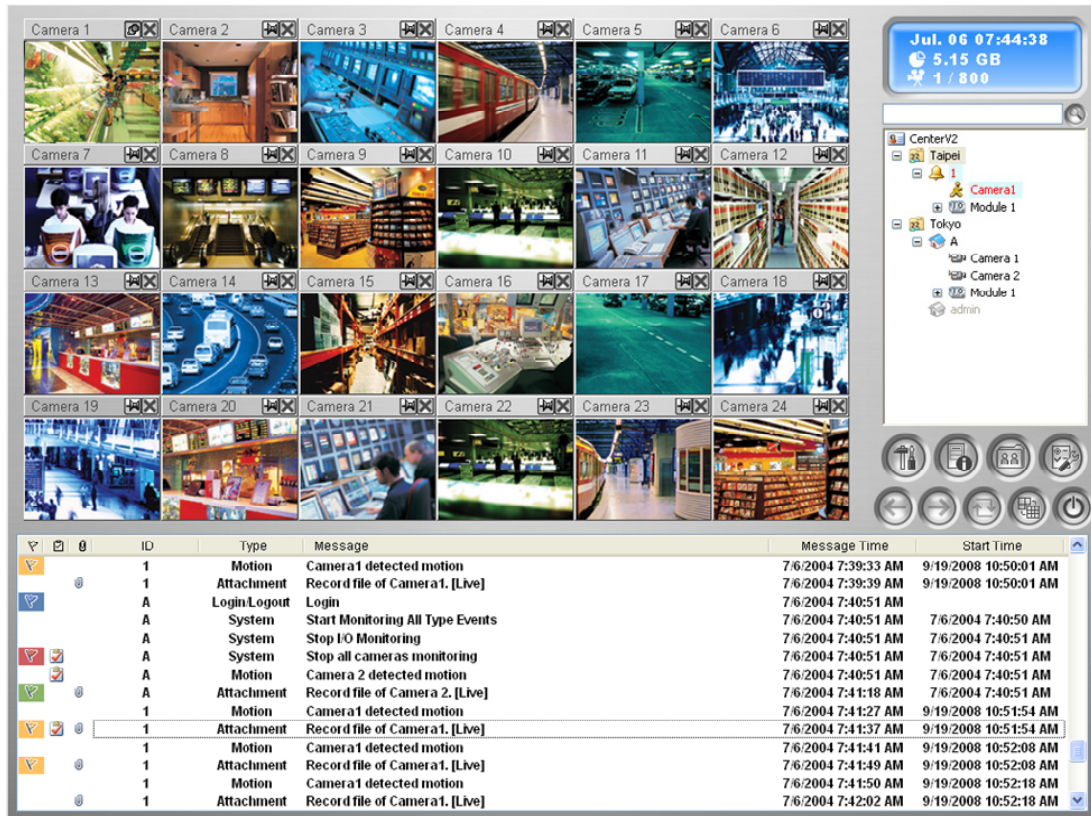


Architectural and Engineering Specifications

GV-Center V2

Revision Date: 05/09/2013



The screenshot displays the GV-Center V2 software interface. The main area is a 4x6 grid of 24 camera feeds, labeled Camera 1 through Camera 24. Each feed shows a different security camera view, including indoor corridors, retail shelves, and outdoor areas. To the right of the grid is a system status panel showing the date and time (Jul. 06 07:44:38), disk usage (5.15 GB), and a user count (1 / 800). Below the status panel is a tree view showing the system hierarchy: CenterV2, Taipei, Camera1, Module 1, Tokyo, A, Camera 1, Camera 2, Module 1, and admin. At the bottom is a log window with the following data:

ID	Type	Message	Message Time	Start Time
1	Motion	Camera1 detected motion	7/6/2004 7:39:33 AM	9/19/2008 10:50:01 AM
1	Attachment	Record file of Camera1. [Live]	7/6/2004 7:39:39 AM	9/19/2008 10:50:01 AM
A	Login/Logout	Login	7/6/2004 7:40:51 AM	
A	System	Start Monitoring All Type Events	7/6/2004 7:40:51 AM	7/6/2004 7:40:50 AM
A	System	Stop I/O Monitoring	7/6/2004 7:40:51 AM	7/6/2004 7:40:51 AM
A	System	Stop all cameras monitoring	7/6/2004 7:40:51 AM	7/6/2004 7:40:51 AM
A	Motion	Camera 2 detected motion	7/6/2004 7:40:51 AM	7/6/2004 7:40:51 AM
A	Attachment	Record file of Camera 2. [Live]	7/6/2004 7:41:18 AM	7/6/2004 7:40:51 AM
1	Motion	Camera1 detected motion	7/6/2004 7:41:27 AM	9/19/2008 10:51:54 AM
1	Attachment	Record file of Camera1. [Live]	7/6/2004 7:41:37 AM	9/19/2008 10:51:54 AM
1	Motion	Camera1 detected motion	7/6/2004 7:41:41 AM	9/19/2008 10:52:08 AM
1	Attachment	Record file of Camera1. [Live]	7/6/2004 7:41:49 AM	9/19/2008 10:52:08 AM
1	Motion	Camera1 detected motion	7/6/2004 7:41:50 AM	9/19/2008 10:52:18 AM
1	Attachment	Record file of Camera1. [Live]	7/6/2004 7:42:02 AM	9/19/2008 10:52:18 AM

Definitions

The GV-Center V2 described in the document shall be one of GeoVision's central monitoring station (CMS) software that brings multiple systems, including GV-DVR/NVR, GV-IP Camera, GV-Video Server and GV-Compact DVR together into an integrated interface, allowing the operator to monitor and manage multiple systems from one point of control. When events occur, the GV-Center V2 shall be informed with pop-up live view, texts, attachments, output/alarm (installed at the GV-Center V2) and also notify subscribers with SMS/e-mail.

- The specifications and functions described in this document are based on GV-Center V2 Pro version 8.5.6.
- The GV-Center V2 Pro shall be referred as "GV-Center V2" in this document.
- The GV-DVR/NVR, GV-IP Camera, GV-Video Server or GV-Compact DVR that is connected to the GV-Center V2 for central management is referred as subscriber in this document.

All specifications are subject to change without notice.

A. Live Viewing

1. The GV-Center V2 shall be able to connect up to 500 subscribers and 800 channels for live monitoring.
2. The Center V2 shall be able to receive live images upon motion detection, alarm events (Intruder, Missing Object, Unattended Object and Scene Change), output device triggered and panic button activated.
3. The GV-Center V2 shall support the following display modes:
 - a. multi-channel window
 - b. single live view
 - c. enlarged display on another monitor (for details, see no. 7 and 8 in this section)

4. For multi-channel view, the maximum number of channels shall depend on screen resolution and the number of monitors installed.

Resolution \ No. of Monitor	Single	Dual
1024 x 768	24	36
1280 x 1024	24	42
1600 x 1200	24	36
1680 x 1050	28	42
1920 x 1200		
1440 x 900		
1920 x 1080	28	35
1280 x 800	24	30

5. For multi-channel view on the main window, the administrator shall be able to display live view constantly or upon events.
6. The single live view shall also support:
- a. PIP (Picture-In-Picture), PAP (Picture-And-Picture) view
 - b. fisheye view
 - c. display size change
 - d. DirectDraw Configuration with which image colors shall be enhanced to provide more vivid and saturated live scene
 - e. image defogging and stabilizers
 - f. distortion corrections using Wide Angle Lens Dewarping
 - g. image normalization with which image colors shall be automatically adjusted
 - h. two-way audio
 - i. PTZ control of GeoVision PT, PTZ and IP Speed Dome cameras
 - j. live view snapshot
 - k. Live view zooming up to 1.0x, 2.0x or 3.0x
7. With multiple monitors installed, GV-Center V2 shall be able to display and enlarge a selected live view to a designated monitor using the **QView** function.

8. With two monitors installed, GV-Center V2 shall be able to display the monitoring window on one monitor and display the Event List on another.
9. The subscribers' live view size shall be adjustable to normal, middle, large and actual in GV-Center V2. The resolution for live view displayed on GV-Center V2 shall base on the size setting (normal, middle, large, and actual) and the actual resolution of the source video. For example, if the actual resolution is 704 x 480 and the setting on GV-Center V2 is **Normal**, the displayed resolution shall be 352 x 240.

Actual Size (Source Video)	Subscriber Setting (GV-Center V2)			
	Normal	Middle	Large	Actual
320 x 240	320 x 240	320 x 240	320 x 240	320 x 240
352 x 240	352 x 240	352 x 240	352 x 240	352 x 240
352 x 288	352 x 288	352 x 288	352 x 288	352 x 288
640 x 240	320 x 240	640 x 240	640 x 240	640 x 240
640 x 480	320 x 240	640 x 240	640 x 480	640 x 480
720 x 240	352 x 240	720 x 240	720 x 240	720 x 240
704 x 480	352 x 240	720 x 240	704 x 480	704 x 480
704 x 576	352 x 288	720 x 288	704 x 576	704 x 576
1280 x 960	320 x 240	640 x 240	640 x 480	1280 x 960
1280 x 1024	352 x 288	720 x 288	720 x 576	1280 x 1024
1600 x 1200	320 x 240	640 x 240	640 x 480	1600 x 1200
1920 x 1080	352 x 240	720 x 240	720 x 480	1920 x 1080
2048 x 1536	320 x 240	640 x 240	640 x 480	2048 x 1536
2048 x 1944	352 x 288	704 x 288	704 x 576	2048 x 1944
2560 x 1920	320 x 240	640 x 240	640 x 480	2560 x 1920

B. Notifications

1. GV-Center V2 shall be able to:
 - a. receive live view, text and attachment notifications upon events
 - b. activate alarm/output installed at the GV-Center V2 upon events
 - c. inform subscribers with e-mail/SMS upon events
 - d. manually activate alarm/output installed at the subscribers

2. For live view pop-up notifications, the administrator shall be able to define the duration (from 3 to 60 seconds) that the live view stays on the main screen:
 - a. after the motion stops
 - b. when the I/O device is triggered
 - c. after an I/O trigger stops
3. The GV-Center V2 shall be able to receive live view notification when the panic button is pressed at the subscriber's side.
4. The GV-Center V2 shall support Event List, which shall be a window on GV-Center V2's main screen that shows notifications when events occur and the related information including flag, alarm report, attachment, user ID, event type, event message, message time (the time at which the event message is received by GV-Center V2) and start time (the time at which the event occurred at the subscriber's site). The Event List window shall also support:
 - a. event tabs with which the administrator can click to sort events by type.
 - b. a "Customized Event" tab with which the administrator can click to instantly display events of the selected types.
 - c. event marking with flags.
 - d. dual-monitor display of events – the administrator can display events of the selected types on another monitor.
 - e. customizable text color with which the administrator can highlight important event types or signify alert levels.
5. The administrator shall be able to move or hide the Event List as a separate window.
6. The administrator shall be able to receive 4 types of video attachments with text notifications: pre-event, post-event, I/O trigger and motion attachments.
 - a. These video attachments shall be accessible from the Event List on GV-Center V2's main screen.

- b. For video attachments upon motion and input trigger events, the administrator shall be able to define the maximum duration of video clips, the duration of post-event (motion) recording and alerts interval.
7. The administrator shall be able to set up a minimum duration for Motion and Connection Lost events. Minimal duration shall be the minimal time period the event must persist for GV-Center V2 and its subscriber to be informed of the event by output, e-mail or SMS.
8. When the subscribers do not log in or log out during the specified time, the administrator shall be able to receive text notifications and/or informed with output/alarm, and the subscriber shall be able to receive SMS/e-mail.
9. When there is insufficient storage space at the subscriber, GV-Center V2 shall be able to receive text notifications, and/or informed with output/alarm and the subscriber shall be able to receive SMS/e-mail alerts.
10. The administrator shall be able to manage event notifications (text and video attachments) using Event Log Browser. With Event Log Browser, the administrator shall be able to:
 - a. browse event entries based on criteria such as date, events with alarm reports, flagged events, events with attachments, events from a particular subscriber, event type, message time (the time at which the event message is received by GV-Center V2) and start time (the time at which the event occurred at the subscriber's site).
 - b. back up text and video attachments to CDs or DVDs.
 - c. print event logs based on selected criteria.
11. The administrator shall be able to create alarm reports detailing the course of events.
 - a. For each alarm report, the administrator shall be able to select options from 6 categories (event type, event description, authority notified, authority arrival time and measures taken) to describe the selected event.

- b. The administrator shall be able to customize the options in the categories.
 - c. Alarm reports shall be printable.
12. The GV-Center V2 shall be able to generate statistical analysis on events based on selected criteria.

C. Recording

- 1. GV-Center V2 shall be able to receive video recordings in two ways:
 - a. recording upon events
 - b. manual recording enabled by the GV-Center V2 administrator
- 2. The administrator shall be able to assign storage location, duration and recycling conditions such as recycle threshold and maximum days of storing the recordings for each subscriber.

D. Playback

- 1. The GV-Center V2 administrator shall be able to play back event recordings attached to notifications with EZ player.
- 2. The EZ player shall include the following features:
 - a. The video image shall be adjustable in its brightness, contrast, sharpness and grayscale.
 - b. The video distortion shall be adjustable using Wide Angle Lens Dewarping.
 - c. The video image shall be printable and convertible to an image file.
 - d. The administrator shall be able to zoom in and out on the image.
 - e. The administrator shall be able to play, pause and stop the playback.
 - f. The administrator shall be able to forward and reverse playback by frame.
 - g. Playback speed shall be configurable.

- h. The administrator shall be able to play back in PIP (Picture-In-Picture) or PAP (Picture-And-Picture) view.
 - i. The administrator shall be able to fit the image size to the screen
 - j. The administrator shall be able to play back multiple video clips in a single EZ player in succession or in multiple EZ player windows simultaneously.
 3. The administrator shall be able to play back recordings saved at the remote subscribers using Remote ViewLog player.
 4. 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. Audio Communication

1. The GV-Center V2 shall support two-way audio communication between the administrator and a selected subscriber.

F. I/O Control

1. The administrator shall be able to monitor GV-DVR/NVR subscriber's I/O devices in real time. More specifically, the GV-Center V2 administrator shall be able to:
 - a. view the status
 - b. disable and enable the I/O devices
 - c. activate output devices

2. The administrator shall be able to manually trigger alarm/output installed at the GV-Center V2 and have the alarm/output automatically triggered when events occur.

G. Account Management

1. The GV-Center V2 shall support the following features related to subscriber accounts:
 - a. The GV-Center V2 shall support up to 500 subscribers and connected up to 800 channels.
 - b. The administrator shall be able to disconnect from selected subscribers if the subscriptions expire.
 - c. The administrator shall be able to group subscriber accounts.
 - d. The administrator shall be able to import and export subscriber information, including user ID, name, telephone numbers, mobile phone number and e-mail.
 - e. The administrator shall be able to view general information of the added subscribers, such as the last update time, the camera channels that are on, off and lost, the I/O device status and the latest I/O events.

H. System Settings

1. The resolution of the GV-Center V2 window shall be adjustable to the following resolutions: 1024 x 768, 1280 x 1024, 1600 x 1200, 1680 x 1050, 1920 x 1200, 1920 x 1080, 1280 x 800 or 1440 x 900.
2. The GV-Center V2 shall support GV-Dispatch Server in dispatching its subscribers to other GV-Center V2 servers to mediate the processing load and maximize monitoring efficiency.
3. The administrator shall be able to assign subscribers to another GV-Center V2 server.
4. The administrator shall be able to define the interval for re-connection when GV-DVR/NVR subscriber disconnects.

5. Each subscriber shall be able to connect to two GV-Center V2 servers for simultaneously monitoring.
6. The GV-Center V2 shall support up to two GV-Failover Server which provides non-interrupted monitoring and recording when GV-Center V2 is interrupted.
7. The GV-Center V2 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.
8. For server system Windows XP Service Pack 2 or above, the GV-Center V2 shall support UPnP which allows automatic port configuration to the router.

I. Utilities

The GV-Center V2 shall be bundled with the following utilities:

1. Remote E-Map shall be available for remote monitoring of up to 500 subscribers.
 - a. The Remote E-Map shall be a map that illustrates the locations of installed devices with icons.
 - b. Each camera device (icon) shall be able to illustrate its surveillance zone.
 - c. Device icons shall blink when trigger events occur.
 - d. The administrator 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. Live view shall be accessible by clicking the icons and be displayed in the single live view window
 - f. Playback shall be accessible from the Remote E-Map window.
2. Fast Backup and Restore shall be available for backup and restoration of GV-Center V2 settings

3. MultiLang Tool shall be available for language editing of the user interface.
4. GV 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. The administrator shall be able to access camera live view, adjust video attributes and monitor camera temperature.
 - b. The administrator shall be able to set the IP address of the device, upgrade firmware, export/import device settings and reboot the device.
 - c. The administrator shall be able to obtain the MAC addresses of the detected IP devices.

J. System Requirements

1. The minimum system requirements for Center V2 shall adhere to the details below:

OS	32-bit	Windows XP / Vista / 7 / Server 2008
	64-bit	Windows 7 / Server 2008
CPU	Core 2 Duo, 2.4 GHz	
RAM	2 x 1 GB Dual Channels	
Hard Disk	1 GB or above	
Graphic Card	AGP or PCI-Express, 1024 x 768, 32-bit color	
DirectX	9.0c	
Hardware	Internal or External GV-USB Dongle	

K. Software Protection Dongles

1. An internal or external GV-USB dongle shall be required.
2. The GV-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 GV-USB dongle shall be available in the following combinations:
 - Center V2
 - Center V2 + VSM
4. A dongle shall be upgradable to support more applications. For example, a dongle for GV-Center V2 shall be expandable to also support VSM.
5. Using more than one dongle that supports different applications on one server shall be possible. However, the following combination shall not be executed simultaneously on the same server:
 - GV-Center V2 and GV-Control Center
 - GV-Center V2 and GV-Dispatch Sever