

ViewPoint Computer Requirements

1 Purpose

The purpose of this document is to provide guidance on the requirements of the computer used to run ViewPoint. The scalable nature of ViewPoint allows the user to configure the application to their environment. Users with limited computing resources can simply use less features of the application while those with greater computing resources can use more.

2 Important Computing Resources

The importance of the computing resources depend greatly on the configuration. This section discusses different resources and why they are important.

Processor – Obviously, the processor is very important when you want to use more ViewPoint features. The on-ground Tracking features (E-stab, scene steering, and object tracking), Mosaicking, and Video on Map each require above average processing capability. It is recommended that users have at least an Intel Core 2 Duo at 2+ GHz.

Hard Drives – The access speed of the computers hard drive is important because of the data that is read and written to disk. The recording of the video is the main driver here, but the application must also read map imagery and elevation data from the hard drive. All of this can cause the application to perform poorly if the disk access is too slow. It is recommended that users have hard drives that do at least 7200 rpm. Solid State drives are excellent but usually don't have the similar storage capacity as traditional drives.

RAM – The amount of RAM the computer has is dependent on what operating system is being used. ViewPoint needs about 750 MB of RAM. It is recommended that if you are using Windows XP, that you have at least 1.5 GB of RAM.

Graphics Card – ViewPoint is a graphics intensive application and a good graphics card can improve the users' experience. This is particularly true with respect to the Mosaicking Feature. Graphics cards with more memory allow the user to review more images in the mosaic. For example, a graphics card with 512 MB of memory will allow the user to have over 300 images in the mosaic that they can pan through. See Appendix C for more detailed information.

Monitor – ViewPoint can support monitors with resolution as low as 800 x 600. However, even a monitor with a resolution of 1024 x 768 can provide the user with much more information. The native resolution of the video is 640 x 480. If you are at 800 x 600, that only leaves 160 pixels in horizontal space for things like the map. It is recommended that the user has a monitor with at least 1280 x 800.

Video Capture – How the system is setup to capture the video can also affect the computer resource requirements. For example, if video is being streamed to ViewPoint in a compressed format, then the ViewPoint computer will use more of the processor decompressing the video. However, a video capture card like the Imperx does not require the extra processing, but does require the computer to have a PCMCIA or Express Card slot. See Appendix A for more information.

Communication – To control the gimbal, the computer must be connected to the gimbal using a serial connection. The most common way to do this is via a USB-Serial adapter. See Appendix B for more information.

3 Configurations

There are two main configurations – Lite and Pro. Below is a table showing the main differences:

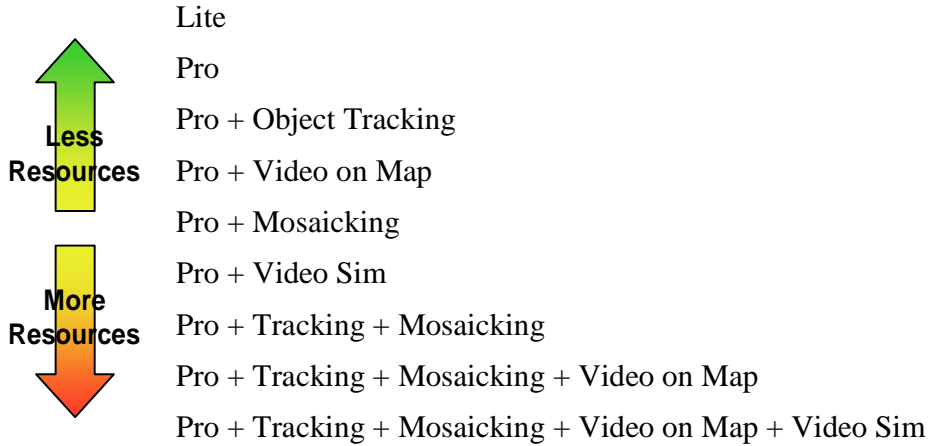
Feature	Lite	Pro
Geo Point	X	X
SD Video Capture & Display	X	X
Record & Replay	X	X
Moving Map	*	X
Make Video Files		X
Plug-in Support		X
MJPEG & H.264 Axis Client		X
Network Video Input		X

* This feature is enabled in ViewPoint without a license, however "License Required" will be posted across screen.

In addition to the Pro version, one can add several advanced features. The more resource demanding of these features include:

Advanced Feature	Description
Video on Map	Live video geo-located and terrain warped over moving map.
Mosaicking	Real-time frame-to-frame video mosaicking for expanded field of view.
Object Tracking	PC-based user designated, single object tracker (includes E-Stab & Scene Steering)
Video Sim	Provides simulated video when running with the Piccolo Simulator

The following list is a handful of selected configurations that are listed from least amount of computing resources to the most.



4 Recommended Systems

	Basic	Rugged	High End
Manufacturer	Dell	Panasonic	Falcon
Model	Precision M4500	Toughbook CF-31	DRX
Processor	Intel i7-620M Dual Core @2.66 GHz	Intel Core i5 M540 @2.53 GHz	Intel i7-930 (4 Cores) @2.80 GHz
Hard Drive	500 GB, 7200 RPM	256 GB Solid State	256 GB Solid State
RAM	4 GB	4 GB	12 GB
Graphics Card	NVIDIA® Quadro FX 880M Graphics with 1GB	ATI Mobility Radeon HD5650 with 1 GB	NVIDIA GeForce GTX480M with 2 GB
Monitor	1600 x 900	1024x768	1920 x 1200
Slots	PCMCIA	PCMCIA, Express Card (54)	Express Card (54)
Operating System	Windows XP	Windows XP	Windows 7
Max Configuration	Pro + Tracking + Mosaicking	Pro + Tracking + Mosaicking	Pro + Tracking + Mosaicking + Video on Map + Video Sim

For users with more computer restrained situations, please contact Cloud Cap Technical Support. They can help you configure a system to meet your specific needs.

Appendix A - Video Capture

A.1 Frame Grabbers

The most common way to capture video is through the use of a frame grabber. A frame grabber is used to capture individual frames from an analog video stream. ViewPoint has support for the following:

	Imperx VCE-Pro	Imperx VCE-Express	dPict Axeon
PCMCIA	X		
Express Card		54	
PCI			X
PCI-Express			X
Windows Compatibility			
Windows XP	C, V	C, V	C, V
Windows Vista-32bit	C	C	
Windows Vista-64bit		C	
Windows 7-32bit	C, V	C	
Windows 7-64bit		C	

C = Manufacturer Indicates Compatibility

V = Verified to Work with ViewPoint

A.2 IP-based Support

Some users need to use Ethernet to transmit video from the gimbal to ViewPoint. The following systems are supported:

Manufacturer	Model	Video	Communications	Comments
Axis Communications	Q7401 Video Encoder	MJPEG, H.264	RS-485/RS-422	This tool allows the user to get analog video and control the gimbal over an IP network. However, one needs an RS-422 to RS-232 converter like Sena Technologies' LTC 100.

A.3 Useful Links

- Imperx VCE-Pro
<http://www.imperx.com/frame-grabbers/vce-pro>
- Imperx VCE-Express
<http://www.imperx.com/frame-grabbers/vce-express>
- dPict Aexeon
<http://www.dpictimaging.com/Products/Aexeon.html>
- Axis Communications Q7401 Video Encoder
http://www.axis.com/products/cam_q7401/
- Sena Technologies LTC100
http://www.sena.com/products/serial_converter/ltc100.php

Appendix B – USB-to-Serial Converters

Since computers these days rarely have a 9-pin serial (RS-232) connector, a USB-to-Serial adapter is required in order to control the gimbal. The following are converters that Cloud Cap Technology recommends:

- CommFront – USB-to-Serial (RS232) Adapter – USB-232-1 *
<http://commfront.com/Datasheets/usb-232-1.pdf>
- Tripp-Lite – USB-to-Serial Adapter – USA-19HS
<http://www.tripplite.com/en/products/model.cfm?txtModelID=2430>
- USBGEAR – USB-to-Serial Adapter – USBG-232mini
<http://www.usbgear.com/USBG-232MINI.html>

* Denotes USB-to-Serial Adapter included in all Piccolo and Gimbal Developer's Kit

Appendix C – Video Graphic Cards

ViewPoint is a very graphics intensive application and behaves differently depending on the graphics card. Below is detailed information about different cards:

C.1 NVIDIA

Card	Computer	OS	NVIDIA Driver	Dell Driver
Quadro NVS	Del Laptops	XP 32-bit	Yes	?
Quadro FX (m)	Dell Laptops	XP 32-bit	No	Yes
Quadro FX	Dell Desktops	XP 32/64-bit	No	No
Quadro FX	Dell Desktops	Vista	Yes	No
Quadro FX	Industrial PC	Embedded	No	?
Quadro FX (m)	Dell Laptops	Windows7 64-bit	No	No

- No known issues with other NVIDIA cards.

C.2 Intel

- Previously to ViewPoint 2.1.2.d, a bug caused ViewPoint to exit prematurely on Intel Mobile Graphics cards. This bug was fixed and no problems with these cards are known.

C.3 ATI

- No known issues.

Appendix D – Troubleshooting Guide

ViewPoint relies heavily on the graphics card for the moving map and mosaicking. Due to the nature of the graphics cards and ever changing drivers users may experience application crashes. Below is a quick troubleshooting guide in the event that ViewPoint is crashing. If you have additional questions please contact support support.cct@goodrich.com.

D.1 Graphics Card Drivers

- Update your graphics card drivers. Typically this should be done from the computer manufacturers website, however if this is still not working try getting the latest from the graphics card manufacturers website.

D.2 Disable OpenGL Mode

- From the display menu make sure that OpenGL is not selected. This only impacts the video display portion of the application. If you disable this you will not be able to run real time mosaicking, however all other features of the application will work.

D.3 Disable Compass

- Right click on the map and make sure Show Compass is not selected. This will hide the compass that is overlaid on the map.

D.4 Minimize the Number of WMS Layers

- Try to use only one or two WMS layers. Only the top most layer is visible so unless you are switching back and forth between layers you are not gaining much by having a lot of layers, you are just impacting the application performance.