

Architectural and Engineering Specifications for GV-ASManager Access Control Management Software

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The document is written using industry standard format and language, and is designed for use by architects, consultants, and specifying engineers who are preparing bid specifications for security cameras, surveillance systems and access control systems.

The electronic version of these specifications may be copied into the appropriate sections of a complete bid specification by using the “cut and paste” method. They are written to highlight the features and specifications of GeoVision products. Section headings mention specific models only for clarity – these may be deleted after insertion into the complete specification.

Major Product Covered in This Document:

- **GV-ASManager (Version 6.2.0)**
GeoVision’s access control management software

Other Products Referenced in This Document:

- **GV-AI Guard**
GeoVision’s video analytics software
- **GV-Recording Server**
GeoVision’s recording server for large-scale surveillance
- **GV-NVR**
GeoVision’s network video recording software
- **GV-VMS**
GeoVision’s video management software
- **GV-SNVR**
GeoVision’s standalone NVR (hardware-based)

For more information on GeoVision products, please visit www.geovision.com.tw.

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GV-ASManager Access Control Management System



A. Naming and Definitions

The following terms and abbreviations are used throughout this specification for clarity and consistency:

- **GV-ASManager:** Referred to as **ASManager**
- **GV-AS series controllers (for doors) and GV-EV series controllers (for elevators):** Referred to as **GV-AS / EV controllers**
- **License Plate Recognition:** Referred to as **LPR**
- **Face Recognition:** Referred to as **FR**

B. Overview

1. **Centralized Management.** ASManager shall serve as the central management software for GeoVision access control systems, supporting real-time monitoring, configuration, and event handling across multiple access control devices and integrated modules.
2. **Credential and User Management.** ASManager shall provide centralized management of user profiles, access cards, Face IDs, and biometric credentials. It shall support:
 - a. Multi-factor authentication (card + face, card + pin code)
 - b. Import/export of user databases
 - c. Access scheduling and group-based permissions
3. **Event Monitoring and Alerting.** ASManager shall support real-time event monitoring and logging, including:
 - a. Entry/exit events
 - b. Unauthorized access attempts
 - c. Tampering or forced door alerts
 - d. Alarm events (e.g., duress, temper, fire alarm)
 - e. Customizable alert actions (e.g., e-mail notifications, output device activation, system alarms)
4. **Hardware Integration.** ASManager shall support integration with the following hardware components for access management:
 - a. GV-AS / EV controllers
 - b. Readers
 - c. Doors and Locks
 - d. Elevators
 - e. ID cards and UHF tags
 - f. IP cameras
 - g. LPR cameras

- h. Face recognition cameras
- i. GV-I/O Boxes and I/O devices
- 5. **Network Connectivity.** All supported controllers, IP cameras, and GV-I/O Boxes shall be able to connect to ASManager through TCP/IP protocols.
- 6. **Video System Integration.** ASManager shall support GV-AI Guard, GV-NVR, GV-VMS, GV-Recording Server, GV-SNVR (hardware-based), IP cameras and for video integration.
- 7. **Mobile Patrol Support.** ASManager shall support GV-Patrol Android mobile app for configuring GV-Patrol Fobs as patrol points for security personnel to check in at the patrol schedules.
- 8. **Web-Based Applications.** ASManager shall provide the following complementary applications, accessible via a standard web browser without requiring additional installation:
 - a. **GV-ASWeb**
A Web-based interface for managing access control, including access cards, user profiles, camera integration, and device configurations
 - b. **GV-TAWeb**
A Time and attendance application for workforce scheduling, attendance tracking, and payroll tracking
 - c. **GV-VMWeb**
A visitor management portal for registration, monitoring, and reporting of visitor activity
 - d. **GV-ASRemote**
Centralized monitoring of multiple GV-ASManager systems over the Internet, with no limitation on the number of connected instances

C. Access Control Structure

- 1. **Controller Connectivity.** ASManager shall support connection of up to **1,000 units** of GV-AS / EV controllers via TCP/IP.
- 2. **Device Group Management.** ASManager shall support the creation of Device Groups to organize added devices—including controllers, LPR units,

cameras, and I/O boxes—for the purpose of applying unified access settings. Device Groups shall also define user permissions to allow or restrict control of devices within the same group.

3. **Controller-Based Reader Management.** Each connected GV-AS / EV controller shall be capable of managing door or elevator readers based on the access database maintained by ASManager.
4. **Access Event Logging.** ASManager shall record access events, including but not limited to the following:
 - a. Access granted
 - b. Door alarms: door held open, door forced entry, tamper, access denied
5. **Access Control Mechanisms.** ASManager shall support the following access control mechanisms, including but not limited to:
 - a. **Duress:** ASManager shall grant access and simultaneously activate designated alarm(s) upon entry of a user-defined duress code, used when an authorized individual is compelled to open a secured door under threat.
 - b. **Anti-Passback:** ASManager shall prevent re-entry into a defined area if the individual has accessed the entry point without first exiting.
 - c. **Door interlock:** ASManager shall configure multiple doors connected to the same controller as interlocked, automatically locking all other doors whenever one is granting access.
 - d. **Two-person A/B rule:** ASManager shall configure doors to require two distinct access credentials to be presented in a specified sequence before access is granted.
6. **Third-Party Integration Protocols.** ASManager shall integrate with third-party IP devices and software via the following communication protocols:
 - a. ONVIF
 - b. PSIA
 - c. RTSP

7. **LPR Integration.** ASManager shall integrate the following License Plate Recognition devices and software for automated license plate detection and comparison against its vehicle database for access management:
 - a. GV-DVR LPR (PC-based LPR system)
 - b. GV-VMS LPR (PC-based LPR system)
 - c. GV-LPR2812 (LPR camera)
8. **Face Recognition Integration.** ASManager shall support integration with the face recognition devices and software for pairing access data with each enrolled face ID for access management.

D. Access Card Data & Cardholder Management

1. **Card Enrollment Capacity.** ASManager shall enroll up to **40,000 or 100,000 access cards** to each of connected GV-AS / EV controller, depending on the controller model, for access management.
2. **Supported Card Formats.** ASManager shall support access cards of the following formats:
 - a. Standard 26-bit Wiegand
 - b. HID 32-bit Wiegand
 - c. Geo 34-bit Wiegand
 - d. HID 35-bit Wiegand
 - e. HID 37-bit Wiegand
 - f. Geo 64-bit Wiegand
3. **Card Type Definitions.** ASManager shall define access cards as one of the following card types:
 - a. **Normal:** ASManager shall grant access when such cards are presented to readers for which they hold access rights.
 - b. **Patrol:** ASManager shall record patrol events when such cards are presented to readers, without granting access.

- c. **Two-Person A or B Card:** ASManager shall grant access only when both cards are presented in immediate sequential order on readers configured with the Two-Person Rule.
 - d. **Visitor:** ASManager shall grant access to such cards only as defined through the GV-VMWeb visitor management application.
 - e. **Security:** ASManager shall enable and disable Security Mode when such cards are presented to readers. During Security Mode, access rights of all other access cards shall be temporarily revoked.
 - f. **Handicap:** ASManager shall grant access when such cards are presented to authorized readers, with an extended door open duration definable by the user.
 - g. **Special Card:** ASManager shall apply customized Lock Reset Time or Held Open Time when such cards are presented to readers.
4. **Card Privileges.** ASManager shall grant the following privileges to the enrolled access cards:
- a. **Stop Alarm:** Access cards with such privilege shall terminate any triggered alarms when presented to the readers.
 - b. **Clear Event:** Access cards with such privilege shall clear any alarm events within the controller when presented to the readers.
5. **Card Activation Scheduling.** ASManager shall support activation and deactivation of access cards at user-defined times.
6. **Enrollment Devices.** ASManager shall support GV-PCR1251 / 1352 card enrollment readers for convenient reading and enrolling of access card data.
7. **Cardholder Assignment.** Each access card shall be assigned to one cardholder, and one cardholder may be assigned multiple access cards.
8. **Cardholder Creation via ID Scanning.** ASManager shall support SnapShell ID Scanner for creating or editing cardholders via scanning a driver's license or business card.
9. **Batch Enrollment.** ASManager shall support batch enrollment of multiple cardholders and access card data.

10. **Access Group Assignment.** ASManager shall support assignment of multiple cardholders to a single access group to apply identical access rights.
11. **Access Card Templates.** ASManager shall support the design of access card templates and the automated linking of each template to the personal information of assigned cardholders, enabling user-initiated printing.
12. **Mobile Credentials.** ASManager shall support mobile credentials for smartphone-based access via the GV-Mobile Access app, in conjunction with the GV-QR1352 QR code reader.

E. Access Schedules and Modes

1. **Time Zone Management.** ASManager shall manage access control for up to **256 time zones**, based on the user-defined weekly schedules.
2. **Holiday Planning.** ASManager shall support holiday planning for a duration of up to **14 months**.
3. **Access Modes.** ASManager shall grant access based on the following access modes, as defined by its access schedules:
 - a. **Card only mode:** Access shall be granted only when access cards are presented to authorized readers during designated time periods
 - b. **Card and PIN Code mode:** Access shall be granted only when the corresponding PIN code is entered, followed by presentation of the access card on the reader, during designated time periods.
 - c. **Card or Common mode:** Access shall be granted when either access cards are presented or predefined passwords are entered on the readers during designated time periods.
 - d. **Release mode:** Doors shall remain unlocked at all times or unlock upon card presentation, depending on configuration, during designated time periods.

F. Patrol Tours

1. **Patrol Tour Configuration.** ASManager shall support the configuration of patrol tours requiring security personnel to check in at predefined times and designated locations.
2. **Patrol Status Alerts.** ASManager shall send alert notifications via e-mail based on the patrol status of security personnel, including on-time, early, late, or missed (absent) check-ins.

G. Access Database and Import / Export

1. **Database Compatibility.** ASManager shall support Microsoft Access, SQL Server and Active Directory databases to record and store access data.
2. **Data Import and Export Formats.** ASManager shall support the import and export of personnel, access card, and vehicle data in the following file formats:
 - a. Microsoft Access
 - b. Microsoft Excel
 - c. CSV Text

H. Video Integration

1. **Supported Video Devices and Software.** ASManager shall support the following devices and software for video integration, enabling live view of associated doors, lanes, and I/O devices, and capturing snapshots upon access or alert events:
 - a. GV-AI Guard
 - b. GV-NVR / VMS
 - c. GV-Recording Server

- d. GV-SNVR (hardware-based)
 - e. GV-IP cameras
 - f. Third-party IP devices via ONVIF, RTSP, or PSIA protocols
2. **Live Display Matrix.** ASManager shall provide a matrix for simultaneous live display of up to 16 channels, as defined by the user.
 3. **Dual-Monitor Support.** ASManager shall support dual-monitor display for expanded viewing and monitoring capabilities.
 4. **Instant Playback.** Instant playback of specific access events shall be available during live monitoring.
 5. **Snapshot Capture.** ASManager shall capture snapshots during access events
 - a. The snapshots shall be saved in JPEG format.
 6. **Two-Way Audio Communication.** Users shall be able to initiate two-way audio communication with the live surveillance scene.
 7. **Live View Enhancement.** ASManager shall enhance live view quality using DirectDraw Scale to provide sharper and clearer image output.
 8. **Video Channel Alerts.** Alerts such as Video Loss or Connection Loss shall be displayed on inactive camera channels.
 9. **Nx Witness Integration.** ASManager shall support integration with Nx Witness VMS for video management and event synchronization.

I. Smart Access — License Plate and Face Recognition

License Plate

1. **LPR Device Support.** ASManager shall support control of up to **255 LPR units**, including GV-DVR LPR (PC-based LPR), GV-VMS LPR (PC-based LPR), and GV-LPR2812 (LPR camera), for vehicle access management via license plate recognition.
2. **Vehicle Database Capacity.** ASManager shall manage a vehicle database of up to **100,000 entries**.

3. **Recognition Technology.** ASManager shall support license plate recognition settings based on machine learning (ML) and deep learning (DL) technologies to enhance detection accuracy and adaptability under varying environmental and operational conditions.
4. **Access Modes.** ASManager shall grant vehicle access based on the following access modes, as defined by its access schedules:
 - a. **License Plate Mode:** Access shall be granted when registered license plates are recognized by the system during designated time periods.
 - b. **Card Mode:** Access shall be granted when access cards are presented to authorized readers during designated time periods
 - c. **License Plate or Card Mode:** Access shall be granted when either a registered license plate is recognized or an access card is presented to the reader during designated time periods.
 - d. **License Plate and Card Mode:** Access shall be granted only when both a registered license plate is recognized and an access card is presented to the reader within 10 seconds of each other, during designated time periods.
5. **Parking Lot Management.** ASManager shall support parking lot management through the following mechanisms:
 - a. Vehicle access
 - b. Maximum stay time allowed
 - c. Vehicle count limit
 - d. Exit restriction for unregistered and overstayed vehicles
 - e. Anti-Back Time (time interval in seconds preventing the same license plate from re-entering)
 - f. Anti-Passback by User (only one vehicle per user allowed to enter when multiple vehicles are registered)
 - g. Share Space (multiple vehicles sharing the same parking allocation)
6. **Detection Triggers.** ASManager shall initiate license plate detection and recognition upon motion detection and/or I/O trigger, as defined by the user.

7. **Matching Tolerance Settings.** ASManager shall require full license plate digit matching against the database or tolerate 1 to 2 mismatched characters for access, as defined by the user.
 - a. When mismatch tolerance is enabled, the first and last characters of the license plate shall not be mismatched.
8. **Vehicle-to-User Assignment.** Each vehicle shall be assigned to one user, and each user may be assigned multiple vehicles.
9. **Vehicle Hotlist.** ASManager shall support a vehicle hotlist for locating vehicles of interest, such as stolen or flagged vehicles.
10. **Speed Calculation.** ASManager shall support average speed calculation for license plate recognition events.

Face Recognition

11. **Device and Software Integration.** ASManager shall support connection of the following face recognition devices and software to controllers for receiving access card data paired with recognized faces for personnel access management.

Cameras

- GV-FD8700-FR
- GV-VD8700

Readers

- GV-FR2020
- GV-FR Panel / GV-FR Panel V2
- GV-Mini FR

Software

- GV-AI FR

When connecting to face recognition cameras (GV-FD8700-FR, GV-VD8700) to controllers, a GV-FWC shall be required.

12. **Face Recognition Events.** ASManager shall receive access card data upon the following face recognition events:
 - a. Registered Faces
 - b. Unknown Faces

13. **Snapshot Capture.** ASManager shall capture face snapshots from face recognition devices and software connected within the LAN.
14. **Enrollment and Synchronization.** ASManager shall support enrollment and synchronization of face and access data with the database of connected face recognition devices and software.

J. I/O Integration — Sensors and Alarms

1. **I/O Box Support.** ASManager shall support GV-I/O Boxes to provide extended sensory inputs and relay outputs for the connection and control of external I/O device
2. **Input/Output Configuration.** ASManager shall support configuration of digital inputs as Normally Open (N/O) or Normally Closed (N/C), with or without latch mode. Digital outputs shall be configurable as N/O or N/C, with optional toggle or pulse settings defined in seconds.
3. **Trigger-Based Actions.** ASManager shall support the following actions in response to input triggers from connected devices:
 - a. Alarm Output Activation
 - b. Door Operations (e.g., unlock)
 - c. Lane Operations (e.g., license plate recognition)
 - d. Snapshot Capture via assigned cameras
4. **Device Control During Monitoring.** Users shall be able to enable or disable I/O devices without interrupting live monitoring or recording operations.
5. **I/O Monitor Window.** ASManager shall support an I/O monitor window with the following function
 - a. Real-time I/O status indication
 - b. Manual alarm triggering by users

K. Device / Incident Monitoring & Control

1. **Live Monitoring Interface.** ASManager shall display the live connection status, incident notifications, and/or images of connected devices in a user-definable layout for active monitoring. Supported device types include:
 - a. Controllers
 - b. Door / Elevator readers
 - c. LPR lanes
 - d. IP cameras
 - e. I/O devices
2. **Customizable Screen Layout.** ASManager shall support a customizable screen layout, defined by the user through click-and-drag actions and/or the following arrangement options:
 - a. **Cascade:** Overlaps open windows while displaying their title bars.
 - b. **Tile Horizontally:** Arranges open windows side-by-side in a horizontal layout.
 - c. **Tile Vertically:** Arranges open windows in a vertical stack.
 - d. **Arrange Icons:** Minimizes windows to the bottom of the ASManager interface.
3. **Access Control Actions.** ASManager shall support the following access control actions for connected door and elevator readers, as well as controllers. When actions are performed on a controller, they shall apply to all door and elevator readers managed by that controller:
 - a. **Unlock Door:** Unlocks doors for a user-defined time interval, allowing temporary access.
 - b. **Lock Down:** Denies all access except for access cards explicitly authorized by the user. This function is typically used in emergency or restricted scenarios.
 - c. **Force Unlock / Force Lock:** Maintains doors in a locked or unlocked state until manually disabled by the user or administrator.

- d. **Force Unlock with Timer:** Applies a countdown timer to a controller or door. Once the timer expires, a force lock is automatically executed to re-secure the door.
 - e. **Clear All Events:** Removes active incident and alarm notifications from the system interface, restoring normal monitoring status.
 - f. **Reset Anti-Passback:** Allows personnel and vehicles to re-access entrance or exit readers in areas they have already entered or exited, by passing anti-passback restrictions.
- 4. **Incident Note Prompt.** ASManager shall prompt users to record notes when clearing incident and alarm events.
 - 5. **Access Message Highlighting.** ASManager shall highlight access messages associated with access groups specified by the user.

L. Alert Notifications

- 1. **Supported Alert Actions.** ASManager shall support the following alert notifications and automated actions in response to user-defined access events:
 - a. Send e-mail alerts
 - b. Send mobile push notifications
 - c. Pop up live view on screen
 - d. Trigger PTZ camera movement to a preset point
 - e. Activate alarm output
 - f. Send reports of system lists and logs to a user-specified e-mail addresses or designated folders on the ASManager system.
- 2. **E-mail Notifications.** For e-mail alert notifications:
 - a. ASManager shall support e-mail authentication and configuration of alternative SMTP ports.
 - b. ASManager shall support integration with Google and Microsoft OAuth-based e-mail accounts.

- c. Users shall be able to define the time interval between successive e-mail notifications.

M. Area Monitoring

1. **Real-Time Area Tracking.** ASManager shall monitor and track the number of users, cards and vehicles present within defined access areas at any given time.
 - a. Access areas shall be user-defined and delineated by designated door locations.
 - b. ASManager shall monitor and locate individual users within defined access areas.
2. **Occupancy Limit Monitoring.** ASManager shall support occupancy limit monitoring, triggering an on-screen alert highlight when the specified number of users entering and/or remaining within a defined area is reached.

N. Offline Capabilities

All controllers configured by ASManager shall operate independently based on the access schedules and data previously defined, even when disconnected from ASManager.

O. Account & Authority Management

1. **Supervisor Account Initialization.** Upon first-time startup, users shall be prompted to define a supervisor ID and password, and enter an e-mail address for password retrieval.
2. **User Authority Configuration.** ASManager shall support the configuration and assignment of access authorities for up to **1,000 system users**.

3. **Password Error Checking.** ASManager shall provide a Password Error Checking option that displays the number of remaining login attempts and the enforced wait time following login errors.
4. **Data Group Permissions.** ASManager shall support the creation of data groups for assigning access rights to system configurations, with the following permission levels:
 - a. Read: privilege to view settings
 - b. Write: privilege to view and change settings
 - c. Execute: privilege to lock/unlock doors and deactivate alarms
5. **Group-Based User Assignment.** ASManager shall allow multiple system users to be assigned to the same data group, by granting them identical read, write, and execute rights.

P. GV-ASWeb — Remote Management

1. **Live Monitoring.** GV-ASWeb shall support remote monitoring of live status, incident notifications, and device images for all hardware connected to ASManager.
2. **Remote Configuration.** GV-ASWeb shall support remote configuration of personnel, vehicle, access card data, and system settings managed by ASManager.
3. **Remote Access Control.** GV-ASWeb shall support remote execution of access actions on controllers and door/elevator readers connected to ASManager.
4. **Event Search and Retrieval.** GV-ASWeb shall support remote search and retrieval of log events—including LPR and FR events—with access to corresponding snapshots and recordings.
5. **User Prompting and Map Display.** GV-ASWeb shall support remote user prompting upon access events and display such events on Google Maps in chronological order, with up to six prompting events shown simultaneously.

6. **Map-Based Monitoring.** GV-ASWeb shall support live monitoring of access and alert events on map layouts and/or floor plans defined by the user.
7. **Scheduled Export of Logs and Lists.** ASManager shall support scheduled export of system lists and logs, with automated delivery to user-specified e-mail addresses or designated folders on the ASManager system.
The exportable items shall include:
 - a. User, Card, and Vehicle Lists – Core identity and credential records
 - b. Access, Alarm, and Event Logs – Real-time and historical access activity
 - c. Daily Access and Patrol Logs – Time-based summaries of movement and security tours
 - d. I/O and LPR Logs – Input/output device activity and license plate recognition records
 - e. System and User Action Logs – Administrative operations and system-level events
8. **Export Format Options.** GV-ASWeb shall support user-defined export schedules for automated log record exports in the following file formats:
 - a. Microsoft Excel
 - b. Text
 - c. HTML
 - d. Zip
 - e. PDF
9. **Web Server Port Configuration.** GV-ASWeb shall allow HTTP and HTTPS ports on the Web Server to be enabled or disabled by the user.
10. **Web Socket-Based Playback.** GV-ASWeb shall support Web Socket-based playback, enabling live video streaming directly from connected cameras to reduce ASManager system resource usage.

Q. GV-ASRemote — Multiple System Monitor

1. **Multi-System Monitoring.** GV-ASRemote shall support monitoring of multiple ASManager systems over the Internet, without limitation on the number of connected instances.
2. **Remote Door Control.** GV-ASRemote shall support remote monitoring and operation of doors managed by multiple ASManager systems.
3. **Live View Access.** GV-ASRemote shall support remote access to the live view of IP devices connected to multiple ASManager systems.
4. **Event Search and Retrieval.** GV-ASRemote shall support remote access to snapshots, video recordings, access logs, and LPR logs from multiple ASManager systems.

R. GV-TAWeb — Attendance and Payroll Management

1. **Workforce Scheduling.** GV-TAWeb shall support the management of flexible workforce schedules.
2. **Payroll Calculation.** GV-TAWeb shall provide payroll calculations based on recorded attendance data.
3. **Report Access.** GV-TAWeb shall support search and retrieval of attendance and payroll reports.

S. GV-VMWeb — Visitor Management

1. **Visitor Database Management.** GV-VMWeb shall support visitor database management and grant visitor access through a web-based interface.
2. **Visitor Card and Vehicle Control.** GV-VMWeb shall manage and activate/deactivate visitor cards and vehicles, granting access only within user-defined time periods.

3. **Visitor Registration Portal.** GV-VMWeb shall support an open server for visitor account registration and submission of visit requests, with access granted according to user-defined schedules.
4. **Automatic Vehicle Check-In.** GV-VMWeb shall automatically check in visitor vehicles upon detection at designated entrance points.
5. **Automatic Card and Vehicle Check-Out.** GV-VMWeb shall automatically check out visitor cards and vehicles upon detection at designated exit points.
6. **Visitor Record Search.** GV-VMWeb shall provide a visitor search function for accessing historical visitor records.
7. **Visitor Access Control Methods.** GV-VMWeb shall provide the following types of visitor access control:
 - a. Visitor cards
 - b. Passcodes
 - c. Single-use QR codes
8. **Visit Record Monitoring.** GV-VMWeb shall provide a monitor page listing visit records within a user-defined time period.
9. **Live Visit Request Counter.** GV-VMWeb shall display a counter banner showing live counts of Total, Unpermitted, Permitted, Check-in, Check-out, and Expired visit requests.

T. GV-ASNotify — Remote Monitoring and Interaction

GV-ASNotify shall be a desktop application designed to facilitate remote monitoring, two-way communication, and door access control at entry points. The application shall integrate GV-CS1320 controllers and GV-Mini FR panels with intercom functionality into ASManager for centralized management.

1. **Application Platform.** GV-ASNotify shall operate as a Windows-based desktop application for remote interaction with access control devices integrated via ASManager.
2. **Core Functions.** GV-ASNotify shall support:

- a. Live video viewing
 - b. Two-way audio communication with visitors at access control sites
 - c. Remote door unlocking capabilities
3. **Intercom Integration.** GV-ASNotify shall integrate with GV-CS1320 controllers, and GV-Mini FR panels connected to ASManager for seamless intercom functionality.
 4. **Event Trigger Response.** Upon activation of the touchpad or intercom button on the readers, GV-ASNotify shall trigger:
 - a. Snapshots
 - b. Event messages
 - c. Alarms

These shall alert operators for immediate response.
 5. **Remote Access Granting.** Operators shall be able to grant remote access to doors via the unlock button within the GV-ASNotify interface.
 6. **Audio-Visual Communication.** Users shall be able to enable live view and two-way audio communication with guests at entry points, provided GV-IP cameras near the doors support two-way audio functionality.
 7. **Network Connectivity.** GV-ASNotify shall connect to ASManager over the network to support real-time event handling and centralized access control operations.
 8. **Licensing and Scalability.** GV-ASNotify shall require no additional licensing beyond ASManager and shall support unlimited connections to ASManager instances.

U. Mobile Applications

GV-Access (Android / iOS)

1. **Multi-System Connectivity.** GV-Access shall support connection to up to 5 ASManager systems.

2. **Remote Monitoring.** GV-Access shall support remote monitoring of doors and LPR lanes, including access to corresponding live views.
3. **Remote Control Functions.** GV-Access shall support remote locking and unlocking of doors and LPR lanes, including:
 - d. **Unlock Door:** Unlocks doors for a user-defined time interval.
 - e. **Force Unlock / Force Lock:** Maintains doors in a locked or unlocked state until manually disabled.
 - f. **Lock Down:** Denies all access except for access cards explicitly authorized by the user.
4. **Alarm Event Viewing.** GV-Access shall support viewing of alarm events generated by ASManager.
5. **Push Notifications.** GV-Access shall receive push notifications from ASManager upon access control, LPR, I/O box, system, and user activity events.

GV-Patrol (Android)

6. **Patrol Tour Execution.** GV-Patrol shall allow security personnel to log in and perform patrol tours assigned by ASManager
7. **Patrol Status Monitoring.** GV-Patrol shall allow security personnel to view current patrol status and patrol history.

GV-Mobile Access (Android / iOS)

8. **Mobile Credentials.** GV-Mobile Access shall support mobile access credentials, including mobile cards, dynamic QR codes, and smartphone-based access.
9. **Visitor Request Submission.** mobile version of Visitor Web shall support submission of visitor requests via mobile devices.

V. Languages

ASManager shall support 15 languages as follows: Czech, English, French, Hebrew, Italian, Japanese, Persian, Polish, Portuguese, Russian, Serbian, Spanish, Traditional Chinese, Turkish, and Ukrainian.

W. Access Control System Requirements

- ASManager shall adhere to the following minimum system requirements based on the number of connected GV-AS or EV Controllers:

No of connected controllers		0-50	51~100	101~1000
OS	64-bit	Windows 10 / Windows 11 / Server 2016 / Server 2019 / Server 2022		
CPU		Intel Core i3, 3.4 GHz (2 Cores, 2 Threads)	Intel Core i5, 3.4 GHz (2 Cores, 2 Threads)	Intel Core i7, 3.0 GHz (4 Cores, 8 Threads)
Memory		8 GB		16 GB
Database		MDB or Microsoft SQL database		Microsoft SQL database
Hard Disk		500 GB		1 TB
Program		.NET Framework 4.5 Microsoft SQL Server 2005 Express (optional)		
Browser		Edge, Chrome, Firefox		

2. A license shall be required for connections exceeding 4 GV-AS or EV Controllers, as summarized below:

License Tier	Controller Capacity
Free License	Up to 4 GV-AS or EV Controllers
Maximum License	Up to 1,000 GV-AS or EV Controllers
License Increment Unit	1 GV-AS or EV Controller per license

3. A license shall be required for configuring GV-Patrol virtual controllers, each capable of managing up to 8 GV-Patrol points, as summarized below:

License Tier	Controller Capacity
Free License	N/A
Maximum License	Up to 1,000 GV-Patrol controllers
License Increment Unit	1 GV-Patrol controller per license

4. A license shall be required for configuring GV-I/O Boxes:

License Tier	Controller Capacity
Free License	Up to 16 GV-I/O Boxes
Maximum License	Up to 1,000 GV-Patrol controllers
License Increment Unit	1 GV-I/O Box per license

5. There shall be two distinct license types: GV-USB Dongle and Software License. These license types are not compatible with one another.
- **GV-USB Dongle:** A hardware-based license, available in external or internal form factors
 - **Software License:** Applicable only for GV-AS / EV controllers.