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Rev 04/18
1. INTRODUCTION

Video Insight is a leading developer of enterprise-class Video Management Software. Our vision is to provide powerful, user-friendly software that will run on "off-the-shelf" hardware based on IP technology. We have developed our solution from the ground-up, making us one of the few pure-play IP video management software providers.

Video Insight’s suite of products was created to protect clients by providing intelligent, easy to use IP security solutions. Our extensive effort has resulted in products that are flexible and powerful enough for any situation, yet still very cost effective. Our software boasts the largest number of camera integrations available on the market. Users can access their Video Insight surveillance systems on mobile devices, through the web and on Microsoft Windows clients over internal networks or the Internet.

Video Insight can intelligently and efficiently monitor security throughout your organization.

Key features of this version are:
- Updated, easy to use interface
- Support for over 4,100 cameras models
- Alarm Monitoring
- Facility Maps
- Synchronized Playback

This document is intended for use by advanced users and system administrators.

1.1 SYSTEM OVERVIEW

The Video Insight Enterprise Suite provides a solution for many different scenarios. You can use it for basic unattended monitoring or mobile remote viewing by patrolling security personnel. At its core is Video Insight IP Server, which powers the software platform.

The Video Insight application suite runs over an ethernet network, meaning cameras, security personnel, and servers do not have to be co-located.

There is no limit to the number of IP Servers that can be utilized to manage the growing needs of today’s IP camera video surveillance needs.
1.2 SOFTWARE COMPONENTS

The Video Insight Enterprise Suite consists in three main components used to monitor live and recorded video: **VI MonitorPlus**, **Web Client** and **VI Mobile**. These three clients can be used to connect to **IP Server** at no additional charge.

1.2.A VI MonitorPlus

**VI MonitorPlus** is a Thick Client that provides full access to all cameras and access control points within an organization or multiple locations. It features a centralized management and configuration interface for an extended range of video monitoring resources, designed to meet System and Security Administrators’ needs.

VI MonitorPlus receives video from the server in the camera’s native format. Transferring video in the camera’s native format is a file server operation that does not burden the IP Server CPU as a video decompression operation would.

1.2.B Web Client

**Web Client** accesses IP Server via Microsoft Internet Information Services (IIS) hosted on the same server as the IP Server. It currently supports HTML5-compatible browsers such as: Google Chrome, Internet Explorer 11+, Mozilla Firefox and Microsoft Edge, among others.

The Web Client can access and manage live and recorded video and Facility Maps; it can also create clips and download recorded video. **Unlike VI Monitor Plus, Web Client connects directly to the cameras** to view live video.

1.2.C VI Mobile

**VI Mobile** is a free app available in the App Store for iOS users and Google Play for Android users. VI Mobile gives users access to live and recorded video as well as access to Facility Maps.

1.2.D IP Server

**IP Server** is the hub of the Video Insight IP Video Management Software (VMS). It supports over 4,100 different camera models from 150 different camera manufacturers. It runs as a Windows service and supports both 32-bit (x86) and 64-bit (x64) Windows environments.

IP Server connects directly to the cameras and can record video locally or write directly to NAS or SAN devices.
2. PLANNING

Getting the most out of the hardware using IP Server software requires planning. Understanding the needs of the environment will help shape the final installation solution. Evaluate and plan the integrations necessary for the most effective installation.

2.1 CONSIDERATIONS BEFORE INSTALLATION

Before beginning the installation process, it is necessary to determine the key system requirements.

Will the system:

- Require multiple-server configuration?
- Utilize a shared SQL environment?
- Utilize a shared network storage solution?
- Be attached to Active Directory or Lightweight Directory Access Protocol (LDAP)?

If the system is going to be a single, standalone installation of IP Server, opting to use the basic installation process is recommended.

If Microsoft SQL Server is already present in your server or environment, then only IP Server is required to be installed. Otherwise, the downloadable package includes Microsoft SQL Server Express 2012 as the database of choice. Either way, IP Server Enterprise requires a fully functioning SQL database as part of its platform.

2.1.1 IP Server and Accessory Software Installation

Video Insight software supports both 32-bit and 64-bit operating systems; some features, however, are limited to use within the 64-bit client only. Make sure to download the correct version for your operating system.

NOTE - Administrator-level access to the server is required during the installation and troubleshooting.

Review the following items prior to beginning the installation process:

- Storage Considerations
- Database Considerations
- Network Configuration

The Storage and Bandwidth calculator is available online to gauge your platform’s needs: [http://www.video-insight.com/storage-and-bandwidth-calculator](http://www.video-insight.com/storage-and-bandwidth-calculator)

(1) IP SERVER ESSENTIAL REQUIREMENTS

IP Server is at the heart of the Video Insight platform. It runs on industry-standard hardware and works with 32-bit and 64-bit versions of the following Microsoft operating systems.

- Windows Server 2008 R2 Web, R2 Standard, R2 Enterprise and R2 Datacenter.
- Windows 7 Pro, 10 Pro, Enterprise and Education.

IP Server requires Microsoft .NET Framework 4.5+ and Microsoft Internet Information Services (IIS) with “static content” enabled. Because Video Insight hardware and software integrates with the latest Windows updates, the operating system must be updated, with all current Windows updates applied.

Required hardware for installation of IP Server is determined by a variety of factors including the number of cameras, the resolution of those cameras, the number of frames per second, as well as the number of days of required video storage.
(2) **GPU SUPPORT**

Video Insight software supports NVIDIA graphics cards. Additionally, Intel QSV is supported for displaying video within VI MonitorPlus.

The following GPUs are currently supported:

<table>
<thead>
<tr>
<th>Intel GPUs</th>
<th>Nvidia Graphics Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Intel QSV</td>
<td>• EVGA GeForce GTX 750Ti SC 2GB</td>
</tr>
<tr>
<td>• Intel HD Graphics, 3rd or later generation</td>
<td>• EVGA GeForce GTX 950 2GB</td>
</tr>
<tr>
<td>• Intel Core processor-based platforms</td>
<td>• EVGA GeForce GTX 1050 2GB</td>
</tr>
<tr>
<td>For On-board H.265 support, Intel HD Graphics 4th generation</td>
<td>• EVGA GeForce GTX 1050Ti 2GB</td>
</tr>
<tr>
<td>processor or higher is recommended.</td>
<td>• EVGA GeForce GTX 1060 3GB</td>
</tr>
</tbody>
</table>

For hardware decoding with an additional graphics processor, the Nvidia EVGA GeForce GTX 950 2GB card is the minimum recommendation.

**NOTE** - Only one GPU is used for hardware decoding with IP Server. If two properly installed GPUs are detected by the operating system, IP Server will only use one.

**Activating Intel QSV**

If a graphics card is installed in addition to the On-board Intel graphics card, the primary display will be used as hardware decoding. If Intel QSV is used as the primary GPU, please make sure BIOS setting has been configured properly to use this specific GPU.

If the additional graphics card is set as the primary display, change the On-board Intel graphics card to primary by connecting it to the monitor. Check the Intel Download center for the correct On-board Intel graphics card driver.

After the above is configured, VI MonitorPlus will detect the On-board Intel graphics card, verifying that the card supports automatic hardware acceleration and use when available.

If both Intel GPU and Nvidia GPUs are available, VI MonitorPlus will use the fastest GPU as default.

(3) **ACTIVE DIRECTORY PREREQUISITES**

- Active Directory server with users and groups configured.
- Active Directory can be configured with IP Servers that use a localized, independent, database for each server or within a shared database environment.
- Administrator user account with administrator-level credentials in both the domain and on the Active Directory server (do not use an individual account).

**NOTE** - Alternatively, an account created with proper read/write access for Active Directory integration would be appropriate if the local Administrator account is used to install and modify IP Server during the initial setup process. This allows modifying the registry of the IP Server, granting other Active Directory user scopes and security objects the necessary permissions for accessing video storage in both read/write modes.

- The IP Server host is part of the Domain.
- IP Server must be able to communicate with all domain controllers via port 389 or 636. Port 389 cannot be modified. Port 636 is used for SSL encryption.
- IP Server configuration must be done while logged into the domain with a valid domain account.

Video Insight recommends importing users as a group instead of adding users individually. The group must be created in Active Directory prior to import. Customizing Groups to suit the individual needs and policies of the organization installing IP Server is done easily.

To configure the IP Video Enterprise service to run as an Active Directory account:

- Click the Start button.
- Enter `services.msc` and then press Enter.
- Locate the IP Video Enterprise service.
- Right-click and select Stop.
- Right-click and select Properties.
- Select the Logon tab.
- Select the second option for the account.
- Provide an Active Directory account with minimal rights. A basic domain user account should be sufficient.
• Click the General tab and then select Start.
• Click OK.

NOTE - Restart the IIS Admin service if using Web Client.

(4) FAILOVER SERVER OPTION
In the event a network outage or hardware failure prevents a server from recording camera video, the IP Server Failover Server feature will enable another server to take over the recording capabilities of the offline server. When configured with a shared SQL Database as part of a cluster, the Failover Server feature minimizes video loss and enables continuous live streaming video.

To use the Failover Server feature, the following criteria are required:
• Complete setup of two identical servers with the same hardware configuration.
• A shared Database installation; see IP Server’s “Installation with an existing SQL Database”.
• A license and a serial number or activation key for each server.

(5) DATABASE CONSIDERATIONS
IP Server saves configuration settings, user names, camera information and event logs in a Microsoft SQL database. When IP Server starts, it reads its settings directly from the assigned database.

IP Server saves all video recordings to its local hard drive, SAS/NAS storage device so video recordings are still accessible in the case of a SQL database failure.

The following table can be used to determine whether a local or shared database is required:

<table>
<thead>
<tr>
<th>Local Database</th>
<th>Shared Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small centralized organization with 1-3 servers</td>
<td>Large regional organization with many servers</td>
</tr>
<tr>
<td>Use VI MonitorPlus client and built-in User Manager</td>
<td>Use Active Directory/LDAP</td>
</tr>
<tr>
<td>Disaster recovery and backup for each server’s database</td>
<td>Disaster recovery and backup for one database</td>
</tr>
<tr>
<td>Failover server functionality is not desired</td>
<td>Failover server functionality is desired</td>
</tr>
<tr>
<td>Cameras will not move from one server to another</td>
<td>Cameras will move from one server to another at final configuration</td>
</tr>
<tr>
<td>Avoids unnecessary exposure of SQL database to the network</td>
<td>Exposure of SQL database to the network in a secured network environment</td>
</tr>
</tbody>
</table>

(6) FACTORS AFFECTING PERFORMANCE
Any system is the sum of its parts. A mismatched sub-system or component can have a negative effect on the entire system. Video streaming can only be as good as the cameras and underlying network. Best practices for IP video solutions indicate cameras connected to and powered over Ethernet or separate VLANs for cameras.
2.1.B Web Hosting Configuration for Web Client

Operating system requirements for hosting the Web Client interface vary according to the version used on the server. As a reference, the following Microsoft Operating systems are currently supported:

- Windows 2008 Server and Server R2
- Windows 7 Professional
- Windows 8 Professional
- Windows Server 2012 and Server 2012 R2
- Windows Server 2016

Operating System Roles and Features that should be available prior to installation are:

- Microsoft .NET Framework version 4.5+ or later
- Microsoft IIS v 6.0 or later

Necessary Microsoft IIS Components for full functionality of Web Client:

- ASP and ASP. NET
- ISAPI Filters
- ISAPI Extensions
- Default Document
- Directory Browsing
- Static Content
- Windows Communication Foundation Non-HTTP Activation
- HTTP Logging
- Basic Authentication

**NOTE** - Video Insight highly recommends to update each of the above features to their latest stable version via the Microsoft Update Services, prior to their installation.

2.1.C Network Configuration

Network Configuration is extremely important when implementing an IP video solution. IP cameras use considerable bandwidth to deliver video data between the camera and the server. Different cameras will require different amounts of bandwidth based on factors such as resolution and frame rate.

Accessing video from VI MonitorPlus, Web Client, VI Mobile and Video WallPlus increases the amount of required bandwidth.

(1) LOCAL AND WIDE AREA NETWORK

Video travels over a network, meaning infrastructure plays a big part in the overall performance of the Video Insight solution. A slow network can create bottlenecks that result in a slow frame rate, jittery video, and packet loss. Avoid devices on your local network with a port speed of less than 100 Mb/s.

The following network issues can cause cameras to drop a connection, or otherwise go offline:

- Camera is using a dynamic IP address instead of static IP address
- Another service or network device is running at the same time with the same IP address, causing a conflict.
- Another service or network device is broadcasting substantial amounts of data
- Multiple applications pulling a stream from one camera (some cameras limit the number of streams)
- Power output of a switch is less than required by the total number of cameras. The power output of a switch must be greater than the sum of the power requirements of the attached cameras. Refer to the relevant equipment manuals or specification sheets for hardware power requirements.

**NOTE** - Due to potential dead zones, transmission speed and/or outside interference with Wi-Fi signals, Video Insight does not recommend using Wireless Networking to connect video cameras.

If an organization using IP Server has more than one site location or multiple installations, it shall rely on an Internet Service Provider (ISP) for connectivity between the sites. The performance expectation from the ISP will depend on their network infrastructure, its utilization by their customers, and their cost/quality ratio.
For better results, consider creating a link with a 50Mbps +/- connection between the two site locations, with occasional video browsing. Streaming video remotely to a desktop client requires basic broadband. Streaming to a mobile device requires 4G service or Wi-Fi.

(2) EXAMPLE ROUTER CONFIGURATION

Video Insight recommends using a router if the IP Server is connected to the internet.

Small Office/Home Office (SOHO) routers provide a simple hardware firewall that protects the computer, preventing all inbound traffic from accessing the network and computers except for the traffic specifically allowed through the firewall.

Follow these steps to configure IP Server and the router for remote access:

1. Assign a static IP address to the IP Server.
2. SOHO routers typically use DHCP to assign an IP address to devices connected to them. Choose an address outside of the DHCP range.
3. Configure the SOHO router to forward ports 80 and 4011 to the IP Server.
4. To test the IP Servers configuration by accessing the Web Client externally, open any compatible Internet browser and enter `<http://<external> IP>/videoinsight` into the address bar (URL).

For help on assigning a static IP address or forwarding ports, review the router’s documentation or consult with a Network Administrator.

For more information on configuring most SOHO routers in the market, visit http://www.portforward.com. Video Insight does not endorse or support the information found on this website.

NOTE - Many SOHO routers will not allow a connection to the external IP address when the IP Server is behind a firewall.

2.1.D Camera Configuration

Video Insight supports a vast array of cameras from many manufacturers. Additional camera support is included with each software release. Please refer to our website for the latest list of supported cameras.

Video Insight supports the Open Network Video Interface Forum (ONVIF) standard, Version 1.02 and Profile S.

(1) CAMERA AUDIO

IP Server is capable of recording audio along with the capturing of video recording when used with the appropriate and desired peripherals. While configuring audio recording is a possibility, it is often over-looked that necessary and desired changes be made on the camera itself for audio recording to function within IP Server’s video recording process.

(2) BODY WORN CAMERAS (BWC) AUDIO

For Body Worn Cameras, synchronized audio and video are currently available only for 64-bit Windows OS environments. For 32-bits environments, however, recorded video does not have audio capabilities.

(3) COMPATIBLE AUDIO CODECS

The following codecs are found to work well with IP Server and are most commonly used by known camera manufacturers:

<table>
<thead>
<tr>
<th>Codec</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L8 @ 8K</td>
<td>Uncompressed 8-bit audio</td>
</tr>
<tr>
<td>L16 @ 16K</td>
<td>Uncompressed 16-bit audio</td>
</tr>
<tr>
<td>G711 ULAW and ALAW @ 8K and 16K</td>
<td></td>
</tr>
<tr>
<td>G726 40/32/24/16</td>
<td></td>
</tr>
<tr>
<td>AAC Low Complexity (*)</td>
<td>Bitrate is 128kbps or less</td>
</tr>
<tr>
<td>AMR Audio</td>
<td></td>
</tr>
</tbody>
</table>

(4) FACTORS AFFECTING CAMERA IMAGING WITHIN VI MONITORPLUS

- Bit Rate - a higher bit rate usually provides better picture quality.
- Resolution - a higher resolution usually provides better picture quality.
- Format - some picture formats, such as AVI, incorporate better algorithms that more accurately represent the video capture. The most basic, but bandwidth heavy MJPEG, was industry-standard for many years. Since then, other video codecs have been used, including H.264 and H.265.
- Firmware - outdated firmware can impair camera functionality.
- Location - unless intended for such use, placement in dark or obstructed locations, or in places affected by adverse weather, will not result in useful pictures.
- Number of cameras connected to Server - The higher the number of connected cameras, the greater the load on Server resources.
2.1.E Storage Considerations

The amount of storage required for recordings depends on the number of cameras, the Codec, Frames per Second (FPS), resolution of the images and the percentage of pixel change.

Video Insight provides flexibility in terms of camera storage options:

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Always</td>
<td>Requires significantly more storage space because video is constantly recorded.</td>
</tr>
<tr>
<td>Motion Only</td>
<td>Requires less storage space than Record Always because video is recorded only when motion occurs in the camera’s field of view.</td>
</tr>
<tr>
<td>Schedule</td>
<td>Allows both Record Always and Motion Only within specified schedules.</td>
</tr>
</tbody>
</table>

The amount of storage needed is determined by the bit-rate of each camera and how much of that will need to be saved. For example, a 1.3 Megapixel camera set at 10 FPS, can be configured to stream video at 1.5 Mbits/sec and, if the camera is recording motion at 50% of the time, then we can estimate we need 7GB of storage per day.


Video Insight supports all storage that Windows can address. In addition to the size of the storage, it’s necessary to confirm the storage system can handle the amount of video otherwise video can be lost when the storage is overloaded.

To calculate the maximum storage throughput, it is assumed that all cameras will write simultaneously and add up all camera bitrates. Because most storage systems refer to maximum simultaneous write speeds in megabytes, divide the total camera traffic by 8 to convert it to MB. For example:

Assume the IP Server has 100 cameras streaming at 3 Mbits/sec or a total of 300 Mbits and it is expected that they are to record 50% of the time.

The storage system must be able to write 37.5 MB/sec at its maximum. Video Insight has developed a storage speed test application to confirm an IP Server’s capability. This is available on the [www.downloadvi.com](http://www.downloadvi.com) website. Click on Tools. Under the Utilities section, the Hard Drive Speed Test will be found.

Supported types of storage:

- NAS
- SAN & RAID 5
- RAID 6
- RAID 10
- JBOD (with custom camera configuration, per camera)
(1) FILE MANIPULATION RULE (RULES MANAGER)
A feature that allows users to back up their files to other locations such as standard file servers, NAS or SAN can be configured using the Rules manager. This feature takes the task of remembering to backup important video recordings on the local server and automates it. File Manipulation can also move or delete videos.

(1A) IP SERVER SAMPLE CONFIGURATIONS
The table below is the sample specification for IP Server based on camera number and configuration. Noted CPU Performance is for IP server while recording video without anyone logged into the system or using Client applications (i.e. VI MonitorPlus):

<table>
<thead>
<tr>
<th># of H.264 cameras streaming 1.5 Mbps</th>
<th>Server Hardware Configuration</th>
<th># of Live Camera Views: CPU Utilization</th>
</tr>
</thead>
</table>
| 20                                     | Dell Optiplex 7010 with Intel Core i5 3.30 GHz, with 4GB RAM, 3TB of Storage, Intel HD 2500 Graphics, and Windows 7 Professional | 4 Live Windows: CPU utilization at 25%  
9 Live Windows: CPU utilization at 35%  
16 Live Windows: CPU utilization at 45%  
20 Live Windows: CPU utilization at 60% |
| 40                                     | Dell Optiplex 7010 with Intel Core i5 3.30 GHz, with 4GB RAM, 3TB of Storage, Intel HD 2500 Graphics, and Windows 7 Professional | 4 Live Windows CPU utilization at 25%  
9 Live Windows CPU utilization at 35%  
16 Live Windows CPU utilization at 45%  
20 Live Windows CPU utilization at 60% |
| 120                                    | Dell PowerEdge R520 2U Rackmount with Dual Intel Xeon E5-2403 1.80GHz, with 8GB RAM, 21TB of RAID5 Storage, Intel HD 2500 Graphics, and Windows Server 2008 | 4 Live Windows: CPU utilization at 25%  
9 Live Windows: CPU utilization at 35%  
16 Live Windows: CPU utilization at 45%  
20 Live Windows: CPU utilization at 60% |
| 240                                    | Dell PowerEdge R720xd 2U Rackmount with Dual Intel Xeon E5-2403 1.80GHz, with 8GB RAM, 42TB of RAID5 Storage, Intel HD 2500 Graphics, and Windows Server 2008 | 4 Live Windows: CPU utilization at 25%  
9 Live Windows: CPU utilization at 35%  
16 Live Windows: CPU utilization at 45%  
20 Live Windows: CPU utilization at 60% |

NOTE - CPU utilization increases 10% when using camera-side Motion Detection.
2.2 LICENSING

Video Insight’s licensing structure is simple: one camera requires one channel license, and one server requires one server license. Our floating licenses mean there is no need to tie a licensing seat, IP address or MAC address to a camera.

Cameras offering multiple camera views only require one channel license. Separate video streams from the same camera do not require a separate license.

Video Insight offers encoders, such as the VP16, that allow up to 16 analog cameras with only one license. Please contact us for more information on specific licensing requirements.

**NOTE** - Some cameras include a license for use with our software.

2.2. A Panasonic Camera License Activation

Video Insight offers a bundle license for Panasonic iPRO camera made in October 2014 or later. To generate a Panasonic camera license for the Video Insight serial number registration process, please follow the instructions found in Tab: Administration: Panasonic Licensing.
2.3 CLIENT SOFTWARE REQUIREMENTS

2.3.A VI MonitorPlus

VI MonitorPlus is a Client application designed to manage the resources of an IP Server environment within a facility or a geographical location. It runs on industry-standard hardware and works with 32-bit and 64-bit versions of Microsoft Windows 7 or later.

(1) H.265 ENCODING

H.265 and its use within IP Server is contingent upon hardware and IP Server version numbering. At the time of this introduction, v6.3.7 is the official base for use of H.265 with IP Server. H.265 is the latest video compression standard which is based on H.264, driven by ever increasing demand for high definition and the rapid development of imaging technology, UHD standards for ultra-high definition include 4K UHD and 8K UHD to meet the trend in today's television and video surveillance market where 4K UHD equals 3840 x 2160 (8.29 megapixels), and UHD equals 7680 x 4320 (33.18 megapixels).

If the criteria for hardware and software has been met, then the use of approved H.265 IP Cameras should function without any known limitations now.

<table>
<thead>
<tr>
<th></th>
<th>VI MonitorPlus</th>
<th>Web Client</th>
<th>Video WallPlus</th>
<th>VI Monitor for Mac</th>
<th>VI TV</th>
<th>VI Mobile iOS</th>
<th>VI Mobile Android</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live</td>
<td>Yes</td>
<td>No (*)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Playback</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Video Clip</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>No</td>
<td>-</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Snapshot</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ROI</td>
<td>Yes (*)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(*1) Live video can be shown in Low mode. (*2) ROI motion search for H.265 is supported by v7.1.1 or later.

✓ Limitation: The features that use H.265 decoder in server side, server-side motion detection or LPR etc., are not available for H.265 camera if a server does not support H.265 decoding.

(1A) H.265 DECODER

This section confirms that H.265 registration has been completed. If the Administrator has not been prompted to register any H.265 cameras placed on the IP Server, selecting H.265 Registration will open a new window.

2.3.B Web Client

To view the Web Client on the hosted server, the following HTML5-compliant browsers are known to function as needed:

- Microsoft Internet Explorer 11+
- Google Chrome
- Microsoft Edge
- Mozilla Firefox

**NOTE** - Other HTML5-compliant browsers may work; however, support is currently provided only for the browsers listed above.
2.4 CLIENT HARDWARE REQUIREMENTS

Because video decompression is performed on the client side, VI MonitorPlus hardware requirements are different from those of IP Server’s.

VI MonitorPlus requires additional system memory, video memory and graphic processing capacity where large numbers of cameras are viewed, or while processor-intensive compression protocols are used.

### PC Desktops and Laptops

<table>
<thead>
<tr>
<th>Component</th>
<th>Minimum</th>
<th>Recommended (H.265 Cameras)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel Core-based platforms (1 2.4 GHz dual-core); 4th Gen Intel HD Graphics.</td>
<td>6th Generation or later, Intel Core processor (1 3.1 GHz Quad-Core+)</td>
</tr>
<tr>
<td>Memory</td>
<td>8GB</td>
<td>8GB+</td>
</tr>
<tr>
<td>Video</td>
<td>512 MB</td>
<td>1GB+</td>
</tr>
<tr>
<td>Network</td>
<td>100 Mb/s</td>
<td>1GB/s+</td>
</tr>
<tr>
<td>Resolution</td>
<td>1600 X 900</td>
<td>1920 X 1080</td>
</tr>
</tbody>
</table>

### Small Form Factor computers (Intel NUCs)

<table>
<thead>
<tr>
<th>Component</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel Core i5-4250U 1.30GHz</td>
</tr>
<tr>
<td>Memory</td>
<td>4GB RAM (Device supports up to 16GB)</td>
</tr>
<tr>
<td>Video</td>
<td>HD Intel 5000 Graphics Card</td>
</tr>
<tr>
<td>Network</td>
<td>10/100/1000GB NIC</td>
</tr>
</tbody>
</table>

**NOTE** - Video subsystem must support Microsoft DirectShow 9 or higher.  
**NOTE** - Intel NUCs are **NOT recommended** for IP Server installations.

#### 2.4.A Hardware Decoding

For optimum use of H.265 and H.264 codec capable cameras, the following are the minimum recommended practices:

- 4th generation Intel HD Graphics Intel Core processor-based platforms.
- GPU: Nvidia GTX 750Ti, 950, 1050, 1050Ti and 1060 (750Ti supports only H.264).
- Where a second graphics card is installed alongside the On-board Intel graphics card, it is necessary to configure the system BIOS to force-use the second graphics card as the primary display.
- Separate graphics cards and On-board Intel graphics cards connected to the monitor.
- Verify the correct driver for the On-board Intel graphics card with those found on Intel’s website
- IP Server will detect whether the On-board graphics card supports hardware acceleration automatically and use the card when it is available. IP Server only enables it during live and recorded video playback and streaming for 4k or higher resolution.
- For all other instances that use server-side motion detection, thumbnails, snapshots or mobile device connectivity, the use of low speed (JPEG) hardware acceleration is due to asynchronous limitations.

Hardware decoding configuration for H.265 and H.264 is done within VI MonitorPlus. The following items must be selected:

- **Enable hardware decoding** in Option > Performance is required. If the CPU does not support the HW codec and the GPU does not exist, it won’t display properly within VI MonitorPlus.
- **“Highest Performance”** is for video streaming where the display provides multiple camera views using GPU-heavy codecs such as H.264 and H.265.
3. INSTALLATION AND ADMINISTRATION

The installation process will install the following items:

- IP Server
- VI MonitorPlus
- SQL Server Express
- ASP .NET Framework
- Web Client

The administrator can select and deselect the software components required based on the needs of the system. This includes SQL database location and credentials.

NOTE - IIS, .NET Framework 4.5, and SQL Server Express are all registered trademarks of Microsoft corp. IIS and .NET Framework are installed through the Microsoft Operating system on which they are provided. Not all Microsoft Operating systems offer IIS capabilities, and some older systems are limited in their functional use. It may be necessary to upgrade the operating system completely or install a brand-new operating system entirely if there are any issues during the installation process.

The Video Insight Client Applications connect directly to the IP Server, not to the cameras or the database, requiring the Administrator to forward only three TCP ports for remote access by default. The Client applications can be used to view live and recorded video from a single or multiple IP Servers.

3.1 IP SERVER: INSTALLATION

3.1. A Installation without an existing SQL Server Database

Follow the steps below to install IP Server with Microsoft SQL Server for the first time. This option will also install VI MonitorPlus and Web Client as part of VI Enterprise Server.

Download the proper installer (32-bit or 64-bit) from DownloadVI.com.

Launch the executable installer as Administrator, then click Next.

Click Cancel to exit the process.
Select “I accept...” to agree to the terms, then click Next to continue.

Click Back to return to the previous screen or Cancel to exit the process.

Select all the components in the Features Selection list and then click Next.

Click Back to return to the previous screen or Cancel to exit the process.

The default credentials are displayed for the SQL installation; these can be changed according to each specific configuration.

Click Test Connection to validate the correct SQL configuration.

NOTE - If SQL Server is hosted on another server, the SQL Server field can be modified to match that server’s IP address or DNS hostname.

Click Next to continue.

Click Back to return to the previous screen or Cancel to exit the process.
Select the **Start Menu location** to create the program’s shortcuts, then click **Next**.

Click **Back** to return to the previous screen or **Cancel** to exit the process.

Select the **Install location** where the IP Enterprise software will be installed.

To accept the default destination folder, click **Next**.

To choose another destination, click **Change** and manually locate the desired folder in your hard drive.

Click **Next** to proceed,

Click **Back** to return to the previous screen or **Cancel** to exit the process.

Once all steps have been completed, click **Install** to start the installation process.

During this phase, a series of informational screens will appear to inform that the installation process is underway.

After IP Server has installed itself, the initialization window will appear.

Ensure to have easy access to the Serial number provided by the sales agent for this installation of IP Server.

Click **Back** to return to the previous screen or **Cancel** to exit the process.
3.1.B Installation with an existing SQL Server Database

Use the following steps to install IP Server for the first time in an environment with a preexisting Microsoft SQL Server instance. This option also installs VI MonitorPlus Client and Web Client.

Download the proper installer (32-bit or 64-bit) from DownloadVI.com.

Launch the executable installer as Administrator, then click Next.

Click Cancel to exit the process.

Select “I accept...” to agree to the terms, then click Next to continue.

Click Back to return to the previous screen or Cancel to exit the process.

Select all the components in the Features Selection list except SQL Server 2012 Express and then click Next.

Click Back to return to the previous screen or Cancel to exit the process.
The default credentials are displayed for the SQL installation; these can be changed according to each specific configuration.

Click Test Connection to validate the correct SQL configuration.

**NOTE** - If SQL Server is hosted on another server, the SQL Server field can be modified to match that server’s IP address or DNS hostname.

Click Next to continue.

Click Back to return to the previous screen or Cancel to exit the process.

Select the Start Menu location to create the program’s shortcuts, then click Next.

Click Back to return to the previous screen or Cancel to exit the process.

Select the Install location where the IP Enterprise software will be installed.

To accept the default destination folder, click Next.

To choose another destination, click Change and manually locate the desired folder in your hard drive.

Click Next to proceed,

Click Back to return to the previous screen or Cancel to exit the process.
Once all steps have been completed, click **Install** to start the installation process.

During this phase, a series of informational screens will appear to inform that the installation process is underway.

After IP Server has installed itself, the initialization window will appear.

Ensure to have easy access to the Serial number provided by the sales agent for this installation of IP Server.

Click **Back** to return to the previous screen or **Cancel** to exit the process.

### 3.1.C Initialization

IP Server *needs to be activated* to function properly. For this, there are *three options* available:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activate or Upgrade license online</strong></td>
<td>This can be completed on a server with an active internet connection and permission to connect to port 30000. If online activation fails, try the next option: Activate by phone.</td>
</tr>
<tr>
<td><strong>Activate by phone</strong></td>
<td>Call the phone number displayed. Give the representative your serial number. If you do not have one, the representative will ask you for a hardware code. If the account is in good standing you will be given a 16-digit activation code.</td>
</tr>
<tr>
<td><strong>Demo Mode</strong></td>
<td>Grants the user the ability to use a full-featured version for up to 60 days, with a maximum of 99 cameras. Once the 60-day period has expired, the software will no longer record or display live images. IP Server will fail to start until a valid serial number is provided, or activation code is used. Re-installation is not required.</td>
</tr>
</tbody>
</table>

**NOTE** - Available in the **United States only**. Please contact the sales agent or vendor where you purchased IP Server Enterprise.

To initialize IP Server, follow the steps below:
Run the Installation program and click Next.

Where prompted, enter the five-character, alpha-numeric serial number provided at the time of purchase. Click Next.

**NOTE** - Clicking Cancel will abort the installation and the server will not start automatically.

Select *Activate by Phone* and call +1-713-621-9779 (USA only) if there is a problem activating the software with the provided serial number, or select Demo mode, to start recording immediately. (Toll charges may apply.)

Enter any relevant user information.

The Administrator has the option of registering the product now or waiting until a later date. Select the best option.
Verify the configuration for IP Server. If there is a need to modify the configuration, select make changes, and click Next.

Otherwise, click Next to accept the default values.

<table>
<thead>
<tr>
<th>Server Name</th>
<th>The default is “IP Server -“ and the detected IP address of this server. You can change this to a more friendly or meaningful name. Do not use special characters.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>This is the selected server’s IP address and should not be changed.</td>
</tr>
<tr>
<td>Version</td>
<td>The current version of the software.</td>
</tr>
<tr>
<td>SQL Server Location</td>
<td>The location or IP address of the database server. ‘Localhost’ indicates that the database and Microsoft SQL Server are local to the host computer. An IP address in this field indicates the Microsoft SQL Server is hosted on another computer. To test the connection, click Test DB. Click Advanced to modify the database connection string values: Database Name, IP Address, SQL Server User ID and Password.</td>
</tr>
</tbody>
</table>
| Video Data Storage Path | The location where all the recorded video is saved. The default is the local OS drive (i.e., C). The video folder is created automatically after the server configuration is completed. It is possible to save video to other locations, for example:  
  - Alternate local drive: For example, D:\video  
  - Shared drive: For example, \WShareHost\vshare\HHS\video |

**NOTE** - Recording to a shared location requires a User account with write permission to the shared drive, otherwise recordings will not be saved.

Add cameras using Auto Discover if needed.

See Adding Cameras for more information on adding cameras.
Cameras, when initially added through this method, will be at their default values.

Further customization of camera settings is necessary.

Click **OK**.

IP Server will now run as a service on the operating system. A user desktop can be logged out of, without hampering the video recording capabilities.
3.2 VI MONITORPLUS CLIENT

The **VI MonitorPlus** client automatically installs itself during the default installation of IP Server. Optionally, the client can be installed on computers without IP Server functionality.

The default is intended to provide the Administrator with a VI MonitorPlus client, easily accessible from the server. After VI MonitorPlus Client is installed, it is ready to be initialized and then configured.

Open the VI MonitorPlus client by double-clicking the icon on the Desktop.

Enter the credentials or accept the default login, and click **Log In** to continue.

At least one server must be entered into the Server Setup prior to logging into VI MonitorPlus client.

For additional connection options, Click **Connection Type** to open a drop-down menu with the following options:

- Primary Server.
- Multiple Servers.
- Use Configuration File.
3.2 A Manually Adding Servers to VI MonitorPlus

To add a server manually, in the Connection Type field, Select Multiple Servers.

Enter the IP address or name of the IP Server to connect to.

Next, add the default port number for connecting to the IP Server.

Port 4011 is the default if no changes have been made to the default installation of IP Server.

There are four outcomes testing a connection to an IP Server:

- **Login Error:** The server is found but security is on. The server attempted to authenticate the login with the initial credentials used to login to VI MonitorPlus. The server default login is Administrator. The password is blank by default. The server can still be added. Once added, logout of VI MonitorPlus login again with the correct credentials.

  NOTE - This should not happen with a default installation where IP server is being installed for the first time.

- **No Server Found:** Confirm the IP address, server name, server port or any of the three are correct. Re-enter the correct values and click Test again.

- **Server Found:** The server is found, and a successful connection was made using the provided credentials. The server’s name is now displayed in the Status field.

- **Incorrect Server Version:** This message appears in environments where an IP Server is older than v7.0. VI MonitorPlus does not function properly with IP Server v6, and it is necessary to update the IP Server to a version that is equal to that of VI MonitorPlus or some features will not work as designed.

  NOTE - In shared database environments, it is only necessary to connect to a Single Primary IP Server. This reduces the need to install multiple servers at the launch of VI MonitorPlus.
3.2.B Adding IP Servers to VI MonitorPlus

In a large organization, it is possible to utilize more than 20 video surveillance servers across multiple locations. It is also possible to add a lengthy list of servers at one time using the **Import** feature. For this, an exported list of servers is needed prior to importation. The file format used by IP Server is a proprietary “.LSL” file. For more information on creating an exported server list, please see **Use Server Profiles**, below:

Select **System --> Options** and then click **Connections**. Select **Import From Profile**.

Enter the filename or click **Browse** to go to the location of the saved “.LSL” file.

Select the LSL file to use with VI MonitorPlus. Click **OK**.

**NOTE** - If the file is unreadable or not found an **error will appear**. If the import is successful, the full list of servers will display in the **Known Video Servers** grid.

A popup window indicates that VI MonitorPlus needs to be restarted for changes to take effect.

This process is accomplished by clicking the **Logout** icon on the upper left corner of the main dashboard.
Login:

Enter the credentials to login to the desired server(s) or click Log in to bypass the Login dialog box without any credentials if defaults have not yet been modified.

3.2.3 Auto Login

The Auto Login option disables the log in window and opens VI MonitorPlus directly using the pre-configured User Account.

To activate it, open the “System” option from the Main Menu, then select “Options”.

In the System Options window, click on the “Startup” tab, then go to the “Login Options” section.

Check the “Enable Auto Login” box and enter the User and Password in the corresponding fields. You can also check the “Verify Active Directory login” box if the User account is associated to a Windows Server profile in your network.

**NOTE - Do not Log Off**: Instead, close all windows and shut VI MonitorPlus down; reopen VI MonitorPlus and the application will go directly to the main view overriding the Log In window.
3.3 ADMINISTRATION

3.3.1 IP Server Manager (IPSM)

The IP Server Manager (IPSM) application is used to manage and troubleshoot advanced server settings. It is installed at the same time as IP Server. It provides access to many necessary administrative functions of IP Server:

- Monitors the IP Server and presents visual status cues for each server.
- Provides a Diagnostic version of the IP Server Manager for troubleshooting and system optimization.
- Manages IP Server network connections.
- Manages licensing and registration.
- Manages Lightweight Directory Access Protocol (LDAP) and Active Directory configuration.

(1) ACCESSING IPSM

The IPSM icon resides in the Windows System Tray. *It has two states:*

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ON</strong></td>
<td>IP Server is functioning properly, streaming video to clients, recording video and reporting to Health Monitor Cloud (if configured). Hover the mouse cursor over the icon in the taskbar to view the server’s IP Address.</td>
</tr>
<tr>
<td><strong>OFF</strong></td>
<td>IP Server is not functioning. No video recording or streaming available.</td>
</tr>
</tbody>
</table>

Right-click on the IPSM icon to open the IP Server options menu:

To manage the IP Server service, configure and utilize the IPSM, select **Server Configuration**.

Select **Start IP Server** or **Restart IP Server** to start, stop or restart the IP Server service.

Select **Exit IP Server Manager** to terminate the IPSM application and remove the icon from the Windows System Tray.

**NOTE** - Terminating the application prevents clients from remotely restarting the IP Server service. Select **About** Video Insight to display version information, technical support information, and legal terms.

(2) CONFIGURING IP SERVER

Right-click on the IPSM icon in the Windows System Tray and select **Server Configuration** to open the IP Server Manager.

The Service Controls **Status** field displays the IP Server service status.

Click **Start**, **Stop** or **Restart** to start, stop or restart the IP Server service.

Clicking on **Close** removes the IP Server Manager dialog box; it does not stop the IP Server service from recording video if functioning cameras are connected to the IP Server.
Click a Configuration button to perform other functions:

- **Options** - Configure options specific to IP Server.
- **System Log** - View the current system log.
- **Network Options** - Configure connection options.
- **Diagnostics** - Stop the IP Server service and run the diagnostic version.
- **No Cameras** - Run Diagnostics with cameras not started.
- **Update Activation** - Update the IP Server activation for use with the serial license.

To exit the IPSM application, click **Exit IP Server Manager**. This closes the IP Server Manager in the Windows System tray only, but the IP Server service continues to run in the background, so video capture continues.

**NOTE** - Stopping the IP Server service prevents clients from remotely restarting the IP Server service.

(2A) **IPSM: OPTIONS**

Clicking on Options will display the Auto Restart Options dialog box. This dialog box offers several settings aimed at mitigating some organizational and server environment settings that could interfere with the IP Server service.

**Auto Restart**

Restarting the service can refresh camera connections and video streaming and alter CPU performance by releasing used resources, providing the ability to automatically restart the service for a specific day and time. This flexibility allows the Administrator to schedule IP Server service without impacting business hours recording.

To set an Auto-Restart schedule, follow the steps below:

- Check the **Enable** box.
- Select the Restart Day or days.
- Select a Restart Time.
- Click **OK**.

**Delay Service**

Delaying the IP Server service start is a viable option if the server has many additional services running.

The IP Server service may have trouble initializing without services such as the Microsoft SQL database service already running.

IIS loads the localhost IP Address ([http://127.0.0.1](http://127.0.0.1)) if it is not able to resolve the hostname of the IP Server.

To set a startup delay, check the **Enable Startup Delay** box and click **OK**.
Options

For environments where both an Analog and an IP Server are installed on the same server, with resulting high bandwidth usage, there is an option to restrict the Analog server’s resources consumption. Enabling this feature will stop the communication between Analog and IP servers. As a result, no live streaming or recording will be performed by the IP server when the timeout threshold is reached.

EXAMPLE - in a scenario with the timeout enabled and set to 30 seconds, there is a VI MonitorPlus Client layout comprised of both analog and IP camera images. For 30 seconds, both streaming and recording are managed by the IP Server. When 30 seconds have passed, the analog cameras will stop streaming and recording due to this feature. Changing the layout will restart streaming and recording for all cameras until the timeout is reached again.

To set an analog video timeout:

- Check the Enable Analog Video Bandwidth Timeout box.
- Select the Timeout in seconds.
- Click OK.

(2B) IPSM: SYSTEM LOG

Clicking on System Log will bring up the System Log dialog box. The System Log documents warnings, errors, security and informational messages related to various system functions.

NOTE - Only some messages may appear, depending on User level and Overall Server Configuration.
(2C) IPSM: NETWORK OPTIONS

Click on Network Options to display the Network Options dialog box.

This dialog box is used for selecting the network scheme when a server has dual NIC cards or changing the communication port of the server.

It is also possible to change Active Directory and LDAP settings.

**NOTE** - If the Communication Port is changed, it must also change the command port in Server Properties within VI MonitorPlus.

The Multi-Network Card Support feature allows the user to use multiple NIC cards without configuration issues related to how the TCP/IP bindings within Windows server affect the flow of traffic.

To utilize this feature, click the Advanced button. A new window appears.

Here, the Administrator selects a specific internal IP address for public-facing (internal network facing) connectivity for the IP Server.

This is the IP address that is viewable from within VI MonitorPlus, as well as the IP Address that will be associated with IIS and the Web Client.

**NOTE** - This feature is best utilized with virtual environments, or with computers that have multiple NIC cards. It will force the registration of the MAC address that is associated with the IP Address that is provided by the administrator.
Clicking Diagnostics displays the Video Server Diagnostics interface. This interface is used for troubleshooting most service related issues.

Server Settings can also be configured within VI MonitorPlus, with exception to testing the SQL database connectivity, and altering the SQL database connectivity.

**NOTE** - The IP Server service stops when Diagnostics is launched. To reactivate video recording and functionality, restart IP Server manually.

<table>
<thead>
<tr>
<th>Server name</th>
<th>Server name previously entered. It is not editable. To change the name of the server, click Server Settings and configure in the left pane or from within Server Properties.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>Server’s IP address and should not be changed if multiple clients will connect regularly to the IP Server.</td>
</tr>
<tr>
<td>Port</td>
<td>Port used by the VI MonitorPlus to control the IP Server. This port is referred to as the Command Channel Port. See list of ports for more information on ports used by the software.</td>
</tr>
<tr>
<td>Version</td>
<td>Software version of the IP Server. It should be the same as VI MonitorPlus to avoid errors. Maximum number of cameras allocated to the IP Server’s serial number. Using only Video Insight Encoders, Advidia and / or Panasonic cameras on the system should reflect a value of zero.</td>
</tr>
<tr>
<td>Licenses</td>
<td>Number of cameras used against the license associated with the IP Server. If using Panasonic, Video Insight or Advidia cameras and/or encoders, no license will be used or deducted if other camera manufacturers are used and licensed with IP Server.</td>
</tr>
<tr>
<td>Used</td>
<td>Number of camera licenses available to add to the server.</td>
</tr>
<tr>
<td>Available</td>
<td>Cameras associated with the specific IP Server, including the Camera Name. The grid area of the Diagnostics interface is read-only. It displays all cameras, the last video write-time, the recording status, and the time the last video image was received from a camera.</td>
</tr>
<tr>
<td>Time of last write</td>
<td>Last time video was recorded to a file by IP Server. A time of 12:00:00 AM indicates that a camera may have Recording turned Off, or that it is not recording due to a Motion-Only recording type.</td>
</tr>
<tr>
<td>Last image received</td>
<td>Last moment in time video was received by the IP Server. A time of 12:00:00 AM is indicative of a camera that may be offline or not accessible. Common connectivity issues can be: incorrect credentials, network, bandwidth or the IP Server service is not running. Visit the online FAQ section for more information on why a camera could be offline.</td>
</tr>
</tbody>
</table>

**NOTE** - Remember to start the IP Server service after exiting the Diagnostics application.
Testing SQL connectivity and Changing the SQL Database location.

There are two additional features for troubleshooting within IPSM that are not available within VI MonitorPlus. To test the connectivity with SQL Server, select the IP server found on the left-hand side of the screen:

Click **Test DB** to test connectivity to the database.

The database test passes when the server makes a successful connection to the database. If the IPSM is not able to connect, the test will display: “Error: Database version is not correct.

Either the SQL database did not respond, or the IP Server has an outdated version of the SQL tables. There are several reasons why the database test may have failed. See the online FAQs for reasons for and potential solutions to the failure.

**NOTE** - Incorrect database information may cause test failure. To update or confirm the information, click **Advanced**.

- **Database**: Enter the database name. The default database name is **InsightEnt**.
- **IP Address**: Enter the IP address or the hostname of the SQL (database) server.
- **User ID**: The default user ID for the **InsightEnt** database is “sa” unless opting to use the VIUser credentials entered during the setup process.
- **Password**: The default password for the InsightEnt database is **V4inSight/** if using the default “sa” account in legacy systems. Otherwise, the password will be as selected during the setup process.
(2E) IPSM: NO CAMERAS

Another troubleshooting option is the use of Diagnostics that do not display live-video feeds for cameras associated with the IP Server.

This option does not consume any bandwidth, which might be useful when troubleshooting connectivity issues, or in environments with heavy network latency.

The No Cameras option is similar to the alternative System Log within VI MonitorPlus. Camera-related features and information such as Live View and Time of Last Write will not be available after this diagnostics version is started.

NOTE - See IPSM Diagnostics for more information on running diagnostics.

(2F) IPSM: UPDATE ACTIVATION

The Update Activation option is used to update the Activation type (e.g., transitioning from Demo to purchased licensing scheme) or when the serial number used is upgraded with additional licenses.

NOTE - See Installation for more information on changing the activation type.

Click OK to confirm the number of licenses currently available.

When upgrading the license type from Express to Enterprise, Enterprise tab should be selected. Next, click OK.
**(2G) IPSM: LPR ACTIVATION**

The **Update LPR Activation** option is used to update the LPR Activation.

To use the LPR feature, the USB dongle is required.

Enter Activation Code.

To validate the license, click **Test**.

Once IPSM confirms the provided license information, click **OK**.

Restart IP Server, then the license will be activated.

**NOTE** - If License type is Express, **NVR will not be activated.**
3.4 ADVANCED INSTALLATION CONFIGURATION INFORMATION

3.4.A Installer: InstallShield

By default, the Setup_x64.exe installer for IP Server Enterprise places files into the C:\Program Files\VI Enterprise folder location and the Setup_x86.exe installer places into the C:\Program Files(x86)\VI Enterprise folder location.

**NOTE** - It is not possible to use a 64-bit installer to install into a 32-bit Operating System.

In instances where it may be necessary to know where packages are installed, they can be found in the local directory: C:\Users\YourUsername\AppData\Local\Downloaded Installations.

3.4.B Server Backup and Restore

IP Server can be backed-up manually. It is important to note that the reinstallation of IP Server requires the same version of software for reinstallation from backup due to differences in each database version. Therefore, it is recommended to maintain a backup of the IP Server installation software with the system backup.

If slightly different version is used, there may be a minor error during the installation, which may require Technical Support’s assistance. In other cases, where different sub-versions are used, it may not be possible to restore IP server completely without a great deal of work.

With that observation, it is important to note the specific version used at the time of back up, and then any subsequent upgrades from that version to the current download to minimize any potential problems with the restoration process.

(1) BASIC IP SERVER BACKUP PROCESS

The IP Server can be backed-up with a minimum of effort. The steps below are provided with the assumption that SQL is located on the local server. It may be necessary to modify the steps to meet the needs of any custom installation done based on your organization’s configuration.

On the host IP Server:

1. Open VI MonitorPlus.
2. Go to Help > About.
3. Note the version number of VI MonitorPlus /IP Server in use.
4. Go to http://www.downloadvi.com and find the matching version number of IP Server.
5. Download the matching version of IP Server / VI MonitorPlus.
6. Save the downloaded file to a safe location. (i.e.: a USB drive, a NAS device, another server, etc.).
7. Open the system's Start menu and choose Run.
8. Type: services.msc
9. Locate "Microsoft SQL service".
10. Right-Click and choose Stop.
11. Browse to My Computer > Local Disk C > Program Files > Microsoft SQL Server > MSSQL.1 > MSSQL > DATA
12. Copy Insightent.mdf and Insightent_log.ldf
13. Save these to a safe location. (i.e.: a USB drive, a NAS device, another server, etc.).
14. Return to the system's Start menu and select Run.
15. Type: regedit
16. In the new window that appears, browse to HKEY_LOCAL_MACHINE\Software\Video Insight.
17. Right-click the Video Insight folder and choose Export.
18. Save this file to the same location as the other files listed above.

(2) BASIC IP SERVER RESTORE PROCESS

Restoring an IP server from a backup, when following the procedures above, is an almost effortless process. If the steps above were followed, there should be no issues with a reinstallation of the IP server software, SQL database and/or the registry keys required for reinstallation. If a problem does arise, our Technical Support team is available during the hours listed at the end of this document.

To restore IP server, follow these steps:

1. Go to Start > Run
2. Type: services.msc
3. Find "Microsoft SQL service"
4. Right-Click and choose Stop.
5. Locate the files saved during the backup process and copy `InsightENT.mdf` and `InsightENT_Log.ldf`
6. Browse to My Computer > Local Disk C > Program Files > Microsoft SQL Server > MSSQL.1 > MSSQL > DATA
7. Paste `InsightENT.mdf` and `InsightENT_Log.ldf` and replace the existing files of the same name (if they exist).
8. Locate saved files and double-click the Registry export file. This will re-install the registry keys.
9. Locate `services.msc` again.
10. Find "Microsoft SQL service"
11. Right-click and choose **Start**.
12. Reinstall the IP Server software with the same version number.
13. Reboot the computer after the installation is completed.

**Congratulations. IP Server has been restored.**
3.4.C Edge Recording

Failover Edge Recording, sometimes referred to as “Edge Storage,” “Local Storage” or “On-Board” camera recording, is a feature of a camera designed to record video directly onto an SD card or other type of memory card physically installed on the camera—instead of a separate NVR or storage device.

Edge Recording, first released in IP Server v6.3.7 is to be used as a temporary bridge between the immediate need to capture video footage in case of a temporary IP server failure and the need to expand to a larger, fully redundant failover system. It is compatible with Panasonic iPRO and Advidia Cameras only at the time of this publication.

**NOTE -** Edge Recording does not work in conjunction with the IP Server Failover server.

In other words, if Edge Recording and Failover server are used at the same time, **ALL VIDEO RECORDING FOR NON-EDGE CAMERAS WILL BE LOST**. i.e. The video recording feature will not work on IP Server.

(1) OVERVIEW

Fail Over Edge Recording, when used with Video Insight’s IP Server, allows for a temporary loss of connection between the IP Server and the camera without losing critical video captured during that time.

The camera will begin recording video after detecting a connection loss with the IP Server.

Once the connectivity between the IP Server and IP Camera is re-established, the IP Server will download the recorded video automatically. After the video is downloaded from the camera’s SD Memory Card, then and only then will it be available for playback within VI MonitorPlus.

**Necessary Considerations:**

Failover Edge Recording was designed in response to the growing demand for reliable access to recorded video during a temporary NVR failure, or temporary loss of network connectivity between the NVR and the IP Camera.

Because of the loss of recorded video during critical times, Failover Edge Recording technologies have developed as a result. Yet, to prevent video loss, it should be stated that it is also necessary to assess the overall network equipment needs in order to achieve the greatest success and results with Failover Edge Recording.

**Example:**

During a temporary power outage, it is common to supply UPS battery backups for all servers in a server closet that supply power to the NVRs and mission critical computing devices.

However, for Failover Edge Recording to be truly successful, it is necessary to ensure that the total power consumption of any network switch responsible for powering Failover Edge Recording IP Cameras be taken into consideration as well.

Otherwise, without the use of a battery backup system to power IP Cameras using Failover Edge Recording technology, then the capture of Video Recording is negated and lost- even if the NVR remains functional during the power outage.

In the event of an unforeseen power outage, any camera that is not connected to a power source will not provide Failover Edge Recording due to a lack of power to the PoE switch. Thus, a lack of power to the PoE switch means a lack of power to the Edge Recording camera.

It is important to provide a battery backup system to the switch, or alternatively wire the cameras to get power from an alternative power source in the event of a power failure for Edge Recording to function as it is designed.
Configuration Description
The differences between normal IP Camera configuration and Failover Edge Recording configuration are the addition of some type of memory card and the confirmation of changes within the IP Camera for Failover Edge Recording to occur.

A basic outline of the process is as follows, in the necessary order for successful setup of Failover Edge Recording:

- **Phase 1**: Camera-Side Configuration
- **Phase 2**: IP Server Configuration
- **Phase 3**: Verification of communication between IP Camera and IP Server

(2) PREREQUISITES FOR EDGE RECORDING FUNCTIONALITY
The following items are required for the successful deployment of Failover Edge Recording. Any deviation outside that which is described in these prerequisites can cause a failure in Failover Edge Recording and a loss of critical video data.

(2A) REQUIRED HARDWARE
For long-term successful deployment of Failover Edge Recording:

- An appropriately sized SD/SDHC/SDXC memory card to match recording storage needs
- Panasonic branded IP cameras running firmware v2.50 or later (Subject to change in future releases of IP Server)
- Functioning network equipment
- Necessary battery backup systems to power IP Cameras and/or POE switches in the event of a power outage

(2B) REQUIRED SOFTWARE
Prior to configuration of Failover Edge Recording:

- Video Insight’s IP Server running at software version 6.3.6.4 or later
- SD Memory card is installed into the IP Camera

(3) SETUP AND CONFIGURATION
The following steps are to be followed in order. Once the initial setup has been confirmed functioning, other changes within the camera can be made.

Consideration to the following steps are necessary for ease of installation:

- The camera is connected to the network and powered on
- The camera is set to its default values with firmware v2.50 or later
- The camera has a new SD Card installed and is ready to be formatted

If any of the three criteria are NOT followed, then Failover Edge Recording will not successfully be implemented.

(3A) CAMERA CONFIGURATION
With the assumption that the SD Card has been installed, and the camera has been connected to the network, it may be necessary to first access the camera’s web page to set the default Administrator account.

Enter a username and password to access the camera being used with Edge Recording. Be sure to remember this information as it will be critical for accessing the camera settings and features in the future.

A confirmation message will show once the new administrative account password has been set.
Next, minimize the browser window for the IP camera.

**NOTE** - Reopen the browser to confirm the correct configuration and access between IP Server and the Camera.

### (3B) IP SERVER CONFIGURATION

Add camera through normal process, as described in the Installation section.

After a camera is added to IP Server, open **Camera Properties** and select the **Recording** tab.

Select **Enable Edge Storage** found on the bottom right-hand side of the screen, under the **Video File Storage** section.

Click on **Save**; Restart VI MonitorPlus AND Video Insight’s IP Server.

**NOTE** - Wait until IP server is running again before proceeding.

### (3C) COMMUNICATION VERIFICATION

The process of verification of communication between IP Server and IP Camera is crucial to determining the efficiency of Failover Edge Recording. This step will help make troubleshooting easier in the event of an unlikely Edge Recording failure.

After the IP Server has restarted, open the camera’s Management interface within the internet browser window that was minimized at the end of Step 1, and proceed as follows:

On the next page, Select **Setup**.

On the **Setup** page, the green button labelled **Basic** should be highlighted by default.

Select the **SD Memory card** tab at the top of the screen.

On the **SD Memory card** page, verify the following:

**SD Memory card:**

**USE** must be selected if it is not already.

**Overwrite** **MUST** be **ON** if it is not already.
Recording Stream 1:
This is set to H.264 (1) by default. It is possible to select one of the four available H.264 settings. * see notes below for more information

SD memory card information:
Format the installed SD Card
** see notes below

This page provides an easy way to determine if the IP Server has successfully connected to the IP Camera with Failover Edge Recording enabled. Verify that the Save Trigger (under Recording Stream 1) is greyed out and displays the phrase Network failure.

Network failure should appear, as displayed on the left. This is confirmation of a successful connection with the IP Camera and Failover Edge Recording.

If Network Failure IS visible, reboot the camera by doing the following steps:

Select Maintenance (on the left) Select Default reset tab Find Reboot from the list of options presented and then select Execute. (The reboot process takes 2 minutes.)

Congratulations! Edge Recording is now configured!

NOTES:
* The image above depicts only the first selection for H.264 configuration settings as an example. It is recommended that the owner’s manual be read for the specific camera used with EDGE Recording to better understand how this specific section will affect the captured video recording while implemented by Edge recording.
** If the SD Card has been installed and never formatted, it is recommended that a full formatting of the card be done the first time Edge recording settings are configured to ensure that video is captured.
*** If Network Failure is NOT visible now, then IP server is not communicating with the camera. It is recommended that the camera be removed from IP server and that the camera be defaulted to original factory condition and the steps above.
3.4.3 Rules Manager

Rules Manager provides necessary automation of certain tasks to help the Administrator or any desired features range from sending email to a specific email address after a video camera detects motion, to moving video files from one location to another for the purposes of server maintenance and long-term storage.

Rule Creation Process Cheat Sheet

<table>
<thead>
<tr>
<th>Basic Steps</th>
<th>Trigger Events</th>
<th>Action Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open VI MonitorPlus</td>
<td>1. When the new Trigger selection window appears, select the trigger desired for activation</td>
<td>1. After the new Action Events window opens, select the desired resulting action event.</td>
</tr>
<tr>
<td>2. Click the Administration tab</td>
<td>2. Provide the necessary information for that trigger to become active</td>
<td>2. Provide the necessary information within the Action being used</td>
</tr>
<tr>
<td>3. Click on the Rules icon</td>
<td>3. Click OK</td>
<td>3. Click OK</td>
</tr>
<tr>
<td>4. Select the + icon for new rule creation</td>
<td>4. Move to Action events section below the Trigger events section</td>
<td>4. Restart IP Server</td>
</tr>
<tr>
<td>5. Select Add Trigger OR Add Action</td>
<td>5. Select Add Action</td>
<td>5. Test rule for verification</td>
</tr>
</tbody>
</table>

These are the most basic steps required for the creation of a rule that will increase the productivity, security and further enhancement of the Video Insight IP Server Enterprise suite.

(1) BASIC CONCEPTS

In most scenarios, a rule is made up of two parts: Triggers and Actions.

A trigger can be as simple as motion detection on a camera. A subsequent action can be to take a snapshot of the image and to email it to a specific email address. The rule itself, in basic terms would be written as: When there is motion on a specified camera, take a snapshot and send that snapshot to a specific email address.

(2) CREATING A RULE

To start the process of rule creation, it is best to open VI MonitorPlus and select the Administration tab at the top of the screen. Then, once the Administration tab has been selected, click on the Rules button in the navigation menu.

Creating a rule takes many considerations, but it can be broken into four specific areas:

- Rule Properties
- Schedule
- Trigger Events
- Action Events

To create a New Rule, click the + symbol to the right of the Rules bar.

(3) RULE PROPERTIES

Once the Rule creation process is started, give the new rule a unique name and a description.

During Rule creation, it is important to be mindful of instances where VI MonitorPlus might be connected to more than one IP server. If VI MonitorPlus is connected to multiple IP Servers, it is necessary to verify the name of the server where the rule will be applied so that a newly created rule doesn’t inadvertently damage another server.

Enable Rule: Sometimes a rule loses its usefulness or causes a conflict with other rules.

Name: Provide a descriptive name.

Server: Select the server from the drop-down where the rule will apply.

NOTE - To determine which rule might be contributing to a problem, the ability to disable or re-enable a rule manually is available. This allows the Administrator the temporary ability to troubleshoot or configure other items within IP Server.
(4) SCHEDULES

Schedules are a necessary tool provided to perform certain maintenance and functional tasks within the operational use of IP Server.

The default condition for all Rules is to run always. This means that no Schedule is necessary if there is no need for an Action to occur, unless it is to occur at a specific time of day.

(4A) SCHEDULE SETUP

When the Rules manager tool within VI MonitorPlus opens, and the Add Schedule button is selected, a new pop-up window will appear.

This new pop-up allows the user to provide a name for the schedule, the frequency which it runs, the days that it will run, and the times that it will run.

**NOTE** - It is recommended that the name of the schedule serve as a reminder for the trigger and action events for later troubleshooting, if necessary.

*Please refer to the documentation below regarding use of the scheduled days.*

It may be necessary to create multiple schedules for events that overlap the 11:59 pm to 12:00 am threshold.

Select the appropriate number of times the rule will run. This is critical for the long-term success of the rule, without errors.

- **One Time** - The Rule will work only once, and it will not be repeated at any point in time unless manually triggered by the user.
- **Daily** - The Rule will run either every Weekday, every Weekend Day or every Day, at the specific times selected, as long as it is active.
- **Weekly** - The Rule will be executed on a specific set of Days of the Week, during the selected time interval.
- **Monthly** - The Rule will run either Once (by selecting a specific Day), or during a specific occurrence of Days and Weekdays in a Month. within the selected Time interval.

After all the necessary criteria is provided in the fields above, click on **OK**. The schedule is now complete.

(4B) MULTIPLE SCHEDULES

The most common occurrence for multiple schedules is usually tied to tasks that occur on a weekly or monthly basis according to the need of the IP Server Administrator.

If a series of actions is required multiple times per day, multiple schedules can be created within the same rule.

It is important to note that the **Default** for all created rules is for them to run at all times. Adding a schedule to a rule that runs always may prove the rule to be ineffective or result in an undesired effect if added haphazardly.

**NOTE** - The schedule timer runs on a 12:00 am to 11:59 pm cycle for each day.

This means that each segment of a scheduled task is limited to the specific day of that task and will not overlap with other tasks. It will not span the course of multiple days, even if it appears that it would, otherwise.
Therefore, it is required that multiple schedules be created if there is to be a repetition of actions based on selected triggers spanning the course of many days where the threshold between any two days is required.

(5) TRIGGER EVENTS

Trigger Events are best thought of as a cause for an action. Within VI MonitorPlus, Trigger Events occur as the direct result of something that has happened. Once the event has occurred, it will be followed by an action that is designated below:

Trigger Events can be considered as the “IF” in an “If, Then” statement. (IF Trigger event occurs, THEN do this Action Event). When creating a rule, the Administrator should first consider what event it is that is occurring that needs to have an action follow it.

(5A) TRIGGER EVENT SETUP

It is important to determine whether the event needs to meet multiple criteria or if it requires only one event to occur prior to an action event. Knowing that information allows the administrator to determine whether the Trigger event will work as desired with the Action Event that follows.

To keep things simple, it is suggested that the first rule created have as few items as possible. Once it is determined that the rule was successfully created, it will be easier to determine if there is a problem down the line.

(5B) TRIGGER EVENT OPTIONS

Selecting Add Event results in a new window appearing within VI MonitorPlus. The window offers the following options to select from. A description of what each Event Type does is explained in the chart below in a little more detail.

EXAMPLES:
- **Single Event (Any)**
  IF a Camera becomes unresponsive OR a specific user logs in to IP Server.
- **Multiple Events: (AND)**
  IF Camera becomes unresponsive AND specific user logs into the IP Server.

(5C) TRIGGER EVENT DEFINITIONS

A short-list of Trigger definitions is made available here.

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Control Event</td>
<td>Trigger an Access Control Entry or Alarm</td>
</tr>
<tr>
<td>Analytics</td>
<td>Trigger from a supported Camera’s Analytics *</td>
</tr>
<tr>
<td>Digital Input</td>
<td>Trigger based on external input device *</td>
</tr>
<tr>
<td>SDK Input</td>
<td>Trigger based on receiving data from a TCP port *</td>
</tr>
<tr>
<td>Camera Down</td>
<td>Trigger when a specific camera stops responding or all cameras stop responding</td>
</tr>
<tr>
<td>User Login</td>
<td>Trigger when a user logs into the IP Server</td>
</tr>
<tr>
<td>License Plates</td>
<td>Trigger when a license plate is found *</td>
</tr>
<tr>
<td>Video Motion</td>
<td>Trigger when motion is detected on a specific camera *</td>
</tr>
<tr>
<td>Alert Button</td>
<td>Trigger when an alert button appears in the navigation tree</td>
</tr>
</tbody>
</table>

* Items with an asterisk, listed above, require that the device has the capability of the function itself. Please refer to the device manufacturer’s user guide for information on how to utilize its functionality for best results.
(6) TRIGGER INPUT REQUIREMENTS

Access Control Event

When creating a Trigger Event for Access Control Events, the Administrator will give the Event a Reference Name. Select the door from the Door Name drop-down list and, for alarm type, select from either Alarm or Entry for the options.

Analytics

Camera Analytics are used for camera “training” in areas that require enhanced security functionality. Cameras that can enhance their capabilities over time, can offer a variety of functions based on the available feature set provided from the camera’s hardware manufacturer. Refer to the camera manufacturer’s documentation to determine the capabilities provided for Analytics.

To use this feature, open the Camera Properties for the selected camera and check the “Capture VCA Event” box in the “General” tab, “Additional Options” section.

Digital Input

Some camera manufacturers provide cameras with the ability to enhance the performance and functionality of a camera with the use of Digital Input/output devices. This trigger is designed to enhance the capabilities of those cameras within VI MonitorPlus for a seamless number of possibilities. Most commonly, a microphone is used with a camera by way of the Digital Input/output for recording conversations within range of said device.
SDK Input

**SDK Input** allows for the IP Server to interface with other software and hardware manufacturers who are connected to the same network with the IP Server. These SDK Input events indicate that the IP Server is receiving the data from the connected SDK device/software. This is only used by software and hardware developers and for testing purposes.

Camera Down

The **Camera Down** trigger relies on multiple variables for it to be triggered. Most commonly, this trigger becomes active when a camera cannot be logged into by the IP Server, when it becomes unresponsive due to a network outage and is helpful in early detection of issues that might not be fully realized by the Administrator.

User Login

**User Login** is for notifications to groups of Admins or higher-access-level individuals who need to monitor a system for unusual access rights, or routine use of the IP server. When a User logs into the system, it is recorded into the IP Server system log files.
License Plates

License Plate Recognition (LPR) requires a reference name, Trigger Condition, License Group and Camera specification. Additionally, the option to notify a specific Group, individual or all users logged in to the IP Server System Logs.

Video Motion

Motion Event creation requires that a reference name is provided. Additionally, the option to choose a Single Camera or All Cameras is available. These motion events are recorded in the IP Server system logs and can be referenced there or utilized by an Action Event.

(7) ACTION EVENTS

Action Events are operations and actions resulting after a Trigger Event occurs, based on their criteria. Below is a list of available Action Events. Not all action events will function with all trigger events. Refer to the Functional Relationship Guide further below this section for a complete reference of Trigger Event and Action Event interactions.

(7A) ACTION DEFINITIONS

<table>
<thead>
<tr>
<th>Actionable Input</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door State</td>
<td>Change the state of the door.</td>
</tr>
<tr>
<td>Digital Output</td>
<td>Send a digital output on a specific port.</td>
</tr>
<tr>
<td>Execute a program</td>
<td>Send a program to a specific user running VI MonitorPlus to execute.</td>
</tr>
<tr>
<td>HTTP Command</td>
<td>Send an HTTP command to a specific device.</td>
</tr>
<tr>
<td>TCP Message</td>
<td>Send ASCII message to TCP socket.</td>
</tr>
<tr>
<td>Email</td>
<td>Email a custom message.</td>
</tr>
<tr>
<td>Email AVI clip</td>
<td>Email AVI file to a specific user.</td>
</tr>
<tr>
<td>Email Flashback Image</td>
<td>Email Flashback image.</td>
</tr>
<tr>
<td>Email Snapshot</td>
<td>Email a snapshot of an image to a specific email address.</td>
</tr>
<tr>
<td>Action Event Log</td>
<td>Create an action event for the Media Player.</td>
</tr>
<tr>
<td>Alarm Window</td>
<td>Displays alarm window for client within Workspaces and Message Display.</td>
</tr>
</tbody>
</table>
**Audio Alert**
- Audio alert for a specified VI MonitorPlus Client.

**File Manipulation**
- Copy, Move or Delete files.

**Instant Replay**
- Pop up a 30-second review of recorded video on a specific camera.

**Live Window**
- Pop up window for displaying a live camera feed.

**Message instruction**
- Message instruction for the VI MonitorPlus Client.

**Move PTZ Camera**
- Move a PTZ camera to a specific location.

**Record**
- Set a recording type.

**Record with Audio**
- Create a video file with audio included.

**Switch Audio**
- Switch viewing field to a specific camera, capable of audio recording.

**Switch Camera**
- Switch VI MonitorPlus’s main layout to a camera view.

**Switch View**
- Switch VI MonitorPlus’s main view to a specific view.

**Time Lapse Recording**
- Create time-lapse recordings (very low frame rate).

**Monitor Points**
- Mask / unmask monitor points.

---

**7B ACTION EVENT SETUP**

On the Rules Manager Rule Creation page, the Actions section provides the option to customize actions that will take place AFTER a trigger is received by the server. Not all actions require a trigger to function, yet all actions will be affected by any triggered schedules. Be very careful when selecting specific time-related triggers as they may have an adverse effect on subsequent Actions.

Action events can be used to further enhance a linear chain of events, which result in the action becoming a trigger for a second action, and so on. Please refer to the definitions for each Action below the Action Event Setup procedures.

**Action Event Creation**

The process of creating an Action comes after a Trigger Event is created. To create an action that is used with a trigger, click the Add Action button.

A larger Add Action window appears. This window provides a comprehensive list of the available actions that can be taken.

Select the desired action to be taken.

**NOTE** - Depending on the action it is necessary, in most instances, to provide some additional information for the specific action for it to function properly.

When completed, click OK.
**ACTION EVENT EXPANDED DEFINITIONS**

**Door State** is a function of Access Control trigger events. Its function as an action is designed to act as a timer for a noticed change in a door status over a period of time.

Additionally, it can be used to automatically change Access Control door status from locked to unlocked or vice versa.

**Digital Output** is an Action event which works to aid in the enhancement of a security device with the use of additional input from that device. This is an **Action Event** that relies on a specific trigger and acts as a trigger.

**Execute a Program** is designed to force a program on a computer to also start once the corresponding trigger value is assigned to it.

For example, a program could be started when a specific user login trigger is activated, saving time for the user on their machine.

**HTTP Command** is designed to work with certain camera and hardware manufacturers to issue commands to those devices using specific Hypertext Transfer Protocol.

Some of these devices have the capability to receive an HTTP command from remote locations to modify the functional use of different portions of its internal software.
**TCP Message** gives the user the ability to send a pre-written message to a remote computer and specific port where the sent message is intercepted at the remote receiving end. This can be read by the Administrator of the receiving computer and utilized for enhanced security purposes.

**Email** messages can be sent after the IP Server has been properly configured for using SMTP Services with an email provider. This feature will send specific information to a group of users of a specific user. The message and subject line can be customized to accommodate the needs of an email filter, if necessary.

**Email AVI clip** allows the IP Server Administrator to capture a certain specified amount of recorded motion and clip it into a file of desired file size chosen by the administrator. It will then email that file to a user, user group, or all registered users so that the triggered event details can be observed and recorded at a convenient location.
Email Flashback Image gives the administrator the ability to send an email with an image at the beginning of a series of motion events which is a series of framed snapshots combined to give a range of motion over time, without the need to review the full video file.

Associate this feature with only a specific camera, as it cannot be used to select multiple cameras. This is most commonly associated with motion event triggers.

Send Snapshot is used to send a single image file at the start of a motion event to a specific email address.

It can send a single image capture at specific intervals so that it is easy to determine a point in time when something that appears to normally be static, has moved.

This is most commonly used with motion event triggers.

Action Event Log is used with motion event triggers, but it can also be used with any trigger where logging is desired for specific information.

When used, it will place a specific message into the log notes.
Alarm Window sends a notification to each person logged in to VI MonitorPlus and is actively using the client. Alarm Windows can be used to alert security guards very quickly of any motion in an area, by displaying a specific camera where motion is detected.

The ability to designate specific users or groups is available.

The second criteria are the Message Body, which can list the name of the camera, location of where the camera is, or anything desired to be added for the intended purpose of notification and instruction.

Audio Alert will cause a chime to sound on ALL VI MonitorPlus clients logged into an IP Server, or the ability to specify a specific end user for administrative purposes. This is most commonly used with the user Login Trigger.

File Manipulation is used to move video files from one location to another after a specific time-period has passed. This is most useful as a maintenance tool enhancement when used in conjunction with a NAS drive or another backup device.
**Instant Replay** is most commonly used with motion event detection for desired cameras.

It can be used to bring to the immediate attention of security or police officers’ motion that is occurring. It shows the last 30 seconds of recorded motion event.

It requires that a user, a group of users, or all users be selected.

**Live Window** will pop-up a display window containing live camera feed for a specific camera.

It can be used to bring the attention to the center of the VI MonitorPlus window for viewing of an event that may need immediate action taken.
**Message Instruction** is used to send specific messages after a trigger event is fired.

It can be used with Access Control, LPR, Motion Events, Camera Outages, or any other trigger.

It appears within VI MonitorPlus as a pop-up window and can be closed by the receiving user.

**Move PTZ Camera.** Once triggered, Move PTZ Camera can force a PTZ camera to return to a specific, pre-defined, focal point.

When used with Access Control Door access, a PTZ camera located near that door can be forced to turn and capture a headshot of the individual triggering the door access code.

**Record**, when triggered, can force a camera to record if it is normally not set to record anything at all, or has another restriction imposed upon it.

The creation of a new file can be forced, and other limitations can be imposed based on the needs of the rule creator.

This action is used with a wide number of trigger events and can have a variety of results based upon the needs of the rule creator.
Switch Audio allows the user to listen to only a single audio source.

If a pre-configured trigger activates this action, the resulting effect is that a pop-up window appears with the specific camera which is streaming audio and all other audio sources are muted.

This will allow the user to isolate video and audio to a specific source and give cause to action if necessary.

Switch Camera functions in a way that will add another way to bring immediate attention to a specific camera where motion is occurring.

This feature will return to the view of whatever image was in place prior to its injection on the screen.

This is good for random spot checks on various cameras, so that a completely random timing interval can be used based on the trigger of a motion event.

Switch View can force users that are logged in to use a predefined View.

A specific time interval can be assigned to that View.

This is most useful with Access Control, LPR, and motion event triggers.

No trigger event is required for use with the Switch View.
**Time Lapse Recording** causes a camera to take a single-frame snapshot at desired intervals for any designated camera or cameras.

The video output playback frame rate can be adjusted to help manage how quickly playback appears.

**Monitor Points**, when used with certain Access Control input devices, can be triggered to Mask or Unmask a specific function of a device. It is an on-off switch for a two-way input device. Depending on how the device is configured, Masking the device will force it to do the opposite of whatever configuration it holds. Unmasking the device will revert it to the original state. Most commonly used with schedules and Access Control triggers.

(7D) **BEST PRACTICES**

When using the Rules Manager, keep the following aspects in mind to help achieving the best end results in customizing this software.

The default for rules created within the rules manager is to run **always**. Using the schedule will impact certain rules in a way that may not be intended.

- **Keep it simple** - When creating a new rule, keep things simple so that, in the event of a problem, it can be resolved easily.
- **Document, Document, Document** - When a rule is created, keep notes as to WHY the rule was created, WHICH steps the intended rule is supposed to perform, WHAT software and hardware devices are supposed to be affected, and HOW it is expected to function when it is run.
- **Create only one rule at a time** - During the creation of a rule, let it run a full course to verify that it is working as it is intended to function. Once that rule has successfully run its full course, then add a second rule. Let it runs its course completely. Verify that both rules are still functioning as desired. Remember rules two and three, then add a fourth rule.
- **Multiple simple rules can create a complex outcome** - When viewing rules as a step-by-step process, the creation of very complex rules can result in a variety of desired outcomes. Each rule that is created requires a trigger and an action. Actions can be used as trigger events when used in a sequence of rules.
- **Troubleshooting** - If a rule does not function as desired, disable each rule one-at-a-time to eliminate the possibility of a rule conflict. Sometimes two rules will fail logically, causing a conflict for one or more subsequent rules. Concentrate on the process and flow of the rule and verify that nothing is wrong with the rule syntax due to a malformed.
3.4.E Failover Server

(1) INTRODUCTION

VI IP Server supports Automated Failover at no additional software cost. When utilizing the Video Insight Shared Database configuration, a physical or virtual server can be designated as a Failover. This server will monitor the other servers and inherit the cameras of a failed one.

For example, if there are 5 servers with one designated as Failover, when one of the 4 stops writing information to the SQL database, the Failover Server will assume the role of the failed one and all camera traffic will now be associated with that server. Once the failed server is put back into service, the Failover Server will move the cameras back to their original location.

(2) FAILOVER OVERVIEW

When utilizing a Failover Server, a shared SQL database must be configured. Note that a Failover Server should work only for one server as an alternative. Thus, after activating a Failover Server, a down server will be required to recover promptly so that system can be returned to normal operation.

(3) REQUIREMENTS

To use the Failover Server feature, the following criteria must be met:

- Two functional IP Servers with the same hardware configuration, or a secondary server with greater storage capacity. (Virtualized systems can also be used. It is recommended that the virtualized servers are on two different pieces of hardware.)
- Shared SQL Database installation; see IP Server installation with an existing SQL installation.
- At least one license and a serial number or activation key for each server.
(4A) RECORDING DURING FAILOVER PROCESS

If a Failover Server has its own storage, a video recorded by it will not be moved to an Active Server after recovering a failed one. Thus, having the same hardware configuration is required since a server cluster feature is used.

In case of using three or more servers, **shared storage is also recommended** so that all recorded videos during Failover can be accessed by VI MonitorPlus after recovering.

(5) ACTIVATION SEQUENCE OF A FAILOVER SERVER

The example below provides a basic sequence for activating a Failover Server. The value of interval for checking whether a server is alive is configurable (See the Technical Support Knowledge Database for details).

1. The minimum amount of time for switching to the failover server is 11 seconds. During that time, video recording will not occur. This means that there will be a gap in the coverage for recorded video files which will not ever be accessible. The default time for failover to occur is set at 5 minutes by recommendation.
2. **SQL Server data recovery** - is not recovered if a shared SQL DB is not used.

**NOTE** - If a shared SQL DB is used for multiple IP Servers in a system, recorded data before and after switching over happens can be monitored and managed seamlessly by VI MonitorPlus.

1) A single failover server in a system
2) After an active server recovers, a backup server will transfer control back to the primary IP Server.
(6) DESIGNATE AN IP SERVER AS A FAILOVER SERVER

On VI MonitorPlus, click Administration > Servers > Setup and Configuration from the Main Menu. Select the desired Failover Server from the Left Navigation pane. Select the Advanced tab. Check the Designate Server as Failover Server box. Avoid selecting a server that is actively monitoring cameras.

During an IP Server failure, the transfer of the video recording functionality to the Failover Server will take 5 to 10 minutes. Upon recovery from the outage, video files recorded on the Failover Server will not be transferred to the original IP Server. The Failover Server will be accessed via VI MonitorPlus while the main IP Server is down.

Once the Failover Server is accessed by VI MonitorPlus, it will show all cameras and images from the offline server. Recording will continue onto the Failover Server or a previously configured Network Share location, if available.

**NOTE** - It is possible to access Server Properties by right-clicking the server name in the left navigation and selecting Properties, selecting the Advanced tab and then selecting Configuring a Failover Server.
4. VI MONITORPLUS

VI MonitorPlus has three core functions; live monitoring, viewing history, and to act as a centralized management point for configuring and optimization of all IP Servers connected to it.

4.1 F11 FULL SCREEN MODE

VI MonitorPlus is designed to work in many environments, while following the guidelines for an easily customized viewing arrangement. The use of the F11 key on most keyboards will force the VI MonitorPlus Client into full screen mode. To exit Full Screen mode, use the Esc button, or press F11 a second time. This will force the program window to resize itself and provide the user with quick access to the desktop background.

By pressing “F11” key, VI MonitorPlus will switch from Normal to Full-Screen mode.
4.2 MENU BAR OPTIONS

The new VI MonitorPlus user interface has undergone some major redesign because of important feedback from our favorite clients, industry members, and test groups. As a result, VI MonitorPlus has been reshaped to make navigation and control as simple and fluid as possible.

At the top right-hand side of the screen appears a new menu bar (left).

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Avatar Icon" /></td>
<td>This icon, when selected, allows the user to logout of VI MonitorPlus.</td>
</tr>
<tr>
<td><img src="image" alt="Flag Icon" /></td>
<td>The flag icon provides the user with quick access to downloaded files, notifications, and recent changes made to the system.</td>
</tr>
<tr>
<td><img src="image" alt="Rule Icon" /></td>
<td>This icon allows quick access to any currently configured rules once they have been configured within Rules Manager.</td>
</tr>
</tbody>
</table>
4.3 TAB: WORKSPACES

Workspaces within the VI MonitorPlus client are individual pages, like modern browsers, that allow a user or administrator to customize viewing of live and/or recorded video. A user can optionally modify the default Workspace view so that accessing the necessary cameras at critical times is easiest for those with large areas to monitor.

4.3.A Save

![Saved Workspaces]

Open opens a previously saved Workspace within VI MonitorPlus

Save will allow the user to arrange a series of camera views and save the workspace for easy access at a later time.

4.3.B Manage

![Workspace Manager]

Manage opens a new window, displaying a list of previously saved Workspace views.

This feature allows the user to organize the order of appearance for recently created Workspaces. The user can also optionally select a specific Workspace manager to start at the launch of VI MonitorPlus.

Close All
Closes all opened workspaces.

New Workspace
Allows the user to create a new workspace for customization.
4.3.C Application Plug-ins

VI MonitorPlus allows functionality to install additional Application Plug-ins. Whenever available, the Plug-ins can be executed from the “Application Plug-ins” section in the new Workspace.
This function requires IP Server 7.2 or later.

(1) INSTALLING A NEW PLUG-IN

Select Modules from the main menu and select Plug-ins.

Select the Plug-in to add from the list, then click Install.

(2) UNINSTALLING A PLUG-IN

From the Plug-in Manager, select the Plug-in to uninstall from the list, then click Remove.
4.4 LEFT HAND MENU ICONS

4.4.1 Servers

Server View provides the Administrator with the capability to view all configured servers and their corresponding cameras in one convenient scrollable menu bar.

NOTE - To display all servers and cameras upon application launch, you can configure the setting to “Start with Expanded Servers” listed under System > Options > Startup. The Server View will also reflect the changes made by the user of Resource Groups, where changes have been made.

- Expand the Server by selecting the triangle shape, found on the left of the server name. This action expands the visible area, displaying the names of all cameras associated and controlled by that specific server.
- Applying a double-click to a camera will display the recorded video folder, by date, for that camera. Where “Show video files folders” has been activated in Application Controls, below.
- Selecting the date under the camera view will display all files for the camera when file view has been enabled using Application Controls.
- To collapse the view, click the triangle icon, directly left of the server.

Search

The search option is a reduction filter, which isolates servers to display the camera being searched for on any shared database. Clicking on the three vertical lines exposes four defaulted criteria that a search will search through. If any of the options is not applicable, unchecking it will help aid in creating a faster search, but may reduce the effectiveness of the search being conducted.

Cycle Views

To cycle or page through cameras in a specific View, select and click the Server in the left tree. Use the Cycle Every option at the base of the workspace to specify a cycle time. This feature will update the cameras, keeping the View count locked. For example, if 8-camera view is selected, you will receive 8 new sets of cameras at the time specified after 30 seconds.
4.4.B Cameras

This view displays all cameras listed on all servers in order grouped by server, or camera groups. Click and drag functionality allows to click a specific camera, add it to a layout or workspace.

The order by which each of the servers shown on the Desktop View can be changed by clicking on Administration > Servers > Cameras (Add/Remove or discover cameras) and followed by manipulating the cameras into the desired order of appearance.

**NOTE** - Single server environments will often show the Camera View by default. Typing a camera name directly into the search field will conduct a search for a known camera name.

4.4.C Views

This option allows the User to see all available Views within each server.

Clicking Views will change the current workspace layout to the selected layout. Searching for a view is possible by clicking on the magnifying glass next to the View menu title.

Clicking the ellipsis menu icon will allow you to navigate into Cycle Custom Views menu. Select the custom View you would like to cycle (rotate in View), set the cycle order by move the Views up and down in the order. You can also choose a time interval in which you wish to update the View in the cycle. The default setting will be selected at 30 seconds. To start the rotating Views, click Start Cycle.

4.4.D Maps

Facility Maps can be configured by clicking Maps found at the bottom of the left navigation menu. To find out more about Facility Maps, navigate to the Maps section in this document.

To view a facility map within a Workspace, click the map title and it will display in current workspace. This field is also capable of allowing the user to conduct a search for a saved map, if desired.
4.5 LIVE VIDEO

By default, VI MonitorPlus displays a list of cameras in the left navigation tree, under the name of any IP Server that VI MonitorPlus connects to.

To view Live Video, select a camera from the left tree to display a camera view. Drag the camera name into an available workspace to see a live image. To add additional cameras, click and drag a new camera to the Workspace area.

Different views can be displayed automatically by using the Cameras Views icons in the Toolbar.

Expanding the Left tree displays all the cameras connected to a specific IP Server, and that server’s name.

Dragging one of the cameras into a Workspace will change the Main Layout view to that camera (seen left).

While viewing the Live Video, applying a click-and-drag (left click and pull) across the screen results in a digital zoom.

The screen will be expanded to the zoomed area. (example: left)
Alternatively, Pan-Tilt-Zoom (PTZ) operations can be performed by using the mouse wheel to scroll in or out of the image being displayed. This action will zoom in from the center of the live image.

With the digital zoom, navigation around an image is possible by grabbing the orange box in the Preview Window at the bottom left or by using the PTZ controls in the Left tree.

To zoom back out and see the entire image, left click and drag right to left. The digital zoom only affects the VI MonitorPlus application in use. If another user is viewing the same camera on a different computer will not be affected. This does not affect recorded video made during the time of zoom control.
4.5. A Using Views

Views are organized representations of all cameras connected to the IP Server in customizable layouts, allowing to visualize multiple live video streams simultaneously. Click on “Views” on the Left panel to expand the list of available views; to access any View, click on the corresponding name.

Expanding Views

To expand a single camera video from a View, double click directly on the desired camera frame within the View.

The camera feed will be displayed on top, full-size, covering all the Workspace area.
Returning to Views

To return to the View, right click on the video output and select “Return to View” from the pop-up menu.

Expanded individual views of cameras can also be invoked from a View by right-clicking on the camera’s area and opening a pop-up menu.

Select “View in new Workspace” to create and open a new workspace with only the camera’s current live video output.

Select “View in new Window” to open a new VI MonitorPlus window containing only the camera’s live video.

Behavior with 360°/Fisheye cameras

When viewing 360°/Fisheye cameras from Views, double-clicking on an individual camera display will open a single quadrant view as in a single camera.
Double-clicking the quadrant again will switch back to Dewarp view.
To avoid this, right-click on the view and select “Return to View” from the pop-up menu.

Double-clicking on a 360°/Fisheye camera view header (the top bar with the camera name and IP address) will return to View as well.

If “Show Camera Header” is disabled from System Options, thus hiding the camera view header, use the Right-Click/Return to View option as explained above.
4.5.B Details Pane

The **Details Pane** provides additional information and options for a specific camera while in Live Video mode.

To access it, click on the Details Pane icon to open a new menu bar on the upper right side of the workspace window.

To close the Details Pane, click again on the same icon (inverted), now located next to the Details title.

While viewing a specific camera within a workspace in Live Video mode, the **Details Pane** is hidden by default.

Once opened, the Details Pane will display basic information about the selected camera, as well as its corresponding options and controls. Depending on the type of camera and its features, the available options are:

- **Details**
- **Pan-Tilt-Zoom (PTZ) controls**
- **Actions**
- **Auxiliary Functions**

(1) **DETAILS**

This area displays the camera’s specific information as it appears in the IP Server database.

Click on **More Info** or **Less Info** to toggle the Details view option **ON** or **OFF**.
### Camera Details Values

<table>
<thead>
<tr>
<th><strong>Manufacturer</strong></th>
<th>Name of the manufacturing company for the displayed camera.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>Camera model as it appears in the IP Server database.</td>
</tr>
<tr>
<td><strong>IP Address</strong></td>
<td>IP Address of the camera.</td>
</tr>
<tr>
<td><strong>Server</strong></td>
<td>Name of the IP Server that the camera is associated with.</td>
</tr>
<tr>
<td><strong>Camera ID</strong></td>
<td>This Camera ID is unique only to the IP Server database. It can be used for troubleshooting.</td>
</tr>
<tr>
<td><strong>Web Access</strong></td>
<td>Web Access is a URL to access the camera’s webpage. Clicking on this link will open a web browser window, where the user will be able to provide access credentials for the camera.</td>
</tr>
</tbody>
</table>

#### (2) PAN-TILT-ZOOM (PTZ)

This feature is available only when the Details Pane window is selected on a camera with PTZ functionality.

**NOTE** - Not all 360° Cameras come with PTZ functionality.

- **Preset1**

  This drop-down menu provides a list of pre-defined and custom camera viewing angles.

- **PTZ Preset cycling configuration**

- **PTZ Prioritization lock**

- **Customization of Preset PTZ controls: Add a new preset or Delete a preset**

- **Remote controls for Zoom, Focus and Shutter capabilities, including angles and increase/decrease buttons.**

- **Adjusts the speed of panning and tilting within the Live Video, using the mouse when Digital PTZ is unchecked**

- **By checking the Digital PTZ box, functionality of PTZ controls becomes limited only to the use of the mouse.**
  This means that panning and tilting the Live Video feed is not functional until the box for Digital PTZ has been unchecked.

#### (3) ACTIONS

The Actions feature includes a series of additional controls and options for the Live Video.

Some of these options are not available, depending on the type of camera selected.

- **Display camera information on Live Video, including: Resolution, Codec, FPS and Timestamp**
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Force Video Recording</td>
</tr>
<tr>
<td></td>
<td>View recent Video History, opening a new window with recorded video streaming and the Timeline for advanced controls</td>
</tr>
<tr>
<td></td>
<td>Capture Image Snapshot</td>
</tr>
</tbody>
</table>

**Dewarping View Modes** - The following options change the output from a 360° Camera:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Fisheye View</strong>: It forces the camera to use fisheye view. If Panomorph (Dewarping) is available for the camera, this will represent the dewarped “fisheye” view when activated.</td>
</tr>
<tr>
<td></td>
<td><strong>Quad View</strong>: It will display four individual feeds from a fisheye camera, arranged within a workspace as a single image.</td>
</tr>
<tr>
<td></td>
<td><strong>Panorama View</strong>: It enables an elongated view that spans across the top and bottom half of the workspace view.</td>
</tr>
</tbody>
</table>

### (4) AUXILIARY FUNCTIONS

The Auxiliary Functions area provides extra features for the selected camera, where available.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auto Focus activates the camera’s autofocus capability</td>
</tr>
</tbody>
</table>
4.5.C Fisheye Cameras

The use of Fisheye Cameras and their features such as viewing Live and Recorded video, Pan-Tilt-Zoom (PTZ) controls and Camera Registration are all possible in VI MonitorPlus.

Fisheye Cameras appear on the Left Navigation Tree under their IP Server, identified by the following icons:

To use the Fisheye Cameras advanced view options, click on the corresponding Details Pane (see 4.5.A).

NOTE - Fisheye Cameras with 360° capability support advanced Dewarp View Modes.

(1) 360° CAMERA DEWARP VIEW MODES

The Details Pane for a Fisheye Camera with 360° capability shows the 360 Views options under Actions, enabling the Dewarp View Modes.

NOTE - When switching between Dewarp Views on a Panasonic 360 camera, the Aspect Ratio is maintained, allowing the fisheye image to be fully displayed in the active layout.
(2) **ZOOMING WITH MOUSE WHEEL**

It is possible, with a Panasonic 360° camera, to **zoom in and out** on the live video feed by using the Mouse Wheel when in Fisheye or Quad mode, keeping the cursor within the desired view.

![Zoom In and Out with Mouse Wheel](image)

**DEFAULT**  
**ZOOM IN**  
**ZOOM OUT**

(3) **AUTOSAVING LATEST VIEW**

When using a Fisheye camera, **VI MonitorPlus** will **save its latest selected view** automatically. This operation occurs on the Client’s side whenever changes are made on the Workspace for each specific 360° Camera. View settings are stored physically in the local machine’s registry. This feature also saves the User’s last **Quad View** and **Panorama** positionings for each quadrant. When the camera is selected again **from any module** of VI MonitorPlus, its latest saved view configuration will be displayed **by default**.
4.5.D NVR Live Video

NVR cameras can be accessed from the left tree, whenever available.

When clicking on any NVR icon, the cameras associated to it will be shown on the Workspace.

To access Live video from a supported NVR model (see 4.9.G) select the camera from the NVR menu on the Left tree. Video will be displayed like other supported cameras. Camera Properties will be unavailable for NVR cameras setup.
The Vehicle Incident Detection feature, also known as VID, allows users to track a moving object (such as a car, bus or train) and register its trajectory, displaying Metadata with geometric shapes overlaying the Live Video.

NOTE - Video Incident Detection is supported only by Panasonic cameras.

Open Internet Explorer and log into the camera’s setup URL or web interface. This URL can be found on the Camera Properties page, listed as Web Access. Ensure your camera is properly positioned to cover the desired view area. VID supports horizontal lane drawing; align streets and pathways with the view for better results.

To setup a Basic Preset for the camera:

- From the Left Tree, click on the Setup tab (top).
- Select Image/Audio > Image/Position.
- In the Main Panel (right), click on Setup for Preset Position.
In the **Position Preset** window, click on the **Preset No.** drop down list and select an available option.

Ensure **Preset ID** and **Auto Focus** are both **ON**.

In the **Preset ID** (0-9, A-Z) field, create a valid name.

Click **Set** to create the Preset Position.

Click **Close** (at the bottom).

To access **Vehicle Incident Detection**:

- From the Left Tree, click on the **Setup** tab (top).
- Select **Alarm > Vehicle Incident Detection**.

A Live Video feed image will be shown on the Main Panel (right).

It will show a horizontal red line (Camera Height) and a series of gridlines generated by the camera to be used when defining Lanes.

To adjust the grid position, use the **Camera Height** drop-down list and select the desired height.

To setup a new lane, select **Lane 1** from the **Traffic lane setup** drop-down list. Lanes are defined below the horizontal red line on the video.
Using the mouse cursor, click and drag a line on top of the video to define the lane area. Start by defining the vertical height and next the horizontal width. Draw a straight line then select the opposite corner to complete the lane.

Click “Clear” to delete the current lane. Click “All Clear” to delete ALL the lanes on the view. Additional segments can be created by drawing connecting boxes (for example to cover a curved area).

**NOTE** - Up to 4 Lanes can be defined on a single view, each one with a distinctive color and specific options.

Set the Wrong-way vehicle radio button to On to view onscreen objects (tracking lines) when vehicles traveling in the wrong direction are detected. You may also enable Stopped vehicle to trigger that event.

Define the Correct direction of the traffic by selecting UP or DOWN on each lane where it applies.

Once configured, any vehicle traveling the wrong direction will be identified by a blue square and a trailing green path line.

**NOTE** - VID setup takes 10 to 15 minutes to reflect the changes on the received images. Allow sufficient time for the camera to apply the configuration.
Next, go to the camera’s Live Video in VI MonitorPlus. Access **Camera Properties** by right clicking on the camera in View or right clicking the camera node and selecting Properties. Enable **Capture VCA Events** and **Capture Graphics Objects** by clicking the corresponding checkboxes from the General tab.

**NOTE** - If you are receiving overlay objects in your camera web page, but not on VI MonitorPlus, uncheck and re-check **Capture VCA Events** and **Capture Graphics Objects**.

Once in Live mode, expand the Camera Details Panel and select **Show Graphic Object Overlay**.

**NOTE** - Moving the PTZ camera in any direction will reset all VID camera configurations. Please utilize the PTZ Lock feature to prevent this from moving during VID operation.

To restore the VID feature, select the configured preset in the Camera Details Panel.

To view the On-screen objects, select the camera in the left tree to view it in Live mode. Any event that triggers the Wrong Direction alarm will be detected and shown instantly.
4.5. F Cycle Views feature

VI MonitorPlus comes with a feature to split multiple cameras outputs into self-cycling Views (Pages), displayed automatically after a specific time interval. For example, in a 24-cameras server environment, it is possible to configure a set of three 8-cameras views, each one organized as a single page that skips to the next one after 10 seconds, and so on until it goes back to the first one.

To activate the Cycle Views feature, right-click on the server name shown in the left-side panel, under "Servers", then click on "View in Current Workspace".

All the cameras in the server will be displayed in a new Workspace, generated automatically.

At the bottom of the Workspace, a status bar will show:
- Camera View options
- View size options
- Play/Pause button
- Number of visible cameras
- Recorded Video switch button.
Define the size of each view layout by opening the Camera View list at the bottom left of the Workspace and select the desired View.

**NOTE** - Always select a number that is less than the total of cameras displayed.

The first automatically generated View (Page) will be displayed, using the View layout previously selected from the Camera View list.

The status bar now displays the following:
- Camera View options
- View size options
- Play/Pause button
- Cameras, Page number and Next/Previous page buttons
- Cycle interval (time) options, Start button
- Recorded Video switch button.

Set the paging interval value (Cycle Every field) and click on Start to begin the automatic sequence. You can also manually go to the next or previous page by clicking on the left/right arrow buttons.
4.5.G Embedded Analytics support for i-VMD Cameras

VI MonitorPlus supports Embedded Analytics for Panasonic i-VMD (Video Motion Detection) cameras.

To ensure the feature is active, proceed as follow:

Right-click the camera on the left tree, and select “Properties”

In the Camera Setup window, “General” tab, locate the “Additional Options” box on the right side, and check both “Capture VCA Event” and “Capture Graphic Objects” boxes.

Click on “Save Now” (top right button).
Depending on the settings for the camera, the object detection will appear in the live video streaming, with color coded frames and motion lines.

To turn off the live object detection, open the Details Pane (upper right arrow) and click on the “Hide Graphic Objects Overlay” button.

The live streaming will now appear without the frames and lines.

Click on the “Show Graphic Objects Overlay” button (in the Details Pane) to reactivate the live detection.
4.6 RECORDED VIDEO

VI MonitorPlus comes with the ability to access Recorded Video directly from the Left Navigation tree. To enable this feature, follow the steps below:

On the Main menu (Top), select “System”, then “Options”

In the System Options screen, select the “General Tab”; under the Application Control section, make sure the “Show video files folders” box is checked.

Close the System Options screen and exit VI MonitorPlus. To use the feature, run VI MonitorPlus again and test it.
4.6. A Playback

Recorded Video can be accessed and managed using the **Playback bar**, which is located at the bottom of the workspace screen for any camera that supports this feature.

To switch from Live to Recorded Video, click on the **Blue Icon** located at the bottom-right corner of the screen.

The Recorded Video bar will be activated showing the **Calendar** and **Playback** controls on the left side, the **Timeline** on the center, and the **Video Management** controls on the right side.

To switch back to Live Video, click on the **Return icon** at the bottom-right corner of the screen.

In the Timeline, the **Orange vertical bar** (centered) indicates the current position in time of the video. It is also the starting point to begin playing it.

**Red areas** or spots represent motion detection, and **Blue areas** or spots represent motion video recording available for playback.
4.6.B Analytics

VI MonitorPlus comes with the ability to enable or disable the display of Recorded Video Analytics directly from the Timeline bar. This feature is available on cameras that support VCA (Video Content Analysis) events.

(1) ENABLING VIDEO ANALYTICS DISPLAY

To activate the Analytics Display feature, follow the steps below:

Open the Properties page for the camera:

- Right-click the selected camera from the Left Navigation Tree and select Properties.
  - or-
- Open Main Menu > Administration > Cameras > Configure Properties and select the camera model from the Left Tree.

In the Camera Setup window, General tab, make sure the checkboxes for “Capture Graphics Objects” and “Capture VCA Events” are available and selected, under the “Additional Options” section.

(2) VISUALIZING ANALYTICS

From the Live Video interface, switch to Recorded Video to access the Timeline.

From the Timeline bar, click on the Analytics icon.

The green lines on the Timeline will indicate events captured during the Live video session and processed as Analytics.
4.6.C Bookmarks

VI MonitorPlus comes with a complete interface to create and manage **Recorded Video Bookmarks**, which can either point to a single frame within the video sequence or include specific time intervals *(start-end)*. Bookmarks are used as a reference for further review or analysis.

**(1) ADDING A BOOKMARK**

In the Timeline, position the starting point of the bookmark aligning it with the Orange indicator.

Click on the **Bookmarks icon**, then select “**Add Bookmark**” on the menu.

In the **Add Bookmark** window, enter the **End Time** manually or using the Calendar (see below), and the **Title** and **Description** of the bookmark.

Click **OK** when ready.

*All fields must be filled.*

When adding a new bookmark, use the **Calendar** clicking on the corresponding icon, and easily select the End Time from its interface.

When finished, a thick **Yellow line** will appear on the Timeline indicating the Bookmark interval.
(2) VIEWING BOOKMARKS

Click on the Bookmarks icon, then select “View Bookmarks” on the menu.

The Bookmark Manager window will show the customizable list of available bookmarks, plus 4 option buttons: Play, Edit, Delete and Close.

Click on any column title to sort the list by its value (descending / ascending).

Adjust any column width by clicking and dragging the vertical separator between column titles to the left or the right.

To activate any of the options, select the desired bookmark from the list.

Click Play to launch the bookmarked video (close the Bookmark Manager to view it).

Click Edit to modify the parameters for the bookmark.

The Modify Bookmark option will allow to change the End Time, Title and/or Description.
Click **Delete** to remove the bookmark from the list (**confirmation needed**).

Once the bookmark is deleted, the yellow indicator will disappear from the timeline.

This operation cannot be undone.

Click **Close** to exit the Bookmark Manager and return to the Recorded Video feed.
To create and export a recorded video clip from a specific time interval, click the **Export Video Clip** button, located to the right of the timeline bar.

The **Export Video Clip** window will open in the foreground.

Specify the **Start Time** and **End Time** for the clip, using the corresponding drop-down lists for each value.

The selected interval will be automatically shown in the timeline within an orange frame.

**NOTE** - This frame can be adjusted by clicking and dragging it horizontally to manually modify the time interval.

Open the **Export To:** drop-down list to change the video file format.

When "AVI" or "MPEG" are selected, the application will display a set of **Export Options**:

- **Show Timestamp**: Embeds the timestamp in to the exported video.
- **Include Watermark**: Creates a watermark and embeds it into the video to prevent video tampering.
- **Force Compatibility**: Forces the video to be exported in MJPEG format.
If “EXE (Executable file)” is selected, the application will ask for a Password to protect the exported file. A self-executable file will be produced.

If “Arbitrator Cloud” is selected, the application will ask for the Arbitrator Cloud’s URL, its Username and Password.

“Save to Folder:” shows the default destination folder and filename for the clip.

Click on the white icon to the right to open the File Explorer window for more options.

The File Explorer window allows changing both the destination folder and the file name for the exported clip.

The “Save as type” option will replicate the file type selected from the application’s interface by default.

Click “Save” to confirm or “Cancel” to return.

Click on “Select Region of Interest” to define a R.o.I. for the clip.

Mark the Region of Interest directly on the corresponding window and click “Select” to confirm.

Click “Select Entire Image” to expand the Region of Interest to the maximum allowable size.

The Region of Interest will be displayed back in the “Export Video Clip” window preview.

Click “Cancel” to return.

Click “Export” to start the file exporting process, or “Cancel” to exit.
The file will start to be downloaded. Click “Cancel” to stop the process.

Once finished, the file will be ready to be played (“Open”) or to be found on its destination folder (“Show in Folder”).

**NOTE** - Clipped video files are limited in size to be 1.5GB, while exporting. In some rare instances, the file size may be slightly smaller than 1.5GB.
4.6.E Playback support for NVR Cameras

Before utilizing NVR Cameras in recorded mode, ensure your NVR is properly enrolled.

Recorded video for NVR cameras listed in the left navigation tree are available through the recorded mode of VI MonitorPlus.

To access recorded video, click on the camera under the enrolled NVR server.

A new Playback Window will appear displaying the Playback bar along with the Calendar picker and the Export Clip icon.

The Timeline is also visible at the bottom of the window.

At the top of the Playback window, the Title shows the name of the camera currently active.

To locate recorded video, use the Calendar to select a time and date or use the Forward and Previous File Recording icons on the toolbar.

Selecting Previous Recording or Next Recording will jump the playback to the next recorded segment.

The Export Clip option allows the creation of an external AVI video clip after specifying the start-end time and its export path.
The Timeline can be used to navigate the NVR camera playback within a time interval.

**NOTE** - NVR Playback support is recommended on a physical client machine, instead of virtual computer environment.
4.6.F Video Clipping support for NVR Cameras

VI MonitorPlus features the option to Export Video clips from NVR Cameras’ live streaming.

From the NVR Camera live video view, click on the “Switch to Recorded Video” button (bottom-right).

The Camera Playback view will open in a new window.

Click on the “Export Video Clip” button at the bottom right corner (gray).

Select the Start Time, End Time and file path for the clip, then click on “Export” to begin the operation.

The export clip sequence will begin. Once completed, the “Exporting” window will disappear, going back to the Camera Playback.

NOTE - The Video Clip files will be generated in AVI format.
4.6.G Panasonic Arbitrator Cloud Export

To export files to Panasonic Arbitrator Cloud, use the Export Video Clip menu to send the video clip. First, select the date and time you wish to create a clip. Next, select Arbitrator Cloud from the Export to drop down.

Enter the correct Arbitrator Cloud URL and authenticate with your Arbitrator Cloud username and password. Select Preview to generate the clip preview for verification. Once connected the Arbitrator Cloud server, you will be allowed to enter in case details along with classifications for the case. This video clip will be stored on your Arbitrator Cloud system for future review along with the details supplied for the case.
4.6. H Multiplex Video

While exporting a clip, there is an option to keep all video in the appropriate layout when making a clip. This is done by selecting Multiplex Video during the file export.

The output will display all involved layouts in a single AVI file and all views will be shown on the playback. See example image below of AVI playback.

If Multiplex Video is not selected, then the output file will default to the previously selected options located above the Multiplex Video checkbox.

Each recording will be exported individually, until all have completed, before the video is compiled and ready to be presented in this view.

The maximum number of cameras in the viewable area is limited to 16 cameras at the time of publication.

The Save to Folder option can be selected to change the default destination directory for storage.
4.6.1 Region of Interest Motion Search (ROI)

Region of Interest Motion Search (ROI) allows the user to draw a box within previously recorded video view and to monitor changes within that specific area over a desired time frame. This feature enables the user to capture the moment that a change occurred within a visible region on the recorded video.

**NOTE** - The use of ROI Motion Search does not require a hardware-based GPU to conduct searches. When ROI Motion Search is not used with a hardware-based GPU, as outlined in the IP Server requirements, the search results will be performed in software-only mode. This can be very slow. It is highly recommended that a graphics processor, as listed in the Requirements for the hardware decoding (Hardware Decoding) is used for best performance output.

The use of ROI requires a 64-bit OS and VI MonitorPlus installation.

The ROI Motion Search feature compares frames within a recorded video to determine that enough pixilation change has occurred. When combined with the Region of Interest specified with the recorded video frame itself, the search conducted within the recorded video become much more glandular, yielding higher positive search results.

**NOTE** - It is recommended that ROI is used within a single workspace. Opening multiple workspaces to use with ROI will result in performance degradation and undesired results.

To get started with ROI Motion Search, follow the steps below:

1. Select a camera with recorded video where an event is thought to have occurred.
2. Next, select the Recorded Video icon, found in the bottom right-hand side of the screen (see left).
3. The recorded video timeline appears (see below).
4. On the right-hand side of the timeline the ROI Motion Search icon appears (see left).
5. Click on this icon, and the workspace refreshes with a new timespan bar.
6. In the image below, a Timespan bar appears.

Select a camera with recorded video where an event is thought to have occurred.

Next, select the Recorded Video icon, found in the bottom right-hand side of the screen (see left).

The recorded video timeline appears (see below).

On the right-hand side of the timeline the ROI Motion Search icon appears (see left).

Click on this icon, and the workspace refreshes with a new timespan bar.

In the image below, a Timespan bar appears.
The Timespan bar located between the Start Frame and the End Frame is the timespan in which a search is conducted. The Timespan Bar can be used for quick access to more recent events. To use it, click and drag the time bar to the point in time that the recent event may have occurred.

**NOTE** - The use of ROI with fisheye cameras has a visual playback limitation. Dewarping and Quad-View features are not processed by IP Server while recorded video is displayed on the screen within the ROI search. Video playback for fisheye cameras will appear in fisheye-view only. ROI video clips made from fisheye cameras will play back in fisheye view only.

**NOTE** - If it is necessary to conduct a search over a greater span of time, it is an option to use the two calendars above the timespan bar to specify exact start and end times across a period of days.

**NOTE** - The use of network-bandwidth conserving features, such as Panasonic Smart Coding, can negatively impact the ROI search results where bandwidth settings on the camera are maximized for network efficiency. It is recommended that an acceptable balance between these two features be tested to match the preferences of the administrator prior to production use.

At the time of publication, the ROI Motion Search feature is limited to searching previously recorded video that is accessible within VI MonitorPlus and only within a 30-day range. This limitation is due to the possibility that a search is conducted beyond the scope of available video recordings.
The **Start Frame** acts as a visual point of reference, used for quickly scrolling through the **Timespan Bar**. It displays the very first frame from the video recording for use by ROI Motion Search. The **End Frame** is a visual guide and visual point of reference for quickly scrolling through the **Timespan Bar**. It displays the very last frame from the video recording used for a ROI Motion Search.

![Image of Start Frame and End Frame](image)

After the selecting the desired start frame, click and drag across the image in an area on the recorded video.

This creates the Region of Interest for searching with the ROI Motion Search feature.

Click on **Run Search**.

![Image of Run Search button](image)

During the search process, the Timespan bar will begin to populate potential hits found within the frame reference. When the green shaded area extends beyond the Timespan bar, the likelihood that some motion has occurred within the Region of Interest.

![Image of Timespan Bar with green shaded area](image)

The Motion Events section, found on the right-hand side of the screen, will begin populating with clippings of motion events found within the specified Region of Interest.

To view one of the Motion Events, double-click on one of the visible images. A new pop-up window appears.

This window allows the user to view the specific motion event within a stand-alone player. The player is designed to be compatible by default with any of the required operating systems for IP Server.
Advanced Settings

The table below offers a description of the items that appear within Advanced Settings.

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Threshold represents the minimum deviation of a value within a pixel, for that pixel to be considered “changed” within the recorded video.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>This adjusts the motion detector’s sensitivity to change.</td>
</tr>
<tr>
<td>Window</td>
<td>Represents the number of overlapped video frames that are used to determine if a pixel has changed.</td>
</tr>
<tr>
<td>Skip Frames</td>
<td>Motion analysis is done only on key frames</td>
</tr>
<tr>
<td>Min Quiet Time</td>
<td>The number of seconds that must pass where no motion has been detected, before a new motion event is created</td>
</tr>
<tr>
<td>Event Threshold</td>
<td>The percentage of pixels that must change within the Region of Interest before a new motion is created</td>
</tr>
</tbody>
</table>
4.7 TAB: MODULES

4.7. A Access Control

(1) ACCESS VIEW

(1A) ACCESS VIEW CONFIGURATION
Access View is the user facing interface to Access Control servers that can be implemented into IP Server and VI MonitorPlus. The newly arranged feature set was designed to maximize ease of use and to provide the user with the necessary details of each Access Control event.

This screen will only become relevant when IP Server is integrated with an Access Control server. Otherwise, this screen offers no additional / functional features for the User.

(1B) ACCESS VIEW CONTROLS

Door Information
Door information allows the user to select a specific door, and see which camera is assigned to that door. The default is to show All Doors, which limits the ability to display all doors at the same time in the Live View window below. This is intended to be used as quick access to a specific door where there may be an alarm event that needs to be rectified with human interaction.

LAST ENTRY
Last Entry displays the information pertinent to an Access Control device being accessed. Depending on the depth of Administrative Management used and incorporated into a person’s account, the features available here are the display of a photo of the individual that attempted to access the secured area.

Last Alarm provides the user with the type of alarm that triggered the door, the event that triggered an alarm and provides the time that the alarm was triggered.

This is a live feed provided to the user, in the event there is a need for manual interaction, to easily elect to choose the door from Door Information (above) and then select one of the following Actions (see Actions image, below).
ACTIONS

Actions are a list of functional items available to the user for controlling a single door, if it is being viewed, or ALL DOORS if All Doors is selected in the Door Information area, seen above. Use caution with any of these tools while viewing ALL DOORS in the Door Information area, above. If access control permissions have not been properly configured, undesired changes can result in some adverse effects on the IP Server.

<table>
<thead>
<tr>
<th>Actions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admit</td>
<td>Most commonly used with a live guard and a single door with a camera or a camera with a microphone. The Admit button provides manual authorization for entry. Because it is a manual authorization, the action is tracked within the system logs for IP Server.</td>
</tr>
<tr>
<td>Schedule</td>
<td>This function, when selected, forces the door being viewed* into one of two states. The first state is to force the door being viewed back onto a previously programmed schedule if one is available. If there is no schedule available for the door, then it will force the door into the default setting on the controller card. Usually, the default on controller cards is for Card swipe/pin access depending on the reader card. *Important note: This will take any visible door (or ALL doors, if ALL Doors are being viewed) out of Lockdown, scheduled mode if security settings are not properly configured on the access control server.</td>
</tr>
<tr>
<td>Unlock</td>
<td>This feature will unlock a door being viewed, or all doors being viewed if *All Doors is selected in the drop-down menu within Door Information. *Important note: This will take any visible door (or ALL doors if ALL Doors are being viewed) out of Locked or scheduled mode if security settings are not properly configured on the access control server.</td>
</tr>
<tr>
<td>Lock</td>
<td>This button will lock the door being viewed.</td>
</tr>
<tr>
<td>Lockdown</td>
<td>Selecting this button will force all doors to lock. Pressing this button will lock the door being viewed, or *ALL DOORS if viewing All Doors in the drop-down menu above. *Important note: This will take any visible door (or ALL doors, if ALL Doors are being viewed) out of Lockdown, scheduled mode if security settings are not properly configured on the access control server.</td>
</tr>
</tbody>
</table>
**LIVE VIEW**

Live View displays a live stream of any camera that might be associated to a specific door, and then chosen from the Door Information drop-down menu.

The ability to pause the live stream is available, and access to the Recent Recordings is also available for quick review of any potential or unexpected security violations.

**EVENT HISTORY**

Event History provides limited information that is pertinent to the Access View Controls, and the doors assigned to the Access Control server. Information made available are as follows:

```
<table>
<thead>
<tr>
<th>Type</th>
<th>User Name</th>
<th>Details</th>
<th>Date/Device</th>
<th>Time Entered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry</td>
<td>Monitor Point</td>
<td>Entry</td>
<td>Front Door</td>
<td>8/07/2017 8:33:29 AM</td>
</tr>
<tr>
<td>Entry</td>
<td>Door is closed</td>
<td></td>
<td>Front Door</td>
<td>8/07/2017 8:33:26 AM</td>
</tr>
<tr>
<td>Entry</td>
<td>Monitor Point</td>
<td>Entry</td>
<td>Front Door</td>
<td>8/07/2017 8:02:02 AM</td>
</tr>
<tr>
<td>Entry</td>
<td>Door is closed</td>
<td></td>
<td>Front Door</td>
<td>8/07/2017 8:02:01 AM</td>
</tr>
<tr>
<td>Entry</td>
<td>James Adler</td>
<td>Access Granted</td>
<td>Front Door</td>
<td>8/06/2017 3:21:15 PM</td>
</tr>
<tr>
<td>Entry</td>
<td>Door is closed</td>
<td></td>
<td>Front Door</td>
<td>8/05/2017 3:16:25 PM</td>
</tr>
<tr>
<td>Entry</td>
<td>James Adler</td>
<td>Access Granted</td>
<td>Front Door</td>
<td>8/04/2017 3:16:25 PM</td>
</tr>
<tr>
<td>Entry</td>
<td>Door is closed</td>
<td></td>
<td>Front Door</td>
<td>8/04/2017 8:35:16 AM</td>
</tr>
</tbody>
</table>
```

**Type:** This list denotes whether the type of access was an entry or exit, if a second card reader is implemented inside of the secured area.
**User Name:** This is the name of the person that is associated with the access control card/pin number/voice recognition device that has been given or denied access to the secured area.

**Details:** This provides a running list of items that of more specific events that may have occurred. The scope of this detail information provides a quick view of helpful information that affords the user to discern if an actionable task needs to be performed, or if some sort of maintenance needs to be done. In general, it is a running log of devices, controls, users, and times of events.

**Door/Device:** A list of the specific device where an event has occurred.

**Time Entered:** Date and time of recorded event.
(2) LANE VIEWER

Designed to work with MonitorCast, selecting Lane viewer from the Modules Tab opens a window that displays three doors. The purpose of lane viewer is to allow a person (typically security personnel) to monitor for issues that might arise with a specific door or camera. These settings can be modified, in the Administration section for Lane Viewer.

By default, when Lane Viewer is opened, the appearance of three doors/cameras appears.

The first step for configuring Lane Viewer, after it is opened, is to assign a door to one of the views.

Do this by selecting the drop-down menu at the top of the lane viewer display.

After the doors have been assigned to each desired Lane Viewer view window, the configuration is complete. Each time an individual uses an access badge, or key code for entry, the information that has been associated to that person within the MonitorCast database appears.

When pictures are associated with personnel at the site using MonitorCast, the image of that person is displayed on the screen when the access control card/code is used.

Where no image is associated, a default image stating, “No Image” appears.
4.8 TAB: SYSTEM

The System tab provides administrative functions that will have an effect within VI MonitorPlus. These administrative controls and functions do not necessarily have a direct impact on the IP Server itself, and are centered around visual enhancements and User-level personalization for the client interface.

4.8.A Licensing

Licensing, within this section is directly related to single-use instances of H.265 licensing. H.265 licensing is done entirely client-side, on a per-installation basis. Panasonic wishes to respect the terms of the license and has implemented this minor adjustment to the licensing feature to comply with the H.265 licensing agreement.

(1) H.265 ON-LINE REGISTRATION

The registration process does not require the collection of any data that will identify a person. Panasonic does not collect a name, address, phone number, email address or other any other personal information.

**NOTE** - H.265 Cameras that are not registered will record video, however the video playback of H.265 cameras will not permit the user to view the recording without registration. Registration is required on each computer that VI MonitorPlus is installed and used with H.265 cameras.

To register any qualified Panasonic Camera for H.265 Camera Licensing, navigate to System > Licensing > H.265.

(1A) AUTOMATED REGISTRATION

If the computer registering H.265 has internet access, the automated method of registering is 2 steps:

**Step 1:** Select the Register Now button.

A new pop-up window appears, confirming that registration of H.265 is complete.

**Step 2:** Click OK to exit the registration process.
(18) MANUAL REGISTRATION
For computers using VI MonitorPlus on a closed-network environment, without internet access, the process for registering H.265 was made to be as simple as possible. This process can be done on a cell phone, or by calling Technical Support.

Step 1: Copy the URL for H.265 registration.
Step 2: Copy the hardware code provided.
Step 3: On a device that does have access to the internet, enter the URL and go to the page for registration.

Once the webpage loads, continue with these steps:

Step 4: Enter the hardware code for the computer that will use H.265 video playback within VI MonitorPlus.
Step 5: Select Submit

The next page appears with the registration code.

Copy this code and take it to the computer without internet access.

Step 6: Enter the registration code into the Activation Code area.
Step 7: Click Enter to complete the registration process.

H.265 is now registered. Video recorded on H.265 cameras will playback without any issues.
### Event Viewer Details

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access Control Manager</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AccessAlarm</strong></td>
<td>General notification that access has occurred or access has been attempted.</td>
</tr>
<tr>
<td><strong>AccessEntry</strong></td>
<td>General notification that an entryway was opened or closed</td>
</tr>
<tr>
<td><strong>DoorAlarmed</strong></td>
<td>Denotes that a door alarm was triggered for the time and date specified. Please verify that the door is functioning properly.</td>
</tr>
<tr>
<td><strong>DoorLockStatus</strong></td>
<td>Will signify if a door is locked or unlocked</td>
</tr>
<tr>
<td><strong>DoorState</strong></td>
<td>Status of a door - on/off/connected/not connected</td>
</tr>
<tr>
<td><strong>IP Server Event Messages</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CameraDown</strong></td>
<td>IP Server is reporting that it does not have access to the camera specified. Please check username, password and network connectivity issues.</td>
</tr>
<tr>
<td><strong>CameraMotion</strong></td>
<td>Notification of a motion event. Meaning, motion occurred within the field of view on the camera that has been specified.</td>
</tr>
<tr>
<td><strong>CameraRestored</strong></td>
<td>IP Server reporting that it can now connect to the previously downed camera.</td>
</tr>
<tr>
<td><strong>ClientMessage</strong></td>
<td>A message was sent from one user to another user.</td>
</tr>
<tr>
<td><strong>LiveWindow</strong></td>
<td>Live window was activated by a user, or rule.</td>
</tr>
<tr>
<td><strong>IP Server Rules Manager output</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AlarmWindow</strong></td>
<td>This will appear when there is a rule setup to trigger a pop-up window for access control.</td>
</tr>
<tr>
<td><strong>ExecuteProgram</strong></td>
<td>Within Rules Manager, if the option to execute an additional program outside of IP server is requested, this will appear within the logs.</td>
</tr>
<tr>
<td><strong>InstantReplay</strong></td>
<td>This represents a call by a logged in user to perform an instant replay task.</td>
</tr>
<tr>
<td><strong>LPRAAlarm</strong></td>
<td>This item appears with the use and activation of LPR services.</td>
</tr>
<tr>
<td><strong>MessageAlert</strong></td>
<td>This indicates that a message alert pop-up was triggered and displayed.</td>
</tr>
<tr>
<td><strong>SwitchToCamera</strong></td>
<td>During the Tour feature, this indicates changing views between cameras.</td>
</tr>
<tr>
<td><strong>SwitchToServer</strong></td>
<td>This indicates that that specific server was selected from the main menu.</td>
</tr>
<tr>
<td><strong>SwitchToLayout</strong></td>
<td>This indicates a change in the number of visible cameras.</td>
</tr>
<tr>
<td><strong>SwitchToAudio</strong></td>
<td>This indicates the activation of Audio with cameras capable of capturing audio.</td>
</tr>
<tr>
<td><strong>License Plate Recognition (LPR) related messages</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LPREvent</strong></td>
<td>This denotes any event that may have occurred with the use of LPR software and cameras. If you are not using LPR functionality, then this message can be disregarded.</td>
</tr>
<tr>
<td><strong>Video WallPlus</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ChangeMatrix</strong></td>
<td>This indicates a change in the layout of the monitor views, or matrix.</td>
</tr>
<tr>
<td><strong>DBDown</strong></td>
<td>SQL Query failure. Most commonly a temporary SQL connection issue. Please verify that the SQL server is not experiencing any issues.</td>
</tr>
<tr>
<td><strong>DBRestored</strong></td>
<td>SQL query connection successful. Seen at IP Server startup as well as after a failed query has been triggered.</td>
</tr>
</tbody>
</table>
## 4.8.C System Log

System log provides data useful to the administrator searching for specific events. In this log, the Admin will find the option to select a specific server’s logs (if multiple servers are connected to VI MonitorPlus), the type of log, the ability to sort by date, the number of rows to display in the log, the ability to search for a specific keyword, and the ability to download the sorted data once it is found.
4.8. Server Statistics

Server Statistics displays the status of their IP Server Enterprise system. Each of the features below will display a column for Active Servers and a separate column for Inactive Servers. Within each of these two columns, the total number of serves and cameras will be displayed. This is most useful for Administrators of large, multi-server installations.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>Provides a general look at what VI MonitorPlus is connected to. In addition to the Active and Inactive columns described above, the lower chart provides Server Name, IP Server Version, Server IP Address, Serial Number, Maximum Number of Cameras attached to the server, the number of available cameras, the number of cameras being used, and the number of bundled licenses associated with the cameras.</td>
</tr>
<tr>
<td>Server Status</td>
<td>Provides the Server Name, the processor usage on that server, the total amount of memory available and total amount of memory for the server itself, and the OS Bit Type.</td>
</tr>
<tr>
<td>Camera Status</td>
<td>Provides the Camera Name, IP Address, Server Name, Last Image Received, Last Image Written, Resolution, Frames, Frame Size, Bandwidth, Format, Camera MD (Modified YES/NO), Manufacturer, Model and Web Access (opens a new browser session).</td>
</tr>
<tr>
<td>Storage</td>
<td>Allows the Administrator to select a specific server (where multiple servers are connected) and view the amount of storage being used by each functioning camera. The chart displays Camera Name, number of days of recorded video, the total amount of space used by the camera and the specific folder where data is being written to.</td>
</tr>
<tr>
<td>Availability</td>
<td>Provides the Administrator with the Server Name, the percentage of time that the server has been active since installation and activation, the length of time the server has been up, the amount of time the server has been down and the number of failures the server has encountered during the time it has been running.</td>
</tr>
<tr>
<td>Online Users</td>
<td>Provides the Administrator with a quick view of the system users that are logged in to any of the attached IP Servers. The chart provides the User Name, the servers that the user is logged in to, the last task that the user performed, and any available actions that the Administrator might be able to make on that user, if available.</td>
</tr>
<tr>
<td>Motion Events</td>
<td>Provides the Administrator with a variety of breakdown points for viewing and accessing specific dates and times of recorded Motion Events. The chart breaks down with the use of actionable buttons, used to display or hide the information in a hierarchal schema, starting at the server level, and working its way down camera by camera.</td>
</tr>
<tr>
<td>Edge Storage</td>
<td>Provides the administrator with a chart that displays the Camera ID, Camera Name, Start Time (for edge recording), End Time (for same Edge Recording) the status of the recorded video and the Percentage Complete of total download of the recorded Edge Video in the event of an unexpected network failure.</td>
</tr>
</tbody>
</table>
4.8.E Options

The Options section provides changes to the way that VI MonitorPlus looks, feels and operates. The changes made here are more for the general functionality of VI MonitorPlus itself, and not IP Server. For IP Server functionality, please refer to Administration > Servers > Setup and Configuration.

(1) GENERAL

This tab gives the user access to various Application Controls, how VI MonitorPlus displays images, how VI MonitorPlus displays PTZ controls, and provides access to licensing the user’s computer for H.265 camera use, as per the terms and conditions of the End User License Agreement.

(1A) APPLICATION CONTROLS

Exit Confirmation

Selecting this checkbox will force a confirmation window to appear when exiting the menu. During the installation process, it is checked by default.

Show Video Folders

This option is incorporated to replicate the legacy Monitor Station video access folders. When checked, it will display a series of folders under each camera assigned to a server to provide the easiest access to recorded video possible.

Block Warning Messages

This option allows the Administrator to prevent the occasional pop-up warning boxes that may occur during advanced modification of the IP Server settings. This check box is not checked by default.

(1B) MAIN VIEW LAYOUT

In the center of the screen, on the right-hand side, is an area called Main Window.

The first three options are, by default, checked:

- Show Camera Header
- Show Server Name
- Show Camera Name

If Show Camera Header is not selected, this feature will not work. If you must select this button, then VI MonitorPlus must be closed and restarted after steps have been completed.

Use DirectX display

Forces the incorporation of the use of DirectX for control of certain video controller within the display for cameras that require DirectX.

Selecting Use DirectX will force VI MonitorPlus to manipulate cameras using a legacy DirectX controller. Please see Microsoft’s DirectX support page for more information regarding DirectX and its requirements:
(1C) ON SCREEN CONTROLS

On Screen Controls modifies the appearance of PTZ controls and how they are displayed within VI MonitorPlus.

On Screen PTZ: When selected, this feature enables PTZ controls while hovering over a PTZ camera.

Use Direct X opens a pop-up window that allows the visual use of a PTZ controller with PTZ camera functionality. The visual effect on the screen will appear as Arrows on the edges of the Live View screen, while viewing video on a PTZ camera.

Use PTZ zoom window when available: When this is not selected, there will be no visual controls seen along the edges of the screen. PTZ cameras will need to be moved by use of joystick, or by manipulating the camera with the use of the PTZ controller tools on the left side of the Live View Screen.

Digital Zoom Window: Allow the use of the camera’s digital zoom feature, if available. Unchecking this box will disable digital zoom on cameras that may have the option available. This box is checked by default.

(2) CONNECTIONS

The Connections screen shows a list of all the servers currently added and allows the administrator, or user, to add or remove servers. The user can change the order of appearance for each of the IP Servers listed (above a single server), and to modify the properties of the server. The user can also map an exported profile, as directed by the administrator.

The user and or administrator can specify the location of a previously created Server Profile.

(2A) SPECIFY EACH SERVER

Is the interface where the Administrator or User will add, remove and view the properties of the server.

Click Add New to add a new server.

In the new window, enter the IP Address for IP Server.

If necessary, change the Port number to reflect the Command Port of the IP Server (Default is 4011).

Click on Test.

If the server connects successfully, a confirmation window will appear. Otherwise, verify the IP Address and the Port number.

**NOTE** – Server’s IP and Port must be set by the user to successfully add a server. Using the Set to Default buttons resets the profile information for the selected server to default values.

To Remove a server from the display, select the undesired server, and then click on Remove.
(2B) USE SERVER PROFILE
A server profile can be used to share between many installations of VI MonitorPlus where manually entering multiple server connections would prove to be time consuming.

Server information can be **exported** and **imported**.
Click **Browse** to find a previously configured profile.
Click **OK**.
The profile will begin functioning at the next login.

![Image](image.png)

To **Export Server Data**, the user must select a server and click on **Export Profile**, which will pop up the Export Server Data window. Here, a file name must be set. Make sure to choose a file name that is easy to remember and still unique to the system.

The inverse process is also available by clicking on **Import From Profile**.
This will result in the displaying of the **Import Server List** window where users can browse and select a previously exported file.

![Image](image.png)

Any changes made to VI MonitorPlus will require an updated export of recent changes to successfully work across multiple machines. Placing the exported data on a NAS or SAS network share will make the ease of access to these features the easiest for network connected computers.

(3) TOOLS
The **Tools** tab allows some various changes such as XML and registry storage options, facility map alarms settings, and Guard Tours setting.

(3A) OPTIONS STORAGE (FOR OPTION CONFIGURATION)
This feature allows the IP Server administrator to customize VI MonitorPlus options and export the modifications that have been made on one machine and export them to another machine for ease of administration.

![Image](image.png)

The ability to push the settings through GPO (Group Policy Objects) is possible after making all desired changes to the VI MonitorPlus interface, and then exporting the settings to a location accessible by Microsoft GPO within Active Directory. This is considered an advanced feature and is not recommended without proper training in Microsoft Active Directory and GPOs.
(3B) FACILITY MAP ALARM

**Open Facility Map** (Default: Checked)  
This option, when the use of facility maps is in place and corresponding cameras and/or access control devices is used in conjunction with a facility map, will create a pop-up on the facility map displaying the live view of the camera on top of the map when triggered.

**Launch Live Window** (Default: Checked)  
When an alarm is triggered on a facility map, a live window will be displayed with a video image of the area where the alarm has been triggered.

**Play Sound** (Default: Not Checked)  
The administrator can choose to use a .wav file to be played each time a facility map alarm has been triggered. The file can be placed on the machine, locally, or on a NAS/SAS storage device.

(4) LIVE DISPLAY

The **Live Display** screen provides settings for the visual appearance of the VI MonitorPlus application windows, display names for facility maps, utilize Rules Manager actions, provides access for controlling Layout Tour cycle times.

(4A) LIVE WINDOW

![Live Window](image)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Block Live Window Pop-ups</strong></td>
<td>Selecting this option prevents optionally program rules manager tasks, and/or images sent from other users from being displayed during a critical point in time. This feature can negate other desired settings, so use it with caution.</td>
</tr>
<tr>
<td><strong>Live Window Always on top</strong> (Default: ON)</td>
<td>In the event a user selects to right-click on a camera and view a single camera display of a specific image, this prevents the live image from being covered by the rest of the VI MonitorPlus application.</td>
</tr>
<tr>
<td><strong>Red Outline on Live Window</strong></td>
<td>Selecting this option results in the appearance of a red outline around all motion-sensitive cameras where the server or the camera is reporting motion within the designated video display.</td>
</tr>
<tr>
<td><strong>Show Camera Associations</strong> (Default: ON)</td>
<td>This feature is a legacy control which, at this point, will not have any effect on any screen. It will be removed in future releases.</td>
</tr>
<tr>
<td><strong>Pause main display when live window launches</strong></td>
<td>Prevents the streaming of video at the launch of VI MonitorPlus. It is useful to have this box checked when calling Technical Support as it prevents a spike in network saturation while logged in remotely to the IP Server.</td>
</tr>
<tr>
<td><strong>Flash Red on Motion</strong></td>
<td>Selecting this option results in the camera icons flash with a red border when motion is detected by the camera and/or server (dependent upon configuration). This is to enhance the ability to act quickly in camera locations that would otherwise not have much motion and to reduce potential of oversight if not enabled.</td>
</tr>
<tr>
<td><strong>Force Record Option</strong></td>
<td>Allows a user or administrator to override “motion only” and other settings and record video as it is being displayed within that moment. It will continue to record video on a selected camera until it has otherwise been turned off.</td>
</tr>
<tr>
<td><strong>Allow user to lock down PTZ control:</strong></td>
<td>Enables the hierarchical control of any PTZ camera associated with the IP Server. By enabling this option, an administrator can grant control of any camera to any person. If a subsequent person attempts to take control of the camera during an administrative viewing and use of the PTZ controls, that user will be denied the ability to change camera settings. The default time limit on PTZ camera control is 5 minutes without movement by the higher ranked user. Prioritization of PTZ controls is explained here: <a href="#">PTZ Prioritization</a></td>
</tr>
</tbody>
</table>
(4B) RULES MANAGER ACTIONS
Rules Manager default values are all unchecked.
These are the available options:

- Block Rules from popping up messages / instructions
- Block rules from switching main layout
- Block rules from launching instant replay window

**NOTE** - These rules, when activated, can negate the purpose of alerts and notifications set by the administrator.

(4C) FACILITY MAP
This feature enables the visible server name for each facility map that has been created.

(4D) OTHER
Here, the user can opt to include a server name for all Layouts by selecting “Include server name for all Layouts.”
Additionally, the Camera Tour Interval can be modified to suit the needs of the person viewing the camera tour.
The user can also change the Cycle Layouts interval. Default value for these settings is 5 seconds.

(5) AUDIO
This screen allows user to decide if it is desired for audio to play with motion notifications, rules, or LPR alarms.
The options provided here are for Motion Notifications and Rules and Alarms. Each section allows for the option of No sound, Default system beep, and the selection of a custom audio file.

(5A) MOTION NOTIFICATION

This section applies specifically to Camera Motion Settings.
If enabled, and IP Server or camera determines that there is motion occurring, causing a sound to play.
The option to choose a custom file is also available.
Using this feature requires that the computer have some sort of audio processing, and audio playback capability, that the audio playback capability is turned on, and that the user understands what the sound being played means in relation to the Motion Settings, in the computer's directory. The accepted file playback type is .WAV. No other file type has been tested.

(5B) RULES AND ALARMS

This section applies specifically to Rule triggers and for customers that use LPR (License Plate Recognition) with VI MonitorPlus.
If a Rule has been created to produce sound under specific instances, or if LPR is triggered, a default sound will play. The option to choose a custom file is available, if desired.

Using this feature requires a computer with audio processing and playback capabilities; the audio playback capability is turned on, and the user understands what the sound being played means in relation to the Motion Settings.

(6) STARTUP

(6A) WORKSPACE CONFIGURATION

Workspace configuration allows the user to set some visual defaults for viewing live and recorded video.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Startup with video paused</td>
<td>In some low-bandwidth environments, it may be desired to start VI MonitorPlus with video paused. This can allow the user or the administrator to quickly access various features and controls without waiting for video feeds to begin displaying in the main workspace.</td>
</tr>
<tr>
<td>Hide Left Navigation panel on startup</td>
<td>In some cases, it may be desired to hide the left navigation menu from the user. Selecting this feature turns off the ability to view the left navigation menu.</td>
</tr>
<tr>
<td>Start in full screen mode</td>
<td>Selecting this feature turns on Full screen mode at startup.</td>
</tr>
<tr>
<td>Start with expanded servers</td>
<td>Selecting this feature will expand each of the servers that appear in the left column, to display all associated cameras.</td>
</tr>
<tr>
<td>Start with expanded server groups</td>
<td>If the administrator has created Server Groups, the ability to view them at startup is made available here. If there are no previously created Server Groups on any of the servers, selecting this check box will have no effect.</td>
</tr>
<tr>
<td>Startup View</td>
<td>When this checkbox is selected, the ability to select a previously created view for startup display is available. If there have been no previously created Views, this feature will not function properly.</td>
</tr>
<tr>
<td>Auto upgrade (Default: ON)</td>
<td>When selected, this feature will compare the version of IP Server to the version of VI MonitorPlus that is being used to log into IP Server.</td>
</tr>
</tbody>
</table>

**NOTE** - If “Hide left navigation panel on startup” has been selected, this feature may override that setting.

**NOTE** - It is HIGHLY RECOMMENDED that all versions of VI MonitorPlus and IP Server match, to reduce the possibility of IP Server database corruption.

When there is a mismatch between IP Server and VI MonitorPlus versions, a pop-up window will appear, encouraging the user to upgrade accordingly.

Login Options

**NOTE** - Enabling Auto login is a security risk and should not be enabled without fully understanding the implications and potential results of that action.
Tools Launch on Startup

- **Launch Facility Map on startup** allows the user to select a previously configured facility map, and force it to be displayed when VI MonitorPlus is started, after logging in.
- **Launch Lane Viewer on startup** forces any previously configured Lane Viewer view to be displayed after logging in to VI MonitorPlus.
- **Show Event Viewer on startup** forces a separate window displaying the results of any previously configured Access Control configuration that has been previously configured.

(7) **PLAYBACK**

(7A) **ADVANCED OPTIONS**

- **Show camera name when taking a Snapshot**: Forces the VI MonitorPlus screen to display a camera name when taking a Snapshot. The default value is selected.
- **Show date when taking a Snapshot**: Displays the date and time when taking a snapshot. The default value is selected.

(8) **PERFORMANCE**

This option allows users to alter the performance of their machines by changing a few settings. Additionally, it gives the Administrator the ability to change the capability for de-warping, on servers using 360 cameras, or cameras that have images that require the use of de-warping.

These options give users the possibility of increasing the performance of their machines by changing a few settings:

- Reducing frame rate when there’s no motion and down-sampling high resolution images (which can be done at different grades) are the options to be changed.
(8A) CLIENT PERFORMANCE

These settings directly affect the client-side VI MonitorPlus plus. They do not have any effect on IP server unless the client is being used on the IP Server itself. Selecting the desired Machine Performance will affect the CPU usage.

**Video Smoothing** is expensive for processors and should only be used on machines with significant computing resources.

**Reduce frame rate capture** can be useful on computers with lower end video cards. The default setting is Never. Selecting Always will produce a “choppy” view of the video being captured, but does not have any effect on the video recording itself. This is used to minimize resources and bandwidth consumption on older machines and/or over-utilized networks.

**Enable hardware decoding**: This feature will enable VI MonitorPlus to use hardware decoding. This will have a positive performance effect on H.264 and H.265 video codecs. If there is no Hardware Decoder the checkbox will not appear.

(8B) DEWARP PERFORMANCE

This feature impacts the IP Server performance when combined with 360° and 180° cameras with dewarping capabilities.

**NOTE** - If the IP server does not utilize any cameras with dewarped images, this setting will have no effect.

If cameras with dewarping features are available, the user can determine if higher framerates for viewing a steadier playback of live videos are necessary, or if more processing power with a reduction in fluid playback is desired.

(9) DIRECT CAMERA CONNECTION

In some instances, a direct connection to the cameras from a remote VI MonitorPlus on the local Network might be preferable.

**Direct Live Video Streaming Support** (Multicast) allows to select the cameras to be enabled. It requires a registry key modification on the specific machine that will be using VI MonitorPlus. It also requires that the camera itself has built-in Multicast capability. (The configuration is in System → Options → Performance).

There are two locations that can alternately be modified within the System Registry.

**NOTE** - The following registry keys should be modified prior to launching VI MonitorPlus.

For Windows x64 systems, the string value is to be added under this key:

```
HKLM\SOFTWARE\Wow6432Node\Video Insight\Monitor Station
```

For Windows x86 systems, the string value is to be added under this key:

```
HKLM\SOFTWARE\Video Insight\Monitor Station
```

The new string value is called **DirectLiveVideoSupport** and the following values can be added depending on the requirements:

- **0 value** = Disable, no UI options will appear
- **1 value** = Multicast cameras only, list will appear in the UI functions. Only those selected clients will engage directly with the camera
- **2 value** = Enable for All cameras
4.9 TAB: ADMINISTRATION

The items found under the administration tab will directly affect the IP Server itself. The controls used here will make changes on the IP Server itself, and will be a functional part of how IP Server is utilized within the organization.

4.9.1 Servers Setup

**NOTE** - All items under this tab will result in the modification of the IP Server configuration.

(1) SETUP AND CONFIGURATION

The only exception to this is adding a server to VI MonitorPlus. Without adding an IP Server to VI MonitorPlus, it will not be possible to edit or modify settings with the tools made available within VI MonitorPlus.

(1A) ADD A NEW IP SERVER TO VI MONITORPLUS

To add a new server to VI MonitorPlus, navigate to the Administration Tab and select Server > Setup and Configuration. A new window appears.

Click on the + symbol, and a new screen will appear.

Enter the information requested

- **IP Address**
- **Port Number** (default port number is 4011)

Once the information requested has been provided, click Test.

When successfully connected, the Status will change to the name of the server. Click Add, or if the incorrect IP address was provided, click Cancel and restart.

Once a server has been added, it will appear in the main startup menu when logging into VI MonitorPlus for the first time.

(1B) SERVER CONFIGURATION

**Server Configuration**

This section provides access to three critical items for ease of management as it applies to the IP Server selected from the left menu window. Those three sections are:

- Server Identification
- Database Information
- Video Storage

**Server Identification**

Allows the Administrator to change the default server name, view the version number of the IP Server connected to VI MonitorPlus, and view the IP address of the IP server itself.

Only the name of the IP server can be modified in this section.
Database Information

This section allows the Administrator to test connectivity with the SQL database, as well as alter the database connectivity parameters.

Video Storage

The Administrator can elect to use a new video storage location by modifying this field to reflect the desired landing point for video collection. This will apply to any NEW cameras.

(1C) CAMERAS

The cameras section provides access for the administrator to quickly add or remove cameras, view licensing information as it relates to the total number of cameras available through the licenses and move cameras from server to server in a share database environment.

Licensing Information

Number of cameras in total that the license supports
- Number of cameras being used against the license
- Number of cameras being used with a bundled license
- Server limitation for number of cameras
- Total number of cameras that can be used on the server with the current license

Add Additional Cameras

The Add Additional Cameras section is the main point for Administrators to add cameras to an IP Server.

Cameras can be added automatically, if their passwords are at default or the password is known.

Additionally, Cameras loaded into this screen in a shared database environment can be moved to other servers, for ease of administration of multiple servers and many cameras.
Monitored Cameras

The Monitored Cameras section is a tool that displays the cameras that are assigned to the IP Server.

List of functions available to the Administrator are:

- Sort Cameras Automatically
- Move camera up or down in the list
  (Select the camera to be moved up or down in the list, and then use the arrow keys to move it to the desired location on the list.)
- Delete a camera
  Select the camera to be deleted, and then click on the Delete button.)

(1D) ADVANCED

The Advanced tab displays for the Administrator three core components:

- **Server Options** (Basic security and Logging)
- **Record Options** Enable Binary Recording, Reserve Space for other applications
- **Live Display Options** Server Timeout

Server Options

The **Server Options** section provides access to some of the security settings that enhance the overall purpose of having an NVR that can be locked down by feature:

- Enable Security.
- Allow only one login per user.
- Designate Server as a Failover Server.
- Symantec Certificate Validation.
- Enable System Log. (Keep for XX days)
- Enable Tamper-proofing for Recorded Video.
- Retain User Audit Data for XX days.

Record Options

**Enable Binary Recording**: Allows the access to video being recorded on the fly. It’s a very resource consuming feature and should only be used when consistent access and review of video are needed.

When enabled, the Proprietary Video Format (*.vida) will be used instead of the standard *.AVI* file format.

**Reserve space for other applications**: The maximum amount of space used on any attached storage device used by IP Server. (Default: 5GB)

**NOTE** - Reserve space may not reflect the actual available disk space on IP Server.
Live Display Options

The Server timeout feature is to prevent unwanted or unintended access to the IP Server through the web client where there is no activity for the desired number of minutes. The default value for this setting is 0, which is powered-off. A recommended value is 20 minutes. After a 20-minute period with no movement in the web client, the user will be automatically logged out.

(1E) HEALTH MONITOR

Health Monitor is a web-based client that allows the user to have a record of server and camera uptime stored at an off-site location. It does require Internet access and an account on https://healthmonitorcloud.com to function. If activated without an account, the data sent to the Health Monitor Cloud server will not be retained for any length of time.

NOTE - Video Insight strongly recommends Health monitor cloud managed for environments containing between 1-100 servers or up to 2000 cameras.

Online Health Monitor

To enable the Health Monitor Cloud feature, click in the box next to Enable Cloud-Based Health Monitor. The default URL that data will be sent to is: http://healthmonitorcloud.com:8080/hmstatus.ashx If the administrator determines that the need for an in-house Health Monitor Cloud solution is necessary, please direct inquiries to the Video Insight / Panasonic Sales department.

Information to Send to Health Monitor

Information to Send to the Health Monitor:
It is recommended that each of the three available check boxes is checked for maximized use of the Health Monitor Cloud. The three options available are:

- **Version Number**
  (IP Server Version number)
- **Lost Signal**
  (with either camera or server or both)
- **Camera Information**
  (general statistics about the camera and its performance)

(1F) CLIENT

The Client tab gives the administrator access to tools that change port numbers (for enhanced security), provide SMTP configurations for sending messages using rules manager, sending a test email to verify that SMTP configuration settings have been entered correctly, and the ability to launch the Group Policy Editor as it applies to an IP Server on an active Directory Domain, where AD credentials are used for logging into VI MonitorPlus and the IP Server itself.
Client Support

The term Client Support refers to the VI MonitorPlus software client itself. Network Security can be enhanced by changing the default values for Data and Command ports (4010 and 4011 respectively) to better suit the administrator’s needs and any customization of the IP Sever. Maximum Connections is the total number of VI MonitorPlus clients with access to the IP Server. The default value is 64 connections, which is also the maximum recommended value.

NOTE - The Maximum Connections number value can be lowered as a method to slightly increase security on the server. A lower value that matches the exact number of personnel that have access to the server is recommended.

Outgoing Email

Outgoing Email

This section provides access to the SMTP server and SMTP port values. The default SMTP Server port is 25, but most SMTP port services with advanced security use alternative ports. These values can be customized to suit the needs and requirements of the SMTP server.

SMTP Logon Information

SMTP Login Information

This section allows the Administrator to enter the required username and password for the SMTP server entered in the Outgoing Email section listed above. As part of the enhanced security requirements necessary for connecting to SMTP servers, Server Authentication and SSL encryption have been added.

Send Test Email

Send Test Email

After the Administrator completes the SMTP mail server configuration, a test email will be sent to validate the SMTP connection settings. If the test email is not received, verify the outgoing email address and password and send a second test message. If problems persist, verify the correct account settings.

(1G) ACCESS CONFIGURATION

Access Configuration

This tab will function only when IP Server is integrated with Access Control devices. Please contact your Video Insight Sales Vendor for more information about Access Control Integration.

For more information about the Access Control servers that are known to function with IP Server and VI MonitorPlus, please visit http://www.ldownloadvi.com/accesscontrol to find the corresponding product guide.
**(1H) CONTACT INFORMATION**

The information provided here is not parsed to any Video Insight affiliates, nor is it sent to Health Monitor Cloud. This information is solely for internal documentation purposes of the license holder for IP Server and is *completely optional*.

**Server Information**

The server information entered here is solely for the purposes of internal documentation for the Administrator. Information here is not parsed to any organization in any form.

The administrator can enter the following data:

- Server name
- Building
- Floor
- Room
- Phone
- Description
- City
- State
- Country

**Contact Information**

Also, not parsed to any outside organization, it is the contact information for the server.

The administrator can enter the following values:

- Primary Contact (name)
- Secondary Contact (name)
- Police Number
- Notes
- Primary Phone (number)
- Secondary Phone (number)

**(2) RESOURCE GROUPS**

This function allows the Administrator of large IP Server installations to create customized viewing groups for quickly organizing assets across multiple IP Servers.

**NOTE** - This does NOT move Cameras or Layouts or Maps from server to server. Its intentional use is to allow a user to easily define a variety of customized viewing possibilities with the available resources listed on multiple IP Server configurations.

This functionality aids in the elimination of the sorting and grouping substantial amounts of data each time a user is added to IP Server, need to access a specific map within hundreds of maps, or whatever the preferred sorting preference might be and can be used to share resources of one IP Server with another user on another machine.

To use a Server Group, the assumption is that there are two or more IP Servers already configured to work within VI MonitorPlus. If VI MonitorPlus has not yet been configured to work with multiple servers, please refer to the section above titled *Login Options*.

**(2A) SERVER GROUPS**

Server Groups allow the administrator to group specific IP Servers into categories that are unique to the use and need of the Administrator. This feature was developed with large building campuses in mind, where there may be a need to organize multiple IP Servers for easy visual access.
To create a server group, right-click on the **Server Groups** text, and then select **Add Server Group**.

Select the servers desired to form the group and give the group an appropriate name.

Once all IP Servers have been selected for the group, click **OK**.

The new **Server Group** will appear in the Enterprise View window of VI MonitorPlus, as seen on the left.

**CAMERA GROUPS**

To create a custom **Camera Group**, right click on the Camera Groups title and select **Add Camera Group**.

A pop-up window appears requiring custom input.
All cameras connected to each IP Server will appear within the window.

Add the desired cameras to the list and give the new Camera Group a name for identification.

The new Camera Group will appear in Enterprise View under Camera Groups.

To create View Groups and Map Groups, the process is a repeat of the above steps, with exception to the final display of the View Groups and Map Groups. Each of these is available only on the original server where the layouts are created.

For the creation of View Groups, select View Groups and then Right Click on Add View Group.

Create a name for the custom view and add the previously created Views to the new Custom View grouping.

Next add the desired Views.

Click OK when done adding new Views to the new View Group.

When complete, the New View Group will appear below the Enterprise View box, on the main menu.
This newly created Group will appear. Selecting View Groups will result in the displaying of the Views that were added to this group.

They will be displayed to the right of the View Group list, as seen left.

(2C) MAP GROUPS
To create Map Groups, select Map Groups, and then Right-click on Add Facility Map Group, as seen below.

Give the new Map Group an appropriate name, add the selected maps that were previously created, and then Click on OK to complete the new Map Group.

The new Map Group is found on the Live Tab, at the bottom of the left-hand column.

Select the newly created Map Group and you will have successfully completed the creation of new groups.

(3) RULES
Users can add new rules by clicking on the + sign next to Rules in the left side menu.

NOTE - For more detailed construction of Rules, please refer to the Supplemental Rules Manager Guide for a more detailed explanation of each of the rules and features available.

Once rules have been added, users can select them from the menu and the rules information will appear on the right side of the screen.

If no screen is selected, the screen will look like the image on the left.

As the image on the left demonstrates, Rules can be enabled, given a name and then assigned to a server.
Schedules, events and actions can be added by clicking on the **Add Schedule**, **Add Event** and **Add Action** buttons, respectively.

As a user creates a new schedule, the following popup will appear as seen on the left.

Users can set a schedule for the selected rule, choosing the days of the week, specific time and frequency. When done, click on **OK** to save the changes.

When adding an event, the **Add Event** window will appear. Users can then select an event among the ones available. All alert buttons will be displayed once configured under the left panel navigation under the header titled Buttons.

**3A) RULES SETUP**

This is considered an advanced feature due to its complexity. A more comprehensive guide is available for use in the [Advanced Installation] section, above. To enable the rule correctly, restart of IP server and VI MonitorPlus is required.
(4) CONNECTION PROFILES

Connection Profiles allows Administrators to manage user profiles and servers based on the profile that has previously been created.

Connection Profiles are similar to the use of Groups.

To add a new connection profile, click on ‘Add Profile’ and the Add Connection Profile will be displayed.

Once set, click OK to create a new profile.

(4A) HOST SERVER AND KNOWN CONNECTION PROFILES

Known Connection Profiles
This list displays only the servers that are available for creation of Host Server Connection Profiles. If a server does not appear in this list, click on Add Profile and provide the information being requested.

Profile Details
This section allows the Administrator to create a base for server profiles, which can be added to a network share device for easy access from any server that has permissions and access to that share.
4.9.B Camera Properties

VI Monitor Plus features a complete interface to configure and set up the existing inventory of cameras for an IP Server installation. It can be accessed in 2 different ways:

From the Navigation Tree

On the left navigation tree, **Right click** on the desired camera name, either under the **Servers** tab or the **Cameras** tab. From the pop-up menu, select “Properties”. The **Camera Properties** window will open with the selected camera’s settings.

From the Administration tab

Open the **Administration** tab on the Main Menu, select “Cameras” and click on “Configure Properties”. The **Camera Properties** window will open without a selected camera.

The **Camera Properties** interface is divided into 3 main areas:

1. **Left Panel** - Navigation Tree to access and select the available Servers and Cameras, complete with a Search option.
2. **Top Panel** - Live Video preview from the selected camera, its Details and Primary and Secondary streams data.
3. **Control Panel** - Includes 5 Option Tabs for detailed Data and Configuration settings for the selected camera.
(1) LEFT PANEL: NAVIGATION TREE

Search - Quickly locates a camera or a group of cameras within the Navigation Tree by typing its name or number in the input box.

Servers - Displays all servers connected to VI MonitorPlus and provides access to the cameras associated to each server.

Cameras - Displays all cameras for all servers connected to VI MonitorPlus without separating them by associated servers.

(2) TOP PANEL: STREAMING

The Name, Model and IP Address of the selected camera are shown at the top of the window with enlarged characters.

Preview - Shows the live video streaming from the selected camera, which can be paused or continued by clicking on the top-right playback button.

Camera Details
- Camera ID - Designated unique identification number of any given camera.
- Video Format - Specific codec type used by the selected camera.
- Last Received - Most recent time a live image was received by the server from the camera.
- Last Recorded - Last time a recorded event took place and wrote to the storage location.
Primary Stream

- **Resolution** - Maximum resolution of the video stream.
- **Bandwidth** - Camera’s Bandwidth usage per second.
- **Frame Count** - Number of frames per second received from the camera.
- **Frame Size** - Storage quota for each individual frame received.

Secondary Stream - Shows the same fields of the Primary Stream window, and it is visible depending on the camera and its availability. When unavailable, the status "Inactive" is displayed instead.

(3) CONTROL PANEL: GENERAL

Details

- **Camera Name** - Unique name to identify the camera throughout the application, briefly specifying its brand, model, location, department, features, etc.
- **Server** - Drop-down list of the available VI servers.
- **Manufacturer** - Drop-down list of Camera Manufacturers.
- **Model** - Drop-down list of Camera Models associated to the selected Manufacturer.
Connection Information

- **IP Address** - Unique IP address for the camera/encoder.
- **User Name/Password** - Account data to access the camera settings (where available).
- **Web Access** - Opens an external web browser session to access the camera.

- **Shared IP Address** - Check this box to manage specific lenses or cameras attached to an encoder. Some cameras (such as Arecont or Scallop Imaging) have multiple lenses and encoders that connect multiple analog cameras on a single device, such as Advidia VP-16, VP-8, VP-4, etc. Therefore, using this feature will let you specify exactly what to display, whether it be lenses or encoders.
- **Camera #** - Selects the lens/camera to display on a device that shares an IP address.

- **Alternate Ports** - Check this box to configure any device connected to the IP Server using custom ports. Default ports are:
  - HTTP: 80
  - FTP: 21
  - RSTP: 554

Additional Options

- **Enable Secondary Stream** - Allows the IP Server to extract the secondary stream of a camera when supported.
- **Disable PTZ** - Disables the camera’s Pan/Tilt/Zoom functionality. PTZ functions are accessed via USB by both on-screen and joystick controls. Both are disabled when the option is checked.
- **Capture Graphics Objects** - Active when VID or iVMD are being used.
- **Capture VCA Events** - Active when VID, iVMD or camera-side Analytics are being used.
- **Joystick #** - Used when using a DCZ joystick to designate a specific camera to a specific number on the joystick list, providing the ability to quickly select a camera from the left tree without having to navigate the left tree at all.

Error Logging - Check this box to enable the capture and save errors messages received from a camera into a log text file. This allows Administrators, Technical Support and Development staff to quickly diagnose possible issues with a specific camera.

- **Log File Path** - Specifies the physical folder/file for the Error Log.
(4) CONTROL PANEL: RECORDING

**Settings**

- **Format** - Drop-down list of Video Codec types. **H.264/H.265** (default) are recommended for best performance.
- **Resolution** - Drop-down list of resolution levels provided by the camera.
- **Record** - Defines the recorded video frame rate during a specific interval of time, depending on the camera’s supported properties.
- **Quality** - Adjusts the camera’s bit rate (lower bit rate = lower video quality).
- **Time Stamp** - Enables/disables the on-video time stamp obtained from the camera’s date/time feature.
- **Enable Audio**
  - **Live** - Activates audio support during live video streaming.
  - **Recorded** - Enables audio for recorded video viewing.
- **Insert Watermark** – Check this box to enable the on-top display of live/recorded video, including: Codec, FPS, Camera Name/Model, etc. This feature might impact the CPU performance.

**Recording Type**

- **Off** - No recording enabled.
  
  For audio/video synchronisation, it is highly recommended that **Record Always** recording type is used with all audio functions.

- **Always** - Always recording, enables ability to use motion detection when recording. Events with no motion are not recorded. Enable “**Calculate motion detection**” by checking the box.
• **On Motion Only** - Records on motion only, based on camera-side or server-side settings. Check the “**Record Always at**” box to select 1, 2 or 3 FPS “no motion” video recording rate. If motion is detected, recording will start at the current FPS setting. If a user is recording at 1FPS always, with motion detection set to 10 FPS, the video that contains “no motion” will appear at fast speed. Motion is detected at normal speed during playback.

• **Scheduled** - Records using a time schedule. When no schedule is defined, the camera recording is set to **off**. Enable “**Calculate motion detection**” by checking the corresponding box.

Click on “**Edit Schedule**” to open the **Camera Schedule** interface:

The **Camera Schedule** interface allows **adding**, **modifying** or **deleting** scheduled times for **Record Always** and **Record with Motion** times.

The **Edit Recording Schedule** form is opened by **adding** or **modifying** a schedule, and it allows defining one-time, daily, weekly or monthly recording schedules, as well as the **start and end times** for each event.

**Video File Storage**

• **File Path** - Physical location where the recorded video will be stored.
• **Max Disk Space** - Limits de maximum space on disk reserved for the camera.
• **Max File Size** - Maximum physical size of each recorded video file.
• **Delete After** - Number of days the video file will be stored before its removal (first in-first out basis).
(5) **CONTROL PANEL: MOTION**

Motion Zones allow more precise motion detection within captured video recordings. When combining Motion Zone with Motion-Only recording, the camera will ignore certain areas in its line-of-sight.

Detection Type: Camera Side

When available, Camera-side Motion Detection is recommended to reduce the CPU load on the server’s processors.

- **Use Camera Settings** - Select this option to use the motion detection settings already configured on the camera.

- **Motion Detection (Entire Image)** - Select this option to activate the Detection Options (Entire Image) for the Camera Side detection. The variables are:
  - **Event Trigger**: Defines the percentage of visual area where change/motion is detected.
  - **Sensitivity**: Near-far gauge, the higher the sensitivity, the better the accuracy.

Each zone can have its own specific combination of sensitivity and event triggers.

Detection Type: Camera Side

- **Detection Options (Entire Image)** - This area allows the configuration of Event Trigger and Sensitivity values for the entire image motion detection.
  - **Event Trigger**: Defines the percentage of visual area where change/motion is detected.
  - **Sensitivity**: Near-far gauge, the higher the sensitivity, the better the accuracy.

A live gauge shows the occurrence of an event that triggers a motion detection, displaying a “Motion Detected” status message in orange letters when this happens; “No Motion” is the default status.
• **Motion Zones** - This section provides an interface to define specific areas within the video feed where motion detection may be considered more critical for event monitoring.

Motion Zones are **off** by default, which means the corresponding buttons (Add/Edit/Remove/Clear) are deactivated.

To activate them, check the “**Display Motion Level**” box on the left, under “**Detection Options (Entire Image)**”.

To **Add** Motion Zones, click the “**Add/Edit Zones**” button and the **Motion Zone Configuration** screen will open.

Start adding zones by **drawing or resizing** the desired areas **directly on the video feed**, or by clicking “**Add New**”.

The **Motion Zones table** shows the currently defined zones for the camera, with the corresponding settings and values. The selected one appears with orange background and an orange frame on the image.

Zones can be deleted individually by clicking the **“Delete”** button or cleared from the table by clicking **“Clear All”**.

Data can also be edited by **Pixels** or **Percent**.

Cells on the Motion Zones table **can be directly edited** by clicking on each cell and entering the desired value.
Click “OK” to save the Motion Zones, and the Configuration window will close.

Now, the Zones previously defined will be shown on the Camera Properties page.

To delete a specific zone, highlight it with the cursor and click the “Remove” button.
To delete all zones from the table, click the “Clear All” button.

(6) CONTROL PANEL: DISPLAY

![Image Rotation and Corridor View options]

Image Rotation

- **Rotation** – Drop-down list of available image rotation options; only for cameras that support this feature.

- **Enable Corridor View** – Enables 90° corridor view mode and rotation options below

- **Corridor Rotation** – Select either left or right rotation for Corridor View.
**On-Screen Display** - Displays and positions a built-in watermark on top of the live video.

360° Option

- **Enable Dewarping** – Check the box to activate Dewarping features on supported cameras.
- **Mounting Position** – After enabling dewarping, select the view orientation from the drop-down list.
(7) CONTROL PANEL: MAINTENANCE

Additional Information
• **Warranty** – Date of expiration of the camera’s warranty.
• **Installed** – Installation Date of the camera.
• **IDF/Switch** – Physical location of the switch that the camera is connected to.
• **Other** – Additional information deemed relevant for maintenance purposes.

Contact Information
• **Contact Name** – Name of key person(s) responsible for the camera.
• **Contact Info** – Phone number, email or any information to contact the key person(s).

Firmware
• **Version** – Latest Firmware version number / date.

Service History - This area is used to keep a log of each maintenance-related activity for the camera.

To **Add** a new service record, start writing on the **“Add new service record”** box, describing the details of the activity; then, click **“Add”**.

The information will be displayed on the **Service History** table, including the **User Name** and the **Service Date**, posted automatically.

Actions
Click on "Export to Template" to create an external file with all the basic features and settings of the camera, which might be used to quickly configure similar cameras on separate instances.

VI MonitorPlus will create a new file with the name of the camera by default.

To import settings from a previously configured camera with similar or identical features, click "Import from Template" to open the Select Template window.

Select the desired template from the list; click "OK" and the Properties fields for the current camera will be automatically populated.
4.9.C Views Setup

The left side menu works as in the previous section, with a list of all the existent views and then another with items available to be added to the views.

To add a new view, click on the + sign. When the user selects a view from the list, it will appear on the screen. Drag and drop the desired cameras into place as they are to appear for viewing on the screen.

Fill in the name and description fields and click Save to save the view.

To organize the View order, select Administration from the menu ribbon, click Views and select Organize. Select the View you wish to organize into order and use the Move Up and Move Down buttons to rearrange the order. For organizations that wish to have the Views listed in alphabetical order, use the Sort A-Z button to order. Clicking the Sort Z-A button will reverse the order of the Views into descending order.

Views can be populated with static images, PDF documents, or URLs to a specific website. To add any of these items, click on the Additional Items link in the bottom left side of the page.
4.9. Facility Maps Setup

Facility Maps are graphic representations of the facility’s assets and their locations inside a building or campus. They may include: cameras, views, doors and alarms, among others, providing real-time access to video feeds, access control and other resources using a user-friendly interface.

(1) CREATING FACILITY MAPS

From the Main Menu, select “Administration”, then “Maps”. This will open the Maps Setup window (see below).

Click on the Plus [+] sign next to the “Maps” header. A New Map interface will open on the right side of the window (see below).

In the New Map area, select the Server in which your Map will appear using the corresponding drop-down list.
Define a **Name** for your Map.

Select the **Image Size** (Original or Custom) from the dropdown list.

Click “**Load Image**” to browse and select the image file from your computer.

Click “**Font Options**” to open the corresponding window and select the color, family and size of your Map’s fonts.

Once the Map image is properly positioned, start adding Cameras and other items to it by dragging and dropping them from the **Add Item** section on the left panel to the map.
Once positioned on the map, items can be moved, rotated and resized using the mouse cursor to replicate their position and range.

To Delete an item on the map, right-click your mouse while pointing to the item and select "Delete".

In addition to Cameras, Views, Maps, Doors, Alarms, Regions and Buttons can also be added to your Map.

Click “Save” to save the new Map on your server, and it will appear on the left panel, under the Maps section. Press “Cancel” if you do not want to save it.

(2) SEARCHING FACILITY MAPS

To search a specific map in your directory, click on “Search” from the left panel, then type the name of the map until it shows on the list. Click on the map name from the list to open it.
(3) EDITING FACILITY MAPS

To Edit or Modify a Facility Map, click on its name from the Maps list (left panel) or using the Search option.

Once the map is open, proceed to make the changes following the instructions as indicated in the Creating a Facility Map section (see above).

Save your map after finishing.

(4) DELETING FACILITY MAPS

To Delete a Facility Map, point the cursor on its name from the left panel list, then right-click on, select “Delete” and confirm the operation.

(5) VIEWING FACILITY MAPS

Facility Maps can be created in the VI MonitorPlus by a System Administrator to give a graphical representation of where cameras are located throughout a building or campus.

To view a Map in VI MonitorPlus, click Maps on the left navigation bar.

Opening a Map will replace the current workspace from the main view.
To view live videos from a facility map, click on any Camera icon on the map itself, and the right panel will open automatically displaying the view of selected camera’s streaming video, plus its corresponding Details and Actions. From a facility map, click on any Camera icon on the map itself, and the right panel will open automatically displaying the view of selected camera’s streaming video, plus its corresponding Details and Actions.

To enlarge a live video view diagonal arrow on the upper right corner of the workspace, above the minimized Video view.

A new window will open on top of VI MonitorPlus, displaying the enlarged video streaming from the selected camera.
4.9. Users & Groups

To manage VI MonitorPlus operators and user groups, use the Users & Groups button on the menu toolbar. A menu in the left side of the screen will open to select active Users (and in this case, also Groups).

When a user is selected, the loaded user page appears (see left).

User data such as name, login information and e-mail is displayed and able to be edited.

Permissions are also shown in the bottom grid.

Users can also select the Resources tab, which will show the managed resources (facility maps, views and rules).

(1) GROUPS

Groups can be assigned during creation by selecting the Group in the checkbox on the right side of the screen.

Similar to selecting a user, a group can also be selected from the left menu.

To add a user or a group, the Administrator must click on the + sign next to Users or Groups in the left side menu.
Fill in the blanks for username, full name, email address and password to setup a new user or group.

The roles of the user can be customized by selecting camera specific permissions using the table (seen left).

(2) SETUP AND CONFIGURATION

(2A) USER MANAGEMENT

VI MonitorPlus can be used to connect and add Users by way of Active Directory or LDAP. While the prerequisites vary between the two, we will cover only those associated with Active Directory.

Security will persist on the server only when “Enable Security” has been checked within the Administration > Servers > Advanced tab.

(3) PTZ PRIORITIZATION

This legacy PTZ Prioritization function allows administrators to set the priority for users on all PTZ capable cameras. The higher the listed user or group is, the higher their priority.

To enable, open VI MonitorPlus and navigate to Administration → Modules. Select PTZ Prioritization.

Here, select either Add User or Add Group, depending on the desired configuration. A new pop-up window appears.
Next, select the desired users for PTZ prioritization. Once the desired users have been selected, press **OK**.

If the added users aren’t appearing the in correct order, select one user and change its location within the list by using the Up and Down arrows. (pictured below)

To move a second user, click on the user, and again use the up and down arrows on the right to move the users into a Top → Down hierarchical order of PTZ use prioritization. Once all users appear in the desired order, click **Save**.

**NOTE** - PTZ Prioritization is now configured. If two users or groups want to use the PTZ feature on the camera at the same time, the lower-priority user will have to wait 300 seconds after the higher-ranking member stops using the PTZ controls. The default wait time is 5 minutes (300 seconds). The wait time can be changed in the database, but is a task recommended only for advanced users.
(1) GUARD TOURS

Guard Tours are a select number of cameras and live views that are set to create a pop-up window during a pre-determined period. The Administrator can control who has access to a guard tour, when the pop-ups appear, which cameras are to be monitored, and if manual data entry must be performed to move on to subsequent camera views for accountability purposes. Below are the steps for creating a new Guard Tour.

Guard Tours Setup

To setup a new Guard Tour, log in as an Administrator. Next, select Administration > Modules > Guard Tour.

Once the new window appears, select the server with the Users, Groups and Cameras that are going to be used with the new Guard Tour, then click Add.

Provide a name for the new Guard Tour.

Select the cameras to be used on the Guard Tour. Each Camera must have the check box marked for it to appear within the Guard Tour.

Scheduling

Scheduling the Guard Tour so that it appears several times (within a specific range of time) is possible. A maximum time limit of 1440 minutes (24 hours) is permitted when electing to populate the Guard Tour window every XXX number of minutes. Default is 60 minutes.

The Guard Tour can be configured to run once a day as a specific time, or Demand Only.
Options:

Within the Options section, this allows the admin to select specific users or groups that the guard tour will apply to. Configuring more than one tour for different needs is possible.

Selecting the check box for this feature forces the user to be required to enter text within the Guard Tour window before dismissing a screen.

Click OK to save the guard tour.

(2) JOYSTICK OPTIONS

Joystick Options allows the administrator to specify a camera to a designated button on the Video Insight joystick.

NOTE - For more information about the Video insight customizable joystick, please contact your Panasonic Sales representative.
(3) **LANE VIEWER**

The **Lane Viewer Configuration** screen displays all the related settings to Lane Viewer, a function that works with Access Control servers.

The ability to modify Lane Viewer picture size (width, height and blackout), Lane Viewing options (number of lanes, valid and invalid accesses, show name, time, and message) and live video options (view live video, show live above picture).

(4) **PUBLIC VIEW MONITOR**

Public View Monitor is obsolete. The functionality has been transferred to **VI Video WallPlus**. For more details, please refer to the VI Video WallPlus documentation.

(4A) **CONFIGURATION**

After the installation is complete, launch VI MonitorPlus and click on **Administration > Views**. Create the layout you want visible in Public View Monitor Application.

Once the View is created, click **Administration > Modules** and select Public View Monitor in the left tree.

Click **Add**. Create a name and description for your Public View Window and select the View you wish to display.

Click **OK** and then **Apply** in the Public View Monitor area to save your changes.

**NOTE** - The **ONLY** layouts that will appear in the Public View Monitor menu are the layouts specifically created for use in the Public View Monitor layout list, not the VI MonitorPlus layout list.
(5) TV DECODERS

IP Server can record data sent by a TV Decoder. Adding a TV Decoder to IP Server within VI MonitorPlus will allow customizing its name, and adding it to the IP Server’s cameras list on the left-side of the screen.

Network decoder properties: Configuration

Enter the IP Address, username and password of the decoder, followed by the model number and camera sequence mode for the workspace used to display the decoder.

(6) VIDEO WALLPLUS

Video WallPlus allows monitoring a large quantity of cameras at one time, controlling the content of several TV monitors from a single console. Video WallPlus allows each TV monitor to display a single camera, a server or a customized layout.

For more information about Video WallPlus, please refer to the supplemental documentation found in Appendix D, below.
### 4.9.G NVR Enrollment and Integration

VI MonitorPlus supports the enrollment of the following Panasonic NVR camera models:

- WJ-NX400
- WJ-NX300
- WJ-NX200
- WJ-ND400
- WJ-NV300
- WJ-NV200

This support allows users to access live and recorded video through the VI MonitorPlus client. To utilize this functionality, Administrators need to follow the following steps for setup and enrollment.

Select **Administration > NVR**.

To add a new NVR device, click **Add**.

Assign a server to the NVR device by selecting a **Server** in the drop-down box. Next, enter **IP Address** and **Port** of the NVR (default = 80), along with **User ID** and **Password**.

Define a **Name** for the NVR in the **Name** field.

To complete, click on the **Synchronize** button.

The detected cameras will be displayed in the table below.

Click **Save** to complete the NVR enrollment.
The Add/Update Panasonic NVR interface shows:

- Number of available NVR licenses
- Option to connect camera streaming via NVR
- Limit of NVR camera stream (default=4)

Once enrolled, the left tree will refresh with a new NVR Server icon along with the name of the NVR selected from enrollment.

(1) **NVR INTEGRATION**

**NVR ARCHITECTURE UP TO V7.2**

- NVR cameras are managed as normal cameras in live video.
- IP Server must be connected to the camera network.
- Dual network bandwidth needed for each camera.

**NVR ARCHITECTURE STARTING FROM V7.3**

- NVR camera live feed may be restricted due to NVR resources.
- IP Server does not have to be connected to the camera network.
- Single network bandwidth required for each camera.

(2) **MAXIMUM NUMBER OF CONCURRENT FTP REQUESTS**

The following table shows the maximum number of concurrent FTP request for each model:

<table>
<thead>
<tr>
<th>Camera model</th>
<th>Max. concurrent FTP requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>WJ-NX400</td>
<td>8</td>
</tr>
<tr>
<td>WJ-NX300</td>
<td>8</td>
</tr>
<tr>
<td>WJ-NX200</td>
<td>8</td>
</tr>
<tr>
<td>WJ-ND400</td>
<td>8</td>
</tr>
<tr>
<td>WJ-NV300</td>
<td>2</td>
</tr>
<tr>
<td>WJ-NV200</td>
<td>2</td>
</tr>
</tbody>
</table>
(3) ENABLING MEDIA FOUNDATION ON WINDOWS SERVER

For certain NVR cameras (e.g. ND400), the ability to view recordings from VI MonitorPlus is not available by default.

To enable it, the Media Foundation feature must be installed on the Windows Server where NVR cameras are currently enrolled. The procedure is as follows:

1. Execute Server Manager:
   - (Start > Administrative Tools > Server Manager)
   or:
   - Type “ServerManager” in the shortcut location box and click “Next”
2. Select “Manage” and “Add Roles and Features”
3. Select “Features”
4. Check the “Media Foundation” option
5. Click “Next”

When asked to install the additional feature, click “Add Features”, then “Install”. Restart the server.
4.9. H User Audit Reports

VI MonitorPlus features the User Audit reporting tool, which generates a parametrized report with data about the login sessions of a specific user or a group of users, as well as the resources utilized during said sessions.

The User Audit data will only be stored for 30 days on a first-in, first-out basis. The oldest records will be overwritten automatically with the newest ones, following the 30-days cycle.

This tool can be accessed selecting the User Audit option under the Administration tab.

In the User Audit window, select the parameters for the report:

- Report Type
- Start and End date
- Users and Groups

Once the parameters are selected, click on Preview Data.
The Report Preview will display the output before generating the report itself. When ready, click on Export to create the report, or Return to Criteria to redefine the parameters.

The Report will be generated and downloaded to a predefined folder, in CSV format.

Click on Open to view the report or Show in Folder to retrieve the CSV file.
5. WEB CLIENT

The Web Client is a free thin client application that allows the access to live and recorded video from any web browser. An optional ActiveX control can be used when viewing the Web Client in Internet Explorer.

The Web Client requires IIS v 6.0 (or later) to be installed on the IP Server machine.

5.1 LOGGING IN

Access the Web Client using http://<SERVERIP>/videoinsight or the URL provided by the IP Server Administrator, using the browser of your choice.

Enter the User Name and Password for your account and click Login.

5.2 LIVE VIDEO

Once logged in, the Web Client will display the first 30 cameras in the Server list (where 30 or more cameras have been added to the IP Server).

To view the names of the Cameras, expand the Server Name in the left tree.

After selecting a camera from the left tree, the Web Client will only display the video for that camera.

There are 2 options to view a single camera:

1. Click on the Camera’s live image.
2. Click on the Camera’s name in the left tree.

The image from the selected camera will be displayed over the other cameras in the visible layout.
From this view it is possible to:

- Perform a digital zoom
- Move the camera (PTZ supported cameras)
- Take a snapshot from the live video
- View the video in its true aspect ratio
- View recorded video.

5.2. Camera Manipulation

(1) DIGITAL ZOOM

To perform a Digital Zoom:

1. Select the Digital Zoom button on the video toolbar.
2. Click and drag from left to right in your area of interest.
3. Drawing this zone will enlarge the area to full screen.

To view the full image once again, click the Reset button or double-click on the image.

NOTE - Snapshots of the zoomed image can be taken, but, unlike VI MonitorPlus, it is not possible to move within the zoomed image on the Web Client.
5.3 FACILITY MAPS

To view Facility Maps from within the Web Client, click on the Map icon found in the left tree.

Hover the mouse cursor over a Camera Name/Icon to display its Live Video.

5.4 LAYOUT DIRECTORY

Custom Views can be accessed by clicking the Layouts button at the top of the left tree.

Similar to the default Enterprise View that appears after logging into the Web Client, clicking on a single camera view allows the user to customize the Layout.

This is accomplished by expanding the Layout camera list and checking off which cameras are desired for viewing.
5.5 RECORDED VIDEO

To access recorded video in the Web Client, click on the camera image of the camera to display the timeline video of available recorded video.

NOTE - Allow initial loading time on the first camera displayed.

The Timeline, displayed across the bottom of the image, can be used to review the footage recorded for that day.

Drag the mouse along the timeline to select the desired timeframe to view.

The Web Client will load the recorded video file for that time and start playing it back.

To view recorded video from previous days, click on the date in the lower left-hand corner of the image to bring up a calendar.

Areas shaded Orange contain playable recorded video.
5.5.A Creating Clips

To create a clip, click on the film icon at the end of the Timeline, this will display the clip/time selector.

Select the time range by adjusting the blue sliders or typing into the text fields which display the time.

Next, click the Download icon.

**NOTE** - A progress bar will appear on the right area of the screen while downloading.

Once the download is complete, you will be asked if you would like to Open or Save the video. Opening the video will immediately start playback on the local media player, while saving will allow the server to save and store the file for review later.

Unlike Vi MonitorPlus, this video is stored in the compression format which the camera is recording in, so if the camera is recording H.265 video, then the .AVI will require an H.265 codec to play. If you are unable to playback the clips saved through the Web Client, please see your System Administrator to obtain the required codecs needed for your cameras.

5.5.B Watermark Verification

To verify a Watermark for any clip created by the Web Client, follow these steps:

1. Navigate to the web-client using either IE (high or low speed mode) or Chrome
2. Select any Camera with a recording desired for downloading
3. Click the "Create Clip" icon in the lower right-hand side of the window and choose the desired clip length; make sure to check the "Include Watermark" box.
4. Click Download to the right of the time display and wait for the download to complete.
5. Save the file to a location that is easy to recall.
6. Open VI Media player and select the downloaded clip, after pausing the video.
7. Next, select File > Check Watermark. A verification message will appear (see left)

5.6 HIGH SPEED MODE

High Speed Mode Web Client utilizes the Active X control for Video Insight and requires Internet Explorer to run.

The benefits to using High Speed Mode are that it gives you the exact frame rate, resolution and compression the camera is streaming to the Server. After the Active X control is loaded, the Web Client functions in the exact same manner.

In High Speed mode, you can also DPTZ in both live and recorded video when using the Digital Zoom function of the Web Client.

To start using the High-Speed mode, click the Speed button on the top right area of your screen. You will be prompted to download an ActiveX tool to install. This action usually requires Administrator privileges within your operating system.
Limited Access Control functionality is available via the Web Client, and it is easily accessed by selecting the Custom Layout created for the IP Server.

There are 2 primary ways to access the Access Control features in Web Client:

### View Camera Layout
Select the View from the Layout Directory icon on the left panel.

### Facility Map - Door View
Select a Facility Map on the left navigation panel by selecting the Maps icon.

Select the desired map to view. If configured in VI MonitorPlus, a visual map of the facility with the doors connected in the correct locations.

Hover over the door to see a live preview of a door with an associated camera.

To access the door controls, double-click the door icon the map. Once selected, a new display menu will appear. In the menu, there are six access control specific functions made available to the user.

The controls (above) are listed from left to right are:

- Schedule: Forces device to return to any previously configured schedule.
- Unlock: Unlocks device.
- Lock: Lock device.
- Admit Entry: Temporarily unlocks device. Period of temporary unlock is often customizable in the access control application.
- View (Access) History: Views detail list of authorized access names.
- View (Alarm) History: Displays detailed list of door lock violations.
When any of the action-oriented controls (Lock, Unlock, Admit, Schedule) are selected, a confirmation box will appear to prevent an unintentional command from being executed on the device at the wrong time. Click **OK** on the dialog to continue the action.

Web Client can alter access control settings for minor changes. To do so, select the Interface icon from the menu bar on the left side of the administrator’s control screen.

Next, three options appear as choices:
- Disable Access Control features.
- Enable Access Control features.
- Grant access for Administrator level accounts only.

Once the desired choice is selected, be sure to click **Save** at the top of the screen.
## 5.8 ADMIN FEATURES

Web Client can perform some basic administrative tasks that affect the performance and appearance of IP Server, all within the convenience of a web page. These abilities are a way to quickly administer some of the more basic features of IP Server, without having to use the feature rich VI MonitorPlus.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servers</td>
<td>The Servers button allows the administrator to modify base configuration settings for the IP server, including adding and removing cameras, enabling Health Monitor reporting, changing port settings for VI MonitorPlus connections, and adding general support information for your own internal purposes.</td>
</tr>
<tr>
<td>New Cameras</td>
<td>The new Cameras button, found in the left navigation bar, allows the admin to apply most of the administrative tasks to specific cameras that can also be done within VI MonitorPlus.</td>
</tr>
<tr>
<td>Views</td>
<td>The Views button allows the admin to create custom layouts of various cameras on the fly. Options are available to add a single camera view all the way up to a 36-camera view. Additionally, the ability to add a static image, create a custom tour of only specific cameras, or add a web page for display within the View area is possible.</td>
</tr>
<tr>
<td>Interface</td>
<td>The Interface button allows the admin to create and define the default user experience when logging in to the Web Client.</td>
</tr>
<tr>
<td>Network</td>
<td>The Network button on the left navigation bar allows the user to create custom network profiles for use with servers that may have both a high-speed LAN connection and an open Internet connection and limited bandwidth.</td>
</tr>
</tbody>
</table>

To access the new Admin Features, select Admin located in the top right-hand side of the page. Once the new page opens, you are presented with many options that will allow you to modify the server on various levels. Those options are described above, and within the following pages.
5.8. A **Servers**

The Servers Section is divided into five separate tabs that cover Configuration, Camera addition/removal, Health Monitor addition, Connectivity to the IP Server and general Support information.

1. **CONFIGURATION TAB**

   By selecting the **Servers** button found on the left navigation bar, the options made available include the ability to change the name of the server, change the SQL server location, alter the video location path, enable **Binary Recording**, and other advanced options. These functions are also available within VI MonitorPlus in the Camera Configuration settings.

2. **CAMERAS TAB**

   The Cameras tab allows admins and/or users the ability to search, add, and remove cameras from the IP Server, very similar to the way that adding cameras is done in the initial IP Server configuration, or within VI MonitorPlus.

   To add a camera to the IP Server, select the **Add Manually** button. **Auto Discovery** of a camera is also available and works as described by following this link.

   A prompt appears requesting information regarding the specific camera being added. Once the information has been entered, select **Add**, and the camera information screen will appear in the left column.

   Next, select the camera, then click on the right arrow.

   Finally, select **Save**.

   IP server has now successfully added a camera with the web client.
(3) HEALTH MONITOR TAB
The Health Monitor runs as a service in the background and monitors the receipt of messages from other video servers to ensure server uptime and reporting of any issues affecting the servers or cameras. The Health Monitor sends email alerts to the appropriate individual if messages from the servers are not received within the pre-determined time frame. The video servers also send messages to the Health Monitor on camera operation and disk storage usage.

Within the Administration page, a user can manipulate the Health Monitor server location by IP address, Server port (if modified from default), update frequency, and the details sent to the Health Monitor Server, including IP Server version number, a lost signal with configured cameras, camera information, available disk space on IP server, and recording status.

(4) CONNECTIVITY TAB
The Connectivity tab displays the ports that both IP Server and VI MonitorPlus use, as well as configure the outgoing SMTP mail server for use with mail services like Gmail, Hotmail, and Yahoo Mail.

(5) SUPPORT INFORMATION
The Support tab allows the user to update specific information about the IP Server. This information is to be updated by the Administrator and used as a guide to provide information that is useful on an as-needed basis.
5.8.B Cameras

This page, within VI MonitorPlus, is divided into four sections including the General Settings tab, Recording Options tab, Image Settings tab, and the Maintenance Tab. The general tab shows basic information such as the camera’s name, manufacturer, model, IP address, and network configuration settings.

The **Recording Options** tab allows you to modify the Resolution, Frames Per Second, turn On or Off Audio (if camera supports it), Recording Type, Capture Format, Image Location on the server, and set Maximum File size.

The **Image Settings** Tab allows you to change Image Rotation, Color adjustments (limited to specific cameras), Various Advanced Settings (limited to specific cameras), and modify 360 view camera settings.

The **Maintenance** tab shows the camera’s firmware information, service history, and the contact information.
5.8.C Views (formerly known as Layouts)

To create a View, type the name that you would like to use and, optionally, a description of the View. Next, select the number of cameras for the View.

<table>
<thead>
<tr>
<th>View Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
</tbody>
</table>

After the initial naming and basic layout is completed, cameras on the left can be dragged and dropped into the desired point on the Layout View on the right.

The number of options for viewing vary, based on the construction of the previously designed custom View layout.

Once the settings are customized for the new View, select Save at the top right-hand side of the screen. You can now go back to the main page and choose the View that you have just created.

(1) INTERFACE

By accessing the Interface button, it is possible to alter and customize the appearance of the Web Client.

Some of the items that can be changed are the login screen starting in high-speed or low-speed viewing mode, limiting the number of video streams able to view at one time (saving bandwidth), navigation pages, custom login messages, and event notifications for use with access control devices. Access Control functionality can also be enabled or disabled by Administrator users in the Interface section.
5.8.D General Settings

(1) VIDEO DISPLAY
Video Display supports changing camera video capture methods. It will require an IP Server restart once any option has been changed.

(2) NAVIGATION

![Navigation](image)

This feature allows the Administrator to hide a specific feature that is not desired for users to see.

(3) SEARCH

![Search](image)

Using this feature allows the Administrator to hide other features that would otherwise appear on the default website after logging in. Often this is done to restrict access to viewing only specific devices across multiple servers.

(4) CONTENT

![Content](image)

Content modification, by default, allows the maps to be stretched across a screen view, show camera labels (names), and copy links to facility maps. Unchecking these tic-boxes prevents these capabilities from being used or manipulated by non-administrative users.

(5) LOGIN

![Login](image)

The ability to force the HTTPS protocol for login is available. This is a security enhancement feature and will work only with fully-qualified domain names with registered SSL certificates. For more information on setting up HTTPS protocol for enhanced security, please contact Microsoft for support. Alternatively, using a self-signed certificate is possible.
(6) EVENT NOTIFICATIONS

<table>
<thead>
<tr>
<th>Event Notifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables client browser notification of specific events such as door alarms, camera status changes, etc.</td>
</tr>
<tr>
<td>○ Disabled</td>
</tr>
<tr>
<td>○ Enabled</td>
</tr>
<tr>
<td>○ Admins Only</td>
</tr>
<tr>
<td>Alarm Prompts:</td>
</tr>
<tr>
<td>When an alarm is triggered:</td>
</tr>
<tr>
<td>○ Do not prompt users</td>
</tr>
<tr>
<td>○ Prompt user with option to view</td>
</tr>
</tbody>
</table>

Event notifications work with Access Control, as well as motion detection from cameras. This can be limited to administrative use only or blocked altogether.

(7) ACCESS CONTROL

<table>
<thead>
<tr>
<th>Access Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables the interface that allows users to control access to restricted areas.</td>
</tr>
<tr>
<td>○ Disabled</td>
</tr>
<tr>
<td>○ Enabled</td>
</tr>
<tr>
<td>○ Admins Only</td>
</tr>
</tbody>
</table>

This allows a quick shortcut to access control features for IP Servers that are integrated with Access Control services.

By default, this is enabled. If no Access Control services are being used by the IP Server, then this feature has no effect on the functionality of the Web Client.

(8) NETWORK

By creating a separate profile for use across the Internet on a low-speed connection, the settings can be optimized to limit the number of frames that IP server sends through the Web Client view to minimize the impact on the outgoing Internet connection.

Best used for IP Server Admins that have the need to allow multiple people to connect to the IP Server, but only have a limited bandwidth issue.
This specifically reduces the overall refresh rate for each user so that other necessary services do not come into conflict with not having an internet connection on a bandwidth-laden network.
6. VIDEO INSIGHT SUPPORT RESOURCES

For demonstrations of how to complete various tasks and configurations using IP Server Enterprise Software, Video Insight has made available some YouTube Tutorials: http://www.youtube.com/user/videoinsighttv
To download manuals and software available for use, please visit our Downloads: http://www.downloadvi.com

6.1 REMOTE SUPPORT

If more personal assistance is needed, one of our Technical Support representatives is available to aid with any troubleshooting. For remote support, Video Insight requests that the user install the TeamViewer client application prior to requesting support.

To install TeamViewer:

- Browse to http://www.downloadvi.com
- Click the Remote Support link at the bottom of the page.
- Click Run at the prompt.
- Call Technical Support at 713-621-9779.
- Give the representative the ID number that appears within the VI Remote Support TeamViewer application window.
- Your ID is randomly generated every time you request remote support.

The representative will log onto your computer and work with you to resolve the issue.
## 6.2 CONTACT US

<table>
<thead>
<tr>
<th><strong>Main Address</strong></th>
<th>800 Gessner, Suite 700 Houston, Texas 77024</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hours of Operation</strong></td>
<td>Monday to Friday: 9:00am - 6:00pm CST</td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td>713-621-9779</td>
</tr>
<tr>
<td><strong>Fax</strong></td>
<td>713-621-7281</td>
</tr>
</tbody>
</table>

| **Technical Support**                         |                                             |
| **Hours of Operation**                       | Monday to Friday: 7:00am - 7:00pm CST      |
|                                               | Saturdays and Holidays: 10:00am - 2:00pm CST|
| **Email**                                    | support.h@us.panasonic.com                |
| **Emergency Support Service #**              | 877-743-2403 (our Support Engineer on call will be paged to assist you.) |

### NOTE
- This information is made available for clients only in North America and the United States.
- For Support outside of the United States, please contact your sales agent or vendor.
## 7. APPENDICES

### 7.1 APPENDIX A: IP SERVER PORT LIST

Service names officially recognized by the [Internet Assigned Numbers Authority (IANA)](https://www.iana.org/) may not appear within the listed items below. Instead, the listed name might reflect the name used throughout this document and within the software. For more information about the official port names assigned by the IANA, please visit the website located at: https://www.iana.org/

<table>
<thead>
<tr>
<th>Port Number</th>
<th>Name</th>
<th>Purpose for use of port</th>
<th>Outbound WAN traffic required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>4010</td>
<td>Data Port</td>
<td>Sends live video streams from IP Server to VI MonitorPlus Client</td>
<td>No</td>
</tr>
<tr>
<td>4011</td>
<td>Command Port</td>
<td>To get and set system information by VI MonitorPlus Client</td>
<td>No</td>
</tr>
<tr>
<td>3010</td>
<td>Ovid Server</td>
<td>Communication between S2, IP Server and the Ovid Server for Video Insight and S2 Access Control Configuration</td>
<td>No</td>
</tr>
<tr>
<td>80</td>
<td>HTTP</td>
<td>IIS for serving the Web Client</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong> - Some ISPs block port 80 access. Some may need to configure IIS to use a different port than default for internet access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2051</td>
<td>MonitorCast</td>
<td>Access control communication between Video Insight and MonitorCast</td>
<td>No</td>
</tr>
<tr>
<td>554</td>
<td>RTSP</td>
<td>Specific camera properties</td>
<td>No</td>
</tr>
<tr>
<td>21</td>
<td>FTP</td>
<td>Specific camera properties</td>
<td>No</td>
</tr>
<tr>
<td>11000</td>
<td>Health Monitor</td>
<td>Communication between IP Server and Health Monitor</td>
<td>No</td>
</tr>
<tr>
<td>636</td>
<td>Active Directory SSL</td>
<td>Active Directory configured with Secure Socket Layer (SSL)</td>
<td>No</td>
</tr>
<tr>
<td>389</td>
<td>Active Directory non-SSL</td>
<td>Active Directory configured without Secure Socket Layer (SSL)</td>
<td>No</td>
</tr>
<tr>
<td>8080</td>
<td>HMCloud</td>
<td>TCP port used to receive data on Health Monitor Cloud, located at: <a href="http://www.healthmonitorcloud.com">http://www.healthmonitorcloud.com</a></td>
<td>Yes</td>
</tr>
<tr>
<td>4030</td>
<td>POS</td>
<td>Port used for Point of Sale customized software integration</td>
<td>No</td>
</tr>
</tbody>
</table>
7.2 APPENDIX B: .AVI FILES WRITE/MODIFY PERMISSIONS SETTINGS

VI Enterprise uses the Windows File System in order to generate .avi files directly onto the storage location, and it must follow Windows File Permissions rules to function properly.

When VI Enterprise is installed by default, the service which is created (IP Video Enterprise) runs under the Local System Account within Windows. Depending on the Group Policy or Security Settings for an operating system installed on a computer, these permissions are not enough in order to have complete control on files in video storage folders.

**NOTE** - If you do not have Write permission, you cannot create a file and put data into it. Likewise, if you do not have Modify permission, you cannot delete the file from the storage location.

One solution from preventing normal video file operations is to assign a Service Account to the IP Video Enterprise service. You need to first create a New Local Account or assign an existing Domain Account to the IP Enterprise service. This is located under Control Panel-Administrative Tools-Computer Management.

**Scenario 1: Create a New Local Admin Account**

- Within Computer Management, go to System Tools-Local Users and Groups.
- Create a new User and provide a valid password. Check the Password Never Expires box.
- Highlight the new user, right click and select Properties. Navigate to the Member Of tab.
- Click Add. Add the Administrators group to this user.
- Navigate to the IP Video Enterprise service.
- Right click on IP Video Enterprise and select Properties. Navigate to the Log On tab.
- Select This Account and provide your username and password.
- Go to your Data Storage Path for VI, highlight it and right click selecting Properties.
- Navigate to the Security tab. Verify that Administrators is located in the Group or User Names and that it has Full Control.
- Restart the VI Enterprise service.

**Scenario 2: Add an Existing Domain Account**

- Within Computer Management, go to System Tools-Local Users and Groups.
- Double click on Groups, then Administrators.
- Click Add. Navigate to the Domain Account that you wish to be an Administrator for this computer.
- Navigate to the IP Video Enterprise service.
- Right click on IP Video Enterprise and select Properties. Navigate to the Log On tab.
- Select This Account and provide your username and password.
- Go to your Data Storage Path for VI, highlight it and right click selecting Properties.
- Navigate to the Security tab. Verify that Administrators is located in the Group or User Names and that it has Full Control.
- Restart the VI Enterprise service.
7.3 APPENDIX C: CONFIGURING AN IQEYE CAMERA USING OPTIONAL CONTROLS

Once the camera is added to the software, access the Optional Controls tab in the Camera’s Properties. These controls change the way that the IQ Eye cameras handle different light settings and adjust the iris accordingly.

**Gain Style**: The autogain algorithm of your camera will set brightness to best display. The gain style setting chooses which pixels within the exposure window will be used by the autogain algorithm for setting brightness levels.

- **Peak Detect**: Uses only the brightest pixels in the exposure window, making sure they are appropriately-adjusted for bright pixels. This is a good setting for watching bright areas.
- **Backlight**: Uses only the darkest pixels in the exposure window, making sure they are appropriately-adjusted for dark pixels. This is a good setting for outdoor scenes where you want to watch a shaded region.
- **Average**: Uses all of the pixels in the exposure window. This is a good setting for indoor scenes where there are no very bright or very dark areas to skew the gain calculations.
- **Clip Average**: Uses all pixels except for the very darkest and brightest pixels. This is a good setting for outdoor scenes where you want to ignore both sky and shadows and to watch a region of intermediate brightness levels. This is also a good setting for interior scenes.
- **Undefined**: This setting turns off Gain Style

**Light Grabber**: Enables or disables special processing for low-light images. These values can be seen at the camera’s web page under Image tab.

- **Most Frames**: Sets the Light Grabber value to 4x, which specifies “integration” of four frames, twice the low-light correction as the 2x setting which specifies the integration of two frames.
- **Medium**: Sets the Light Grabber value to 2x.
- **Undefined**: Sets the Light Grabber value to 4x
- **Disabled**: Turns Light Grabber off at the camera

**Light Behavior**: This setting adjusts the electronic shutter values for the IQeye camera

- **Optimize speed**: Use this setting for fast moving subjects. This setting may cause images to appear grainy in low light conditions.
- **Optimize quality**: Use this setting for high-quality images. This setting may cause images to blur in low light conditions.
- **Auto**: This setting is ideal when there is adequate light and objects are not moving too fast.

The other values set a fixed exposure. This is useful for tuning a camera to minimally changing conditions or to capture objects moving at predictable speeds. The list of available exposures may change based on other settings like frame rate, Light Grabber and resolution.
7.4 APPENDIX D: SECURE SYSTEM GUIDELINE

Introduction

Video Insight VMS is an application designed to be easy to use, scalable and flexible. To ensure encrypted communications within critical environments, the Secure System has been created as an additional security layer for the application. This document describes how to enable and configure Secure System for Video Insight VMS.

System Overview

The communication between the cameras and Video Insight IP Server can be encrypted over HTTPS protocol, and VI Web Client can be used over HTTPS to ensure data encryption on the client side. Also, recorded video files will not be readable by other systems after being created with the security layer enabled.

The basic System Structure is shown below:

Use Cases

To enable Secure System, a system Integrator must consider all possible scenarios and design specific solutions for each one of them. The following table presents typical use cases and their corresponding solutions:

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Solution</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Insight VMS will be accessed via public internet without VPN.</td>
<td>Only HTTPS communication can be enabled when using Web Client/Microsoft IIS to encrypt all the data.</td>
<td>Setup HTTPS on Microsoft IIS.</td>
</tr>
<tr>
<td>Cameras that are managed by IP Server will be installed on public internet with anonymous access.</td>
<td>Video Insight supports HTTPS communications for Panasonic cameras, and Panasonic I-PRO Extreme series cameras come with pre-installed Symantec server certificate. The option can be easily configured, and IP Server can verify Symantec’s certificate before data communication is established.</td>
<td>Setup HTTPS Camera Communication.</td>
</tr>
<tr>
<td>A Recorded Video can be leaked even when is stored on the local Server.</td>
<td>Use the Proprietary Format Video feature for Server File Storage to scramble the video file output, disabling its access by third-party software.</td>
<td>Setup Proprietary Format Video.</td>
</tr>
</tbody>
</table>
Setting Up HTTPS on Microsoft IIS

This section covers the steps to follow in order to enable HTTPS protocol on IIS Server.

Software Components

**VI Web Client** is installed over **Microsoft IIS**. The following is the basic software structure and expected communication interface when HTTPS communication between IP Server and VI Web Client is used by Video Insight VMS.

![Software Components Diagram]

Enabling HTTPS

Create a CSR (Certificate Signing Request)

1. Open **IIS Manager** and select “Server Certificates”.

![IIS Manager Screen]

© 2019 – Panasonic System Solutions Company of North America
Last updated: May/31/2019
2. Click on "Create Certificate Request".

3. Fill out the Request Certificate form and click "Next".

4. Select each parameter for your server’s Certificate, then click "Next".
Obtain a Signed Server Certificate

After submitting the CSR, you will need to request a CA certificate like DigiCert (Symantec) to issue a Signed Server Certificate based on the newly created CSR.

Complete the Request

2.6

Click “Complete Certificate Request”, then select a Certificate issued by the CA and specify the Friendly Name.

Bind HTTPS Port

1. Open the Default Web Site Home option and click on “Bindings”; in the Site Bindings window, click “Add”. 
2. In the Add Site Binding window:
   - Select “https” from the “Type” list box;
   - Enter the value for the “Host name” field;
   - Select the issued certificate from the “SSL certificate” list box.
   - Click “OK” to add the site Binding.

Disable Weak SSL Ciphers

(1) Disable SSL v3.0

- Create “SSL 3.0” Key under the following Registry Key:
  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\SSL 3.0

- Create “Client” Key and Value for the following Registry Key:
  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\SSL 3.0\Client
  "DisabledByDefault"=dword:00000001

- Create “Server” Key and Value for the following Registry Key:
  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols\SSL 3.0\Server
  "Enabled"=dword:00000000
(2) Disable RC4 Ciphers

- Create the “Ciphers” Key and “RC4 128/128”, “RC4 40/128” and “RC4 56/128” under “Ciphers”. Then add the following values:

  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Ciphers

  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Ciphers\RC4 128/128
  "Enabled"=dword:00000000

  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Ciphers\RC4 40/128
  "Enabled"=dword:00000000

  HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Ciphers\RC4 56/128
  "Enabled"=dword:00000000
Setting Up HTTPS Camera Communications

To enable HTTPS for Camera communications, the camera must support HTTPS; if Symantec’s certificate is required, the camera must also support it.

**NOTE** - See [https://security.panasonic.com/products/functions/secure_communication/](https://security.panasonic.com/products/functions/secure_communication/) for further information and supported models.

**Camera Setup**

Open the camera’s Administrative Console (see instructions for each made and model).

In **Setup -> Network -> Advanced -> HTTPS**, select “HTTPS” from the Connections list box.

**NOTE** - If the Symantec Certificate is pre-installed on the camera, a Certificate error message will appear on the browser (see picture below).

This may happen because the pre-installed certificate is not associated to new environment; however, **this error message can be ignored**.
IP Server Set Up

1. Open **VI MonitorPlus (Client app)**.

2. In **Camera Setup -> General -> Recording Settings**, the **Capture Format** value must be set to "H.265 (HTTPS)" or "H.264 (HTTPS)".


4. Restart **IP Server**.
Setting Up Proprietary Format Video

The Proprietary Format feature allows recorded video files to be encrypted, making them unreadable by any standard video player software like Windows Media Player or VLC Media Player. This encryption capability includes binary level.

APPENDIX E: THE INDEPENDENT JPEG GROUP’S JPEG SOFTWARE NOTICE

---

README for release 6b of 27-Mar-1998

This distribution contains the sixth public release of the Independent JPEG Group’s free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

Serious users of this software (particularly those incorporating it into larger programs) should contact IJG at jpeg-info@uunet.uu.net to be added to our electronic mailing list. Mailing list members are notified of updates and have a chance to participate in technical discussions, etc.

This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge’ Weijers, and other members of the Independent JPEG Group. IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION ROADMAP

This file contains the following sections:

OVERVIEW General description of JPEG and the IJG software.
LEGAL ISSUES Copyright, lack of warranty, terms of distribution.
REFERENCES Where to learn more about JPEG.
ARCHIVE LOCATIONS Where to find newer versions of this software.
RELATED SOFTWARE Other stuff you should get.
FILE FORMAT WARS Software "not" to get.
TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:
install.doc How to configure and install the IJG software.
usage.doc Usage instructions for cjjpeg, djjpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1 Unix-style man pages for programs (same info as usage.doc).
wizard.doc Advanced usage instructions for JPEG wizards only.
change.log Version-to-version change highlights.

Programmer and internal documentation:
libjpeg.doc How to use the JPEG library in your own programs.
example.c Sample code for calling the JPEG library.
structure.doc Overview of the JPEG library’s internal structure.
filelist.doc Road map of IJG files.
coderules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in the order listed) before diving into the code.

OVERVIEW

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren’t implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjjpeg" and "djjpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.
The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it. We welcome the use of this software as a component of commercial products. No royalty is required, but we do ask for an acknowledgement in product documentation, as described under LEGAL ISSUES.

LEGAL ISSUES

In plain English:
1. We don't promise that this software works. (But if you find any bugs, please let us know!)
2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a program, you must acknowledge somewhere in your documentation that you've used the IJG code.

In legalese:
The authors make NO WARRANTY or representation, either express or implied, with respect to this software, its quality, accuracy, merchantability, or fitness for a particular purpose. This software is provided "AS IS", and you, its user, assume the entire risk as to its quality and accuracy.

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Permission is hereby granted to use, copy, modify, and distribute this software (or portions thereof) for any purpose, without fee, subject to these conditions:

(1) If any part of the source code for this software is distributed, then this README file must be included, with this copyright and no-warranty notice unaltered; and any additions, deletions, or changes to the original files must be clearly indicated in accompanying documentation.

(2) If only executable code is distributed, then the accompanying documentation must state that "this software is based in part on the work of the Independent JPEG Group".

(3) Permission for use of this software is granted only if the user accepts full responsibility for any undesirable consequences; the authors accept NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code, not just to the unmodified library. If you use our work, you ought to acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name in advertising or publicity relating to this software or products derived from it. This software may be referred to only as "the Independent JPEG Group's software".

We specifically permit and encourage the use of this software as the basis of commercial products, provided that all warranty or liability claims are assumed by the product vendor.

ansi2knr.c is included in this distribution by permission of L. Peter Deutsch, sole proprietor of its copyright holder, Aladdin Enterprises of Menlo Park, CA. ansi2knr.c is NOT covered by the above copyright and conditions, but instead by the usual distribution terms of the Free Software Foundation; principally, that you must include source code if you redistribute it. (See the file ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part of any program generated from the IJG code, this does not limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.)

So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual but are readable by all standard GIF decoders.

We are required to state that "The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

REFERENCES

We highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.
The best short technical introduction to the JPEG compression algorithm is Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 38-44. (Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-Loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI does not take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging $95 for Part 1 and $47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JIFF" conventions, revision 1.02. A copy of the JIFF spec is available from:

   Literature Department
   C-Cube Microsystems, Inc.
   1778 McCarthy Blvd.
   Milpitas, CA 95035
   phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz. There is also a plain text version at ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems.

IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by IJG Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from ftp.sgi.com or from ftp://ftp.uu.net/graphics/jpeg/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design.

Although IJG's own code does not support TIFF/JPEG, the free libtiff library reuses our library to implement TIFF/JPEG per the Note. libtiff is available from ftp://ftp.sgi.com/graphics/tiff/.

ARCHIVE LOCATIONS

The "official" archive site for this software is ftp.uu.net (Internet address 192.48.96.9). The most recent released version can always be found there in directory graphics/jpeg. This particular version will be archived as ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz. If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact help@uunet.uu.net for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups comp.graphics.thumbnails.misc, news.answers, and other groups. It is available on the World Wide Web at http://www.fans.org/faqs/jpeg-faq/ and other news.answers archive sites, including the official news.answers archive at rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usetnet/news.answers/jpeg-faq/.

If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu with body send usenet/news.answers/jpeg-faq/part1 send usenet/news.answers/jpeg-faq/part2.
RELATED SOFTWARE

Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making cjpeg/djpeg considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/.

Unfortunately, PBMPLUS/NETPBM is not nearly as portable as the I3G software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from ftp://havefun.stanford.edu/pub/jpeg/. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the I3G code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it does not do progressive JPEG.)

FILE FORMAT WARS

Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is that it is an official standard rather than an informal one. At this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. I3G intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.) Various proprietary file formats incorporating JPEG compression also exist.

We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

TO DO

The major thrust for v7 will probably be improvement of visual quality.

The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions --- principally, variable quantization and the SPIFF file format. As always, speeding things up is of great interest. Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.
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