



VIDEO MANAGEMENT

System User Manual

Aperture is a digital video recording and remote surveillance software package for Windows.

CONTENT

01

Chapter 1

Frame Grabbers	1
Network (IP) Cameras	3
PTZ Cameras	4
USB and Web Cameras	5
Server	6
Client	7

08

Chapter 2

Server Installation	8
Software Activation	9
Server Configuration	10
Application Mode	11
How to start and stop VMS services	12
Aperture Terminology	13
Structure Pane	14
Application Mode	15
How to start and stop VMS services	16
Aperture Terminology	17

OVERVIEW

Aperture is a digital video recording and remote surveillance software package for Windows. Aperture accepts video streams from all major Network (IP) cameras and servers, Frame Grabbers and any Direct Show compatible devices including Webcams and USB cameras. This along with the Aperture client-server architecture allows you to build fully scalable solution sizing from a single camera up to thousands cameras.



Aperture was designed to primarily be used to:

1. View live video streams from multiple sources locally and remotely, over the Internet.
2. Record video from multiple sources and play them back later locally or remotely
3. Export previously recorded video to preserve it and to present it as evidence.

Aperture consists of two major components: VMS Server and VMS Client. The VMS Server is a behind-the-scene application that captures, processes and records video and then serves it to a local or remote VMS Client software. The VMS Client is the application that shows live and recorded video streams from a single VMS Server or multiple VMS Servers; it also allows users to configure and control VMS Server(s).

In order to better suit our customer needs and budget, Aperture has 5 editions. These editions range from Personal to Enterprise and each edition varies in the number of allowed cameras, the number of simultaneous remote VMS Client connections as well as other limitations, or lack thereof. However, all of the Aperture editions have the same user-friendly interface and functionality.

Aperture VMS Personal Edition is a shareware product, which means you can try it first, and then buy it if you like it.

	Max. No. of cameras	Max. No. of concurrent remote VMS
Personal	1	1
Basic	4	1
Professional	9	3
Adv	16	5
	Unlimited	Unlimited



Aperture offers a principally new concept for VMS solutions – “One Software/Choice of Hardware”.

Aperture VMS software can be either integrated with supported hardware or acquired from an Aperture reseller as a part of a complete digital video recording and remote surveillance solution.

1. CHAPTER

1.1 Frame Grabbers



What is Frame Grabber? Frame Grabber is a PCI board that is installed into the PC and CCTV cameras (Cameras with BNC or RCA connectors) are attached thereto. These boards come in various configurations - 4 camera inputs, 8 inputs, 16 inputs, etc. and are made by various manufacturers. Also, depending on the Frame Grabber certain criteria is expected from the PC. Some frame grabbers require a minimum amount of PC power as where others require more. Frame Grabbers have the following terminology:

Inputs = the amount of cameras the board can handle (4, 8, 16, 24, 32)

Frame Rate= Frame Grabbers supported by Aperture (HP4000EX) can proceed up to 480 frames per second. These frames however, are the entire frame rate numbers divided by the amount of inputs; therefore if you have a 480FPS (Frame per Second) board with 16 inputs, that means $16 \text{ divided by } 480\text{FPS} = 30\text{FPS}$ per camera.

Aperture support the HP4000EX board which is a real time 16 channels board with 480FPS, H.264 compression and 16 channels Audio (max 2 boards per server for 960FPS, 32 channels of Video and Audio)

You can purchase these boards from any Aperture authorized reseller. If you already or own any of the above cards, you only need to purchase the appropriate Aperture edition.

Aperture works with any and all CCTV cameras. CCTV cameras are analog cameras, and even though some of these cameras might have the word Digital written on them, it only means that a DSP (Digital Signal Processor) chip is used - Frame Grabber is what makes the signal truly digital. Therefore, if you decided to retrofit existing installation or make a new one based on analog CCTV cameras, make sure that you choose an Aperture supported frame grabber card or acquire a complete system from an Aperture reseller. You can check the perpetually growing list of supported Frame Grabber cards on the Aperture website.

1.2 Network (IP) Cameras



What is Network (IP) Camera? Network camera, IP addressable camera, IP Camera, all referring to the same type of cameras, is a digital camera that can be directly connected to the Internet through a cable (CAT5 Ethernet) or Wi-Fi connection. Network cameras send already digitized and compressed video streams. Network Cameras are the fastest growing trend in the Surveillance industry.

Here are some of the benefits of IP cameras:

Existing local network infrastructure could be used for the installation.

Less cabling is required comparing to an analog CCTV installation.

Network cameras have built-in motion detection and stream compression engines, which allows the VMS Server to use a minimum of its computer resources; therefore, the same computer can also be used for other tasks.

There are no requirements on CPU or chipset manufacturers, since Network Cameras do not require any additional hardware to be installed in to the computer.

There are Network (IP) cameras with very high resolution (1.3 Mega pixels and more). Analog cameras are incapable of achieving such resolution.

Network (IP) camera installations are highly scalable and upgradeable. There is no need to buy and install additional video capture boards for the VMS system in the event you want to add a camera or increase performance of the system.

Any analog camera can be converted to a network camera by using a Network (IP) server.

There is no geographical limitation for the installation.

Effective off site recording (either by itself or in addition to onside recording) eliminates the possibility of destruction of the video medium due to deliberate actions or an accident (fire, flooding, etc.). Some of the network cameras also can be used as a webcam to serve as an advertising engine for a business.

Review for MPEG4/H.264 cameras:

Without compromising image quality, an H.264 encoder can reduce the size of a digital video file by more than 75% compared with the Motion JPEG format.

This means that much less network bandwidth and storage space are required for a video frame. A higher video quality can be achieved with less bit rate. Better Average Bandwidth and Storage Reduction over MJPEG
High-quality 3 mega pixel video stream at 20fps can be as low as 2 Mbps
High resolution and bandwidth efficiency
Aperture supports Network Cameras from all major manufacturers. Please visit the Aperture website for the perpetually growing list of supported Network came

1.3 PTZ Cameras



What are PTZ Cameras? PTZ camera is the camera with the mechanical assembly for Panning, Tilting and Zooming the camera. There are many types of PTZ cameras available and their cost varies based on Speed, Zoom capacity, Manufacturer, etc. Analog CCTV PTZ cameras require additional set of wires compliant with RS422/485 protocol standard to control PTZ movements. Therefore, usually it is necessary to put a RS232 to RS422/485 converter to a VMS system. Aperture currently supports the most popular Analog CCTV PTZ command protocols, including Pelco-D, Bosch and MeritLilin. Network PTZ cameras do not require any additional wiring or devices, since PTZ commands are being send over TCP/IP network; therefore, making installation process much simpler and eliminating a lot of compatibility and configuration issues.

1.4 USB and Web Cameras



Can I use my USB or Web Cameras? Yes, Aperture is the world's leader in the best, most economic, versatile and powerful VMS. We want everyone to be able to use our software and if you have a USB Cam or a Web Cam, you are welcome to try our software for free and purchase as many licenses as you wish. However, keep in mind that you are limited to USB ports amount with this option but for small users, Aperture is for you.

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