web portal might be accessible. Check the logs for more information. The power supply is not POE+ compatible, or it is disabled (PoE+ and LLDP must be expressly enabled in some switches).	One long red blink and one short green blink per second
Camera update	Plate Reader is down during the camera update, but is expected to come back online after the update is complete.	Five green blinks per second

State	Description	LED (red or green)
Locate camera	After clicking Blink LED in the SharpV web portal, the LED blinks for 10 seconds.	Slow red and green alternating (0.5 seconds each)
Focus mode	The camera's focus and zoom are being adjusted in the SharpV web portal.	Fast red and green alternating (0.25 seconds each)
Normal mode	The camera is running normally.	Solid green
Camera startup	The camera is booting up.	One green blink per second

Introduction to the SharpV web portal

This section includes the following topics:

- ["Logging on to the SharpV web portal"](#) on page 29
- ["SharpV web portal interface overview"](#) on page 30
- ["Changing your logon password in the SharpV web portal"](#) on page 31
- ["Rebooting cameras from the SharpV web portal"](#) on page 32
- ["Importing and exporting settings in the SharpV web portal"](#) on page 33
- ["Synchronizing the SharpV clock"](#) on page 34

Logging on to the SharpV web portal

To configure SharpV cameras, you must first log on to the web portal.

Before you begin

- Install Internet Explorer 11 on your machine. The SharpV web portal supports Internet Explorer 11 **only**.
- You need to know the IP address or name of the SharpV camera you want to connect to:
 - **SharpV name:** You can find the SharpV name (for example, SharpV12345) on the label on the back of the camera.
 - **SharpV 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.

To log on to the SharpV web portal:

- 1 Open your Web browser, and go to `http://<SharpV name or IP address>`.

Example:

- If the SharpV camera's IP address is 192.168.10.100, enter `http://192.168.10.100`.
- If the SharpV camera's name is SharpV12345, enter `http://SharpV12345`.

- 2 Enter the **Username** and **Password**.

Default for first logon: Username: admin, Password: Genetec

- 3 Click **Connect**.

If this is the first time you are logging on to the SharpV:

- 1 Select the power line frequency and click **Next**.
 - **60 Hz:** Generally used in North America and South America
 - **50 Hz:** Generally used in Africa, Australia, Asia, and Europe

For more information on the power line frequency used in your installation location, [click here](#).

- 2 Change the password.

Enter and confirm the new password, and click **Next**.

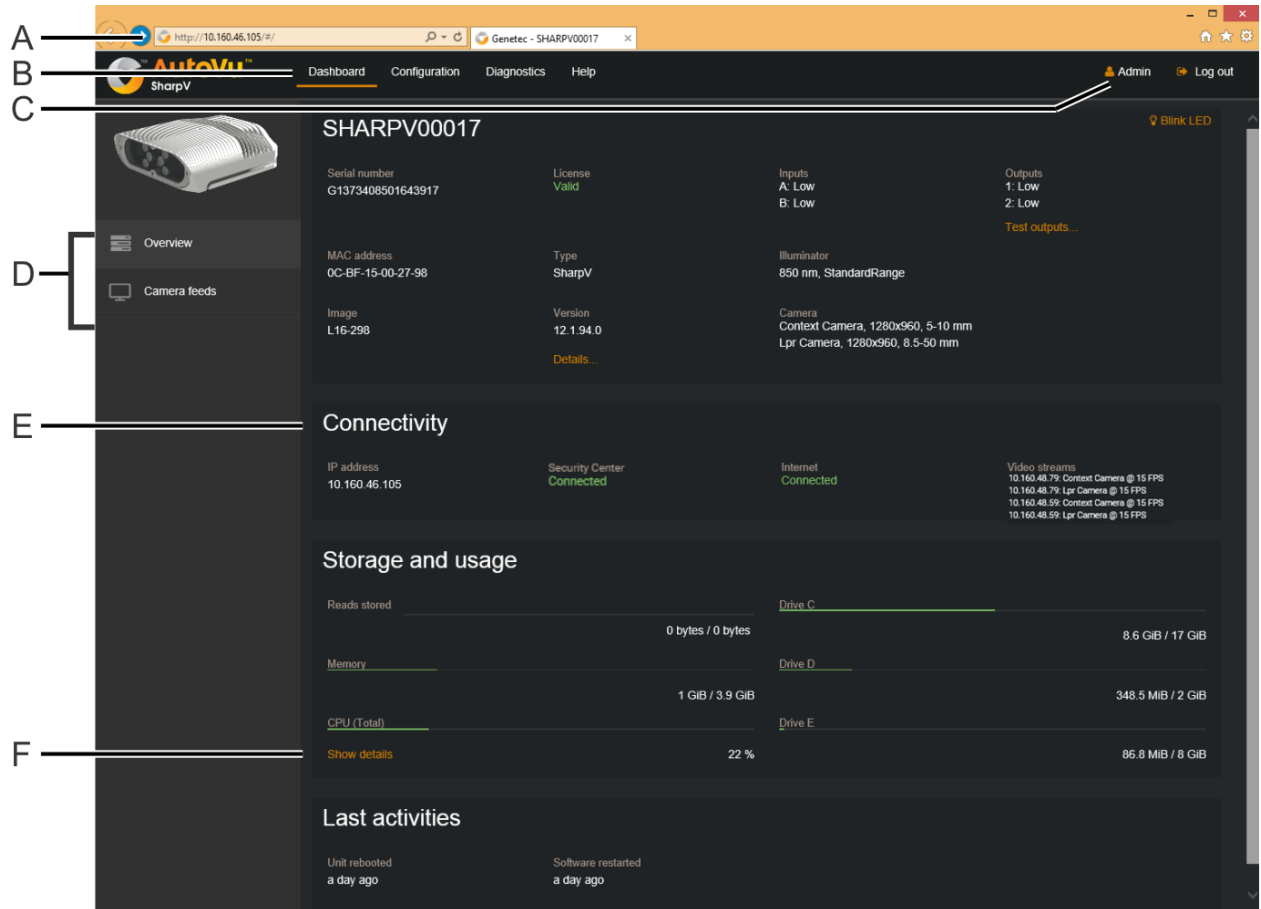
WARNING: If you forget your password, it cannot be retrieved or reset. The camera must be returned to us for service.

NOTE: You cannot modify the username.

After successfully logging on, the web portal for the SharpV camera opens to the **Overview** page of the **Dashboard** menu.

SharpV web portal interface overview

To familiarize yourself with the SharpV web portal, you can take a tour of the main areas of the user interface.



A	SharpV web portal address	Type the SharpV name or the IP address. The format is <code>http://Sharp12345</code> or <code>http://192.168.10.100</code>
B	Menu	Displays the main categories of the SharpV web portal.
C	Current user	Shows the current user 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.

Changing your logon password in the SharpV web portal

For security reasons, you might need to change the logon password for the SharpV camera. You can do this in the SharpV web portal.

What you should know

You are required to change the default password when you first log on to the SharpV web portal.

WARNING: If you forget your password, it cannot be retrieved or reset. The camera must be returned to Genetec Inc. for service.

To change your password:

- 1 [Log on to the SharpV web 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**.

Rebooting cameras from the SharpV web portal

Certain configuration procedures require you to reboot the SharpV camera. You can do this from the SharpV web portal.

To reboot the SharpV:

- 1 [Log on to the SharpV web portal.](#)
- 2 From the **Configuration** menu, select the **Maintenance** page.
- 3 Click the **Reboot unit** button.

The connection to the SharpV web portal is momentarily lost.

- 4 Wait approximately 2 minutes to allow the SharpV web portal to restart.

Importing and exporting settings in the SharpV web portal

You can export SharpV settings for use as diagnostic information if required by Genetec™ technical support. You can also use the exported settings file to restore the configuration of the SharpV unit or to copy the configuration to another unit.

What you should know

WARNING: When you import settings to a SharpV, the camera's current configuration is lost.

To export SharpV settings:

- 1 [Log on to the SharpV web portal](#) of the SharpV that you want to export settings from.
- 2 From the **Configuration** menu, select the **Maintenance** page.
- 3 From the **Settings** section, click **Export settings**.
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-2016-10-25_12_49_36`.

To import SharpV settings:

- 1 [Log on to the SharpV web portal](#) of the SharpV that you want to import settings to.
- 2 From the **Configuration** menu, select the **Maintenance** page.
- 3 From the **Settings** section, click **Import settings**.
- 4 Enter the path and filename, or browse to the ZIP file with the SharpV settings you want to import and click **Yes, import**.
- 5 Follow the on-screen instructions and import the settings to the camera.

Synchronizing the SharpV clock

You can configure the SharpV camera to synchronize time and date settings with the computer you are using to access the SharpV web portal. Alternatively, you can synchronize the date and time with an NTP server or with the Security Center server.

What you should know

- The SharpV unit automatically synchronizes clocks with its server whenever the Plate Reader service is restarted, unless the **No synchronization** option is selected.
- If you select **Synchronize with client browser now**, the camera performs a one-time synchronization with the date and time of the client browser.
- If you select **No synchronization**, the camera keeps its internal time indefinitely.
- If you select **NTP server**, the date and time update according to your selection every hour.

To synchronize the SharpV clock:

1 [Log on to the SharpV web portal](#).

2 From the *Configuration* menu, select the **Date and time** page.

3 Select one of the following options:

- **No synchronization:** The camera does not synchronize with any server.

If you select **Synchronize with client browser now**, the camera performs a one-time synchronization with the date and time of the client browser.

IMPORTANT: Do not synchronize the SharpV clock with the client browser unless you are connecting to the SharpV web portal from the server (computer hosting the LPR Manager role). If you synchronize clocks with a computer other than the server, the camera's reads and hits might not have accurate timestamps.

- **NTP server:** The camera synchronizes with an NTP server. Typically, the NTP server is 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 of the machine running the NTP server. Clicking **Test connection** tests the connection between the camera and the NTP server. The camera synchronizes with the NTP server every hour.
- **Active extension:** If you select **Active extension (Security Center)**, the camera's date and time are synchronized with the Security Center server that the camera is connected to. The camera synchronizes with the **Security Center** server upon connection, then again every 24 hours.

NOTE: If you have not yet configured the active extension (see [Configuring where the SharpV sends its LPR data](#) on page 66), you can select **Active extension (none)**, 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 **Security Center** (not valid for FTP, HTTP, and so on).

4 Click **Save**.

SharpV software configuration

This section includes the following topics:

- ["Security configuration in SharpV Portal"](#) on page 36
- ["Encrypting connection to the SharpV using a self-signed certificate"](#) on page 37
- ["Encrypting connection to the SharpV using a signed certificate"](#) on page 40
- ["Configuring SharpV network settings"](#) on page 42
- ["Viewing the camera feeds from a SharpV camera"](#) on page 43
- ["Calibrating the SharpV zoom and focus"](#) on page 44
- ["About SharpV exposure adjustment for indoor installations"](#) on page 49
- ["About SharpV exposure adjustment for outdoor installations"](#) on page 51
- ["Connecting to a SharpV camera using the fallback IP address"](#) on page 55
- ["Configuring SharpV analytics"](#) on page 56
- ["Configuring where the SharpV sends its LPR data"](#) on page 66
- ["Configuring the SharpV FTP extension"](#) on page 70
- ["Configuring the SharpV HTTP extension"](#) on page 72
- ["Configuring Syslog for SharpV log files"](#) on page 75

Security configuration in SharpV Portal

The first time you connect to the SharpV web portal, it is over a non-encrypted HTTP connection, which means that anyone on the network can read the data transmitted (including the password).

It is always recommended that you use the HTTPS protocol to log on to the SharpV web portal. This is especially important if you are on a public network. Using HTTPS ensures that logon credentials and the data transmission (except for video feeds) are encrypted.

After you connect to the SharpV web portal, you can configure it to accept logons with SSL encryption (HTTPS), using an SSL certificate. You can either generate a self-signed SSL certificate for the SharpV using the tools provided in the portal, or use a signed certificate from a Certificate Authority such as VeriSign.

Related Topics

[Encrypting connection to the SharpV using a self-signed certificate](#) on page 37

[Encrypting connection to the SharpV using a signed certificate](#) on page 40

Encrypting connection to the SharpV using a self-signed certificate

You can secure the SharpV web portal by configuring it using HTTP Secure (HTTPS) using a self-signed SharpV certificate.

Before you begin

- Read about why the connection to the Sharp Portal [should be encrypted](#).
- **IMPORTANT:** If your Security Center version is 5.3 SR3 or higher, if you want to add the SharpV unit to the Archiver using HTTPS, you must modify the Archiver's HTTPS options using the instructions in the Knowledge Base article [KBA01405](#).
- If you are adding the SharpV to the Archiver using HTTPS, [configure the camera's network configuration](#) to use a static IP address before you install a certificate.

What you should know

- The first time you log on to the SharpV web portal, the system logs you on using HTTP mode (no certificate). Your organization's security policy might require that you configure either a self-signed certificate or a signed certificate from a trusted certificate authority.
- To install a certificate on a client machine, you require Administrator rights.
- You must install the certificate on all machines that communicate with the camera, for example, all machines that connect to the web portal.
- To install a certificate, the camera must be in HTTP mode and any existing certificate must be deleted. If a certificate is already installed, you must clear the **Use HTTPS** check box in the *Configuration > Security* page. After you reboot the camera, you must delete the currently installed certificate from the *Configuration > Security* page.
- For more information on installing certificates that are signed by a trusted authority, see [Encrypting connection to the SharpV using a signed certificate](#) on page 40.

To encrypt connection to the SharpV web portal using a self-signed certificate:

- 1 [Log on to the SharpV web portal](#) as an Administrator.
- 2 From the **Configuration** menu, select the **Security** page.
- 3 From the **Certificate** section, select **Create self-signed certificate**. Enter the required information for the certificate and click **OK**.

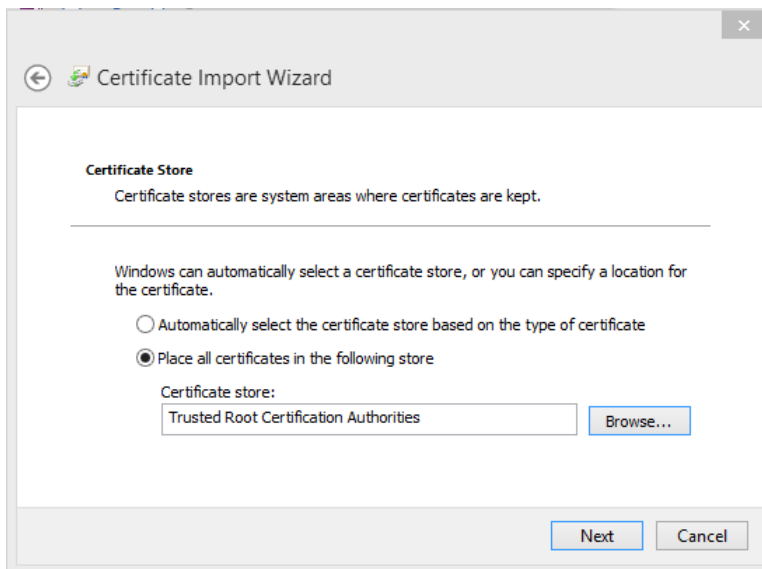
You must enter a two-letter **Country** code, the **Common name**, and you must define the **Validity (in years)**. The other fields are optional.

NOTE: If you are also using the certificate to connect to the Archiver, the **Common name** defined in the certificate must be the SharpV IP address, not the SharpV name.

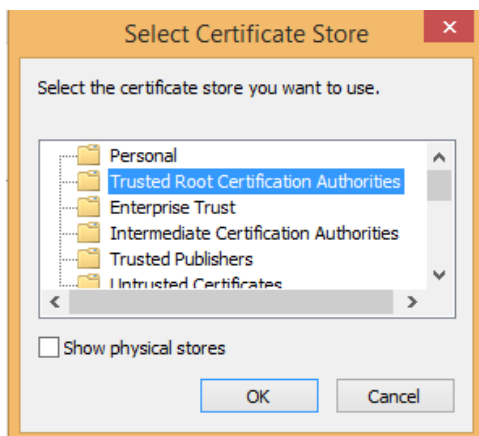
- 4 Click **Download self-signed certificate** and save the certificate file as prompted by your browser.
- 5 The Certificate Import Wizard prompts you to select a store location. Select **Local Machine** and click **Next**.



- 6 The wizard prompts you to select the certificate store you want to use. Select **Place all certificates in the following store** and click **Browse**.



- 7 From the **Select Certificate Store** window, select **Trusted root certification Authorities** and click **OK**.



- 8 Click **Next** to continue, and click **Finish** to close the *Certificate Import Wizard*. The system displays the message "The import was successful."

If you see a warning indicating that there is a problem with the website's security certificate, note that for the certificate to be properly registered, you must be logged on as an Administrator on the machine where you want to register the certificate.

9 From the **HTTPS connection policy** section, select **Use HTTPS**.

10 Click **Save**.

11 The system displays the message "You must reboot the unit for the changes to take effect". Click **Reboot unit**.

NOTE: You can also reboot the camera from the *Configuration > Maintenance* menu.

12 Log on to the SharpV web 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 SharpV with a secure connection.

After you finish

As a best practice, [change your password](#) after configuring the SharpV for HTTPS communication.

Encrypting connection to the SharpV using a signed certificate

You can secure the SharpV web portal connection by configuring the camera in secure HTTP mode (HTTPS) using a certificate that has been signed by a trusted certificate authority.

Before you begin

- Read about why the connection to the SharpV web portal [should be encrypted](#).
- **IMPORTANT:** If your Security Center version is 5.3 SR3 or higher, if you want to add the SharpV to the Archiver using HTTPS, you must modify the Archiver's HTTPS options using the instructions in the Knowledge Base article [KBA01405](#).
- If you are adding the SharpV to the Archiver using HTTPS, [configure the camera's network configuration](#) to use a static IP address before you install a certificate.

What you should know

- The first time you log on to the SharpV web portal, the system logs you on using HTTP mode (no certificate). Your organization's security policy might require that you configure either a self-signed certificate or a signed certificate from a trusted certificate authority.
- To install a certificate on a client machine, you require Administrator rights.
- You must install the certificate on all machines that communicate with the camera, for example, all machines that connect to the web portal.
- To install a certificate, the camera must be in HTTP mode and any existing certificate must be deleted. If a certificate is already installed, you must clear the **Use HTTPS** check box in the *Configuration > Security* page. After you reboot the camera, you must delete the currently installed certificate from the *Configuration > Security* page.

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

To encrypt the connection to the SharpV web portal using a signed certificate:

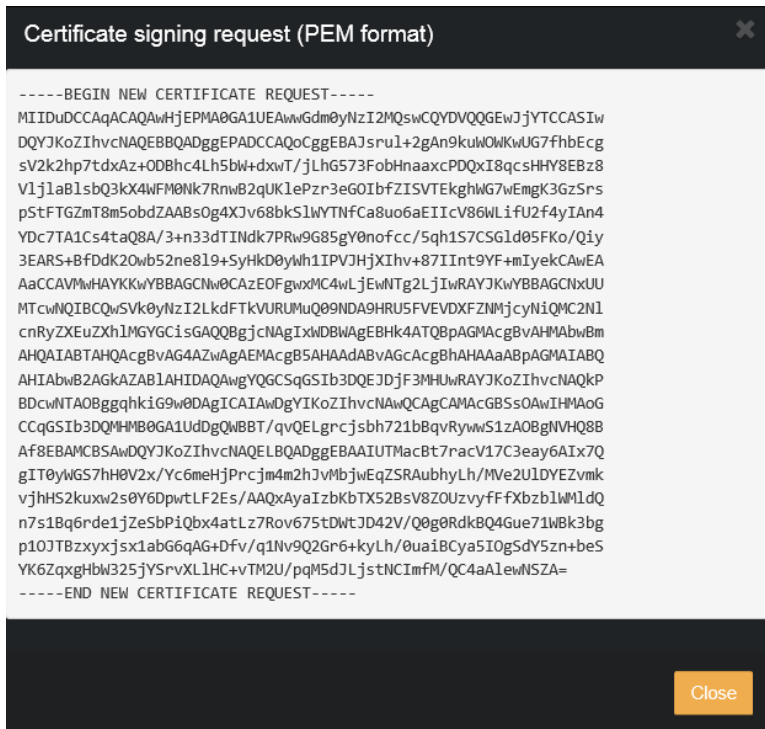
- 1 [Log on to the SharpV web portal](#) as an Administrator.
- 2 From the **Configuration** menu, select the **Security** page.
- 3 Click **Create certificate signing request**.
- 4 Enter the required information for the certificate signing request and click **OK**.

NOTE:

- The "Country" field requires a two-letter country code.
- If you are also using the certificate to connect to the Archiver, the **Common name** defined in the certificate must be the SharpV IP address, not the SharpV name.

The message "Operation succeeded" is displayed.

- 5 Click **Show request**.
- 6 In the **Certificate signing request** window, copy the text string (including the "----BEGIN NEW CERTIFICATE----" and "----END NEW CERTIFICAT REQUEST----") to your clipboard and click **Close**.



- 7 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.

- 8 Click **Install signed certificate** then browse to the certificate location and click **Open**.
The system displays the message "Installed signed certificate... successful".
- 9 From the **HTTPS connection policy** section, select **Use HTTPS** and click **Save**.
The camera saves the configuration and displays the message "Configuration saved successfully".
- 10 You are prompted to reboot the camera. Click **Reboot unit**. When the system comes back online, notice that the URL displays that you are in HTTPS mode and also displays the lock icon.

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

After you finish

As a best practice, [change your password](#) after configuring the SharpV for HTTPS communication.

Configuring SharpV network settings

You can configure the SharpV 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 on the Network page of the SharpV web portal.

To configure the SharpV's network settings:

- 1 [Log on to the SharpV web portal.](#)
- 2 From the **Configuration** menu, select the **Network** page.
- 3 Select one of the following:
 - **Use DHCP:** This is the default mode for SharpV cameras. Select DHCP if you are connecting the Sharp to a DHCP server, which assigns the required IP address. When you are on a DHCP server with DNS capability, you can connect to the SharpV using the SharpV name (for example, SharpV12345) rather than the IP address (for example, 192.186.10.100).

NOTE: The DHCP server used must be configured to provide IPv4 addresses, as IPv6 is currently not supported by SharpOS.
 - **Use static IP address:** Select this option to use a static address for the SharpV.

IMPORTANT: You must use a static IP address if you want to stream video to the Security Center Archiver role.
- 4 If you selected **Use static IP address** configure the following:
 - **IP address:** Type the new IP address you want to assign to the SharpV. 10.0.0.1 is the default.
 - **Subnet mask:** Type the new **Subnet mask** if applicable. 255.255.0.0 is the default.
 - **Gateway:** Type the new **Gateway** if applicable. 10.0.0.0 is the default.
 - **DNS:** Type the new **DNS** if applicable. 10.0.0.0 is the default.
- 5 Click **Save**.

Connecting to a SharpV camera using the fallback IP address

If you cannot connect to a SharpV camera on your network, you can try connecting to the camera by using the camera's fallback IP address.

What you should know

- You may need to connect to the camera using the fallback IP address if, for example, the DHCP server is not available.
- If the camera is powered up and is not connected to the network for a few minutes, the fallback IP address will be available.
- The fallback IP address is only available if the camera is in DHCP mode.

To connect to a camera using the fallback IP address:

- 1 If there is more than one Sharp camera on the network, isolate the camera by connecting it directly to a computer.
- 2 Connect to the camera using the fallback IP address (192.168.10.100).
- 3 Reconfigure the camera as required and reconnect to the network.

Viewing the camera feeds from a SharpV camera

Use the **Camera feeds** page to test if your SharpV camera units are working.

To view the camera feeds from a SharpV:

- 1 [Log on to the SharpV web portal](#) as an Administrator.
- 2 From the **Dashboard** menu, select the **Camera feeds** page.
- 3 From the **Camera** drop-down list, 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 **Camera** drop-down list, or close the browser.

Calibrating the SharpV zoom and focus

To ensure that the SharpV reads license plates clearly and that the plate characters appear in an acceptable size, you must adjust the zoom and focus of your SharpV camera.

Before you begin

- Install Internet Explorer 11 on your machine. The SharpV web portal supports Internet Explorer 11 **only**.
- Read about [optimal reading distance for plate reads](#) for the SharpV.
- Install a stationary license plate to adjust the SharpV camera's zoom and focus. If this necessitates closing a lane of traffic, observe all local regulations. Alternatively, you can adjust the zoom and focus by pointing the camera to the side of the street and placing the stationary plate at the expected distance for plate reads. When the camera is pointed back to the traffic lane, you must evaluate plate read images to adjust the focus.

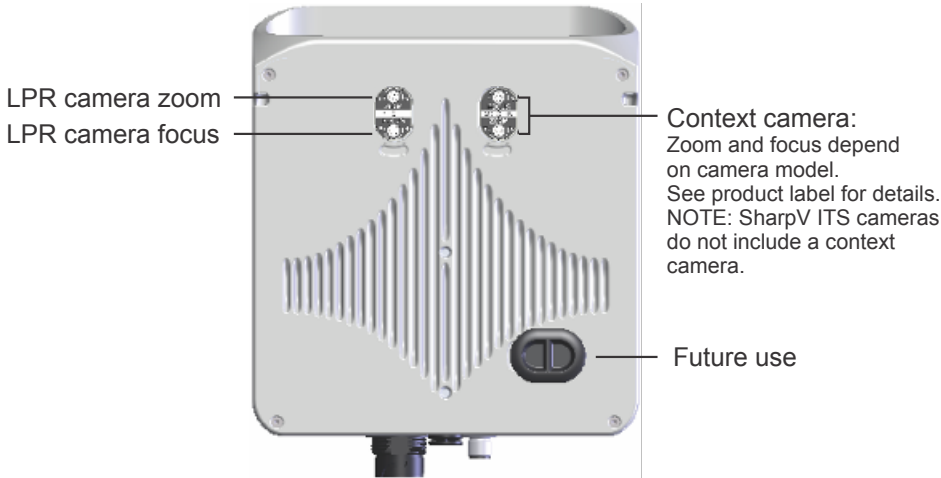
What you should know

- In the images acquired by the LPR camera, the optimal size of license plate characters is 30 pixels high. The system captures accurate plate reads if characters are between 25 and 60 pixels high.
- The position of the zoom and focus adjustment screws on the context camera might be reversed depending on whether you are installing the SharpV SR (Standard-Range) or LR (Long-Range). Refer to the product sticker on the camera for specific adjustment screw information.

NOTE: Information on context cameras is not applicable to SharpV ITS cameras.

Zoom and focus adjustment screws

The SharpV includes zoom and focus adjustment screws for the LPR camera and the context camera. You can access the adjustment screws by removing the rubber plugs on the bottom of the camera. A hex key is provided for making the adjustments.



The following information appears on the zoom / focus adjustment label:

Label	Description
Zoom: T/W	Telephoto/wide
Focus: F/N	Far/near
LPR / CTX	LPR camera/context camera
SR / LR	Standard range/long range

To adjust the zoom and focus of the LPR camera:

- 1 Open the SharpV web portal at <http://<Sharp name or IP address>> or <https://<Sharp name or IP address>>, if you have installed a certificate.
By default, the SharpV is configured to use DHCP. If no DHCP server is available on the network, you can use the IP address 192.168.10.100 to access the SharpV.

- 2 If this is the first time you are logging on the portal, you are prompted to change the password for security reasons. For more information, see [Logging on to the SharpV web portal](#) on page 29.

WARNING: If you forget your password, it cannot be retrieved or reset. The camera must be returned to Genetec Inc. for service.

- 3 Click **Configuration > Zoom and focus**.
- 4 From the **Select your camera** drop-down list, select the **LPR Camera**.
The live feed of the LPR camera is displayed.
- 5 Adjust the exposure as required for the best plate image.

NOTE: The SharpV camera only uses the exposure setting that are visible in the *Zoom and Focus* page during the adjustment process. After the camera has been adjusted, this setting is ignored and the camera returns to the configured exposition settings.

- 6 Adjust the camera's zoom level.
 - a) Select **Show ruler**. A ruler is displayed on the LPR camera image. Drag the ruler so that it appears next to the license plate.
 - b) Enter a new pixel (px) value to change the size of the ruler on the page to match the height of the license plate characters.
 - c) Adjust the zoom and alignment so that the image has the largest field of view and the longest plate transit time, while keeping the height of the plate characters in the image between 25 - 60 pixels. The optimal performance is 30 pixels.

TIP: Click on the license plate to use digital zoom. There are three zoom levels: 1:1, 2:1, and 4:1. A preview of the zoomed area is displayed in the top right corner of the image.

NOTE: When you change the camera's zoom level, the focus is lost. You need to perform a basic focus adjustment each time you change the zoom level so that you have a relatively clear view of the license plate.

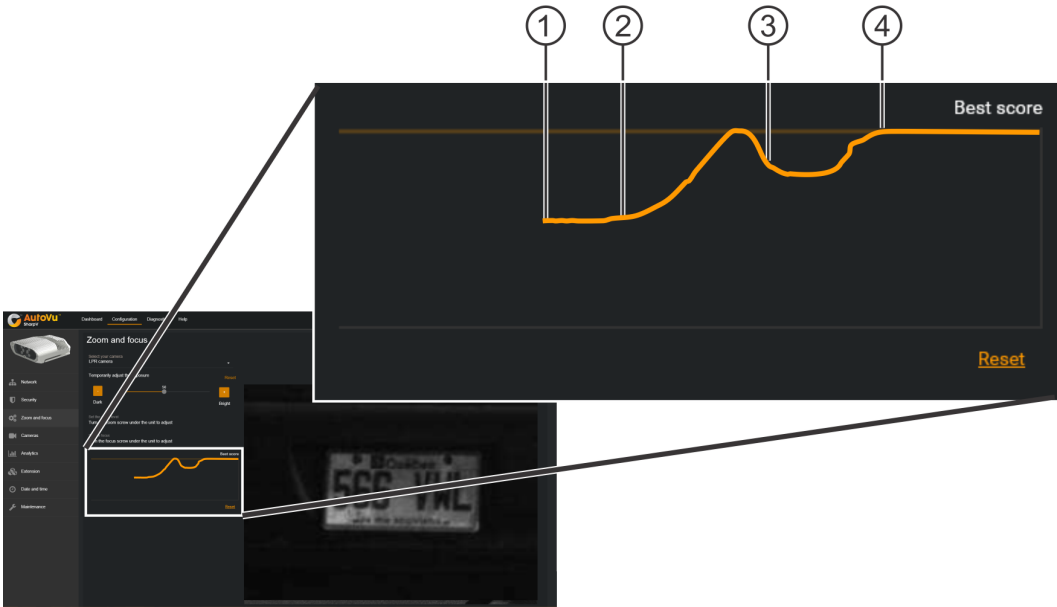


- 7 Adjust the camera focus.
 - a) Focus the camera on a stationary plate located at the mid-point of the vehicle's expected trajectory.
 - b) Click the image to digitally zoom in on the plate.

NOTE:

- Use the **Best score** graph to visually monitor when the optimal setting is reached for the focus while you are adjusting the screws on the bottom of the SharpV, two orange lines are displayed. The 'bold' orange line indicates the current focus value. The 'dim' orange line indicates the best focus that has been achieved since the graph was last reset.
- For best results, make sure that there is no movement in the camera's field of view when using the **Best score** graph.

Example:



- c) Click **Reset** to start the focus adjustment (1).
- d) Start turning the focus adjustment screw for the LPR camera (2). For this example, the screw is being turned clockwise.
Both the bold and dim orange lines move higher on the graph and are intersecting.
- e) At a certain point, the bold line starts to move lower on the graph and the lines are no longer intersecting (3). At this point you have exceeded the best focus.
It is important to note that the dim orange line now displays the best focus point.
- f) Start turning the adjustment screw in the opposite direction (for this example, counter-clockwise).
- g) When the bold line reaches the level of the dim line (4), the focus adjustment is completed. Click **Done**.

To adjust the zoom and focus of the context camera:

Adjust the context camera using the same method described for the LPR camera, with the following exceptions:

- You can focus the camera's context image based on the image's sharpness, but you can also use the graph tool to help you fine-tune the focus.
- The pixel height of the license plate characters is not important when adjusting the context camera. You must only ensure that the vehicle is clear and recognizable in the image.
- If you need to adjust the zoom and focus of the context camera in low light conditions, enable the IR illuminator. To enable the IR illuminator, click **Configuration > Zoom and focus > Enable flash**. The IR illuminator enables you to see the image more clearly; however, the video feed from the context camera is converted to a black and white image.
- If you adjust the zoom and focus of the context camera in very bright conditions (sunlight), you might need to use very low level on the exposure level slider. At very low levels, the camera iris aperture is reduced. If the focus is adjusted in this position, the result might not be optimal because focus quality can degrade in lower light conditions. The web portal displays a warning to indicate when such conditions exist. To achieve the best possible focus quality, you should not adjust the focus in very bright sunlight.

NOTE: Information on context cameras is not applicable to SharpV ITS cameras.

- 8 Click **Done**.

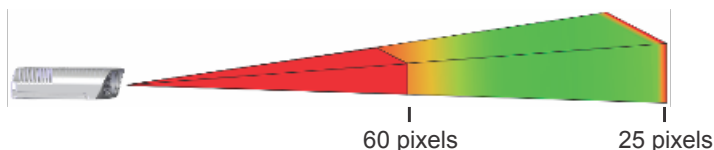
Related Topics

[SharpV positioning guidelines](#) on page 14

Plate read distances for SharpV lenses

The maximum plate reading distance and field of view that SharpV cameras can support depend on the lens type and zoom setting of the camera.

For optimal performance, respect the following installation distances for standard and long-range SharpV cameras.



Lens type	Zoom level	60 pixels (maximum)	25 pixels (minimum)
Standard lens	Reading distance	2.75 m (9 ft)	18.25 m (60 ft)
Long-range lens	Reading distance	18.25 m (60 ft)	35 m (115 ft)

About SharpV exposure adjustment for indoor installations

By default, the SharpV is configured to automatically adjust exposure settings for changing light conditions when capturing license plate reads. Alternatively, if you are installing a SharpV camera indoors, for example, in an underground parking lot, you can define fixed values for the camera's iris, shutter time, and gain settings. Doing this can result in more consistent exposure for LPR and context images.

IMPORTANT: Modifying the SharpV exposure settings can greatly impact LPR 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 LPR performance on every-day traffic which includes plates with a wide range of reflective properties. You must test the system after modifying these settings.

Setting custom SharpV LPR camera exposure levels for indoor installations

If the default exposure settings do not produce acceptable results, you can adjust the iris, shutter time, and gain settings of the SharpV LPR camera to work best with your indoor installation.

Before you begin

- Ensure that the lighting conditions match what is expected during normal camera operation.
- [Adjust the zoom and focus](#) of the camera.

What you should know

- 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.



- In the LPR image, it is normal that the surroundings of the plate are under-exposed while the plate itself is correctly-exposed. In the LPR image, make sure that the plate is correctly exposed and ignore the quality of the surroundings.

To adjust the LPR camera exposure settings:

- 1 [Log on to the SharpV web portal](#).
- 2 From the **Configuration** menu, select the **Zoom and focus** page.
- 3 From the **Select your camera** drop-down list, select the **LPR Camera**.
The live feed of the LPR camera is displayed.
- 4 Select the **Show ruler** check box.
- 5 Place a stationary license plate in front of the camera so that the character height is 25 pixels.

IMPORTANT: Do not modify the focus. The license plate might appear out of focus, but you are only adjusting the exposure in these steps.

- 6 From the **Configuration** menu, select the **Cameras** page.
- 7 From the **Select your camera** drop-down list, select the **LPR camera**.
The live feed from the LPR camera is displayed.
- 8 From the **Exposure** drop-down list, select **Fixed (indoor)**.
Gain, Exposure time and **Iris** settings are displayed.

- 9 Clear the **Iris** check box.
- 10 Open the iris to 100% by moving the slider to the right.
- 11 Set the **Gain** level to the minimum default value (0).
- 12 Adjust the **Exposure time** to be as high as possible without resulting in an over-exposed image.
- 13 If you reach the maximum **Exposure time** level and the plate image is still too dark, increase the **Gain** level and adjust the **Exposure time** until you are satisfied with the plate image.
TIP: Increasing the gain level introduces noise in the image. Keep the gain as low as possible.
- 14 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*.

Setting custom SharpV context camera exposure levels for indoor installations

If the default exposure settings do not produce acceptable results, you can adjust the shutter time, and gain settings of the SharpV context camera to work best with your indoor installation.

Before you begin

- Ensure that the lighting conditions match what is expected during normal camera operation.
- [Adjust the zoom and focus](#) of the camera.

What you should know

- Adjusting the exposure settings of the context camera has no impact on LPR performance. Performing this procedure simply improves the quality of the context image.
- If you configure a long exposure time, you might notice motion blur in the context image. This is not apparent when using a fixed license plate for calibration, and might require adjustment after testing the camera in normal operation.
- Information on context images is not applicable to SharpV ITS cameras.

To adjust the context camera exposure settings:

- 1 [Log on to the SharpV web portal](#).
- 2 From the **Configuration** menu, select the **Cameras** page.
- 3 From the **Select your camera** drop-down list, select the **Context camera**.
The live feed from the context camera is displayed.
- 4 From the **Lighting type** drop-down list, select the setting that best describes the installation's normal lighting conditions.
- 5 From the **Exposure** drop-down list, select **Fixed (indoor)**.
Gain and **Exposure time** settings are displayed.
- 6 Set the **Gain** level to the minimum default value (0).
- 7 Adjust the **Exposure time** until you are satisfied with the image and license plates are clearly visible.
- 8 If you reach the maximum **Exposure time** level and the plate image is still too dark, increase the **Gain** level.
NOTE: If, due to poor lighting, the plate image is still not visible even after increasing the gain level, or if increasing the gain level adds too much noise to the image, you can select **Enable illuminator** to turn on the camera's IR illuminator. The IR illuminator makes the plate more visible, but removes color from the context image.
- 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*.

About SharpV exposure adjustment for outdoor installations

For SharpV cameras that are installed outdoors, we recommend that you keep the default 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 SharpV exposure settings can greatly impact LPR 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 LPR performance on every-day traffic which includes plates with a wide range of reflective properties. You must test the system after modifying these settings.

Setting custom SharpV LPR camera exposure levels for outdoor installations

If the default exposure settings do not produce acceptable results, you can adjust the iris, shutter time, and gain settings of the SharpV LPR camera to work best with your outdoor installation.

Before you begin

- Ensure that the lighting conditions match what is expected during normal camera operation.
- [Adjust the zoom and focus](#) of the camera.

What you should know

- 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.



- In the LPR image, it is normal that the surroundings of the plate are under-exposed while the plate itself is correctly-exposed. In the LPR image, make sure that the plate is correctly exposed and ignore the quality of the surroundings.
- The ranges for the **Exposure time** and **Gain** settings must be large enough to allow good quality images in all lightning 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 SharpV constantly varies the exposure of the LPR camera in order to get a correct exposure of a plate.
- 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 SharpV 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.

Adjust the LPR camera under sun illumination:

- 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 SharpV web portal](#).

- 3 From the **Configuration** menu, select the **Cameras** page.
- 4 From the **Select your camera** drop-down list, select the **LPR camera**.
The live feed from the LPR camera is displayed. Do not modify the focus. The license plate might appear out of focus, but you are only adjusting the exposure in these steps.
- 5 From the **Exposure** drop-down list, select **Range (outdoor)**.
Gain, Exposure time and **Iris** settings are displayed.
- 6 Set the **Gain** and **Exposure time** minimum and maximum levels to their minimum values.
- 7 Clear the **Iris** check box.
- 8 Move the **Iris** slider towards the right as much as possible without over-exposing image.
- 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*.

Adjust the LPR camera at night:

- 1 Place a stationary license plate as far from the camera as possible while still being within range for the camera to capture plate reads.
- 2 [Log on to the SharpV web portal](#).
- 3 From the **Configuration** menu, select the **Cameras** page.
- 4 From the **Select your camera** drop-down list, select the **LPR camera**.
The live feed from the LPR camera is displayed. Do not modify the focus. The license plate might appear out of focus, but you are only adjusting the exposure in these steps.
- 5 From the **Exposure** drop-down list, select **Range (outdoor)**.
Gain, Exposure time and **Iris** settings are displayed.
- 6 Increase the **Exposure Time** maximum as much as possible without getting an over-exposed image.
- 7 If the **Exposure Time** is set at the maximum value and the image is still dark, increase the **Gain** maximum until you are satisfied with the image.
- 8 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*.

Troubleshooting outdoor exposure issues for the SharpV LPR camera

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

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

- 1 Make the first adjustments under sun illumination.
- 2 Set the **Gain** and **Exposure time** minimum and maximum levels to the minimum value.
- 3 Increase the **Iris** value as much as possible without over-exposing the plate.
- 4 Perform the remaining exposure adjustment at night.
- 5 Increase the maximum **Exposure time** value until you are satisfied with the plate images.
- 6 If you reach the maximum **Exposure time** level and the LPR images are still too dark, increase the maximum **Gain** value.

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

- 1 Make the adjustment under sun illumination.
- 2 Increase the **Iris** value as much as possible without over-exposing the plate.
- 3 If the **Iris** reaches its maximum value and the plate is still under-exposed, increase the maximum **Exposure time** level as much as possible without over-exposing the plate.
- 4 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 LPR 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 LPR images are still too bright, decrease the minimum **Exposure time** value.
- 4 If you reach the minimum **Exposure time** level and the LPR images are still too bright, decrease the iris aperture until you are satisfied with the plate images.

If LPR images are often too bright under sunlight:

In this case, the exposure setting 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 SharpV context camera

You can resolve exposure adjustment issues that result in under-exposed or over-exposed license context images in fixed SharpV installations.

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 **Enable 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.

If context images are too dark during the night:

- 1 Make the adjustment at night.
- 2 (Optional) Select **Enable 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.

Connecting to a SharpV camera using the fallback IP address

If you cannot connect to a SharpV camera on your network, you can try connecting to the camera by using the camera's fallback IP address.

What you should know

- You may need to connect to the camera using the fallback IP address if, for example, the DHCP server is not available.
- If the camera is powered up and is not connected to the network for a few minutes, the fallback IP address will be available.
- The fallback IP address is only available if the camera is in DHCP mode.

To connect to a camera using the fallback IP address:

- 1 If there is more than one Sharp camera on the network, isolate the camera by connecting it directly to a computer.
- 2 Connect to the camera using the fallback IP address (192 . 168 . 10 . 100).
- 3 Reconfigure the camera as required and reconnect to the network.

Configuring SharpV analytics

You can configure the analytics performed by the SharpV, such as which plates the SharpV will read, and whether the SharpV should attempt to read the plate origin and vehicle make.

To configure SharpV analytics:

- 1 [Log on to the SharpV web portal.](#)
- 2 Click **Configuration > Analytics.**
- 3 From the **Context** drop-down list, select which license plates the SharpV will read.
- 4 From the **Reading mode** drop-down list, select one of the following reading modes:
 - **Continuous:** Select this for plates to be captured continuously. This is the default setting.
 - **Conditional:** Select this to capture plate reads continuously as long as the selected input signal meets the condition defined (high/low).
 - **Single read on trigger:** Select this option to force the SharpV 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. 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.
- 5 (Optional) If you selected **Single read on trigger**, click **Add trigger** and configure the following:
 - a) Under **Trigger**, select when an input (A or B) triggers a plate read based on its state (Low or High). For example, you can specify that **Input A** triggers a plate read when it **transitions to a Low** state. You can also select an **External** input such as a Security Center event-to-action or hot action.
 - b) Under **Capture window**, specify when the SharpV starts capturing (in milliseconds) and whether to do it **before** or **after** the trigger. You also need to specify the **Duration** (in milliseconds) that the SharpV will attempt to capture a plate read.

IMPORTANT: The capture window cannot end before the time the trigger is activated.
 - c) Under **If no plates**, indicate how long (in milliseconds) to wait after a trigger before capturing a context image of the vehicle. Select the **Use the LPR image as context image** option, when you want an image from the LPR camera to be used for the *no plate read*.

NOTE: Information on context images is not applicable to SharpV ITS cameras.
- 6 From the **Read strategy** list, select a read strategy:
 - **Slow moving vehicle:** Applicable when vehicles are traveling slowly when the license plates are captured. For example, select this option for monitoring parking lot entrances.
 - **Fast moving vehicle:** Applicable when vehicles are traveling at moderate to high speeds when the license plates are captured. For example, select this option for a SharpV overlooking a highway.
 - **Gate control:** Applicable when vehicles must come to a stop when the license plates are captured. For example, select this option for a SharpV that is monitoring a gated parking lot entrance or toll booth.
- 7 Under **Read contents**, select the contents of the plate you would like the SharpV 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 SharpV unit to try to read the license plate origin. For example, the state, province, or country.

NOTE: State recognition is available for certain contexts.
 - **Vehicle make:** Select this option if you want the SharpV unit to attempt to read the vehicle's make from the brand or logo. For example, Honda, Toyota, and so on.
 - **Confidence score:** Assigns a numerical value (from 0 to 100) to each license plate read. This value indicates how confident the SharpV is in the accuracy of the read.

- 8 Click **Save**.

Calibrating the virtual loop

For parking applications where the license plate capture rate is critical, the SharpV virtual loop feature can detect vehicles with damaged or dirty license plates that are not detected by the SharpV's LPR camera. The plate numbers of these vehicles can then be manually modified in Security Desk.

Before you begin

- Install the SharpV camera in a fixed location.
- [Adjust the zoom and focus](#) of the camera.

IMPORTANT: To use the virtual loop, the zoom level of the LPR and context cameras must be adjusted so that the context camera field of view is more than double the width of the LPR camera field of view.

NOTE: If you move the location of the camera, or if you modify the zoom and focus or the pan and tilt angles of the camera, you must reconfigure and recalibrate the virtual loop detection zone.

What you should know

- For best results when using the virtual loop feature, ensure that the detection area is well illuminated. If there is not enough light for reliable operation, the virtual loop is temporarily disabled until lighting conditions improve.
- To be detected by the virtual loop, at least 25% of the vehicle must pass through the red detection zone and at least 20% of the vehicle must pass through the orange LPR field of view, in any order. The vehicle must also either enter or exit the context camera field of view, depending on the settings you choose.
- You must respect the recommended SharpV positioning guidelines. For more information, see the *SharpV Handbook*.
- For the calibration to finish quickly, choose a time when vehicles are expected to be traveling in the appropriate direction in the designated area.
- The virtual loop feature is not available on SharpV ITS cameras.
- You cannot use the virtual loop as a trigger for gate control.

To configure SharpV virtual loop:

- 1 [Log on to the SharpV web portal](#).

- 2 Click **Configuration** > **Analytics** and select **Virtual loop**.

- 3 Click **Enable**.

The camera saves the configuration and displays the message "Configuration saved successfully".

- 4 Click **Configure**.

The status LED on the SharpV flashes red and green during the configuration.

- 5 Match the markers.

- a) In the virtual loop configuration page, the video feeds from the LPR camera and context camera are displayed with an *A* and *B* marker for each camera. Choose two points that are visible in both camera feeds and move the *A* and *B* markers so that they are in the identical positions in each camera feed. When the markers are close to the correct position, an orange box appears in the context camera video feed. Fine tune the marker positioning so that the orange box matches the field of view of the LPR camera.

NOTE:

- For best results, choose *A* and *B* marker locations that are as far apart as possible vertically and horizontally.

- If either of the video feeds are too dark or too bright to accurately place the markers, you can temporarily adjust the brightness using the sliders located above each video feed. When the calibration is finished, the exposure returns to its default mode.

b) Click **Next**.

Virtual loop

Complete the following two steps to configure the virtual loop

- 1 Match camera field of view
- 2 Draw detection zone

Choose two points that are visible in both camera feeds and move the A and B markers so that they are in the identical positions in each camera feed. For best results, you should choose A and B marker locations that are as far apart as possible vertically and horizontally.

LPR camera 65

Context camera 50

Cancel Next

6 Configure a detection zone.

- To configure the system to detect vehicles that are moving in a specific direction, select one of the following detection modes from the drop-down list:
 - Enters the field of view in the detection zone.
 - Exits the field of view in the detection zone.
 - Enters or exits the field of view in the detection zone.

b) To draw a detection zone in the camera video feed, create a polygon by clicking on at least three points.

NOTE:

- Clicking in the field of view clears any existing polygon. You can also click **Clear the zone** to remove an existing polygon.
- To draw a polygon that covers the entire context camera field of view, click **Select all** and use the *Enters or exits the field of view in the detection zone* setting.

Consider the following when drawing the detection zone:

- The polygon must touch the border of the image. This is necessary for all direction of travel settings, for example, *Enters the field of view in the detection zone*.
- The polygon lines cannot intersect.

- To be detected, at least 25% of the visible part of the vehicle must pass through the red detection zone (if configured) when the vehicle enters or exits the image. The vehicle must also cover at least 20% of the orange LPR field of view somewhere along its trajectory.
- Try to draw your detection zone so that cyclists and pedestrians do not pass through the zone. For example, if you have too many false detections when you draw a polygon far from the camera and use the *Exits the field of view in the detection zone* setting, try drawing a polygon close to the camera and use the *Enters the field of view in the detection zone* setting.

For more information, see [Virtual loop detection zone examples](#) on page 60.

c) When you have finished drawing the polygon, click **Done**.

The system displays *In progress - Waiting for 5 more vehicles* and counts down the number of license plate reads that are required for calibration to finish. During this calibration, the system evaluates the expected vehicle size and trajectory.

NOTE:

- The system completes the calibration on its own. No further steps are required.
- If, before the calibration ends, you make any other change to the SharpV configuration, the calibration is restarted.

After you finish

- For troubleshooting purposes, virtual loop diagnostic information is available from the **Diagnostics** > **Logs** page. Before calibration, using the *VehicleDetection* source, and after calibration using the *VehicleDetection (verbose)* source (must be enabled from the **Sources to log** drop-down list).
- If the LPR camera fails to capture a vehicle's license plate and the vehicle is then detected by the virtual loop, the license plate event sent by the SharpV uses the string *NOPLATE*. To let the operator know that the license plate needs to be manually modified, you can configure an event-to-action to trigger an alarm, to send a message, or to add a bookmark.

Example: Event-to-action to send a message

The screenshot shows the 'Event-to-action' configuration window. It is configured as follows:

- When:** License plate read occurs and [PlateNumber] = "NOPLATE"
- From:** Any entity
- For:** Any entity
- Action:** Send a message
- Recipient:** AutoVu operators
- Message:** Manually enter the plate number.
- Has timeout:** ON automatically close after 10 seconds
- Effective:** Always

Buttons for 'Cancel' and 'Save' are visible at the bottom right.

Example: Event-to-action to create a bookmark

The screenshot shows the 'Event-to-action' configuration window. It is configured as follows:

- When:** License plate read occurs and [PlateNumber] = "NOPLATE"
- From:** SHARPV00014 (Exit - AE)
- For:** Any entity
- Action:** Add bookmark
- Camera:** SHARPV00014 (Exit - AE) - Camera - 0
- Message:** Manually enter the plate number.
- Effective:** Always

Virtual loop detection zone examples

To reduce the number of false detections when using the virtual loop feature in a fixed SharpV installation, you must consider the guidelines for drawing the detection zone.

Virtual loop detection zone guidelines:

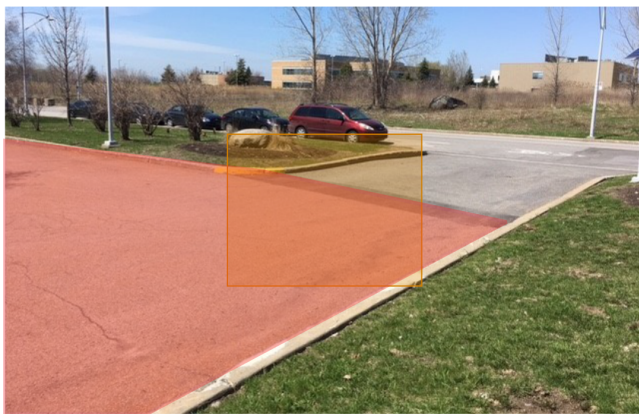
- The polygon must touch the border of the image. This is necessary for all direction of travel settings, for example, *Enters the field of view in the detection zone*.
- The polygon lines cannot intersect.
- To be detected, at least 25% of the visible part of the vehicle must pass through the red detection zone (if configured) when the vehicle enters or exits the image. The vehicle must also cover at least 20% of the orange LPR field of view somewhere along its trajectory.
- Try to draw your detection zone so that cyclists and pedestrians do not pass through the zone. For example, if you have too many false detections when you draw a polygon far from the camera and use the *Exits the field of view in the detection zone* setting, try drawing a polygon close to the camera and use the *Enters the field of view in the detection zone* setting.

Issue: The detection zone does not touch the edge of the field of view

- **Bad:** The detection zone does not touch the edge of the context camera field of view. With this detection zone, no vehicles are detected.



- **Good:** The detection zone touches the edge of the context camera field of view. To detect only vehicles exiting the parking lot, use the *Enters the field of view in the detection zone* setting.



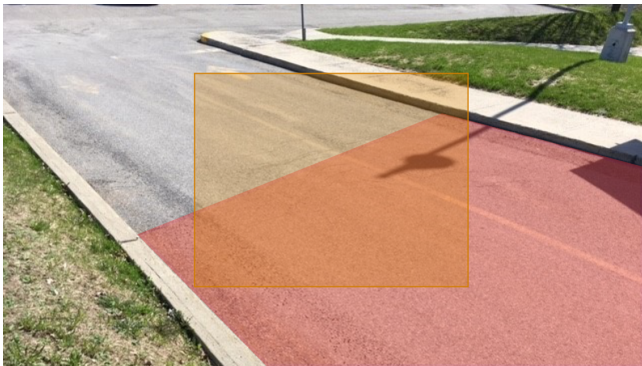
Issue: Vehicles do not leave the field of view

- **Bad:** To be detected, vehicles must exit the context camera field of view. Some of the parking spaces in this parking lot are within the detection zone. As a result, the vehicles in those spaces are not detected.



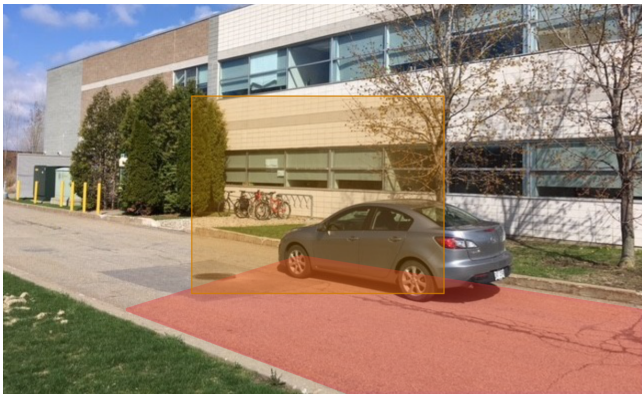
- **Good:** To correct this issue, the camera angle has been lowered (which requires zoom and focus recalibration) and the *Enters the field of view in the detection zone* setting is used.

Alternatively, you could reduce the size of the context camera's field of view so that the vehicles in the parking lot are not visible.

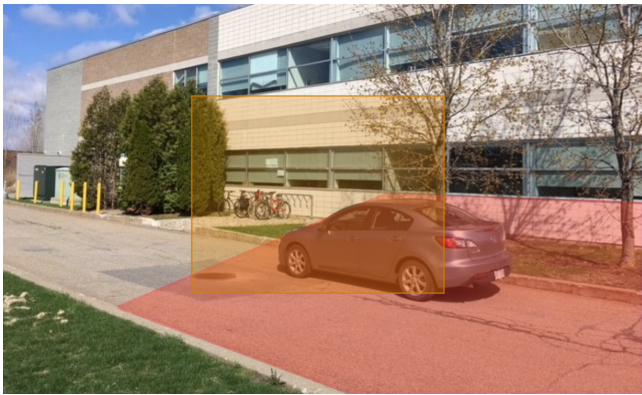


Issue: 25% of the vehicle is not within the detection zone

- **Bad:** In this example, the detection zone is drawn to match the road. Especially when the camera is installed close to the ground, this can mean that vehicles are excluded.



- **Good:** To correct this issue, when drawing the detection zone, consider the path and size of vehicles as they pass through the field of view.



Calibrating speed estimation

For systems that include a fixed SharpV camera, you can configure the camera to include an estimated vehicle speed when performing license plate reads.

Before you begin

- Install the SharpV camera in a fixed location. To use this feature, cameras should be installed higher than the level of the license plates with respect to the road. This means a camera installation height of at least 1.5 m (5 ft). The camera should be pointing downward with respect to the horizontal by at least 5°.
- [Adjust the zoom and focus](#) of the camera.

NOTE: If you modify the zoom and focus or the pan and tilt angles of the camera, you must recalibrate speed estimation.

- [Configure the LPR context](#). Do this so that the speed and measurement units are displayed in the format for your region.

What you should know

- For more accurate speed estimation, vehicles that pass the camera during calibration should travel at a constant speed of at least 30 km/h (20 mph). This recommendation only applies during calibration. In general, the system can estimate speeds for vehicles moving slower than 30 km/h (20 mph).
- **To calibrate speed estimation, the system needs the following, in any order:**
 - At least one license plate read from a calibration vehicle with a known speed. You can do this by driving the calibration vehicle at a specific speed, or by using a radar device to detect the speed of a passing vehicle.
 - 20 additional license plate reads. You do not need to know the speed of these vehicles.

NOTE: For the calibration to finish quickly, choose a time when vehicles are expected to be traveling in the appropriate direction in the designated area. If no traffic is expected to pass during the calibration, you can use one vehicle to make 20 passes in front of the camera, leaving at least 15 seconds between passes.

To configure SharpV speed estimation:

- 1 [Log on to the SharpV web portal](#).
- 2 Click **Configuration** > **Analytics** and select **Speed estimation**.
- 3 Click **Enable**.

The camera saves the configuration and displays the message "Configuration saved successfully".

- 4 Click **Start calibration**.

The system starts to capture license plate reads for calibration and displays *Calibrating....* A counter indicates the number of plate reads remaining to complete the calibration.

If you use a calibration vehicle moving at a specific speed:

- 1 From the main speed estimation screen, click **Edit**.
- 2 Click **Plate number** and enter the license plate of the calibration vehicle.
- 3 Click **Add**.

The system displays the message: *The system is now expecting to read a plate for this vehicle. The vehicle should maintain a constant speed.*

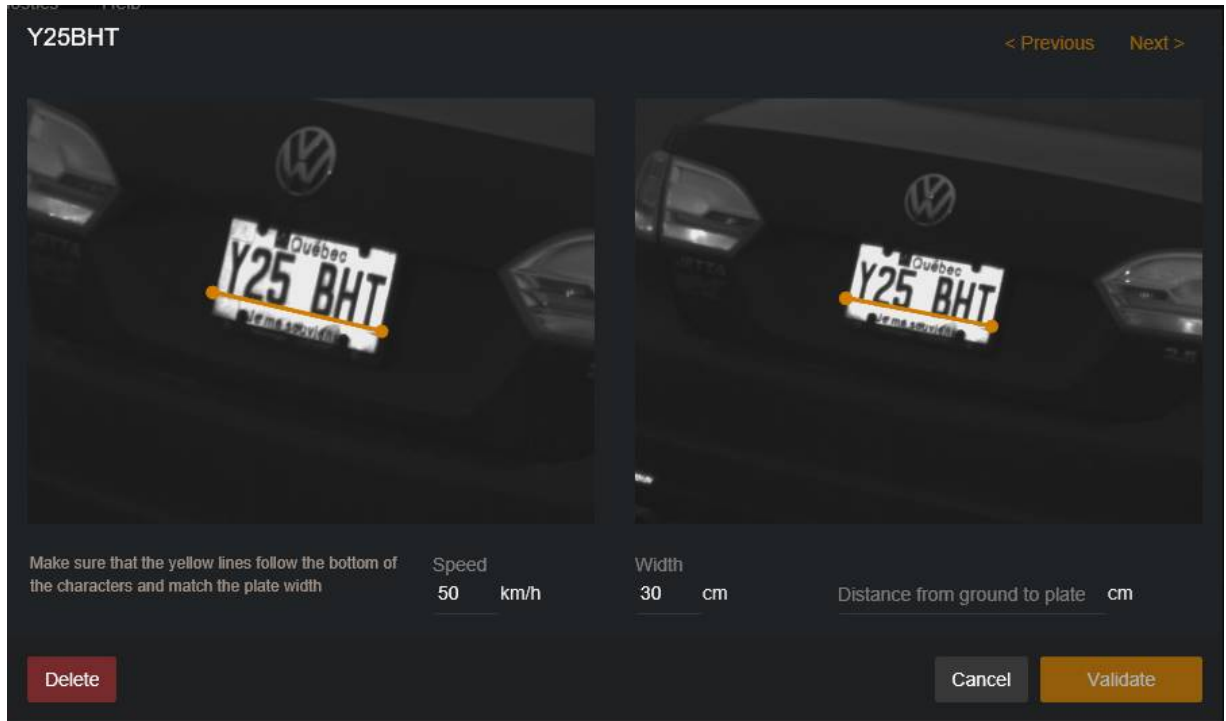
When the system detects the calibration plate, it displays the license plate read with a time stamp.

- 4 Click **Validate**.

Two images of the calibration plate are displayed.

- As shown in the following image, the orange line in each image must follow the bottom of the characters and must be as wide as the license plate. If required, move the end points to correct the line placement.

IMPORTANT: Speed estimation accuracy depends on precise positioning of the end points.



- Enter the **Speed** at which the vehicle was traveling when it was read by the SharpV camera.
- The **Width** of the plate is entered for you based on the LPR context that you have configured. If necessary, modify the plate width.
- (Optional) For more accuracy, measure the distance from the ground to the bottom of the calibration vehicle's license plate and enter the measurement in the **Distance from ground to plate** field.
- Click **Validate**.

A green check mark is displayed over the calibration plate, indicating that the step is complete.

NOTE: You can add plate numbers for additional calibration vehicles. This is not required, but can increase speed estimation accuracy.

If you use a radar device to detect the speed of a passing vehicle:

- From the main speed estimation screen, click **Edit**.
- Click **Advanced** on the right side of the screen.
The license plates from passing vehicles are displayed.
- Take note of the license plate of a passing vehicle and use your radar device to detect the vehicle's speed.
- Click the license plate image of the vehicle with the known speed.
Two images of the calibration plate are displayed.
- The orange line on each image must follow the bottom of the characters and must be as wide as the license plate. If required, move the end points to correct the line placement.

IMPORTANT: Speed estimation accuracy depends on precise positioning of the end points.

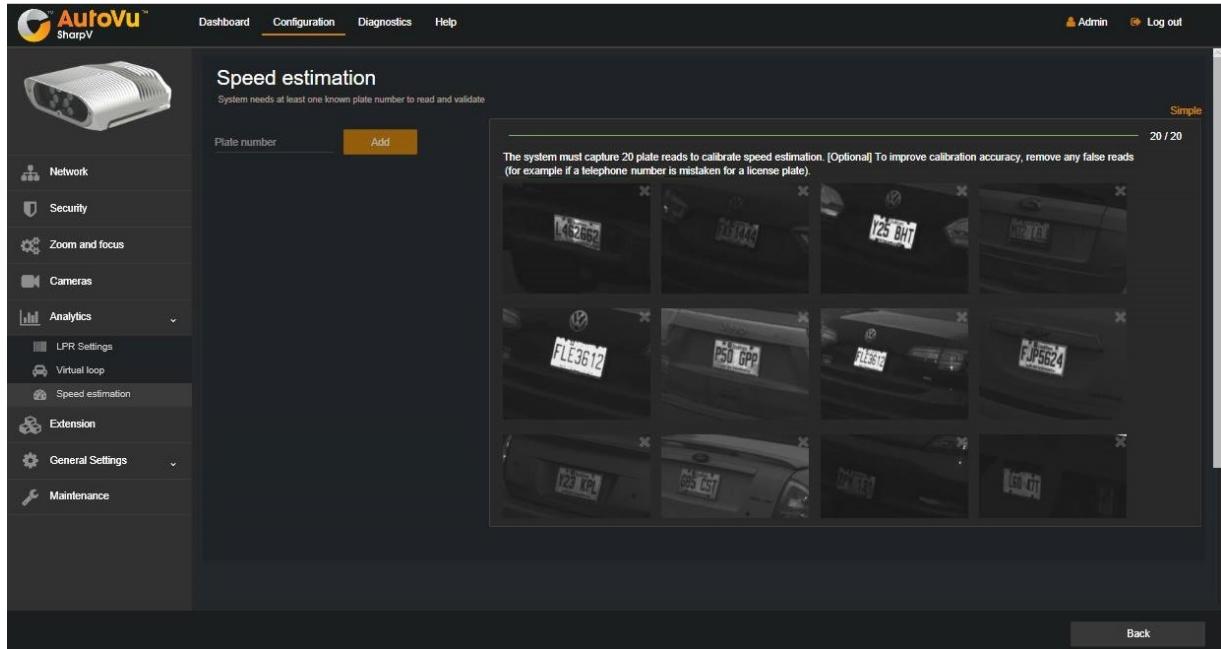
- Enter the **Speed** of the vehicle as detected by your radar device.
- The **Width** of the plate is entered for you based on the LPR context that you have configured. If necessary, modify the plate width.
- Click **Save**.

The camera captures 20 license plate reads:

The system must analyze plate reads from 20 passing vehicles. The vehicles can be traveling at any speed and you do not need to know the speed of these vehicles. There is no user action required for this step, however, you can improve speed estimation accuracy by editing the plate reads using the following steps:

NOTE: It might take more than 20 vehicle passes to complete the calibration.

- 1 From the main speed estimation screen, click **Edit**.
 - 2 Click **Advanced** on the right side of the screen.
- The license plates from passing vehicles are displayed.



- 3 If you notice an incorrect plate read, for example, if a sticker on the back of a vehicle was mistaken for a license plate, delete the image.
- 4 You can click on an image to display two images of the license plate. You can inspect the position of the end points of the orange line. If the position is inaccurate, you can either move the end points to correct the line placement or delete the image.
- 5 Click **Back** to return to the main speed estimation screen.

When the system has successfully read 20 license plates, and when you have entered the speed of at least one license plate, the **State** displayed on the main calibration screen is *Ready*.

When the speed estimation calibration is complete, vehicle speed is displayed in the *Live Feed* page of the portal. It is also possible to configure the vehicle speed to be included as an annotation field in Security Center. For more information, see the *Security Center Administrator Guide*.

Configuring where the SharpV sends its LPR data

Depending on whether you want to receive license plate read information in Security Center, or an FTP or HTTP server, you must configure where the SharpV sends its LPR data accordingly.

What you should know

The default extension is **None**; you must select one of the available extensions to make sure that the SharpV sends its data somewhere.

To configure the SharpV extension:

- 1 [Log on to the SharpV web portal](#).
- 2 From the **Configuration** menu, select the **Extension** page.
- 3 From the **Extension type** drop-down list, select one of the following:
 - **FTP**: Send ALPR data to an FTP server.
 - **HTTP**: Send ALPR data to an HTTP server.
 - **Security Center**: Send LPR data to the LPR Manager.
- 4 If you selected **FTP** as your extension, you can configure the FTP XML template which can be integrated by third-party applications. For more information, see [Configuring the SharpV FTP extension](#) on page 70.
- 5 If you selected **HTTP** as your extension, 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 SharpV HTTP extension](#) on page 72.
- 6 If you selected **Security Center** as your extension, configure the following:
 - **This unit manages the connection to Security Center**: Use this **only** if the autodiscovery of the connected SharpV does not work (see [SharpV camera connections to Security Center](#)). You must enter the **Server** address and **Port** of the server running the LPR Manager role. For example, if a SharpV is connected to a WiFi router, and the camera's IP address is then changed, the LPR Manager cannot detect the change automatically, so you can use this to reconnect to the Security Center computer.
 - **Discovery port**: Port on which the SharpV listens for discovery requests. This port number must match the discovery port entered on the LPR Manager *Properties* page.
NOTE: When setting the discovery port, do not use port 5050 as it is reserved for the logger service.
 - **Control port**: Used in Security Center Config Tool when creating a new LPR unit (SharpV) manually.
 - **Update Provider port**: The SharpV receives updates from LPR Manager on this port. To update the SharpV, you need to enable the **Update provider** on the LPR Manager *Properties* page, and the port numbers must match.
- 7 Click **Save**.

Related Topics

[Configuring the SharpV FTP extension](#) on page 70

[Modifications you can make to the SharpV FTP XML template](#) on page 70

SharpV camera connections to Security Center

If you are using the Security Center extension to send LPR data from a SharpV camera to Security Center, you must first enroll the camera in the Security Center *LPR* task under *Roles and units*.

The easiest way to add a SharpV camera in Security Center is to configure the LPR Manager to discover the camera. If this connection method is not possible, you can add the camera manually in Security Center or in the camera's web portal.

You can add a camera to Security Center in one of the following ways:

Connection Method	When to use this method	Requirements
<p>Configure the LPR Manager to discover the camera:</p> <p>You can configure the LPR Manager's <i>Discovery port</i> to find the camera on the subnet.</p>	<p>This is the preferred method if the camera and Security Center are on the same subnet.</p>	<p>To use this method, you must set the same <i>Discovery port</i> in the LPR Manager's <i>Properties</i> tab and in the camera's web portal. The camera and Security Center must be on the same subnet. For more information on configuring LPR Managers for fixed AutoVu™ system, refer to the <i>Security Center Administrator Guide</i>.</p>
<p>Manually add the camera in Security Center:</p> <p>You can add the camera to the LPR Manager in Config Tool's <i>LPR</i> task.</p>	<p>Use this method when the camera and Security Center are on different subnets within the same LAN. You can use this method if the <i>Discovery port</i> is not available, however the <i>Discovery port</i> can be changed in Security Center and in the camera's web portal.</p> <p>NOTE:</p> <ul style="list-style-type: none"> You cannot use this method if communication must go across the Internet. If the camera is behind a NAT, you must configure port forwarding. 	<p>To use this method, you must know the IP address and port (control port) for the camera. The camera and Security Center must be on the same network.</p>
<p>Add a SharpV from the camera's web portal:</p> <p>You can force a connection from the camera's web portal when you select the <i>Security Center</i> extension and select Connect to Security Center. For assistance, contact your Genetec™ representative.</p>	<p>Use this method if the camera and Security Center must communicate across the Internet and where the network topology includes NATs.</p> <p>NOTE: If the camera is behind a NAT, you must configure port forwarding.</p>	<p>To use this method, you must enter the <i>Hostname</i> or <i>IP address</i> and <i>port</i> (listening port) of the Security Center computer.</p>

Related Topics

[Configuring where the SharpV sends its LPR data](#) on page 66

SharpV communication ports

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

The following table lists the default network ports used for SharpV communication with Security Center:

Computer	Inbound	Outbound	Port usage
SharpV	HTTP 8001		Control port.
	HTTP 2323		Used by the SharpV to determine which extension to load.
	UDP 5000		Used to discover SharpV units connected to the network.
		TCP 8731	Default listening port.
		TCP 8832	Used by the SharpV to communicate with the Security Center updater service.
	80		Used for HTTP communication with Security Center.
	443		Used for HTTPS communication with Security Center.

Adding a SharpV camera to the LPR Manager

To send LPR data from the camera to Security Center, you must add the camera to an LPR Manager.


Before you begin

To add a camera in Security Center, you must first configure an LPR Manager role.

What you should know

The easiest way to add a camera in Security Center is to add the camera automatically using the Unit enrollment tool. If the system cannot discover the camera, use the following method to add it manually. For more information about the Unit enrollment tool, see the *Security Center Administrator Guide*.

To manually add a camera in Security Center:

- 1 From the Config Tool home page, click the *LPR* task and select **Roles and units**.
- 2 Click  **LPR unit**.
The **Creating a unit** dialog box opens.
- 3 Enter a **Name** for the camera.
- 4 Enter the **IP address** and **Port** of the camera.
This information should match what is displayed in the camera's web portal.
- 5 Select the **LPR Manager** role from the drop-down list, and click **Next**.
- 6 Complete all other settings as necessary, and click **Create**.

The new camera is added under the selected LPR Manager.

Adding a SharpV camera to the Archiver

If you want to view the context camera video feed in Security Center, you must add the camera to the Archiver.

Before you begin

- To add a camera in Security Center, you must first configure an Archiver role.
 - Log on to the camera's web portal and change the default password.
- NOTE:** You cannot use the default SharpV credentials when adding the camera to the Archiver.
- By default, SharpV cameras are in DHCP mode. To add the context camera to the Archiver, you must configure the camera to use a static IP address that is defined in the web portal.


What you should know

- The easiest way to add a camera in Security Center is to add the camera automatically using the Unit enrollment tool. If the system cannot discover the camera, use the following method to add the it manually. For more information about the Unit enrollment tool, see the *Security Center Administrator Guide*
- **NOTE:** Information on context cameras is not applicable to SharpV ITS cameras.

To manually add a camera to a Security Center Archiver:

- 1 From the Config Tool home page, open the **Video** task.
- 2 If you have multiple Archiver roles, select the Archiver role to manage the unit from the Archiver drop-down list.
- 3 Click **+ Video unit**.
The **Manual add** dialog box opens.
- 4 From the **Manufacturers** drop-down list, select **Genetec AutoVu**.
- 5 From the Product type drop-down list, select **All**.
- 6 Enter the static IP address of the camera.

NOTE: For SharpV cameras, you must use IPv4 only. You cannot add a SharpV using IPv6.

TIP: Use a range () of IP addresses to add multiple units in a single operation.

- 7 Enter the **HTTP port** number. The port number for SharpV is 8080.
- 8 Select the **Authentication** method for the camera.
 - **Default logon:** The camera uses the default logon defined for the Archiver in the *Extensions* tab. Using this method, you can define the same logon credentials for multiple cameras.
 - **IMPORTANT:** You cannot use the SharpV's default credentials.
 - **Specific:** Enter the logon credentials for the camera. Turn on **Use HTTPS** if you have applied a self-signed or signed certificate to the camera connection.

- 9 From the **Location** drop-down, assign the camera to an area entity.

- 10 Click **Add**.

The notification tray displays the message "Adding unit started". If successful, it displays the message "Unit added successfully".

The camera is added under the selected Archiver.

Configuring the SharpV FTP extension

You can configure the SharpV to send LPR data to an FTP server. LPR data that is sent to an FTP server can then be integrated by third-party applications.

To configure the SharpV for FTP:

- 1 [Log on to the SharpV web portal.](#)
- 2 From the **Configuration** menu, select the **Extension** page.
- 3 From the **Active extension** section, select **FTP** from the **Extension type** drop-down menu.
- 4 Configure the following:
 - **Server:** Enter the FTP server name and location for the ALPR data. You'll need the server name, port number (if different than the standard FTP server port 21), and the name of the folder. For example, `ftp://<ServerName>:<PortNumber>/<FolderNameOnServer>/`.
 - **Username:** Enter the username for the FTP server.
 - **Password:** Enter the password for the FTP server.
 - **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).

NOTE: Information on context images is not applicable to SharpV ITS cameras.

- **Export ALPR images:** Export the plate image (in JPEG format).
 - **Retain data when the connection is lost:** If the check box is selected, plate read events are saved locally in the SharpV's database if the connection with the FTP server is lost. The SharpV can store up to 70 000 plate read events, however, note that event size varies based on the complexity of the scene being observed. The system tries to re-connect with the server every 30 seconds. Stored reads are pushed to the server when the connection is re-established. If the check box is cleared, the SharpV does not store reads locally if the connection with the FTP server is lost. You can see how many reads are stored on the SharpV in the *Dashboard > Overview > Storage and usage* section.

NOTE: If there are any plate reads in the SharpV's database, clearing this check box and saving the configuration deletes the plate reads.
- 5 Click **Test connection** to test the connection to the FTP server.
 - 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 SharpV FTP XML template

The XML code defines the structure of the XML files generated by the SharpV. You can re-sort or remove any of the fields. The XML file name consists of the SharpV name and a unique identification number (for example, SHARPV12345_6ee17b00-82c1-466b-9fd6-003417bc82c4_lpr.xml).

Template:

```
<?xml version="1.0" encoding="utf-8"?>
<AutoVu>
  <Plate>#PLATE_READ#</Plate>
  <State>#CUSTOM_FIELDS#{State Name}</State>
  <UTCDate>#DATE.UTC#{yyyy:MM:dd}</UTCDate>
  <UTCTime>#TIME.UTC#{HH:mm:ss.fff}</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.
- LocalDate, LocalTime, UTCDate, UTCTime, and TimeZone display the Windows date and time properties.
- CameraName is set in the Patroller Config Tool.
- SourceName is the SharpV name (e.g. Sharp12345).
- ContextImage and PlateImage are encoded into text.

NOTE: Information on context images is not applicable to SharpV ITS cameras.

- Guid is the unique identification of the event read.
- You can add the following custom fields to the template:
 - **State Name:** The SharpV 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 SharpV web portal.

NOTE: The LPR Context you are using must support the state name feature.
 - **Relative Motion:** When the SharpV 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>.
```
 - **Vehicle Type:** Certain license plates include character symbols that identify specific vehicle types (for example, taxi, transport, and so on). If the SharpV can read these symbols, it displays the vehicle type along with the other read/hit information. To use this field, add the following line to the XML:


```
<VehicleType>#CUSTOM_FIELDS#{Vehicle Type}</VehicleType>.
```
- If using FTP with GPS coordinates, you'll need to add longitude and latitude fields.

Example

```
<?xml version="1.0" encoding="utf-8"?>
<AutoVu>
  <Plate>#PLATE_READ#</Plate>
  <LocalDate>#DATE_LOCAL#{HH:mm:ss}</LocalTime>
  <UTCDate>#DATE.UTC#{yyyy:MM:dd}</UTCDate>
  <UTCTime>#TIME.UTC#{HH:mm:ss.fff}</UTCTime>
  <TimeZone>#TIME_ZONE#</TimeZone>
  <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>
```

Configuring the SharpV HTTP extension

You can configure the SharpV to send LPR data to an HTTP server instead of to Security Center. LPR data that is sent to an HTTP server can then be integrated by third-party applications.

To configure the SharpV for HTTP:

- 1 [Log on to the SharpV web portal.](#)
- 2 From the **Configuration** menu, select the **Extension** page.
- 3 From the **Active extension** section, select **HTTP** from the **Extension type** drop-down menu.
- 4 Configure the following:
 - **Server:** Enter the URL of the server that receives the ALPR data. For example, *https://address:port/path/*. Both *http://* and *https://* are supported.
 - **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 HTTP server (basic authentication).
 - **Password:** Enter the password for the HTTP server (basic authentication).
 - **Export context images:** Export the context image (in JPEG format).

NOTE: Information on context images is not applicable to SharpV ITS cameras.

- **Export ALPR images:** Export the plate image (in JPEG format).
 - **Retain data when the connection is lost:** If the check box is selected, plate reads are saved locally in the SharpV's database if the connection with the HTTP server is lost. The system will try to re-connect with the server every 30 seconds. Stored reads are pushed to the server when the connection is re-established. If the check box is cleared, the SharpV does not store reads locally if the connection with the HTTP server is lost. You can see how many reads are stored on the SharpV in the *Dashboard > Overview > Storage and usage* section.

NOTE: If there are any plate reads in the SharpV's database, clearing this check box and saving the configuration deletes the plate reads.
 - **Ignore certificate errors:** Select this option when sending ALPR data to an HTTPS server that does not have a trusted certificate. The SharpV will 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 LPR events for the SharpV HTTP extension

When you send LPR data to an HTTP server, you can configure the SharpV 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" : "SHARPV12345",
"Timestamp" : "2016-08-29T08:42:45.797"
}

```

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>SHARPV12345</SourceUrl>
  <Timestamp>2016-10-21T21:35:04.8627622+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. NOTE: Information on context cameras is not applicable to SharpV ITS cameras.

Parameter	Value type	Description
ContextImage	Binary	Color context image of the scene. Base64 encoded JPEG image. NOTE: Information on context images is not applicable to SharpV ITS cameras.
Id	Guid	Unique identifier for the read event.
Latitude	Double	Decimal latitude of the SharpV camera.
Longitude	Double	Decimal longitude of the SharpV camera.
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 SharpV 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 SharpV camera.
Timestamp	DateTime	Date and time of the read event (UTC) in the following format: yyyy-MM-ddTHH:mm:ss:fff.

Configuring Syslog for SharpV log files

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

Before you begin

- You will need a Syslog server that is accessible by the SharpV camera.

What you should know

- The SharpV syslog feature is compliant with the RFC 5424 protocol.
- Whether you use the syslog feature or not, SharpV logs will be available on SharpV web portal's *Diagnostics > Logs* page.

To configure a repository for SharpV log files:

- 1 [Log on to the SharpV web portal](#).
- 2 Click the *Configuration > Maintenance* page.
- 3 Select the **Use syslog** checkbox.
- 4 In the **Server** field, enter the address of the server.
- 5 In the **Port** field, enter the port.
- 6 From the **Network Protocol** drop-down, select UDP or TCP.
- 7 Click **Test connection** to test the connection.
- 8 Click **Save**.

Upgrade

This section includes the following topics:

- ["Updating the SharpV from the Sharp Portal"](#) on page 77
- ["Updating the SharpV from Security Center"](#) on page 78

Updating the SharpV from the Sharp Portal

The Web Updater tool allows you to update your SharpOS using the Sharp Portal. The Web Updater is accessed from the **Update** option available on the *Maintenance* page of the portal.

Before you begin

Update packages are available from [GTAP](#). Save the self extracting *SharpOS_12.x.x.x.zip* file on the local machine you are using to log on to the SharpV web portal.

IMPORTANT: You must select the correct upgrade file depending on the current SharpOS version running on the SharpV.

What you should know

The Web Updater does not check which version is currently installed before performing the update. Therefore, you must check your current SharpOS version and ensure that you are installing the most recent one. The current version of the SharpOS is displayed in the portal on the *Overview* page under **Version**.

To update the SharpV using the Web Updater:

- 1 Log on to the SharpV web portal.
- 2 Click **Configuration > Maintenance**.
- 3 Under **Version**, click **Update**.
- 4 In the **Software Update** dialog box, browse to the location of the folder that contains the update .zip file, and then click **Open**.
- 5 Click **Update**.
The files are transferred to the SharpV.
- 6 When the transfer is complete, click **OK**.
The *Sharp updater* page opens.
- 7 Click **Update now** to start updating the SharpV.
The *Progress* window allows you to monitor the update. When the upgrade is complete, a message indicates whether the upgrade was completed successfully. If the update fails, you receive a message and an automatic rollback occurs.

IMPORTANT: Do not close or navigate away from the *Sharp Updater* page while the update is being installed.

After you finish

After the SharpV is updated, you can click **Back to Portal** to verify that your SharpV has been upgraded. You can check the SharpV file versions on the *Overview* page by clicking **Details** under **Version**.

Updating the SharpV from Security Center

If your SharpV camera is connected to Security Center wirelessly or through a network, you can use the Security Center updater service to push the updates to the SharpV.

What you should know

The updates to the SharpV are automatically installed after you push the updates from Security Center.

To update the SharpV using the updater service:

- 1 (First time update only) Turn on the updater service and specify the listening port in Security Center Config Tool:
 - a) Log on to Security Center Config Tool.
 - b) From the Security Center Config Tool *Home* page, go to **LPR > Roles and units**, select the LPR Manager that controls the units you want to update, and then click **Properties**.
 - c) Turn on the **Update provider** and specify the listening port.
This port number must match the **Update provider port** specified on the *Extension* page of the SharpV web portal.

Security Center creates the *Updates* folder under the *LPR Root Folder* on your computer. This folder is usually located at `C:\Genetec\AutoVu\RootFolder\Updates`.
- 2 Copy the SharpV updates to the *Upgrade* folder. For example, `C:\Genetec\AutoVu\RootFolder2\Updates\SharpOS\Upgrade` folder:
 - a) From the Security Center Config Tool *Home* page, go to **LPR > General settings > Updates** to display the SharpV units on your system.
 - b) Click the **Genetec Patroller™ and SharpV units** tab.
 - c) Move the mouse pointer to the **Drop folder** of the component you want to update.
A tool tip appears with the drop folder's location. If you're on the computer hosting the LPR Manager role, you can click the **Drop folder** icon to automatically open the folder.
 - d) Copy the update to the **Drop folder**.
After copying the zip file into the folder, the file name changes from *.zip* to *.processed*. This means that the LPR Manager has unzipped the update, and is ready to send the update to the AutoVu™ components.
- 3 Push the updates to AutoVu™ components:
 - a) From the Security Center Config Tool *Home* page, go to **LPR > General settings > Updates**.
The Patrollers and Sharp units tab displays the SharpV cameras that are eligible for an update.
 - b) Click **Update** to update a single camera, or click **Update all** to update all eligible cameras in the list.
When the status changes from **Waiting for connection...** to **Synchronized**, it means the camera has successfully downloaded the update.

NOTE: The time it takes to transfer the updates depends on the connection bandwidth and the size of the update.

The update is automatically installed on the associated SharpV.

Sharp Portal reference

This section includes the following topics:

- ["Sharp Portal - Overview page "](#) on page 80
- ["Sharp Portal - Camera feeds page "](#) on page 82
- ["Sharp Portal - Network page "](#) on page 83
- ["Sharp Portal - Security page "](#) on page 84
- ["Sharp Portal - Zoom and focus page "](#) on page 86
- ["Sharp Portal - Cameras page "](#) on page 88
- ["Sharp Portal - Analytics page "](#) on page 89
- ["Sharp Portal - Extension page "](#) on page 91
- ["Sharp Portal - Date and time page "](#) on page 93
- ["Sharp Portal - Power options page "](#) on page 94
- ["Sharp Portal - Maintenance page "](#) on page 95
- ["Sharp Portal - Logs page "](#) on page 96

Sharp Portal - Overview page

The *Overview* page is available from the **Dashboard** menu. Use the **Overview** page to view general information about the SharpV, such as serial number, license, IP address, input and output status, and so on.

SharpV (XYZ)

Use the section with the name of your SharpV to view general information about it.

- **Serial number:** Displays the SharpV hardware serial number.
- **License:** Displays if the SharpV license is valid, invalid, or missing.
- **Inputs:** Shows the inputs on the SharpV and whether the input is in a high or low state. When the input is in a high state, it is detecting a voltage of 5.75 V or higher. When the input is in an “low” state, it is detecting a voltage of 4.80 V or lower.
- **Outputs:** Shows the SharpV outputs (two dry type, solid-state (transistor) polarized outputs) and whether the output is in a high or low state. When the output is in a high state, the output is open. When the input is in an low state, it is closed. SharpV.
- **Test outputs:** Click to toggle your configured output between low and high to validate the configuration.
- **Mac address:** Displays the MAC address of the SharpV. This information might be requested if you contact technical support.
- **Type:** Displays the type of SharpV unit.
- **Illuminator:** Displays the illuminator information on the SharpV.
- **Image:** Displays the software image installed on the SharpV. If you contact technical support, you will be asked to provide this number.
- **Version:** Displays the SharpOS package version. Click **Details** for more information about the versions of the services included in the package. You can use this information to confirm that your SharpV is up to date.
- **Location:** Displays the coordinates of the SharpV camera (the camera's position must be configured in Security Center). **Locate on map** displays the camera's position on a map.
- **Camera:** Displays the resolution and the lens focal range available for context camera images and LPR camera images.
NOTE: Information on context cameras is not applicable to SharpV ITS cameras.
- **Blink LED:** Click to blink the LED on the SharpV for ten seconds. This is useful when you have multiple Sharps and you want to physically identify the one you are configuring.

Connectivity

Use the **Connectivity** section to view information about the internet connectivity and whether or not the SharpV is connected to Security Center.

- **IP address:** Displays the IP address of the SharpV.
- **Security Center:** Displays whether the SharpV is connected to Security Center or not.
NOTE: This field is only displayed if you choose to send your LPR data to Security Center on the **Extension** page.
- **Internet:** Displays whether the SharpV is connected to the Internet or not.
- **Video streams:** If the SharpV has been added to the Security Center Archiver and is being used to monitor video, then the camera name, client IP address, and frame rate are listed for each stream.

Storage and usage

Use the **Storage and usage** section to view information about reads stored on the SharpV, CPU usage, and memory usage. Indicator lines are provided so you can see the status. Indicator lines are usually green or orange. A red indicator line either indicates that there is a problem, or indicates high CPU activity.

- **Reads stored:** Indicates the reads stored in the database of the SharpV (in bytes). The number of reads is also displayed.
- **Memory:** Displays the memory drives, and indicates each drive's memory usage in gibibytes (GiB).
- **CPU (Total):** Indicates the total CPU usage of the SharpV. 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

The *Camera feeds* page is available from the **Dashboard** menu. Use the **Camera feeds** page to view the live feeds of the Context camera and LPR camera.

Camera feeds

The **Camera feeds** section displays the live video feeds for both the Context camera and the LPR camera. You can also view information about the live video feed such as the **FPS**, **Resolution**, **Exposure time**, and so on.

NOTE: Information on context cameras is not applicable to SharpV ITS cameras.

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

NOTE: Using the **Record** option increases CPU usage.

- **Camera selection:** You can select either the **1st camera group** (LPR and Context camera) or **No camera**. The **No camera** option is useful when you want to conserve CPU usage and network bandwidth while monitoring reads.
- **Show the crosshairs:** Select this option to display crosshairs in the LPR or Context camera window.
- **Show the bounding box:** Select this option to display the yellow bounding box around detected plates in the **LPR camera** window.
- **Show the region of interest:** Select this option to display the region of interest in the **LPR camera** window. The region of interest must be configured on the **Cameras** page. There is no region of interest by default.
- **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 feed.
- **Gain:** Displays the **Gain** of the video feed.
- **Iris:** Displays the **Iris** aperture of the video feed as a percentage.
- **Illuminator:** (Context camera only) Displays the intensity of light of the illuminator (as a percentage) on the Context camera.

Last read

- **Plate number:** Displays the plate number of the last read.
- **State:** Displays the plate state or province if the Sharp was able to read it from the license plate. You must enable this feature in the **Analytics** page of the **Configuration** menu.
- **Number of reads:** Displays the number of reads that have been taken with the Sharp since the Plate Reader service was started. You can reset this value to zero by clicking **Reset**.
- **Candidate:** Every read detected is displayed in this field as a potential read candidate. The SharpV can read up to 30 frames (reads) per second. The **Read strategy** configured on the **Analytics** page determines which read candidate that will be used as the final read.

Sharp Portal - Network page

The *Network* page is available from the **Configuration** menu. Use the *Network* page to configure the SharpV to use Dynamic Host Configuration Protocol (DHCP) or a static IP address.

IPv4 network settings

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

- **Use DHCP:** Select this option to connect the SharpV to a DHCP server, which assigns the required IP address. On a network with DHCP and DNS servers, you can connect to the SharpV using the SharpV name (for example, SharpV 1234) rather than the IP address (for example, 192.186.10.100).
- **Use static IP address:** Select this option to use a static address for the SharpV.

IMPORTANT: You must use a static IP address if you want to stream video to the Security Center Archiver role.

You can modify the following:

- **IP address:** Type the new IP address you want to assign to the SharpV. 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

The *Security* page is available from the **Configuration** menu. Use the *Security* page to configure security settings such as whether or not to use encrypted communication for the SharpV, and creating and installing self-signed and signed certificates.

Access

- **Modify password:** Click **Modify password** to change the password for the SharpV.
IMPORTANT: If you forget your password, it cannot be retrieved or reset. The camera must be returned to Genetec Inc. for service.

HTTPS connection policy

- **Use HTTPS:** Select this option to use encrypted communication.

NOTE:

- The **Use HTTPS** option must be cleared when deleting a certificate. For example, if a self-signed certificate is already installed and you want to replace it with a signed certificate, you must clear the **Use HTTPS** option first.

Certificate

NOTE: You can only configure one certificate at a time. If you want to install a new certificate, you must first delete the current certificate

- **Create self-signed certificate:** Click to create a self-signed certificate. In the **Create a certificate signing request** dialog box, you must enter a two-letter **Country** code, the **Common name**, 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 SharpV web portal.
NOTE: If you are also using the certificate to connect to the Archiver, the **Common name** defined in the certificate must be the SharpV IP address, not the SharpV name.
- **Download self-signed certificate:** Click to add a self-signed certificate to your trusted root store. You are prompted to install the self-signed certificate using the **Certificate Import Wizard**.
- **Create a certificate 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 and the **Common name** in the **Create a certificate signing request** dialog box. The other fields are optional.
IMPORTANT: If the SharpV has been added to the Security Center Archiver and is being used to monitor video, you must enter the IP address of the SharpV and not the name.
- **Signing request:** Displays the information about the signing request, such as the country, state, and common name of the server. Click **Show request** to display the certificate signing request. Click **Delete** to delete the certificate signing request.
IMPORTANT: Do not delete a certificate signing request for an installed signed certificate that is currently in use. The signed certificate will no longer work, and you will not be able to reinstall it.
- **Install signed certificate:** Click to install a signed certificate from a trusted Certificate Authority.
- **Installed certificate:** Displays information about the installed certificate. Click **Delete** to delete the certificate from your trusted root store.

Permissions

- **Accept remote reboot requests:** Select this option so that the SharpV can be rebooted from other applications.
- **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 an hour, logged-in users are still authorized but new logins are denied.

Unit

- **Run in covert mode:** Select this option to turn off the LED on the Sharp 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 SharpV, the LED will blink to indicate that there is a problem.

Sharp Portal - Zoom and focus page

The *Zoom and focus* page is available from the **Configuration** menu. Use the *Zoom and focus* page to adjust the images from the LPR camera and Context camera so that they are clear, and vehicles associated with plate reads can be easily identified.

Normally the zoom and focus is adjusted once, and only needs to be adjusted if the location of the SharpV changes.

NOTE: Information on context cameras is not applicable to SharpV ITS cameras.

To properly adjust the zoom and focus for the SharpV:

- The camera must be pointed at a stationary license plate or target so that you can evaluate the appearance of the plate reads.
- **Select your camera:** Select which camera you want to adjust (LPR or Context).
- **Temporarily adjust the exposure:** Use the slider to adjust the exposure for the best plate image.

NOTE: This temporary setting is only used while adjusting the zoom and focus. Auto-exposure is temporarily suspended and the iris is fully open. After adjustment is complete, this setting is ignored and the camera uses the **Exposure** setting that is configured on the **Configuration > Cameras** page.

- **Enable Flash:** (Context camera only) If you need to calibrate the zoom and focus of the context camera in low light conditions, select this option to enable the IR illuminator.
- **Set the zoom level:** Use the labeled screws on the bottom of the SharpV to adjust the zoom on the camera's LPR lens or context camera. Use the **Show ruler** option in the portal to help you adjust the zoom so that the plate characters are 25 - 60 pixels, where 30 pixels is ideal. You can visually monitor when the optimal setting is reached, using the **Best score** graph. The zoom screws are labeled as follows:
 - **CTX:** Context camera
 - **LPR:** LPR camera
 - **T:** Telephoto
 - **W:** Wide
 - **(Context camera only) SR:** Standard range
 - **(Context camera only) LR:** Long range

IMPORTANT: The zoom level impacts the focus. Always adjust the zoom level before setting the focus.

- **Set the focus:** Use the labeled screws on the bottom of the SharpV to adjust the focus on the camera's LPR lens or context camera. Focus the camera on a stationary plate located at the mid-point of the vehicle's expected trajectory. You can visually monitor when the optimal setting is reached, using the **Best score** graph. The focus screws are labeled depending on the camera type and model:
 - **CTX:** Context camera
 - **LPR:** LPR camera
 - **F:** Far
 - **N:** Near
 - **(Context camera only) SR:** Standard range
 - **(Context camera only) LR:** Long range
- **Best score:** Use the **Best score** graph to visually monitor when the optimal setting is reached for the zoom and focus while you are adjusting the screws on the bottom of the SharpV. The bold orange line in the graph indicates the current focus value. The dim orange line indicates the best focus that has been achieved. You have reached the optimal point when the bold orange line separates from the dim orange

line and begins to descend. At this point, you must reverse the direction that you are turning the screw so that the bold orange line returns upwards to meet the dim orange line. When the two lines intersect again, this is the optimal setting.

- **Reset:** Click to reset the **Best score** graph.
- **Show ruler:** Select this option to have the ruler display on the camera image. Drag the ruler next to the license plate and enter a pixel (px) value to change the size of the ruler on the screen. The height of the plate characters in the image should be between 25 - 60 pixels, where 30 pixels is ideal.

TIP: Click the license plate to use digital zoom to help you evaluate the best zoom level. There are three zoom levels: 1:1, 2:1, and 4:1. A preview of the zoomed area is displayed in the top right corner of the image.

- **Done:** Click when you are finished calibrating the zoom and focus for your LPR and Context cameras.

Sharp Portal - Cameras page

The *Cameras* page is available from the **Configuration** menu. Use the *Cameras* page to define a region of interest and adjust the exposure.

- **Select your camera:** Select the camera to configure.
- **(Context camera only) Lighting type:** Select a lighting type from the drop-down menu.
NOTE: Information on context cameras is not applicable to SharpV ITS cameras.
- **Exposure:** Select the **Exposure** type. You can choose from the following:
 - **Default:** Select this option to have the SharpV automatically adjust the exposure settings.
 - **Fixed (indoor):** Select this option when constant lighting conditions are available. Use the sliders to adjust the **Gain** and **Shutter 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 **Shutter time**, until the overall brightness and clarity you want for the image is achieved.
- **(LPR camera only) Click the picture to define region of interest:** Defining a region of interest restrict the readable area to a portion of the field of view as configured by the user. Define a region of interest by clicking points on the image to create a perimeter. Click **Clear the region of interest** to delete the region.
- **(Context camera only) Enable 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 **Enable 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 **Enable illuminator** check box.

NOTE: Information on context cameras is not applicable to SharpV ITS cameras.

Sharp Portal - Analytics page

The *Analytics* page is available from the **Configuration** menu. Use the *Analytics* page to configure the analytics used for the license plates read by the SharpV.

- **Context:** Select which plate origin the SharpV is reading.
- **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 SharpV 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.
 - **Single read on trigger:** Select this option so the SharpV captures a plate read after a signal is received from an electrical trigger, or after a Security Center event-to-action or hot action. 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.
 - **Add trigger:** Select to add a trigger. You must configure the following:
 - **When.** Select which input receives the trigger signal and indicate the state of the input (**Low** or **High**). You can also select an **External** input (Security Center event to-action or hot action).
 - **Capture Window.**
 - **Start X ms before/after trigger.** The capture can occur up to X ms before or after the trigger is activated.
 - **Duration X ms.** The system attempts to capture a plate read for up to 30000 ms. 4000 ms is the default value.
IMPORTANT: The capture window cannot end before the time the trigger is activated.
 - **If no plates.**
 - **Capture image X ms after trigger.** If no plate is read during the time specified in the **Capture window**, a *no plate* read is logged and the system captures a context image of the vehicle so the read can be manually edited.
 - **Use LPR image as context image.** An image from the LPR camera is used to replace the context image for the *no plate* read.
 - **Capture image X ms after trigger.** If no plate is read during the time specified in the **Capture window**, a "no plate" read is logged and the system captures a context image of the vehicle so the read can be manually edited.
 - **Use LPR image as context image.** An image from the LPR camera is used to replace the context image for the "no plate" read.
NOTE: Information on context images is not applicable to SharpV ITS cameras.
- **Read strategy:** Select one of the following read strategies:
 - **Slow-moving vehicles:** Select this when vehicles are traveling slowly when their license plates are captured. For example, use this for parking lot gates or toll stations.
 - **Fast-moving vehicles:** Select this when vehicles are traveling at moderate to high speeds when their license plates are captured. For example, select this option for a Sharp overlooking a highway.
 - **Gate control:** Select this when vehicles are stopped when their license plates are captured. For example, use this for a Sharp that is monitoring a gated parking lot or toll booth.
- **Options:** Select **Optimize for fixed installation** to create a smart region of interest to decrease false positives.

- **Read contents:** Select what you would like the SharpV to attempt to read:

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 Sharp unit to attempt read the license plate origin (issuing state, province, or country).

NOTE: Plate state recognition might not be available for all states.

- **Vehicle make:** Select this option if you want the Sharp unit to attempt to read the vehicle's make from the brand or logo (Honda, Toyota, and so on).
- **Confidence score:** Assigns a numerical value (from 0 to 100) to each license plate read. This value indicates how confident the SharpV is in the accuracy of the read.

Sharp Portal - Extension page

The *Extension* page is available from the **Configuration** menu. Use the *Extension* page to configure where the SharpV sends LPR data.

- **Extension type:** Select an extension type from the drop-down list.
 - **None:** The default state.
 - **FTP:** Sends LPR data to an FTP server. Configure the following:
 - **Server:** Enter the server name and location for the LPR data.
 - **Username:** Enter the username for the server.
 - **Password:** Enter the password for the server.
 - **Test connection:** Click to determine if the server address can be reached by the SharpV.
 - **Content template:** LPR data is sent in XML format, using the template shown. You can change certain elements if you choose.
 - **Export context images:** Export the context images (in JPEG format).
NOTE: Information on context images is not applicable to SharpV ITS cameras.
 - **Export LPR images:** Send the plate images (in JPEG format).
 - **Retain data when the connection is lost:** Select this option for plate reads to be saved locally in the SharpV 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 re-established.
 - **Send sample:** Click **Send a test plate** to verify that the system can connect to the server using the configured settings.
 - **HTTP:** Sends LPR data to an HTTP server. Configure the following:
 - **Server:** Enter the server name and location for the LPR data.
 - **Username:** Enter the username for the server.
 - **Password:** Enter the password for the server.
 - **Ignore certificate errors:** Select this option when sending LPR data to an HTTPS server that does not have a trusted certificate. The SharpV will not send the LPR data to an HTTPS server that does not have a trusted certificate, unless this option is selected.
 - **Format:** Select the format for the LPR data. You can select either **JSON** or **XML** format.
 - **Export context images:** Export the context images (in JPEG format).
NOTE: Information on context images is not applicable to SharpV ITS cameras.
 - **Export LPR images:** Send the plate images (in JPEG format).
 - **Retain data when the connection is lost:** Select this option for plate reads to be saved locally in the SharpV 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 re-established.
 - **Send sample:** Click **Send a test plate** to verify that the system can connect to the server using the configured settings.
 - **Security Center:** Send LPR data to Security Center. Configure the following options:
 - **This unit manages the connection to Security Center:** Select this option if you want the SharpV you are currently configuring to manage the connection to Security Center. You must enter the following:

- **Server:** The address of the Security Center server.
- **Port:** Enter the Live - Listening Port of the LPR Manager role on the Security Center server.
- **Discovery port:** Port on which the SharpV listens for discovery requests. If you chose Security Center, the port must match the discovery port entered on the LPR Manager *Properties* page.
- **Control port:** Port used in Security Center Config Tool when creating a new LPR unit (Sharp) manually.
- **Update provider port:** The Sharp receives updates from Security Center on this port. To update the Sharp, you need to enable the Update provider on the LPR Manager *Properties* page, and the port numbers must match.
- **Test connection:** Click to determine if the server address can be reached by the SharpV.

Sharp Portal - Date and time page

The *Date and time* page is available from the **Configuration** menu. Use the *Date and time* page to configure how you want to configure the internal clock of the SharpV.

- **Settings:** Select one of the following settings.
 - **No synchronization:** The default state. The SharpV uses its own clock.
 - **NTP server:** Enter the URL of a known time server (for example, *time.windows.com*). The SharpV clock synchronizes with this server on startup and then every hour. You can test the connection at any time by clicking **Test connection**.
 - **Active extension (Security Center):** Click to synchronize the SharpV clock with the clock on the Security Center server it is connected to. The SharpV clock synchronizes with the Security Center server clock upon connection, then every 24 hours.
IMPORTANT: Selecting this option has no effect if you are using any of the other extension types (FTP, HTTP, and so on). It can only be used when the active extension type is configured as Security Center. The active extension is configured on the *Extension* page.
 - **Synchronize with client browser now:** Click to synchronize the date and time with the client machine you are using to connect to the Sharp portal. The camera performs a one-time synchronization.
IMPORTANT: Do not synchronize the SharpV clock with the client browser unless you are connecting to the SharpV web portal from the server hosting the LPR Manager role. If you synchronize clocks with a computer other than the Security Center server, the camera's reads and hits might not have accurate timestamps.
- **Date and time format:** Select one of the following date and time formats.
 - **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

The *Power options* page is available from the **Configuration > General settings** menu. Use the *Power options* page to configure the camera based on the power grid of the installation location.

- **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](#).

Sharp Portal - Maintenance page

The *Maintenance* page is available from the **Configuration** menu. Use the **Maintenance** page to free up disk space, import and export settings, and restart the SharpV.

- **Version:**
 - **Image:** Displays the current image/firmware installed.
 - **Version:** Displays the SharpOS version installed.
 - **Reclaim disk space:** Displays the amount of disk space that can be freed up by deleting log files, cache files, and stored reads. Click **Free up space** to reclaim the space displayed.
IMPORTANT: Do not click **Free up space** if you think there are any untransmitted reads stored on the SharpV that you want to keep.
 - **Update:** Click to update the SharpOS.

Settings

- **Export settings:** Click to export 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 SharpV to use the factory default settings.

Syslog

- **Use Syslog server:** Select this option to configure a central repository for all SharpV log entries.
 - **Server:** Enter the name of the server.
 - **Port:** Enter the name of the port.
 - **Network protocol:** Select UDP or TCP.

Reboot unit: Click to restart the SharpV.

Sharp Portal - Logs page

The *Logs* page is available from the **Diagnostics** menu. Use the *Logs* page to run reports and generate logs about the status of the SharpV. 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.

- **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.
- **Distinct entries only:** Logs with identical messages are displayed only once.
- **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.
- **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.

Where to find product information

You can find our product documentation in the following locations:

- **Genetec™ Technical Information Site:** The latest documentation is available on the Technical Information Site. To access the Technical Information Site, log on to [Genetec™ Portal](#) and click [Technical Information](#). 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 explain how the product works and provide instructions on how to use the product features. Genetec Patroller™ and the Sharp Portal also include context-sensitive help for each screen. 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 the Genetec™ Technical Information Site, where you can find information and search for answers to your product questions.

- **Genetec™ Technical Information Site:** 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 the Technical Information Site for potential fixes, workarounds, or known issues.

To access the Technical Information Site, log on to [Genetec™ Portal](#) and click [Technical Information](#). 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: [EN_GLM_ASSURANCE](#) and [EN_GLM_ADVANTAGE](#).

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 a variety of topics, ranging from technical questions to technology tips. You can log in 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>.

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Hardware product issues and defects

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