Architectural and Engineering Specifications

GV-Control Center

Revision Date: 04/13/2017

The document is written using industry standard formatting 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.

Product covered in this document includes:

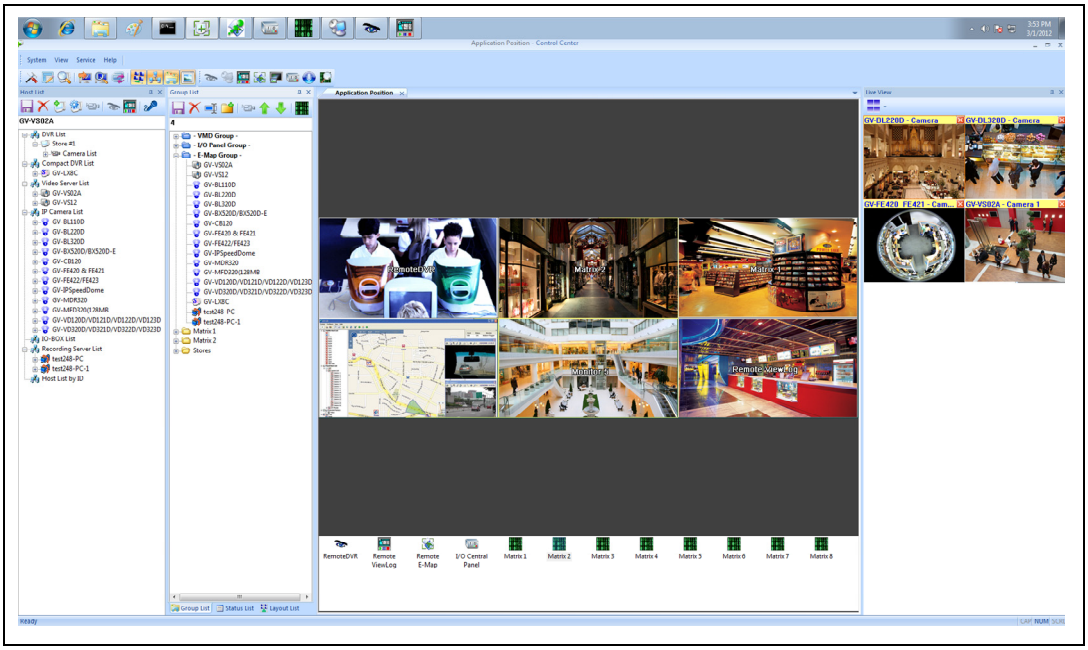
- *GV-Control Center (version 3.4.0.0)*

- The GV-Control Center described in the document shall be one of GeoVision's central monitoring station (CMS) software that brings multiple systems, including GV-DVR/NVR/VMS, GV-IP Camera, GV-Video Server, GV-Compact DVR, GV-Recording Server and GV-Video Gateway together into an integrated interface, allowing the user to:
  a. monitor multiple systems through various display modes, such as Multi-Channel Live View window, Matrix and Video Wall (optional)
  b. centrally manage multiple systems using functions such as remote server service, Remote DVR Desktop, Remote DVR, Batch Update Wizard function
- The GV-DVR/NVR/VMS, GV-IP Camera, third-party IP cameras (through ONVIF, PSIA or RTSP), GV-Video Server or GV-Compact DVR, GV-Recording Server or GV-Video Gateway that is connected to the GV-Control Center for central management is referred as host in this document.

- The specifications and functions described in this document are based on GV-Control Center version 3.4.0.0
- All specifications are subject to change without notice.
- GV-Control Center will be referred to as “Control Center” throughout the document.

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

Contents



A. Live Viewing

1. The Control Center shall support the following display modes:
    a. Single Live View
    b. Multi-Channel View window (4, 9, 16, 25, 36-channel view)
    c. Matrix view
    d. Panorama view
    e. VMD (Video Motion Detection) view
    f. Video wall (see *F. Multi Monitors Applications*)
    g. QView to display full-screen live view of a camera on a separate monitor
2. The single-channel view shall support:
    a. Megapixel resolution
    b. PIP (Picture-In-Picture), PAP (Picture-And-Picture)
    c. fisheye view
    d. two-way audio
    e. DirectDraw Configuration with which image colors are enhanced to provide more vivid and saturated live scene

f. image normalization with which image colors are automatically adjusted

g. image defogging and stabilizers

h. distortion corrections using the Wide Angle Lens Dewarping

i. PTZ control of third-party IP cameras and GeoVision PT, PTZ and IP Speed Dome cameras

j. Visual Automation with which the state (light on or off) of an electronic device shall be changed by clicking on the live image

k. live view snapshot

l. live view zooming up to 1.0x, 2.0x or 3.0x

m. recording playback of the last 10 seconds, 30 seconds, 1 minute and 5 minutes

3. The Multi-Channel View window shall up to 36 live views from different hosts

   a. Screen division options shall include 4, 9, 16, 25, 36 and the division shall be customizable, too.

   b. The Live View window shall be able to extend each channel to fit the window or display each channel proportional to its actual size.

   c. The Live View window shall be extendable to full-monitor and for multiple monitor setup.

   d. The Live View window shall support host name and camera name display.

   e. The Live View window shall support Single Live View, PTZ control, remote playback, and zoom in/out by right-clicking a channel.

   f. Users shall be able to talk on the multi-channel live view using push-to-talk.

4. The Matrix view shall display up to 96 live views from different hosts.

   a. The Control Center shall support up to 8 Matrix Views on a single monitor or on 8 separate monitors.

b. A Matrix View shall be able to display up to 96 cameras.

c. A Matrix View shall support the following screen resolutions: 1024 x 768, 1280 x 1024, 1600 x 1200, 1680 x 1050, 1920 x 1200, 1280 x 800, 1920 x 1080 and 1440 x 900.

d. The following channel divisions shall be available: 1, 4, 6, 8, 9, 12, 16, 20, 24, 32, 36, 48, 64, 80 or 96 channels.

e. Megapixel resolution shall be supported under single division.

f. The channel attributes shall be adjustable.

g. The Matrix view shall support DirectDraw which adjusts the live view images to be more saturated.

h. The Matrix view shall support distortion corrections using Wide Angle Lens Dewarping.

i. Users shall be able to control PT, PTZ and speed dome cameras using the PTZ control panel.

j. Users shall be able to display channels in a loop at a user-specified interval and screen division (1, 4, 6, 9, 16 or 24).

k. The Matrix view shall support Two-Way Audio with which the Control Center administrative can speak to and listen to the selected host.

l. With multiple monitors installed, users shall be able to display a full-screen Matrix channel to a designated monitor using the QView function.

m. With multiple monitors installed, users shall be able to display a Matrix channel on the primary monitor using Quick Zoom.

n. Users shall be able to start or stop monitoring (recording) from Matrix windows.

o. Users shall be able to view POS transactions and cardholder information from DVR/NVR/VMS hosts.

p. PAP (Picture-And-Picture) and PIP (Picture-In-Picture) views

5. The dewarpped fisheye view shall:

a. support 4 display modes: quad view (4 PTZ views), 360 degree view (two PTZ view and one 360° view), dual 180 degree view and single view (PTZ view).

b. display on Single Live View window, Matrix and Video Wall.

c. only support Fisheye Camera, any camera with an ImmerVision IMV1 Panorama Lens, Box Camera with a third-party fisheye lens or any GeoVision-supported IP camera with a third-party fisheye lens.

d. Support Guard Tour which is a virtual PTZ tour function that monitors user-defined spots on live views

6. The Panorama view shall be a live view conjoined from two or more separate live views to form a longer and/or wider view.

   a. The Control Center shall support up to 4 panorama views.

   b. The user shall be able to create panorama views using live views that contain overlapped areas or live views that do not contain overlapped areas but of the same resolution.

   c. For panorama using images of overlapping areas, the maximum resolution shall be 1920 x 1080, and each of its stitched images shall be reduced to 320 x 240.

   d. For panorama using images of the same resolution, it shall be able to join up to 32 channels.

7. The VMD (Video Motion Detection) view shall:

   a. be a gridded window that when events occur, live views pop up in user-defined position or in sequence (from left to right and top to bottom on the channel divisions) based on the time of occurrence.

   b. display pop-up live views upon motion events, temperature alarm, input trigger, crowd detection, advanced unattended object, advanced scene change, advanced missing object detection.

   c. be expandable over two monitors.

d. support up to 42 pop-up views on a monitor with resolutions 1280 x 1024 or above; support up to 36 pop-up views on a monitor with resolutions lower than 1280 x 1024.

e. be displayable on an auxiliary monitor where the pop-up live view displays for the specified duration and remains until the another event occurs.

8. The Control Center shall support smart streaming on compatible IP cameras in which the birates in static scenes can be significantly reduced

9. The Control Center shall support ONVIF, PSIA or RTSP.

10. The following brands of cameras shall be compatible to Control Center.

Brands	
Geovision	JVC
ACTi	LG
Arecont Vision	Messoa
Axis	Mobotix
Bosch	Panasonic
Canon	Pelco
CNB	Samsung
D-Link	Sanyo
EtroVision	SONY
Hikvision	UDP
HUNT	Verint
IQinVision	Vivoteck

11. The Control Center shall support live-viewing of third party cameras that adhere to ONVIF, PSIA or RTSP.

B. Video Compression & Recording

1. The Control Center shall support GPU decoding to lower the CPU loading and increase the total frame rate supported by the Control Center. GPU decoding can be performed on on-board VGA, external VGA, or both.

a. It shall support H.264 and H.265 GPU decoding.

b. GPU decoding shall be performed on compatible Intel on-board VGA.

c. H.264 GPU decoding shall be supported when using external NVIDIA graphics cards with compute capability 3.0 or above and memory 2 GB or above.

C. Audio Communication

1. The Control Center shall support one-way (speak or listen to) and two-way audio communication between the operator and a selected host.
2. The Control Center shall support audio broadcasting to all or specified hosts (surveillance sites) in case of emergency.

D. Playback

1. The Control Center shall be able to play back the recordings saved at its hosts.
   a. Users shall be able to download and play back video clips recorded 10 seconds, 30 seconds, 1 minute or 5 minutes ago using the Save as AVI function.
   b. User shall be able to download and play back the video clip currently played using the Download function
2. Users shall be able to play back recordings from Host List, Group List, Multi-Channel View, VMD (Video Motion Detection) window, I/O Central Panel, Matrix window and Remote E-Map.
3. The Control Center shall support the following playback modes:
   a. Frame by frame playback
   b. Continuous playback in real-time
   c. Key frame playback
4. The Control Center shall support forward or reverse playback.

5. Users shall be able to overlay the following information onto the video:
   a. camera name
   b. time
   c. POS or Wiegand Capture data from DVR/NVR/VMS hosts
   d. GPS positions
6. The Control Center shall support playback in dewarpped fisheye view. For details on dewarpped fisheye view, see *A. Live Viewing*.
7. Users shall be able to apply De-interlace, Scaling Render, Color Mode, De-noise, De-blocking, De-fogging and stabilizer effects to enhance image quality for playback.
8. The defog and stabilizer functions shall be supported only when they have been enabled before recording on the host DVR/NVR.
9. Playback shall be viewable on full screen and users shall be able to apply Wide Angle Lens Dewarping to correct image distortion near the edges of the recorded videos.
10. Users shall be able to play back the recordings saved at the host using Remote ViewLog player.
11. Remote ViewLog player shall be able to:
    a. play back frame by frame, the key frame or in real time.
    b. play back fisheye view in different modes (quad view, 360 degree, dual 180 and Single View).
    c. play back in PAP (Picture-And-Picture) or PIP (Picture-In-Picture) view.
    d. turn on/off sounds or reduce audio noise.
    e. adjust image quality with scaling (smoothens mosaic squares), deblocking (removes block-like artifacts), defog (improves visibility), stabilizer (improves stability) and Wide Angle Lens Dewarping (corrects distortion).

E. Remote DVR Applications

1. The Control Center operator shall be able to remotely access client DVR/NVR using the Remote DVR function:
    a. When a client DVR/NVR is being accessed by a Control Center operator, it shall be temporarily locked.
    b. ID and password shall be required to terminate the remote access from the DVR/NVR's side.
    c. Users shall be able to select the channels for remote access.
2. The Control Center operator shall be able to remotely access DVR/NVR hosts and their operating systems using the Remote Desktop function.
    a. Users shall be able to transfer files between Control Center and the DVR/NVR.
3. Users shall be able to query events that occur at the client DVR/NVR based on the defined criteria including event type, device and time period.
    a. Users shall be able to graph, play back and export the search results.

F. I/O Control

1. Using the I/O Central Panel, users shall be able to create I/O groups using I/O modules from different hosts.
    a. When an input is triggered, its affiliated output modules shall also be triggered, causing a cascade triggering.
    b. The user shall be able to schedule I/O configurations where each I/O configuration is enabled during user-defined time period.
2. The Control Center shall support the I/O Central Panel for central management of host I/O devices.
    a. Users shall be able to illustrate the positions of I/O devices using a floor plan.

   b. The group name, alarm sound type, and the I/O device icon shall be configurable.

   c. Users shall be able to name and color code alarm types for each I/O device.

3. Users shall be able to manually trigger an output from the I/O Central Panel.
4. The Control Center shall be able to pop up a live view when its associated input is triggered.
5. The users shall be able to watch live view, look up host information, and play back recordings from the I/O Central Panel.
6. The Control Center shall support Quick Link, which is a separate window that displays the established I/O group icons. When any of the embedded input is triggered, the group icon shall flash.
7. The connection status of each host shall be logged. Up to 1000 entries shall be supported.

G. Multi-Monitor Applications

1. The Control Center shall support Application Position to define positions of application windows, including Remote DVR, Remote ViewLog, Remote E-Map, I/O Central Panel and Matrix.

   a. Users shall be able to manually drag the windows or type co-ordinates to define their positions.

   b. Users shall be able to configure the resolution of each window.

   c. Users shall be able to define the position of live view enabled from Remote E-Map (on Single Live View window, Multi-Channel View window or Video Wall).

H. Video Wall

1. The Control Center shall support up to 200 Video Walls (depending on the number of license purchased for the software protection USB dongle).

2. A Video Wall shall be an establishment of multiple monitors on a server, displaying composite channels from various IP devices.
3. The number of monitors supported by each Video Wall shall depend on the capability of graphic cards installed on the Video Wall server.
4. Users shall be able to remotely configure and store multiple Video Wall layouts.
5. A Video Wall shall be able to:
    a. display up to 16 Zoom Windows, which are channels reserved for viewing zoomed camera live views
    b. display up to 16 Scan Windows, which are channels reserved for loop display of up to 32 cameras
    c. display up to 16 web pages using the Web Window
    d. play back up to 16 videos using Microsfot Media Player.
    e. play back up to 16 videos using the Remote ViewLog Player.
    f. display live views enabled from Remote E-Map.
    g. display up to 288 channels of customized view region from remote monitors
    h. The channels on Video Wall shall be freely adjustable in size and position (within or across monitors).
    i. display up to 288 IP channels, excluding Zoom Window, Scan Window, Web Window, Media Window, Remote ViewLog Window and Remote E-Map Window.
6. Users shall be able to remotely access and configure the settings of a Video Wall server.
7. Users shall be to remotely update the version of Video Wall servers.
8. The Video Wall shall support distortion corrections using Wide Angle Lens Dewarping.

I. Management

1. Three types of accounts shall be available – administrator, power user and user, each with different degrees of access to the system configuration and application execution.
2. The access rights shall only be configurable by an administrator account.
3. The Control Center shall be able restrain login from a specific IP address and communication port.
4. The Control Center shall be able to import and export all or a selection of the following settings: Host List, Group List, Control Center system settings (settings in System Configure), Account, Layout Setup, Live View, Virtual PTZ, Keyboard, E-Map and Video Wall
5. Users shall be able to facilitate central account and access right management of multiple Control Centers using the Authentication Center program.

J. Languages

1. The Control Center and Video Wall Server shall support 31 languages: Arabic, Bulgarian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Hungarian, Indonesian, Italian, Japanese, Lithuanian, Norwegian, Persian, Polish, Portuguese, Romanian, Russian, Serbian, Simplified Chinese, Slovakian, Slovenian, Spanish, Sweden, Thai, Traditional Chinese, and Turkish.

K. Utilities

The Control Center shall be bundled with the following utilities:

1. Remote E-Map shall be available for remote monitoring of up to 500 DVR and/or IP device hosts.
    a. The Remote E-Map shall be a map that illustrates the locations of installed devices using icons.

b. Each camera device (icon) shall be able to illustrate its surveillance zone.

c. Device icons shall blink when trigger events occur.

d. Users shall be able to define an area on the map which blinks as alert when motion or I/O event occurs in that area.

e. Host live view shall be accessible by clicking the icons and be displayed in the Single Live View window, Live View window or on a Video Wall.

f. Host recording playback shall be accessible from the Remote E-Map window and the user shall be able to play back the recording in a separate Instant Playback window or on Control Center.

2. Batch Update Wizard function shall be available for managing mass number of IP devices. It shall be able to perform the following on multiple IP devices simultaneously:

   a. configure IP addresses

   b. modify device names

   c. assign IP devices to record to NAS

   d. display storage information such as remaining space and storage type

   e. refresh host settings

3. Fast Backup and Restore shall be available for backup and restoration of Control Center settings.

4. MultiLang Tool shall be available for language editing of the user interface.

5. The IP Device Utility shall be available to allow automatic detection of IP devices in the Local Area Network and quick access to IP device functions.

   a. Users shall be able to access camera live view, adjust video attributes and monitor camera temperature.

   b. Users shall be able to set the IP address of the device, upgrade firmware, export/import device settings and reboot the device.

c. Users shall be able to obtain the MAC addresses of the detected IP devices.

6. Authentication Center shall be available to support remote and centralized account management of multiple Control Centers.
7. Remote ViewLog shall be available for Control Center to play back event files of different hosts.
8. Control Center shall support UPnP which allows automatic port configuration to the router.

L. System Requirements

1. The minimum system requirements for Control Center server and Video Wall server are detailed below:

OS	**64-bit**	Windows 7 / 8 / Server 2008 R2 / Server 2012
CPU		Core i7 2600K, 3.4 GHz
RAM		16 GB Dual Channels
Hard Disk		1 GB
Graphic Card		See *B. Video Compression and Recording*
DirectX		9.0c
LAN Card		Gigabit Ethernet x 2
Hardware		Internal or External USB Dongle

2. To establish a Video Wall, a USB dongle with Video Wall function shall be inserted to the Control Center server.
3. If videos are recorded in MJPEG under LAN, double Gigabit Ethernet shall be highly recommended.
4. Control Center shall support IPv4 and IPv6 addressing.

M. Software Protection Dongles

1. An internal or external USB dongle shall be required.
2. The USB dongle shall be available in two types: internal and external. The internal dongle shall be able to restart the PC when the system (Windows) crashes or freezes.

3. The dongles shall be available in the following combinations of applications:
   - Control Center
   - Control Center + Video Wall (1 to 200 licenses)
   - Control Center + VSM
   - Control Center + VSM + Video Wall (1 to 200 licenses)
4. A dongle shall be upgradable to support more applications. For example, a dongle for Control Center and Video Wall shall be expandable to support VSM.
5. Using more than one dongle that support different applications on one server shall be possible. However, Control Center and Center V2 shall not be executed simultaneously on the same server.