February 19, 2015

Proposal for Mobile Audio Visual (MAV) Cameras

County of El Dorado, California

Submitted by
WatchGuard Video

4RE HIGH DEFINITION, WIRELESS TRANSFER, SERVER-BASED IN-CAR VIDEO FOR LAW ENFORCEMENT

WatchGuard Video
415 Century Parkway, Allen, TX 75013
1.800.MPEG (6734)
www.watchguardvideo.com

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19th of February, 2015

El Dorado County Sheriff's Office
300 Fair Lane
Placerville, CA 95667

Reference: RFP for Mobile Audio Visual (MAV) Cameras

WatchGuard Video is pleased to present the 4RE HD Wireless In-Car Video System and the Evidence Library 3 Backend Solution. 4RE HD makes high definition practical by eliminating the painful compromise between video quality and file storage needs. This means your agency will have high definition video (with 3.5X higher image resolution) for all of your court-bound video while simultaneously requiring less total storage than any other competing systems – or in other words you get HD video at SD cost.

4RE is not only unique for its high definition capability, but also for its dual drive architecture that enables a feature called "Record-After-the-Fact" which effectively gives your agency the power to go back in time to capture video that was not initially recorded.

WatchGuard Video has also recently introduced the High Fidelity Wireless Microphone. The Hi-Fi microphone provides near CD audio quality, one to two miles of range, and has a typical battery life of one week on a single charge. No other system on the market can offer these features or functionality.

Thank you for your consideration to this proposal.

Respectfully Submitted,

Jason Stuczynski
Vice President of Sales

415 Century Parkway • Allen, TX • 75013
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PROPOSAL SUMMARY

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Key Factors for the County of El Dorado to Consider

When choosing an In-Car Video solution, there is more to consider than camera lens and DVR. There are often key features that set apart one solution from another. We believe that as you evaluate the solution offered by WatchGuard Video, you will find the following especially beneficial and worth a closer look.

True High Definition Video

- Record critical evidence in true High Definition; 720P
- Responsible HD recording with respect to file sizes and storage –
- Average files sizes are equal to competing systems that do not have HD video

Dual-Drive Architecture

- Advanced architecture that--- provides redundancy
- Never risk losing video

Record After the Fact

- Made possible by 4RE's dual drive architecture
- Gives your agency the power to go back in time to recover video that was not initially recorded.
- Has helped agencies avoid lawsuits and solve cases using video that no other system would have captured

Hands-Free with Seamless Drive-Off Support

- No officer interaction required
- Able to manage upload interruptions such as drive offs

High Fidelity Wireless Microphone

- 1-2 Miles Line of Sight Range
- Near CD Audio Quality
- Up to 24 hours of talk time

Fast WiFi

- Secure uploads over the most advanced wireless technology available, 802.11n
- Uses industrial grade radio system in the car and sophisticated antennas at the agency

MANAGEMENT SUMMARY PROPOSAL OVERVIEW

COMPLETE SOLUTION

In compliance with all of the RFP requirements, WatchGuard Video is going to provide the County of El Dorado with:

- 65 Digital HD In-Car Video Recording Systems for Patrol Vehicles
- Evidence Management Software
- Back Office Server Hardware

SOLUTION OVERVIEW

The WatchGuard solution has all of the necessary components and features of the typical server solution, such as: record triggers, audio and video feed from multiple sources, wireless transfer capabilities, and back office management software. But basic components such as these are where the similarities between WatchGuard products and other systems stop. The 4RE solution has undergone an intensive 3 1/2 year development program utilizing about 25 engineers which culminated with about 6 months of both exhaustive internal testing and extensive real-world police agency testing. The 4RE system was built on the basic principles of a server-based solution, with an emphasis on addressing and correcting the implementation issues faced by other systems, while adding features and functionality.

4RE is a server-based solution that offers seamless wireless transfer of video over 802.11n. It requires no Officer intervention to perform file transfers, configuration changes, or firmware upgrades. Everything is managed remotely from our comprehensive back office software solution. In fact, Officers are greeted with the most user-friendly interface that you will find in any in-car system.

A more detailed 4RE Solution Description has been included in the Attachments section of this proposal.

Contact Information:

Regional Sales Manager

Fran Judge

(661) 714-5959 - Direct

fjudge@watchguardvideo.com - Email

Company

WatchGuard Video

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WATCHGUARD VIDEO COMPANY PROFILE

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COMPANY PROFILE

INTRODUCTION

WatchGuard Video is a privately held law enforcement technology manufacturer. WatchGuard was founded in 2002 and began full production of its mobile video products in September of 2005, with initial shipments beginning in October 2005. All product manufacturing is done domestically in the company's 65,000 square foot facility located in Allen, Texas. The North Texas facility features an engineering laboratory, customer service installation bay, pristine production space, and a state-of-the-art training room. All 4RE engineering, assembly, and factory service is conducted in this facility.

COMPANY BACKGROUND

WatchGuard Video is the world's largest manufacturer of in-car video systems for law enforcement. Our mobile video products have become the number one selling digital in-car video systems in the United States, and we currently have approximately 5,000 law enforcement agencies as customers and over 30,000 of our mobile DVR systems in the field. WatchGuard has moved solidly into the number one market share position for US sales of digital police in-car video systems. Even with about 20 companies competing in this market, nearly 1 in 4 systems sold in the US today are manufactured by WatchGuard.

WatchGuard's commitment to innovation can be seen in the large investments we make in the Research and Development of new products. We have the largest engineering team in the industry, and have invested over $25 million into the development of digital in-car video systems for law enforcement. We feel that innovation of quality and technically advanced products is essential to maintaining our position in this fast paced and rapidly evolving industry.

WatchGuard Video produces the most advanced systems, has the most extensive track record of successful deployments, has earned a reputation for extraordinary customer support, is financially sound, and is the best positioned company to service your in-car video needs today and for many years into the future.

The Industry's Most Significant Products

The Company is best known for the WatchGuard DV-1, the world's only real-time Direct-to-DVD-Video law enforcement in-car video system, which has been the best-selling digital in-car video system of all time. In 2010, the company introduced the WatchGuard 4RE HD Wireless In-Car Video System, the world's first true high definition police in-car video system. 4RE is a revolutionary new system that provides stunning high definition video for all evidentiary recordings, yet requires less total storage space than conventional systems.

Advanced Engineering

WatchGuard Video employs the industry's largest engineering team and has invested about $25 million specifically into the development of digital in-car video systems for law enforcement. The company's engineering team consists of 32 top level engineers and programmers that average 20 years of experience each. We have a wide range of expertise and experience that includes:

- System architecture
- High reliability systems design
- Image processing
- Video encoding/decoding
- Audio encode/decode
- MPEG2/MPEG4/H.264
- High speed data processing
- High speed communication
- Digital signal processing
- FPGA/CPLD designs
- User interface design
- Kernel/driver development
- File system design
- Board design and layout
- Mechanical and industrial design
- Thermal analysis
- Rigorous system validation and testing.

Many members of our team have been awarded numerous patents through their careers. The company continues to invest more into R&D than any other company in this market. WatchGuard Video was recently issued a patent by the US Patent Office for the multiple resolution recording process used in the 4RE HD In-Car Video System. WatchGuard Video currently has 16 patents issued or pending.

Manufactured in the U.S.A.

The company manufactures its products in its 65,000 square foot, state-of-the-art facility located in North Texas. This new two story facility houses all departments including Engineering, Manufacturing, Sales, and Customer Service and it includes an impressive training room, customer installation bay, pristine production space, and even an employee game room and a fitness center.

Dedicated to Serving

WatchGuard Video is founded on Christian principles and the management staff is encouraged to manage their teams by modeling servant-based leadership. The company places an emphasis on developing and exhibiting the individual character qualities that are essential for true success, both personally and professionally. The company also acknowledges that by serving God people are better equipped and empowered to serve each other, which ultimately serves customers more effectively. This highly functional culture creates an environment where employees are fully engaged and customers are served in a manner that instills the highest level of trust, loyalty, and satisfaction.

EXPERIENCE

WatchGuard serves state agencies, local police departments, sheriff's offices, campus police and federal enforcement agencies. WatchGuard has successfully deployed 8 of the 10 largest digital in-car video programs installed to date (including California Highway Patrol and Texas Department of Public Safety). WatchGuard serves some of the largest agencies in the United States, including:

- Pennsylvania State Police
- California Highway Patrol
- Texas Department of Public Safety
- Oklahoma Department of Public Safety
- Minnesota Highway Patrol
- Kansas Highway Patrol
- And several other state agencies

We attribute our success over the years to our commitment to customer service and innovation. WatchGuard continues to gain the trust and confidence of law enforcement agencies throughout the country.

MANAGEMENT STAFF PROFILES

The WatchGuard management and leadership staff is comprised of highly skilled and capable individuals with a dedication to service and quality that demonstrates the overall culture and goals of the company. Each individual brings a wealth of knowledge and experience to the team, and thus makes an invaluable contribution that has led to the continued success of WatchGuard.

Robert Vanman, Chief Executive Officer

Robert Vanman is a successful entrepreneur who has founded two previous companies, the second of which became an Inc. 500 company. He went on to became an owner/partner of Applied Concepts (Stalker Radar) which, under his tenure, grew into the number one police radar manufacturer is the U.S. In 2002, Mr. Vanman sold his interest in Stalker Radar and founded WatchGuard Video. Mr. Vanman is a leader focused on excellence, innovation, and on serving the company's employees and customers. His passion for excellence permeates the entire company; from elegant product designs with remarkable sophistication to passionate customer service that is intended to exceed the customer's expectations. He currently holds 7 patents and has 16 additional patents pending.

Stephen Coffman, **President**

Stephen Coffman brings extensive management success and leadership experience to WatchGuard, having previously served as President of Wasp Barcode Technologies and most recently, as Chief Operating Officer of First Cash Financial Services, Inc. (Nasdaq: FCFS). As a graduate of Texas A&M, Mr. Coffman began his career as a business consultant with Deloitte & Touche. During Mr. Coffman's tenure at Wasp Barcode and First Cash, both companies' revenue and profitability grew significantly under his leadership.

Mark McHenry, Vice President, Service and Support

Mark McHenry comes to WatchGuard Video with a successful 11 year career at Informatics, Inc. While at Informatics he was Product Support Manager using his technical abilities as a Software Engineer and IT Manager to provide the finest Customer Support in their industry. Mark has also developed the models and infrastructure for other Product Support departments at Wasp Technologies US, Wasp Technologies Europe and SystemID Warehouse which are all divisions

of Informatics, Inc. WatchGuard Video was very fortunate to obtain the services of Mark whose dedication to Customer Service is a real passion. He is a passionate customer advocate which is directly aligned with the business philosophy of WatchGuard Video.

Jason Stuczynski, Vice President of Sales

Jason has been in the law enforcement products industry since 1999 where he began working for 911EP, the pioneer of LED warning lights. Between 1999 and 2005, Mr. Stuczynski held the following positions at 911EP, later acquired by Armor Holdings of Jacksonville, FL and later acquired by BAE Systems.

- Production 1999-2000
- Production Supervisor 2000-2001
- Manager of Technical Services 2001
- Production and Technical Services Manager 2002-2003
- Regional Sales Manager (East Coast) 2004-2005

It is during this length of service Mr. Stuczynski realized the unique needs of the law enforcement industry, helping to pioneer the Technical Services division of 911EP. A transition into sales is where Jason began to learn about the deployment realities that exist in a fleet and technical environment. Mr. Stuczynski moved up the ranks at 911EP, eventually transitioning from the St Cloud, MN based factory to the offices at Jacksonville, FL, where he moved into a Regional Sales Position covering the entire East Coast, managing outside sales representatives and working closely with distribution channels.

In the beginning of 2006, Mr. Stuczynski accepted a Regional Sales Manager position with WatchGuard Video, a direct sales and service company. Jason was responsible for the sales initiatives in the State of Florida, where he quickly brought on the first large account for WatchGuard Video, the Collier County Sheriff's Office. This was a 450 unit project deployed over two years. Mr. Stuczynski closely managed this project while maintaining high performance. In late 2007, he re-located to the WatchGuard Video factory in TX, where he accepted the position of Technical Sales Director. Mr. Stuczynski's key roles and responsibilities included bid and RFP responses, contract and project management, as well as

various responsibilities with product management and developm ent. Mr. Stuczynski has personally managed the initial contract and pro duct deployments of the Kansas Highway Patrol, California Highway Patrol and the Georgia Depart ment of Public Safety, and Pennsylvania State Police, in addition to other smaller projects. Mr. Stuczyns ki's valuable contributions, commitment to excellence, and vision for the di rection of the com pany have led him to beco me the Vice President of Sales. In th is position he draws f rom his wea lth of knowledge and experience to guide and direct the Sales effort, as well as help to develop and utilize the talents of his team members.

Ken Teese, Vice President of Global Business Development

Ken Teese brings to WatchGuard Video his experience and background in research, technology, sales, and management. For 23 years he served in domestic and international sectors of the health care industry. Beginning in research engineering, he worked for the largest U.S. hearing instrument manufacturer developing new designs, testing and evaluating new products. He moved into management leading a team of engineers while overseeing both domestic and international product development. He then gained sales experience and played key roles in product strategy while working for a European based company selling sub-miniature acoustic devices and electro-mechanical components both domestically and in collaboration with international colleagues and customers. Ken brings to WatchGuard Video this background of research and understanding of technology along with his experience in sales and management combined with a passion to excel.

Steven Teese, National Sales Director

Steven Teese graduated from the University of Wisconsin with a Degree in Business Administration with a major in Management. He started his career in sales with Carnation, selling to institutions in the Twin Cities market. After three years of sales growth, he transferred companies and went to work for Honeywell, moving to Iowa. Mr. Teese has worked for Honeywell International over 20 years, in a number of different roles, all in the sales arena. Mr. Teese has been a top performer, finishing number 1 in the south, the last two years with them. Also during his 20 years with Honeywell, he has been a manager, a sales trainer, and led four

new product developments that contributed over $30 million in new revenue.

Ted Hajec, Vice President of Operations

Ted Hajec comes to WatchGuard Video with an extensive background in the arena of electronic and technical manufacturing, procurement, and product delivery. Ted's experience spans from AT&T Technologies, Lucent Technologies, Celion Networks, Celestica, and Tyco Electronics in the capacity of Manufacturing Operations Manager to Director of Operations. His formal education includes a Bachelor of Science in Mechanical Engineering and a Master's of Science in Engineering and Global Operations Management. Ted's expertise and experience enhances and compliments the team of professional engineering and producing the WatchGuard Video product line.

David "Russell" Walker, CPA, Chief Financial Officer

Russell Walker joined WatchGuard Video in 2005 with 12 years of experience in a manufacturing environment, with the last 6 years as a controller for a medium sized company. Russell is a Certified Public Accountant who received his undergraduate degree from the University of Texas at Dallas. Russell's broad range of experience in all areas of accounting and finance has given him the ability to manage the financial affairs and banking relationships for WatchGuard Video.

WORK PLAN

Section Contents:

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WORK PLAN

PURPOSE OF THE PLAN

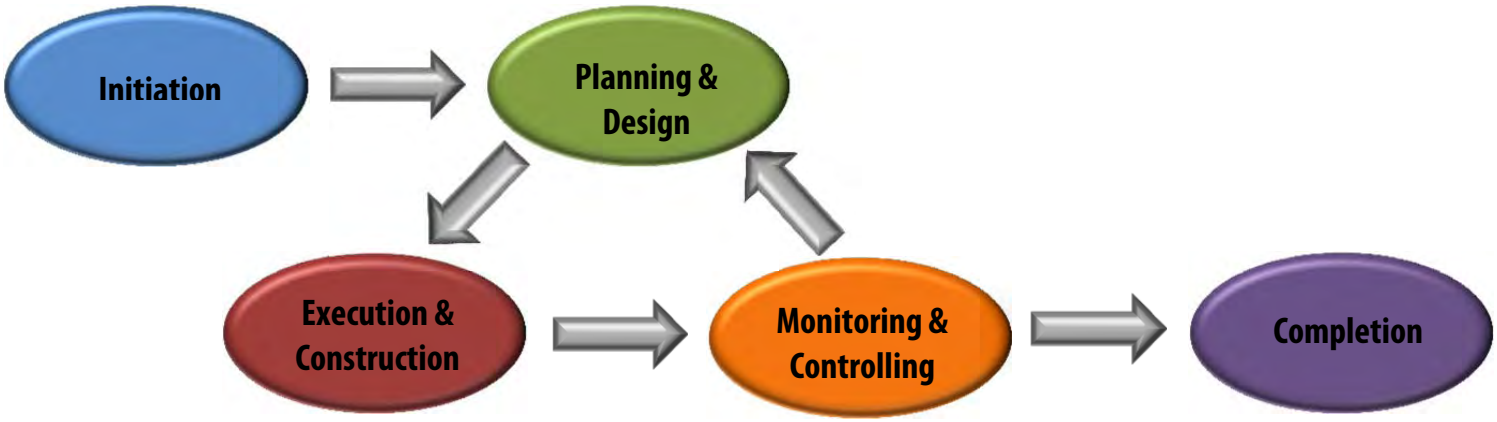
The purpose of the Work Plan is to present the detail required to successfully execute and control the project, facilitate communication among project stakeholders, and document approved schedule baselines. The work plan is a living document and is expected to change over time as more information about the project becomes available. The Work Plan defines the following:

- Project management approach
- Breakdown of work
- Roles and responsibilities
- Project schedule
- System Implementation
- Quality Assurance Method

PROJECT MANAGEMENT APPROACH

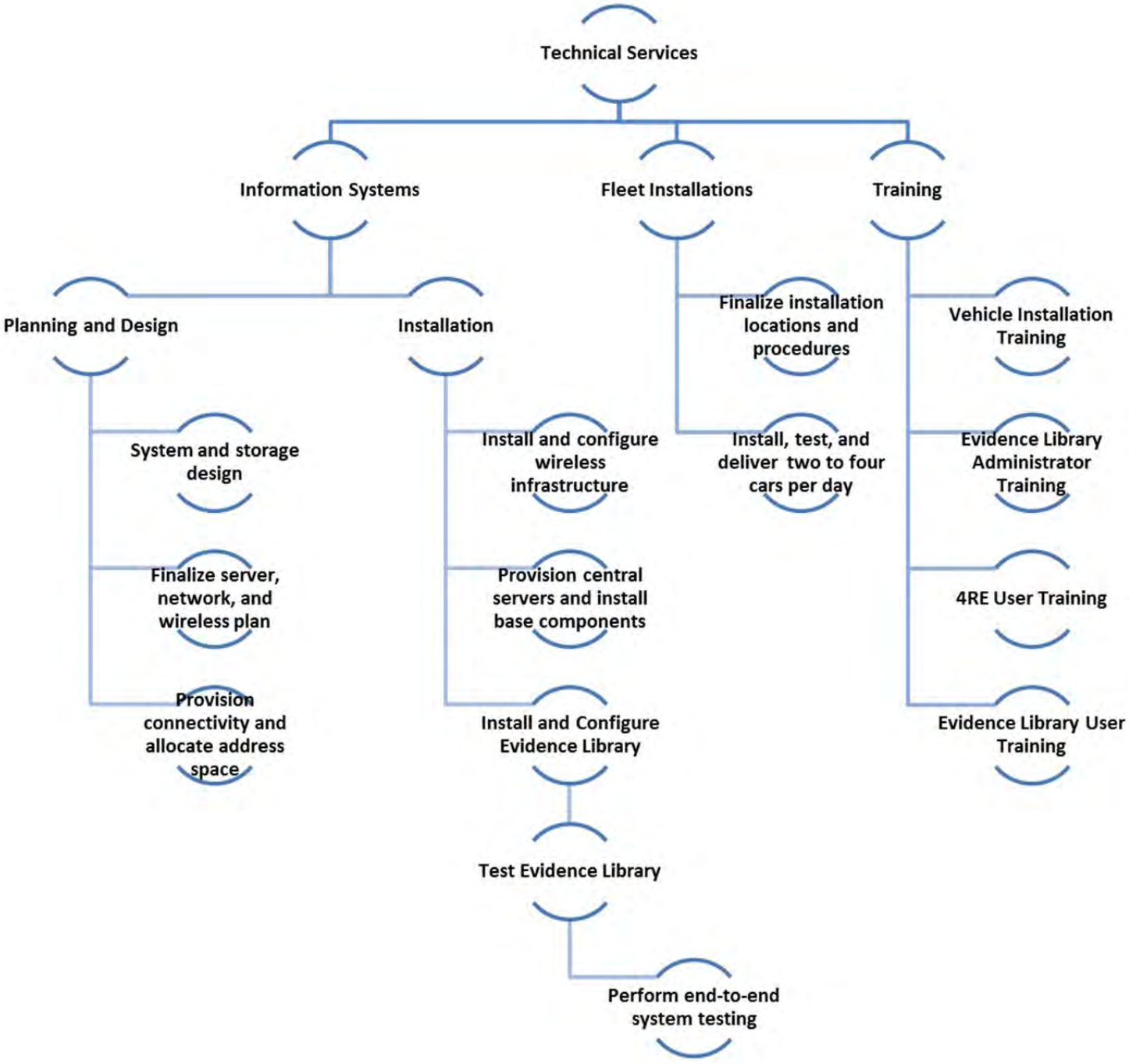
WatchGuard Video uses the Traditional Approach to project management. The traditional approach has five developmental components, which are dominant themes throughout this Project Plan. These components are:

- Initiation
- Planning and Design
- Execution and Construction
- Monitoring and Controlling Systems
- Completion



WORK BREAKDOWN STRUCTURE

The work breakdown structure identifies some of the project's major tasks to provide a framework for organizing and managing the work of the project.



STAFFING PLAN

The purpose of the staffing plan is to make certain the project has sufficient staff with the right skills and experience to ensure a successful project completion.

Role Requirements

The following is a detailed breakdown of the roles required to execute the project. It includes: the project role, the project responsibility of the role, skills required, number of staff required to fulfill the role, the estimated start date and the expected duration the staff resource will be needed on the project**.**

Role	Project Responsibility	Skills Required	Number of Staff Required	Estimated Start Date	Duration Required FY 2013
Project Manager	Lead team, report status	Project Management	1	10/28/13	8 Weeks
Technical Services Team	Review deliverables, assure quality	Project Execution, IT System Implementation	1-2	TBD	1-2 Weeks
City Project Director / Coordinator	Provides needed IT infrastructure information to Technical Services Team	Knowledge of the City's current infrastructure and desired system implementation	1-2	TBD	8 Weeks
Hardware Installer	Installation of hardware	Previous equipment installation experience	2-3	TBD	1-2 Weeks
Review Team	Evaluate deliverables, promote use	Project Management experience	2	TBD	3 Days

SYSTEM IMPLEMENTATION DETAILED DESCRIPTION

This section defines the requirements in terms of tasks to be performed, the end results/deliverables to be achieved, and the key milestones. The following task list is broken down by implementation phase. During execution of this project, there are multiple steps that will happen, some concurrently.

Planning and Design

The planning and design phase will begin after Project Initiation, and will last for a week to two weeks into the project as the work performance site is examined and the final plan is put into place. This phase includes understanding the layout of the Department and designing the solution to fit its individual needs, including placement and number of wireless antennas, running cable, procuring permits if necessary, designing the back-end server system to the custom specifications of the Department, and designing the network topology. The following tasks will be required to compete this phase:

1. Final agreement on how much video will be stored and where it will be stored.
2. Site inspection/survey so that the wireless access point placement and installation may be planned.
3. Meet with IT to plan the network topology, IP addressing requirements, and server naming requirements the Department would like WatchGuard Video to adhere to during deployment.
4. Obtain all system settings and parameters, including: vehicle information, user information, security roles, evidence retention, etc.

Execution – Information Systems and Fleet Installations

All of these steps will be performed onsite by the WatchGuard Video Technical Services team or agency approved subcontractors. Project execution steps include:

1. Server installation and configuration
2. Wireless installation and configuration
3. System Configuration
    a. Install and run the client software locally and from the network.

b. Configure all the system settings and parameters, including: vehicle information, user information, security roles, evidence retention, etc. and export the vehicle configurations to USB for the in-car installers to apply.
c. Install and run clients on any machines the Department specifies and test.

4. In-car hardware installation
    a. Each installer can perform installation at a rate of about two to four vehicles per day.
    b. Department technician training will coincide with system installation.
5. Testing
    a. Begin testing the solution as cars are deployed.
    b. Apply any updates or fixes as necessary.
    c. Deliver the solution to the Department.
    d. After the Department is up and running, close monitoring of the solution will begin and will last for several days.

Training and Handoff

The training and handoff phase of implementation will last approximately two days depending on how the Department wants to structure training class attendance.

1. Training

    Standard Training Classes Offered:

    - 4RE User Training – Training of Department staff will take place onsite as needed for the in-car user experience and will take approximately 1 to 2 hours per class.
        - Who should attend: End-Users / Officers
    - 4RE Administrative Training – This classroom based comprehensive training includes in-car user, administrative functions, troubleshooting, and Evidence Library configuration and management. The training will consume an entire day and can be section off, if needed by the Department, to isolate certain areas for certain users.
        - Who should attend: Supervisors and Administrative staff responsible for Evidence Library.

- Evidence Library User Training – This video or classroom based training is intended to train users to search for and produce evidence.
    - Who should attend: Administrative staff / Prosecutors as appropriate

2. Delivery – After successful completion of the solution, it will be handed off to the Department.
3. Support
    a. Once the Department has taken over the day to day use of the in-car video and evidence management solution, WatchGuard Video will begin the support phase. In this phase we will provide ongoing support to the Department as needed. Support types include:
        - 24/7 Telephone Support
        - Remote Access (If approved by the Department)
        - Onsite (Additional fees may apply)
    b. A WatchGuard representative will follow-up with the Department on the 3rd, 30th, 45th, and 60th days after delivery.

End Results/Deliverables

This section describes the products and tangible end results that the Department can expect from each task contained in the previous section. The following table provides a listing of the required deliverables by task. The table includes the task number, end result/deliverable, and the corresponding milestone.

Task	End Result/Deliverable	Milestone
2.0	Complete Solution Design and Project Plan Document	Planning and Design Phase Complete
3.0 - 4.0	Installed and fully operational in-car video and evidence management system.	Execution Phase Complete
5.0	Full agency understanding and use of in-car video and evidence management system.	Training and Handoff Phase Complete

Project Reports and Updates

WatchGuard Video will maintain a single project schedule from which various project reports shall be produced. The following reports shall be provided:

1. Updated projected project timeline based on initial planning meetings and site inspection / survey.
    - This report will be provided by the WatchGuard Video Project Manager at the end of the Planning and Design phase of implementation. It will be maintained, updated, and edited as needed throughout the project. All changes in the timeline will be communicated to the Department.
2. Weekly status updates.
    - Weekly status updates will be given to the Department by the WatchGuard Video Project Manager. These reports will be communicated through written and verbal correspondence, such as email and telephone conversations. Formal documents will be prepared upon request by the Department.
3. Follow-up survey and satisfaction evaluation.
    - This follow-up report will be done after the Training and Handoff Phase of the project. Based on the Department's satisfaction level, additional action may be taken.

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SERVICE AND SUPPORT

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SERIVCE AND SUPPORT

If WatchGuard Video is the selected vendor for this project, we would like to enter into a long-term relationship with the Department. The service and support of our products extends past the initial implementation to the day to day care and maintenance for years after the initial sale.

WatchGuard Video does things differently by offering continuous support throughout the implementation of our system and for the life of the project. WatchGuard Video representatives are available 24 hours per day, seven days a week to answer questions and assist with technical issues. This means that throughout this transition to the WatchGuard 4RE system, the agency will always be able to reach a domestic support representative. WatchGuard Video values our customers and we demonstrate this by having a growing team of professionals constantly available to meet the needs of our customers. While others may limit this availability or charge for use of this resource, **the WatchGuard Video help desk is available to all customers for the life of their products at no additional cost to the agency**.

The Customer Service and Technical Support Department is made up of three distinct groups. The first is the Customer Service Support Team. This group of Customer Service Representatives primarily answers in-bound calls and requests for service, and they are accessible 24 hours per day. They specialize in troubleshooting, resolving issues, and answering the technical support questions of law enforcement officers and third party installers.

The second group is the Technical Services Team. This group primarily works with large agency deployments and IT related projects. Their main focus is ensuring successful deployments, knowledge sharing, user training, service training, and onsite support and technical service. This group has successfully handled all of the WatchGuard State Agency deployments and continually manages close relationships with all of them. They are available to customers 24 hours a day, seven days a week; and will travel to a particular site when necessary.

Repair and Returns is the third group that customers work with. Their responsibility is to manage all warrantied and non-warrantied part and component repairs and replacements. Their goal is to

quickly and efficiently handle any equipment problems and provide temporary loaner units so that agencies experience as little system downtime as possible.
WatchGuard only employs the best representatives who share the company commitment and passion for excellent service and support. All representatives are qualified and experienced professionals who strive to maintain the company's position as number one in the industry for customer service and support.

WatchGuard Video views quality customer service and support as the most important function of the organization. As a company we have a strong passion for providing thorough, efficient, and fast customer service. WatchGuard continually strives to have the best service team in the industry, and to ensure this we make our representatives available to the more than 5,000 agencies we serve 24 hours a day, seven day a week. A domestic service representative can be reached at any time by dialing our toll free phone support number - (866) 384-8567. Service requests can also be made on our website, www.WatchGuardVideo.com on the "Support" page. The WatchGuard repair facility is located in our headquarters at:

WatchGuard Video
Attention: Customer Service
415 Century Parkway
Allen, TX 75013

COST PROPOSAL

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SOLUTION COST BREAKDOWN

REQUIRED ITEMS

These items were specified in the request for bids and/or are required for system operation.

Item #	Description	Qty.	Unit Price	Extended Price
PATROL VEHICLE IN-CAR HARDWARE				
1	4RE HIGH DEFINITION IN-CAR VIDEO SYSTEM *Includes:* *HD Zero Sightline Front Camera* *Separate Back Seat Camera* *Integrated GPS* *Crash detection* *DVR with integrated 200GB drive* *16GB USB drive* *4.3" touch screen remote display control panel* *Cabin microphone* *Hi-Fi Wireless microphone kit* *All mounting hardware and cabling and accessories needed for installation* *1-Year warranty on ALL in-car components (See Warranty and Maintenance section)* *Shipping and Handling*	65	$4,355.00	$283,075.00
2	4RE IN-CAR 802.11n WIRELESS KIT, 5GHz *Includes: Radio, Antenna, PoE, 2-10' Ethernet Cables)*	65	$190.00	$12,350.00
3	4RE AUXILIARY CAMERA, ADDITIONAL	1	$195.00	$195.00
4	HI-FI MICROPHONE TRANSMITTER, ADDITIONAL	1	$345.00	$345.00
5	HI-FI MICROPHONE DESKTOP CHARGER KIT	1	$90.00	$90.00
6	4RE AUXILIARY CAMERA, ADDITIONAL	1	$195.00	$195.00
7	VISTA WEARABLE CAMERA, EXTENDED CAPACITY	1	$895.00	$895.00
	Patrol Vehicle In-Car Hardware Total			**$297,145.00**
BACK OFFICE SOFTWARE				
8	4RE SERVER SOFTWARE, EL3 *Includes: 5 Clients and 1 year of Software Protection.*	1	$3,660.00	$3,660.00
9	4RE CLIENT SOFTWARE, EL3, ADDITIONAL COPIES		$70.00	$0.00
	Back Office Software and Hardware Total			**$3,660.00**
EXTENDED WARRANTIES AND MAINTENANCE				
10	WARRANTY, 4RE, IN-CAR, 2ND YEAR (MONTHS 13-24)	65	$100.00	$6,500.00
11	WARRANTY, 4RE, IN-CAR, 3RD YEAR (MONTHS 25-36)		$200.00	$0.00
12	WARRANTY, 4RE, IN-CAR, 4TH YEAR (MONTHS 37-48)		$325.00	$0.00
13	WARRANTY, 4RE, IN-CAR, 5TH YEAR (MONTHS 49-60)		$450.00	$0.00
14	SOFTWARE PROTECTION, EL, ADDL. 2ND YEAR (PER 4RE)	65	$95.00	$6,175.00
15	SOFTWARE PROTECTION, EL, ADDL. 3RD YEAR (PER 4RE)		$95.00	$0.00
16	SOFTWARE PROTECTION, EL, ADDL. 4TH YEAR (PER 4RE)		$95.00	$0.00
17	SOFTWARE PROTECTION, EL, ADDL. 5TH YEAR (PER 4RE)		$95.00	$0.00
	Extended Warranties and Maintenance Total			**$12,675.00**
IMPLEMENTATION SERVICES				
18	4RE SYSTEM INSTALLATION, IN-CAR (PER UNIT)	65	$400.00	$26,000.00
19	VIDEO SYSTEM REMOVAL, IN-CAR (PER UNIT)	65	$100.00	$6,500.00
20	SYSTEM CONFIGURATION *Includes:* *Configuration services per location* *WG Technical Services on-site installing and configuring* *Evidence Library, Remote Client, and SQL database* *Programming all access points and available DVR units* *End-to-end system testing* *Training for: in-car hardware end users, back office software users, and system administrators*	1	$2,500.00	$2,500.00
	Implementation Services Total			**$35,000.00**
	4RE SOLUTION TOTAL			**$348,480.00**

Price does not include applicable Sales Tax

LIMITED IN-CAR HARDWARE WARRANTY

WatchGuard Video, in recognition of its responsibility to provide quality systems, components, and workmanship, warrants each system, part, and component it manufactures first sold to an end user to be free from defects in material and workmanship for a period of **ONE-YEAR** from the date of purchase. A defective component that is repaired or replaced under this limited warranty will be covered for the remainder of the original warranty period. Where defects in material or workmanship may occur, the following warranty terms and conditions apply:

WARRANTOR – This warranty is granted by WatchGuard Video, 415 Century Parkway, Allen, TX 75013, Telephone: 972-423-9777, Facsimile: 972-423-9778.

PARTIES TO WHOM WARRANTY IS INTENDED – This warranty extends to the original end user of the equipment only and is not transferable. Any exceptions must be approved in writing from WatchGuard Video.

PARTS AND COMPONENTS COVERED – All parts and components and repair labor of the warranted unit manufactured and/or installed by WatchGuard Video are covered by this warranty, except those parts and components excluded below.

PARTS AND COMPONENTS NOT COVERED – The Limited Warranty excludes normal wear-and-tear items such as frayed or broken cords, broken connectors, and scratched or broken displays. WatchGuard reserves the right to charge for damages resulting from abuse, improper installation, or extraordinary environmental damage (including damages caused by spilled liquids) to the unit during the warranty period at rates normally charged for repairing such units not covered under the Limited Warranty. In cases where potential charges would be incurred due to said damages, the agency submitting the system for repairs will be notified. Altered, damaged, or removed serial numbers results in voiding this Limited Warranty. If while under the warranty period, it is determined that the WatchGuard Video system was internally changed, modified, or repair attempted, the system warranty will become null and void.

LIMITED LIABILITY – WatchGuard Video's liability is limited to the repair or replacement of components found to be defective by WatchGuard Video. WatchGuard Video will not be liable for any direct, indirect, consequential, or incidental damages arising out of the use of or inability to use the system even if the unit proved to be defective. WatchGuard Video will not be responsible for any removal or re-installation cost of the unit or for damages caused by improper installation.

REMEDY – If, within the duration of this warranty, a unit or component covered by this warranty is returned to WatchGuard Video and proves to be defective in material or workmanship, WatchGuard Video shall (at its option) repair or replace any defective components or offer a full refund of the purchase price . Replacement of a defective component(s) pursuant to this warranty shall be warranted for the remainder of the warranty period applicable to the system warranty period.

SHIPPING – During the first ninety (90) days of the initial warranty period, WatchGuard Video will provide a prepaid shipping label to return any defective unit for end users in the continental United States provided serial numbers are submitted with request. In such event, contact WatchGuard's Customer Service Department to request a return material authorization (RMA) number. Failure to obtain and use a WatchGuard Video prepaid shipping label in the first ninety days (90) on the return shipment will result in the end user being responsible for shipping costs to WatchGuard Video. After the first ninety (90) days, the end user will be responsible for any shipping charges to WatchGuard Video. WatchGuard Video will return ship the product to a customer within the continental United States by prepaid ground shipping only. Any expedited shipping costs are the responsibility of the end user.

Customers that are outside the continental United States will be responsible for all transportation costs both to and from WatchGuard Video's factory for warranty service, including without limitation to any export or import fees, duties, tariffs, or any other related fees that may be incurred during transportation.

You may also obtain warranty service by contacting your local WatchGuard Authorized Service Center (ASC) for shipping instructions. A list of local ASCs may be obtained by contacting WatchGuard's Customer Service Department. Customers will be responsible for all transportation costs to and from the local ASC for warranty service.

EXTENDED WARRANTY – Extended Warranties may be purchased directly from WatchGuard Video. Any and all extended warranties must be purchased prior to the expiration of any previous warranty. Failure to purchase an extended warranty prior to the expiration of the warranty period will require the covered unit to be physically inspected at the facility of the manufacturer and any repairs necessary to bring the unit back to full working order must be performed prior to the issuance of any new warranty. The customer will be responsible for the cost of the inspection (equal to 1 hour of labor) plus the standard costs associated with any required repairs. Should you have any further questions regarding the WatchGuard Video limited warranty, please direct them to:

WatchGuard Video
Attn: Customer Service Department
415 Century Parkway
Allen, Texas 75013
(800) 605-6734 Toll Free Main Phone
(866) 384-8567 Toll Free Queued Customer Service
(972) 423-9777 Main
(972) 423-9778 Fax
www.watchguardvideo.com
support@watchguardvideo.com

EVIDENCE LIBRARY SOFTWARE PROTECTION PLAN

TERMS AND CONDITIONS

Your WatchGuard Software Protection Plan for Evidence Library (herein referred to as the "Software Protection Plan") is governed by these Terms and Conditions and constitutes your contract with WatchGuard as described below. Subject to these Terms and Conditions,

(i) The Evidence Library Software ("Covered Software") first sold to an end user is guaranteed to be free from defects in material or workmanship for the duration of the Coverage Period.

(ii) The Software Protection Plan provides you with access to telephone technical support and web-based support resources for the Covered Software.

(iii) The Software Protection Plan provides you with access to software service packs and minor software updates,

The Software Protection Plan can be extended beyond the first year for years 2-5 provided payment for the annual Software Protection Plan for each year is made to WatchGuard prior to the end of the Coverage Period. The Software Protection Plan must be carried consecutively without any lapses in yearly coverage across the entire fleet of vehicles in which a 4RE unit was purchased. WatchGuard will track the serial numbers of each 4RE unit and associate coverage with the Software Protection Plan respectively. All 4RE In-Car and 4RE IT related hardware is excluded under the Software Protection Plan.

The duration of the Software Protection Plan ("Coverage Period") is for the period specified in the Coverage Period on the preceding page. WatchGuard may restrict service provided under this Software Protection Plan to the Covered Software's original country of purchase.

Service Options:

(i) Remote Service which includes call center, on-line chat, email, will call, and remote desktop service, is provided free of charge for the Coverage Period. In instances where remote desktop capability is accessible, WatchGuard will make every reasonable effort to provide a solution remotely.

(ii) On-Site Technical Service must be scheduled in advance and is available at a minimum daily rate. Contact WatchGuard for further information regarding rates and availability.

TECHNICAL SUPPORT

Telephone and Web Support.

During the Coverage Period WatchGuard will provide you with access to telephone technical support and web-based technical support resources. Technical support may include assistance with installation, launch, configuration, troubleshooting, recovery, interpreting system error messages, and determining when hardware repairs are required. WatchGuard will provide technical support for the Covered Software including software applications that are installed by WatchGuard or an Authorized Service Center. WatchGuard will provide support for the then-current version of the software.

Support Limitations.

The Software Protection Plan does not cover:

(i) Issues that could be resolved by upgrading the software to the then-current version.

(ii) Your use of or modification to the Covered Software in a manner for which the Covered Software is not intended to be used or modified.

(iii) Third-party products or their effects on or interactions with the Covered Software.

(iv) Your use of a computer or operating system that is unrelated to Covered Software

(v) Connectivity issues with the Covered Software over networks not built or supported by WatchGuard.

(vi) Covered Software that has been deleted or uninstalled.

(vii) Preventative maintenance on the Covered Software.

(viii) Damage to, or loss of, any software or data residing or recorded on the same computer as the Covered Software. The contents of the hard drive may be deleted in the course of service. WatchGuard may install system software updates as part of your service that will prevent the software from reverting to an earlier version. Reinstallation of software programs and user data are not covered under this Plan.

(ix) IT hardware and software which includes, but is not limited to, servers, computers, DVD burners, NAS, SAN, or JBOD online storage devices, uninterruptable power supplies, building mounted wireless access points, antennas, and all related brackets and mounting hardware ("IT Equipment").

(x) On-Site technical service.

(xi) Problems caused by the function of a network or viruses or other software problems introduced into the Covered Software or computer the Covered Software is running on.

(xii) Except as specifically provided herein, any other damages that do not arise from defects in materials and workmanship or ordinary and customary usage of the Covered Software.

Any Incident deemed out of scope as defined in this Software Protection Plan or any incident that occurs while no Software Protection Plan Agreement is in place, shall be subject to additional fees and/or charges. The Customer will be quoted applicable charges and rates prior to any service(s) being performed. Approved service(s) will commence upon receipt of a purchase order.

Obtaining Technical Support

You may obtain technical support by calling the telephone number listed below. The Customer Service Representative will provide you technical support.

YOUR RESPONSIBILITY

To receive service or support under the Plan, you agree to comply with the following:

(i) Provide your agency name and serial number (if required) of the Covered Software.

(ii) Provide information about the symptoms and causes of the problems with the Covered Software.

(iii) Respond to requests for information, including but not limited to the associated serial number of Covered Software, version, model, IT hardware, and software including operating system and database software, third-party software installed, any peripherals devices connected or installed with the Covered Software, any error messages displayed, actions taken before the Covered Software experienced the issue and steps taken to resolve the issue.

(iv) Update software to currently published releases prior to seeking service.

(v) You shall maintain all IT Equipment related to or required by the Covered Software. Any incident arising from inadequate maintenance of these systems shall be subject to additional per incident charges

(vi) Any changes to the hardware or software environment for both the Covered Software and IT Equipment made by Customer that results in any degradation in performance will be the responsibility of you including any related costs to correct the issue. Changes include, but are not limited to, in-car installation resulting in a non-approved installation, damaged or misalignment of wireless antennas caused by the customer or weather, untrimmed trees or added obstacles that degrade wireless signal strength, added vehicles without regard for adding additional wireless access points that results in degraded performance, adding or changing video storage locations in an improper manner, adding or updating server software without the approval of WatchGuard, changes to the 4RE related network topology or architecture without consultation of WatchGuard.

GENERAL TERMS

(i) WatchGuard may subcontract or assign performance of its obligations to third-parties but will not be relieved of its obligations to you in doing so.

(ii) WatchGuard is not responsible for any failures or delays in performing under the Plan that are due to events outside WatchGuard's reasonable control.

(iii) This Plan is offered and valid only in the United States of America. This Plan may not be available in all states, and is not available where prohibited by law.

(iv) In carrying out its obligations WatchGuard may, at its discretion and solely for the purposes of monitoring the quality of WatchGuard's response, record part or all of the calls between you and WatchGuard.

(v) WatchGuard is not obligated to renew the Software Protection Plan after termination. If a new Software Protection Plan is offered, WatchGuard will determine the price and terms.

LIMITATION OF LIABILITY

EXCEPT FOR THE LIMITED WARRANTIES AND REMEDIES CONTAINED HEREIN, THIS PRODUCT IS PROVIDED ON AN "AS IS" BASIS, WITHOUT ANY OTHER WARRANTIES OR CONDITIONS, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABLE QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR THOSE ARISING BY LAW, STATUTE, USAGE OF TRADE, OR COURSE OF DEALING.

NEITHER WATCHGUARD NOR ITS DEALERS OR SUPPLIERS WILL HAVE ANY LIABILITY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO, LOSS OF REVENUE OR PROFIT, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT, EVEN IF WATCHGUARD HAS BEEN ADVISED OF THE POSSIBLITIY OF SUCH DAMAGES, OR THEY ARE FORESEEABLE. WATCHGUARD IS ALSO NOT RESPONSIBLE FOR CLAIMS BY A THIRD PARTY. WATCHGUARD'S MAXIMUM AGGREGATE LIABILITY TO YOU, AND THAT OF ITS DEALERS AND SUPPLIERS, SHALL NOT EXCEED THE AMOUNT PAID BY YOU FOR THIS PRODUCT AS EVIDENCED BY YOUR PURCHASE RECEIPT.

This limited warranty gives you specific legal rights. You may also have other rights that may vary from state to state or from country to country. You are advised to consult applicable state or country laws for a full determination of your rights.

SUPPORT CONTACT INFORMATION

WatchGuard Video

Attn: Customer Service Department

415 Century Parkway

Allen, Texas 75013

(800) 605-6734 Toll Free Main Phone

(866) 384-8567 Toll Free Queued Customer Service

(972) 423-9777 Main

(972) 423-9778 Fax

www.watchguardvideo.com

support@watchguardvideo.com

4RE SOLUTION DESCRIPTION

Section Contents:

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4RE SOLUTION DESCRIPTION

INTRODUCTION

The WatchGuard solution has all of the necessary components and features of the typical server solution, such as: record triggers, audio and video feed from multiple sources, wireless transfer capabilities, and back office management software. But basic components such as these are where the similarities between WatchGuard products and other systems stop.

WatchGuard Video has designed and engineered a complete video server solution from the ground up that addresses the problems that plague the implementations of other solutions. Many challenges such as: wireless uploads, file sizes, video quality, and expensive storage space are areas where most solutions fall short or where compromises or sacrifices have to be made by agencies because of budget constraints.

WatchGuard Video has invested nearly $10 million dollars on the Research and Development efforts associated with the 4RE HD Digital In-Car Video System to address and correct a lot of issues typically associated with server solutions, as well as add innovative features and capabilities to improve the overall quality and user experience of the system. Each component of the 4RE system has been designed, extensively tested, and improved upon by WatchGuard Video engineers and our customers. The 4RE DVR, for example, is a technology that has been refined and improved over the past several years in order for it to be the sophisticated, reliable, and low maintenance product it is today.

4RE is the in-car component that Officers will interface with every day. 4RE is built small, lightweight, rugged, user-friendly, and requires minimal Officer interaction. The system has automotive grade components that feature a sturdy over molded construction which increases durability as well as occupant safety. Further adding to the robustness of the system, all vital connections are locking connectors that have been thoroughly tested in this environment.

UNIQUE FEATURES AND FUNCTIONALITY

True High Definition Video

The 4RE system gives agencies the ability to record their critical evidence in true High Definition. The technology behind the system allows this to be done responsibly with respect to files sizes and storage requirements necessary to support the high definition video. This is achieved through multiple resolution recording. The forward facing camera has the ability to record video in high definition and at a standard resolution simultaneously. On recordings that turn out to be important or considered evidentiary, the HD version is stored. Routine recordings, which generally make up about 90% of all recorded video, are stored at the standard resolution. The differentiation between the two types of video is completely automated and configured through the back-end software using agency defined Event Tags. Customizable Event Tags can be configured to control which recordings are stored in high definition, and they can also instruct the back-end software to retain evidentiary recordings longer. At the end of a recording, Officers simply select an event category, and the pre-configured agency policies determine the rest.

Record-After-The-Fact™

The 4RE system has a dual drive architecture. The first drive is a 64GB solid state drive (200GB hard drives also available) that is constantly buffering video, even if the system is not actively recording. The second drive is a removable 16GB USB flash drive. When the 4RE system is triggered to record, the events are automatically stored on the flash drive as well as the hard drive. This gives the Department a very secure and redundant way to store video. 4RE's unique dual drive architecture makes our patent pending, Record-After-The-Fact feature possible. Most video systems are able to have pre and post event recording, which adds about 60 to 120 seconds on to the front or back of a recorded event. Record-After-The-Fact however, literally gives the Department the ability to go back in time to recover video that was not initially recorded. This revolutionary feature has enabled agencies to avoid countless lawsuits. It has also helped solve hundreds of criminal cases, including murders and robberies that no other in-car video system would have captured.

Advanced Compression Technology

The 4RE system is the first in-car video system to use the most advanced video compression technology available, H.264 High Profile (HP). The H.264 HP technology creates files that are up to 40% smaller than video captured at equivalent qualities using simpler forms of H.264. At equivalent video qualities, older MPEG-4 systems create files that are more than 100% larger than H.264HP. H.264 HP Technology leverages a highly intelligent video compression algorithm to render video at much higher quality using the same data rate. It can also render video at the same quality using a much lower data rate.

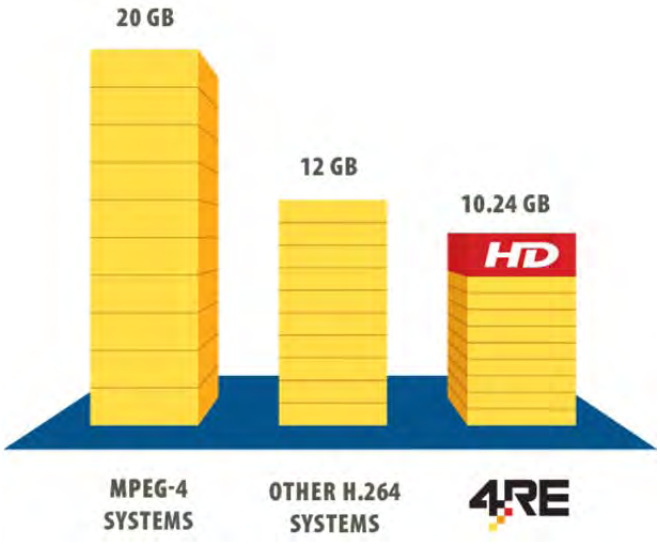
The combination of the multiple resolution recording and the H.264HP technologies make high definition video an available option to the Department without increasing file sizes, eliminating the need for additional storage beyond what any other video server system would require.

STORAGE FOR 10 HOURS OF VIDEO
(10% Tagged as Evidentiary)

MPEG-4 SYSTEMS
10 Hours Standard Resolution (D1) @ 2.0 GB/Hr. = **20GB**

OTHER H.264 SYSTEMS
10 Hours Standard Resolution (D1) @ 1.2 GB/Hr. = **12GB**

WATCHGUARD 4RE HD
9 Hours Standard Resolution (D1) at 0.8GB/Hr. = **7.92GB**
1 Hour High Definition (720p) @ 2.32 GB/Hr. = **2.32 GB**
TOTAL = 10.24 GB



Superior Video Quality

Just like High Definition television, 4RE records video in a 16:9 wide screen aspect ratio (versus conventional 4:3 ratio where the image area is almost square). This wide screen aspect ratio is the ideal format for in-car video systems because it wastes fewer pixels on the sky and the vehicle's hood – a full 25 percent fewer wasted pixels. Not only does this provide a better view, it reduces file sizes and increases transfer speeds.

With 720p resolution, the 4RE system provides license plate legibility up to 38 feet away even at the widest able zoom level. Most conventional systems are limited to approximately 18 feet, and systems that tout a 68-degree lens often cannot read plates much beyond the length of the hood.

ACTUAL 4RE HD SCREEN SHOT

IN-CAR HARDWARE COMPONENTS

4RE consists of the following components:

- Touch Screen Graphical User Interface
  - 4RE Remote Display Control Panel features a 4.3" LED backlit touch screen. The user interface that is throughout the in-car experience is intuitive and easy to navigate, when needed.
  - Nearly all of the functions that an Officer will interact with on a daily basis are hardware keys laid out along the Control Panel. Preferences such as brightness and volume are also at the push of a button. Preferences are remembered each time the Officer starts their 4RE system.

- High Definition Front Camera
  - 4RE is available with the first HD camera in the in-car video market, which is capable of recording resolutions up to 1280x720.

- Back Seat Camera
  - The 4RE system will include a compact, full color back seat camera with infrared illumination for back seat recording in zero light conditions.

- DVR with Dual Drive Architecture
  - 4RE uses an advanced dual drive architecture that provides redundancy and the ability to recover video that was not previously recorded. The first drive is an integrated drive. This drive may be a 64GB solid state drive or a 200GB automotive grade hard drive. 4RE buffers video and audio (when audio is active) to this drive any time the system is powered up.
  - 4RE also includes a removable 16GB USB flash drive that is secured behind a locking door. All recorded events are copied to this USB drive, giving the Department a redundant means with which to transfer video. If the USB drive were ever used to transfer video, 4RE is still maintaining that video on its integrated hard drive. If that USB drive became damaged or lost 4RE is still

protecting its copy in the car. The DVR will protect that video on the integrated hard drive until it receives secure confirmation from the server that the event has been uploaded.

- High Fidelity Wireless Microphone System
  - The WatchGuard High Fidelity (Hi-Fi) Wireless Microphone is has superior quality and design. Rubber over-molded construction protections it from harsh environmental conditions and accidental dropping. In addition to the Hi-Fi microphones rugged design, it has superior performance and quality. The Hi-Fi microphone is designed around high powered industrial radio modem technology instead of the cordless telephone technology used by nearly every other wireless microphone in the in-car video industry.
  - Other features include:
    - Near CD Quality High Fidelity Sound
    - Audio Range - 200 – 12K Hz (vs. 200 – 4K Hz)
    - Line of Sight Range – 1 to 2 Miles (vs. 1,200 ft)
    - Superior Building Penetration Performance
    - Battery Life (Lithium Polymer iPod Battery)
    - Typical Talk Time – 24 Hrs (vs. 12 Hrs)
    - Typical Standby time – 30 Days (vs. 12 Hrs)
    - Charge Time – 2.5 Hours
    - LCD Status Display
    - Robust Duty Belt Clip and Rotatable Alligator Clip

- Cabin Microphone
  - Each system includes an internal cabin microphone that records on a separate sound audio channel from the wireless microphone system when activated. This microphone is amplified in order to clearly pick-up even the faintest of conversations. Additionally, this microphone is wired and extendable so that it may be installed in an optimal location for any type of vehicle.
- Wireless Radio, Antenna, Power over Ethernet Injector

CAMERA OPTIONS

Ultra-WDR Camera Technology

Both of the cameras described below utilize a dual-exposure Ultra-Wide Dynamic Range (WDR) technology that dramatically improves video quality in nighttime video and difficult lighting situations. For every frame of video, the camera actually takes two separate images, a dark exposure and a light exposure. The camera then automatically blends the two images into a single video frame. The result is an ideally exposed picture that keeps bright areas from being over-exposed and keeps darker areas from turning black.

HD Mini Zoom Camera Specifications

The HD Mini Zoom camera has backlit controls for auto-zoom, zoom in, zoom out, auto-focus, focus far, focus near, back light compensation, and night view mode. All camera controls are also accessible using the system's touch screen control panel.

- Dual-Exposure, Ultra-WDR Technology
- 720p HD Resolution (1280x720)
- 16:9 Aspect Ratio
- 57 Degree Wide Field of View
- 12x Optical Zoom
- Large Format, Dual-Exposure CMOS Sensor
- F1.6 Optics, 0.82 LUX Full Color

ZSL (Zero Sightline) Camera Specifications

The ZSL camera has no interference with an officer's line of sight while driving. Smaller than a smartphone, this camera tucks neatly behind the rearview mirror. The ZSL camera uses Wide Dynamic Range to handle difficult lighting conditions dramatically better than standard camera technology. All camera controls are accessible using the system's touch screen control panel.

- Dual-Exposure, Ultra-WDR Technology
- 720p HD Resolution (1280x720)
- 16:9 Aspect Ratio
- 68 Degree Wide Field of View
- Large Format, Dual-Exposure CMOS Sensor
- F1.7 Optics, 0.85 LUX Full Color

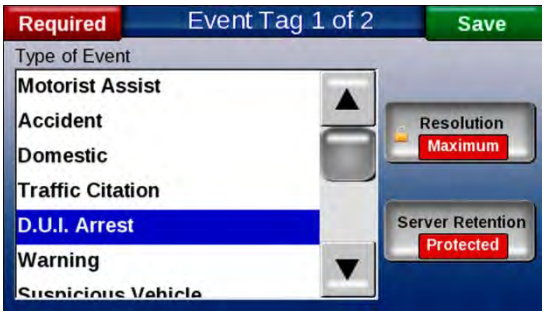
SIMPLE OPERATION

4RE, typically, is set up to turn itself on with the ignition of the vehicle. This is configurable by the Department. While powered on, there is also a setting that would prohibit manually turning off the system while the ignition is on. Anytime during a record event, 4RE will not respond to any power down commands in order to protect the recording that is in progress.

4RE will also power itself down upon the ignition being turned off (unless in an active record event). At the moment the ignition initiates a power down, 4RE executes two separate shutdown timers that are configured by the Department:

1. Shutdown Timer – This is a period of time that the Department specifies that the 4RE system will remain on before it actually powers itself down. During this timer the system is fully operational.
2. Wireless Timer – This timer allows 4RE to remain in a lower power state for a period of time set by the agency in order to allow the continued transferring of video to the server. This timer also allows a firmware upgrade to complete in the background without any Officer involvement.

During operation, Officers have only a couple tasks they are required to do to use 4RE. At a minimum, they will need to manually stop each recording when they are finished. The second task that will be (likely) required is for the Officer to answer one (or more) event categorization questions after the recording. This can be as simple as choosing from "Evidentiary" and "Routine" or a bit more specific for the Department with customizable answers such as, "Arrest," "Citation," "Warning," "DUI," etc. These categorizations also later drive the retention period of the video as well as the resolution that the recording is kept in. No other interaction is required by the Officer.



Tactical Features

Throughout the shift, Officers may choose to take advantage of some of the tactical features of 4RE. Some of these features include:

- Dark Mode
  - This allows the Officers to quickly disable all the LED indicators and LCD monitor for completely dark situations.
- Covert Mode
  - A function that involves the Officer holding the ON button for three seconds. To the untrained eye, it will look as if the system has been turned off. In reality both cameras, inside and out are automatically activated and both microphones are automatically activated while the entire system has gone black.
- Event Override Buttons
  - If the Department chooses, they may display Event Override Buttons to the Officer at the point when they are choosing the Event Category. The Officer may be given the ability to classify an event and then update that event's "Server Retention" policy to, "Protected." When this event makes its way to the server, its "Protected" state will cause it to be ignored by the automatic purging and archiving routines, leaving it on the server indefinitely.

OTHER SYSTEM FEATURES

Optional MDC Application

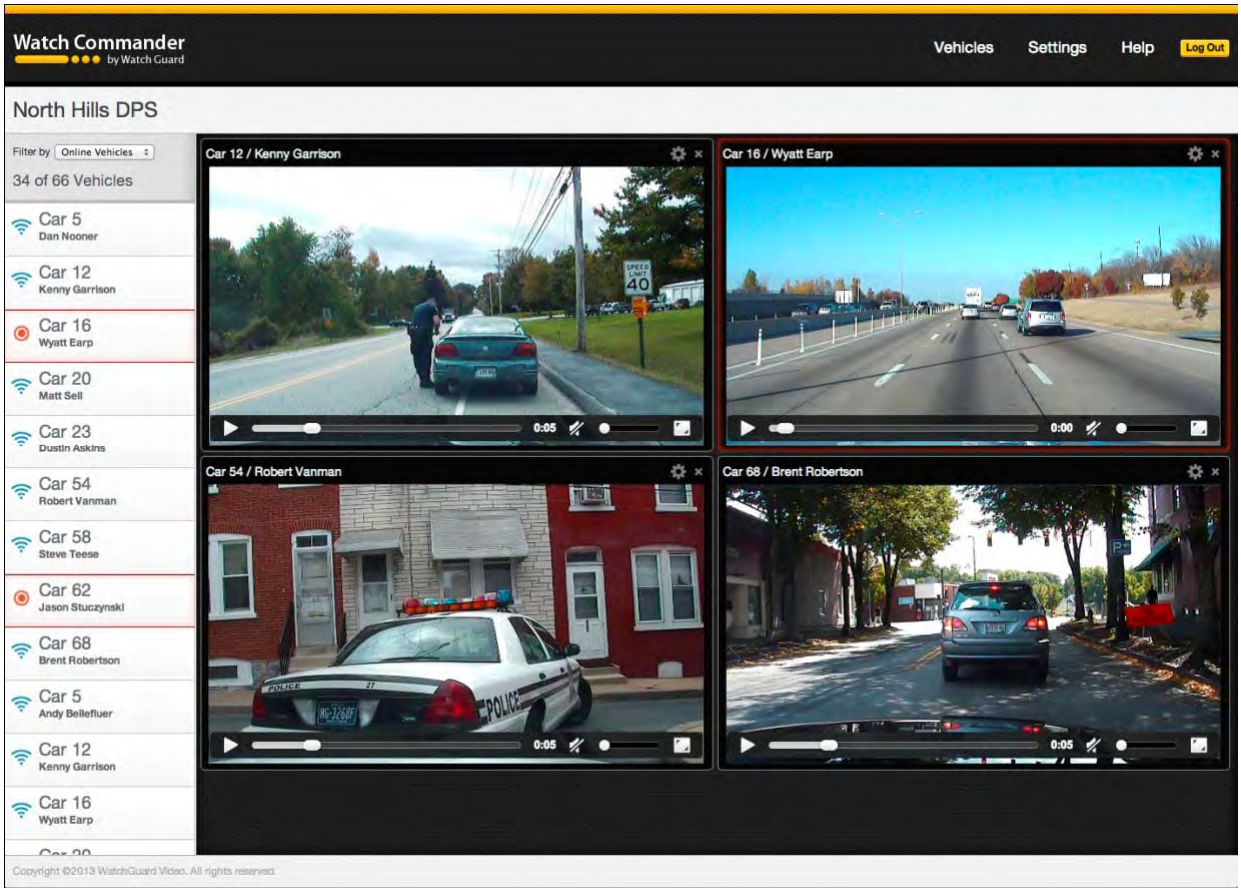
The 4RE Mobile App is a simple interface for the tasks that Officers need as they go about their duties with an in-car video system (see screen shot below). The Mobile App runs on Windows XP and Windows 7 (32 and 64 bit) and interfaces with the 4RE DVR via an Ethernet connection. The Mobile App is merely an interface and does not leverage the MDC for any of 4RE's CPU intensive video processing. Furthermore, the Mobile App also works in conjunction with the 4.3" touch screen control panel, allowing 4RE to have full functionality when the MDC is not present, or not functioning. With both functional, Officers may choose to interface with the Control Panel and/or the Mobile App at their convenience.

Optional Live Video Streaming

The 4RE system supports Live Video Streaming through WatchGuard Video's Watch-Commander Application. 4RE can create and output additional video streams that are optimized for live video streaming applications (by using lower resolutions and frame rates) without sacrificing any of the high resolution streams that are recorded on the sold state drives. All that is required for the live video streaming is: an internet connection in the car via a Mobile Access Router (MAR), or a 3G/4G air card; and EL3 evidence management software in the back office.

The Watch-Commander Live Video Streaming application enables agencies to have instant live access to all wirelessly connected 4RE systems. It is a web-based multi-cast application that can be accessed on any workstation or smartphone (iPhone, iPad, Droid, etc.) with the appropriate permissions.

When Live Video Streaming is initiated for a vehicle, the 4RE system in the vehicle will give an audible tone and an icon will appear on the display. Users may select any connected camera to view, even if it is not currently being used in the vehicle. Live video streaming does not have an impact on what the vehicle operator sees, or on an in-progress recording. Vehicle information such as: GPS coordinates, speed, emergency light status, etc. are displayed with the video in the Watch-Commander application. Users may also listen to audio from the wireless or cabin microphones if they are active.


Watch Commander
by Watch Guard
Vehicles
Settings
Help
Log Out
North Hills DPS
Filter by Online Vehicles
34 of 66 Vehicles
Car 5
Dan Nooner
Car 12
Kenny Garrison
Car 16
Wyatt Earp
Car 20
Matt Sell
Car 23
Dustin Askins
Car 54
Robert Vanman
Car 58
Steve Teese
Car 62
Jason Stuczynski
Car 68
Brent Robertson
Car 5
Andy Bellefluer
Car 12
Kenny Garrison
Car 16
Wyatt Earp
Car 12 / Kenny Garrison
0:05
Car 16 / Wyatt Earp
0:00
Car 54 / Robert Vanman
0:05
Car 68 / Brent Robertson
0:05
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EVIDENCE LIBRARY VIDEO MANAGEMENT SOFTWARE

Introduction

The heart and soul of this solution is the back office software, Evidence Library 3 (EL3), a back-end server platform which utilizes sophisticated Microsoft SQL Server 2008 databases. EL3 provides advanced file management, a graphical search engine, and a feature rich media player. This software was not developed by a third party. WatchGuard Video engineers designed this software from the ground up to have all of the functionality, features, and the customization options necessary to ensure that law enforcement agencies have a useful tool that they can use to protect, search, copy, and create reports for their video evidence.

Features and Functionality

Graphical Search Engine – Simple searches are performed live on the Quick Search bar. The Advanced Search function allows for building and saving complex searches using multiple fields, with both specific values or across ranges in a graphical environment. For example, a search could easily be created to find any recordings in the last 60 days tagged as "Traffic" or "Other", with a radar target speed of 55 MPH or higher, that occurred within 1.25 miles of a specific GPS location.

Media Player with Timeline Graphing – The built-in media player includes a graphical video of the dynamic metadata. Users can visually spot when lights, siren, or brakes were activated during the event timeline or view the patrol speed graph to quickly find moments of interest. Snapshot and copy/export functions are built into the player, including the ability to burn DVDs or convert file formats.

Convenient Export Video Player – Evidence Library makes it easy to share video with attorneys and prepare videos for court. An embedded player can be included during file export which enables any PC to play the video files without the need to install any software on any machine use to play the video.

Case Management – Case Management allows the ability for case "container" creation and content management. With this feature, users may associate one or more 4RE recordings with a

case, as well as other general user files such as: PDFs, spreadsheets, reports, videos from 3rd party systems, audio recordings, still pictures, drawings, etc.

Security Management – The Security Management module of EL3 houses all of the user information, permissions and group level security settings. User of the system must include any person who will be logging into the client or operating an in-car 4RE system. After the users are entered into the system (Active Directory integration available) User Groups are created that give a specific set of permissions, or claims. Users are then added into User Groups based on the level of access to the system needed. Based upon the Department's desire for certain users to perform certain tasks, groups may be dynamically created for nearly any circumstance the Department envisions.

What Action The Claim Allows

Claim Name	Login	Search for Un-Restricted Recorded Events	Review and Play Un-Restricted Record Events	Mark a Record Event as Restricted	Search for Restricted Recorded Events	Review and Play Restricted Record Events	Un-Restrict a Record Event	Edit Record Event Tags, Officer Name	Import Record Event	Export Record Events	Printing Record Event Data	Setup Users, Groups and Permission Levels	Fleet Management Access	Restore Events from Archive to Online Storage	Evidence Management Access	Audit Log Review	Able to Appear in the In-Car Officer List	Granted In-Car Supervisor Permissions	Create and Manage Case Artifacts	Allows the Viewing of Case Artifacts	Grants Access to Watch Commander
User	Yes	My	My																		
Enhanced Search		All																			
Enhanced Search and Review		All	All																		
Enable Restricted Access				Yes*																	
Search and Review Restricted Events				Yes*	Yes	Yes	Yes														
Edit Record Event Properties								Yes*													
Import									Yes												
Export										Yes*	Yes*										
User Security Management												Yes									
Fleet Management													Yes								
Archive Restore														Yes							
Evidence Management															Yes						
Review Detailed Audit																Yes					
In-Car Officer																	Yes				
In-Car Officer and Supervisor																	Yes	Yes			
Case Management																			Yes	Yes	
Case Worker																			My	My	
Enhanced Case Worker																				Yes	
Live Video Streaming																					Yes
Admninistrator	Yes	All	All	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes

*** = Assumes other claims have allowed you access to the given event.**

Fleet Management - This section of the client is where all of the 4RE DVRs are provisioned and settings are applied. Evidence Library supports a very capable Fleet Management section that includes group level configurations, automatic configuration updates wirelessly to the vehicles, manual USB configurations, and wireless firmware upgrades that are automatically sent to the DVRs. Fleet Management is also where all the various policy and system settings are configured including the Event Categorization. Fleet Management consists of four major parts:

- Department Information

- These settings include Department Name, Units of Measure, The IP address of the Application Server, and the Admin Password that is used in all cars.

- All Vehicles
  - This is the section that will hold all of the vehicle information for the Department's In-Car Camera equipped cars. After a vehicle is created, it may then be assigned to a configuration, which is a set of unique settings that will be applied to all the vehicles assigned to the configuration.
  - Once a vehicle is in your Fleet, upon its first upload it will then begin to track this vehicle's DVR, its current firmware version and current configuration status. Any out-of-date vehicles or vehicles that are not assigned to any configurations will be noted on the list of vehicles.
- All Officers
  - The All Officers section will show a global list of all the users who have either the "In-Car Officer" or "In Car Officer and Supervisor" claims. It will also show what Configurations the Officers are assigned to. Essentially, any configuration that an Officer is assigned to means that this Officer's name will appear in the list of Officer Names when logging into the DVR. From this screen, multiple Officers may be selected and quickly assigned to an existing configuration.
- Configurations
  - A configuration is a set of DVR policies and settings.
  - A configuration contains a unique set of vehicles assigned to it.
  - Multiple configurations may be created.
  - Within a configuration lies 4 different sections:
    1. Assigned Vehicles
    2. Assigned Officers
    3. Recording Properties - All of the Recording settings are configured in this area. Recording properties affect the Front and Cabin cameras, Event Override Controls, Auto Start Record Triggers, and Additional Recording time.

4. DVR Behavior - The final area of the configuration is the DVR Behavior. This is where most policy settings are made. A summary of the types of settings in the area are:
    - Time Zone
    - Officer permissions to change settings
    - The video review permission level
    - Radar Settings
    - GPS Settings
    - Metadata Settings
    - Power on and off behaviors
    - Shutdown timers
    - On-screen text management
    - Microphone settings

- Event Tag Configuration
    - For each configuration, the Department may designate which event tags should be prompted in the car after the Officer stops the recording. Event tags may be created for the sole purpose of back office use, and therefore not applied in the car. Creating and editing the Event Tags is done globally using either a wizard or by manually creating them. Event tags may be any of the following formats:
        1. List of answers
        2. Alphanumeric input
        3. Numeric input
    - There is not a limit as to how many tags may be created. In the car, only six event tags are allowed to be presented to the Officer. After event tags are created they may be added to any configuration. One event tag is hard-coded into Evidence Library; Event Category. This list may be modified but the Event Category will drive other sections of the solution, such as Evidence Retention.

Configurations are deployed wirelessly to the DVRs, but initial configuration will be over USB. These configurations will be handed over to the installer who will apply the appropriate

configuration to the appropriate vehicle. Once complete, the DVR will have all the information it needs to begin talking to the server and retrieve any future updates wirelessly. During configuration, this feature may be enabled and disabled globally, or for specific vehicles, should the Department require. When firmware upgrades are available, this same area will allow the file to be handed over to the server and any cars that do not have it, will receive it automatically the next time they transfer video.

Email Notification for Storage Alerts – This feature enables email system integration with EL3. This will allow the user to setup various storage alerts, such as: single disc storage threshold violations, storage location rollover, and storage location out of space. Users will also be able to manage the notification list and the alert message content.

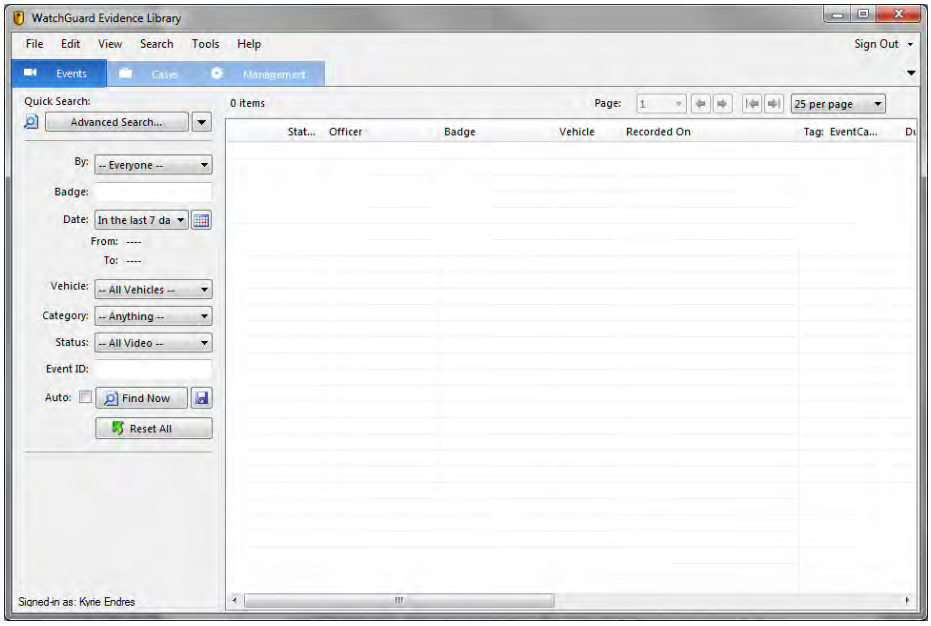
Evidence Management – Rules are created in this section of EL3 that determine how long video is kept before it is either deleted or archived. This section leverages the Event Category that was selected in the car or later identified in the client. For each Event Category listed, the Department is allowed to specify an action that is performed and at what interval it is performed. Both the retention period and the action performed on the event are choices left up to the Department.

The next configuration related to Data Cleanup is how the Department wants the Data Cleanup procedure to run. It may be set to run on a schedule automatically or manually at times initiated by a user with Evidence Management permissions. Regardless of when and how it runs, Data Cleanup will run through the entire list of retention rules and perform the actions necessary across the entire solution.

EL3 CLIENT APPLICATION

The EL3 Client Application can be installed on any workstation specified by the Department. It will run on Windows XP and Windows 7 (32 and 64 bit). All tasks, from searching and viewing, to provisioning vehicles, are performed in this application.

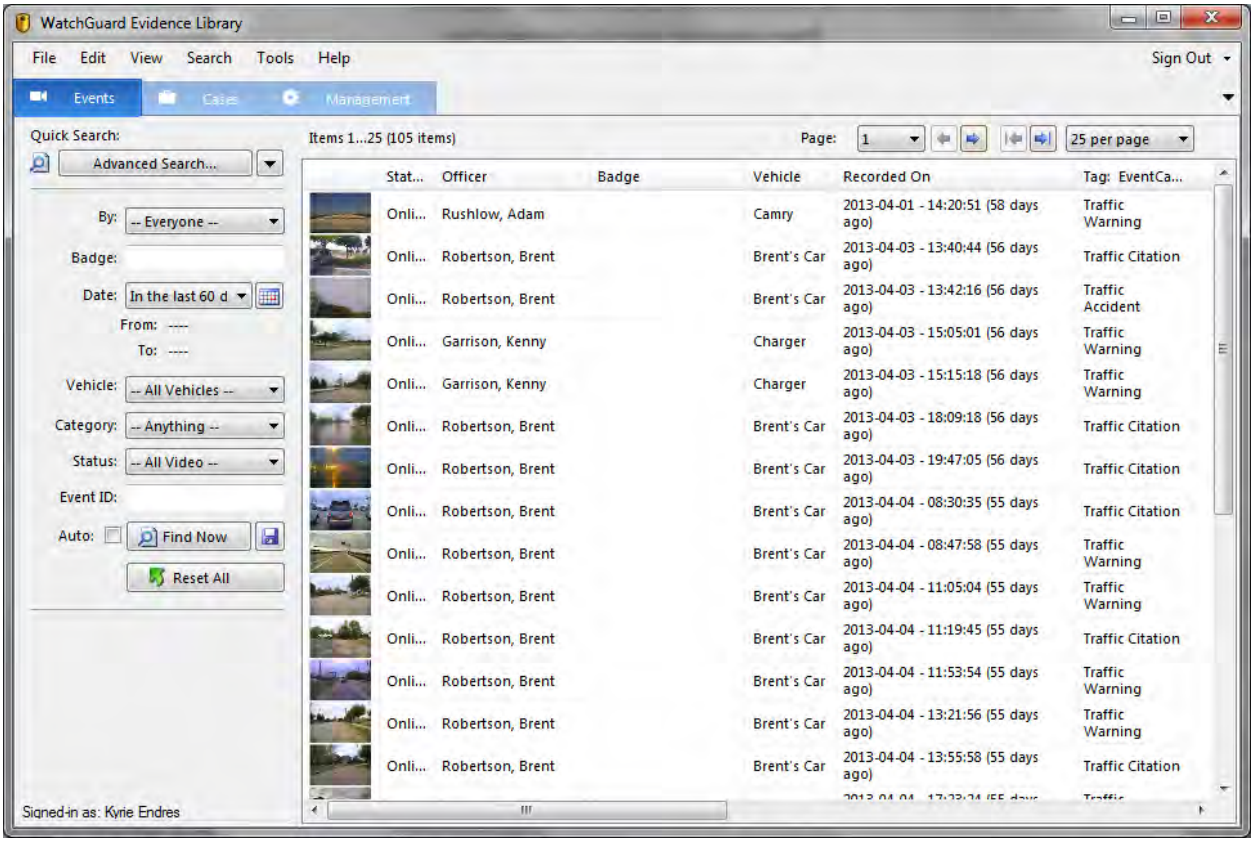
Main Application Window



The user is first brought to the Quick Search screen, where most of the searching will take place. This screen has the most common searching fields that will satisfy most of the user level requests for video. From here, searching for record events can be done by the following criteria:

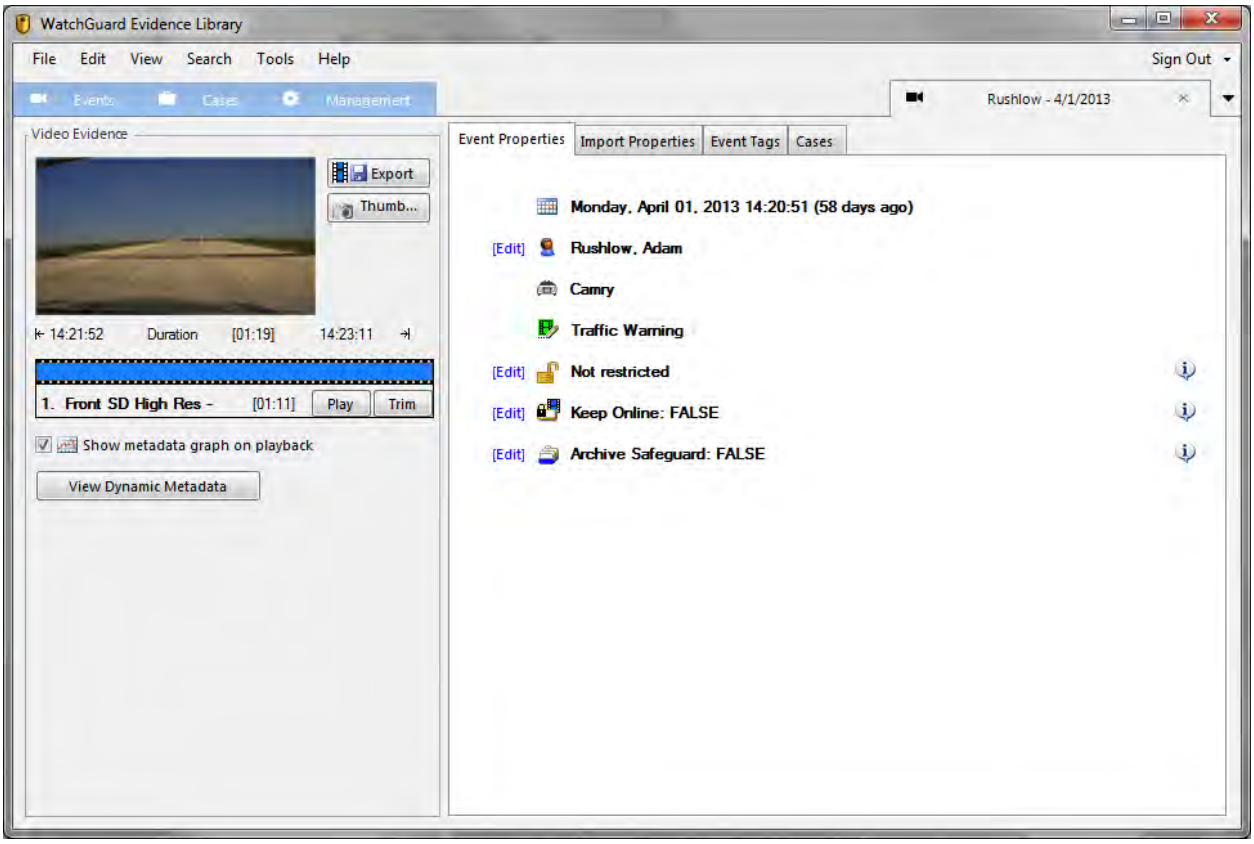
- Recorded By - Allows the user to select the Officer's name who recorded the video event. Typing in this box will index the list to that starting point to make searching easier.
- Badge – If the department configures the users with a Badge ID, or another form of identification, this may be searched on as well.
- Date – A date range from the drop down list or a specific date or range may be quickly selected here. This is the Recorded On Date.
- Vehicle – This will allow searching for events by Vehicle ID
- Category – This narrows the search by the Event Category. These are the event categories specified by the department prior to deployment.

- Status – This allows the user to search for Online Video only, Archive Video only, or All Video.
- Event ID – Later, you will see that each Record Event has a unique Event ID. This may be searched for fast access to a specific event.



When the search is run, the user is shown a list of results. A thumbnail image of each recording is also included. Double clicking any of the events will open that event's Record Event Properties.

Record Event Properties



The Record Event Properties reveals all of the details of the record event. The items in this view are as follows:

- The Video Section (left)
  - Here, the user sees the thumbnail image of the video with a graphical representation of how what video is available for this event. Above, you'll see that both the Front Camera and Cabin Camera both recorded during this event. The user may select either of these to begin playing
  - Below, a checkbox indicates that when the video is played, that the player will show the Metadata Graph.
  - Near the thumbnail, the user can Burn this event to DVD, Export the Event (to a file system) and grab a snapshot of the thumbnail in JPEG format that can be saved onto the computer or any other location.
- Event Properties (top right – first tab)
- The event properties section shows the following information:

- Recorded on Date
- Officer Name
- Vehicle ID
- Event Category
- Restricted Access - This is a great feature of 4RE. This attribute, when set, will restrict and to only those few users who have been granted specific permission to view Restricted Events. This feature stemmed from incidents when high-profile recording were leaked from agencies, or simply watched by too many people. In the User Security, there is a permission for setting this attribute to Restricted and a separate permission for reviewing Restricted Video. For example, the department may dictate policy that requires Sergeants to set high profile events (such as celebrity encounters) to Restricted but only allow Captains and up to actually Review and Un-Restrict the Event.
- Keep Online – This attribute will effectively hide this event from the automated purging and archiving process so the event, despite its Event Category, does not get removed from the database. When we explained the In-Car ability to allow Officers to set the "Server Retention" to "Protected," this is the attribute they are affecting.
- Archive Safeguard – This attribute ensures that the event is archived during Data Cleanup, even if its Event Category would have normally caused it to be deleted.

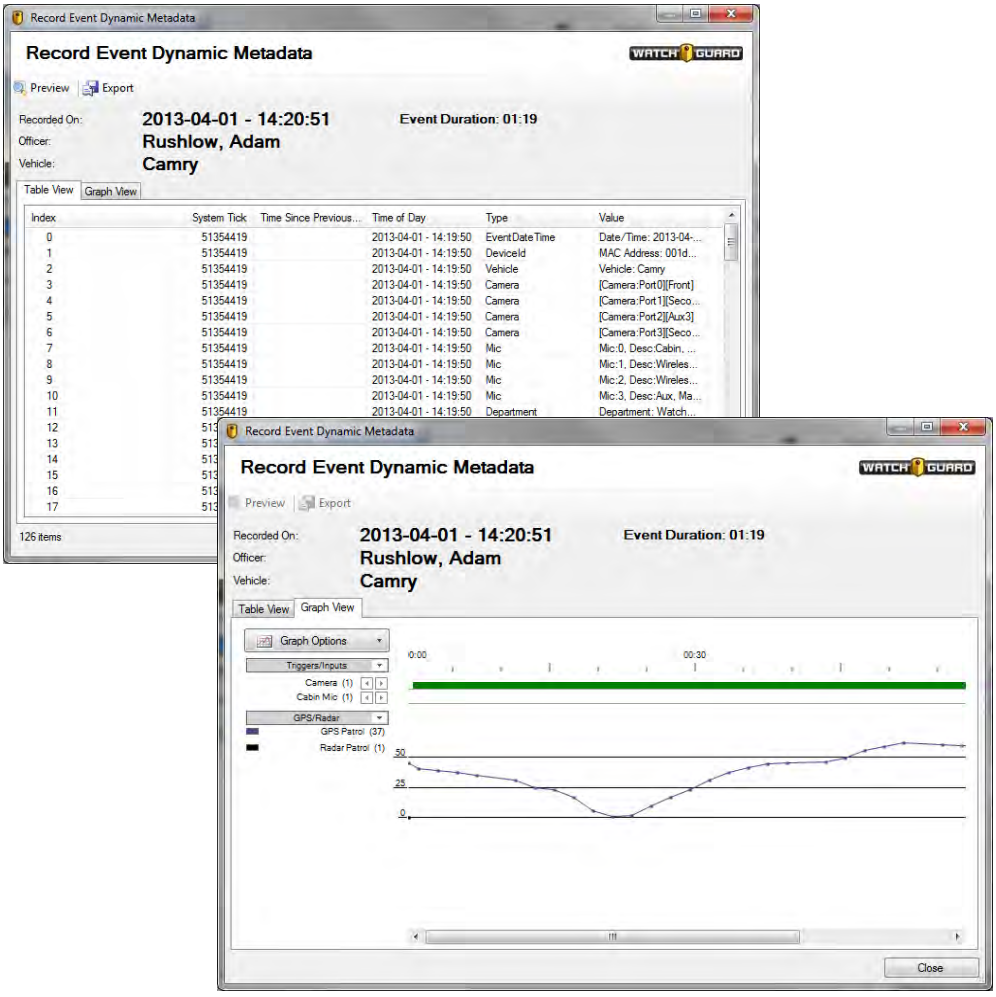
➢ Import Properties (second tab)
  - The Import Properties tab shows all of the details about the event related to import such as date of import, how it was imported, the event ID, etc.

➢ Event Tags (third tab)
  - The Event Tags tab shows all of the various Event Tags and Categorizations that the agency has defined. Some of these are setup to be answered in the car by the Officer, and some may be setup for use here, on the client, for adding additional information to the Event which may later be searched and queried.

➢ Cases (fourth tab)
  - This tab allows the user (with proper permissions) to add the record event to a new case folder or and existing case folder.

- Video Dynamic Metadata
  - This is a very powerful reporting and investigative tool that prints, in tabular form, all of the Static and Dynamic Metadata that was recorded for each event and the precise moment that the metadata was recorded. This report allows both a tabular and graphical view of the event.

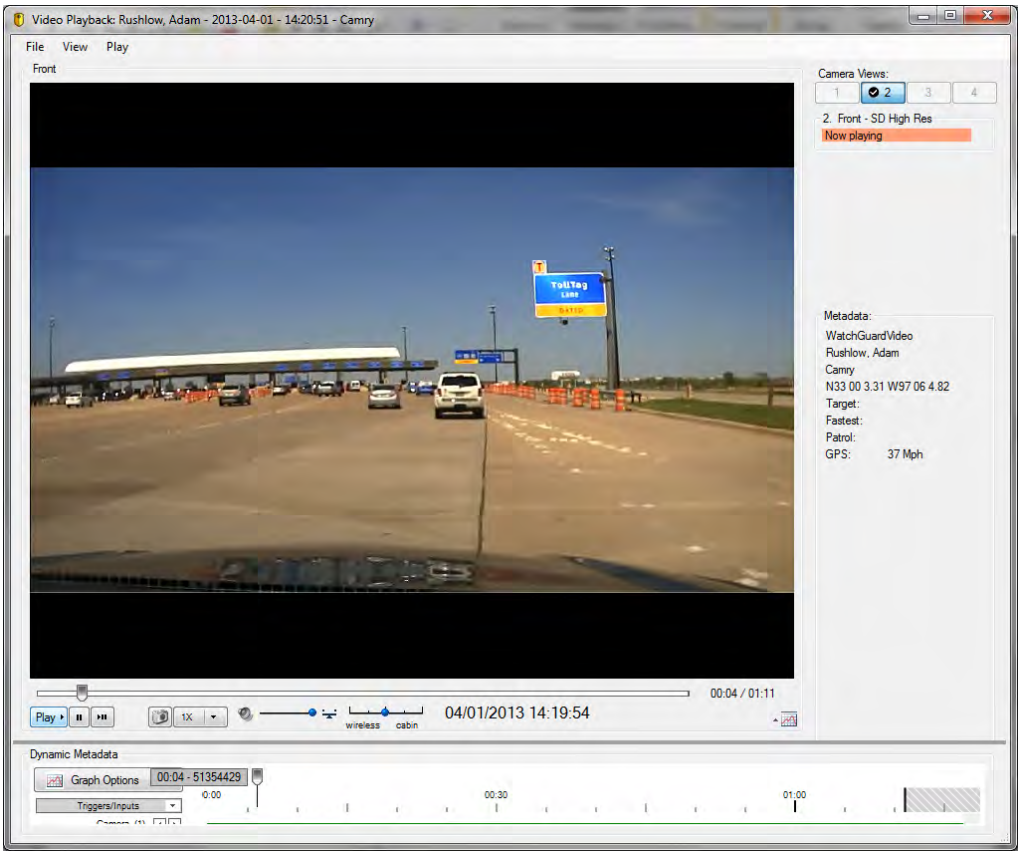
Tabular View



Graphical View

Playback Window

Pushing 'Play' in the record event properties window will open the playback window for the event.



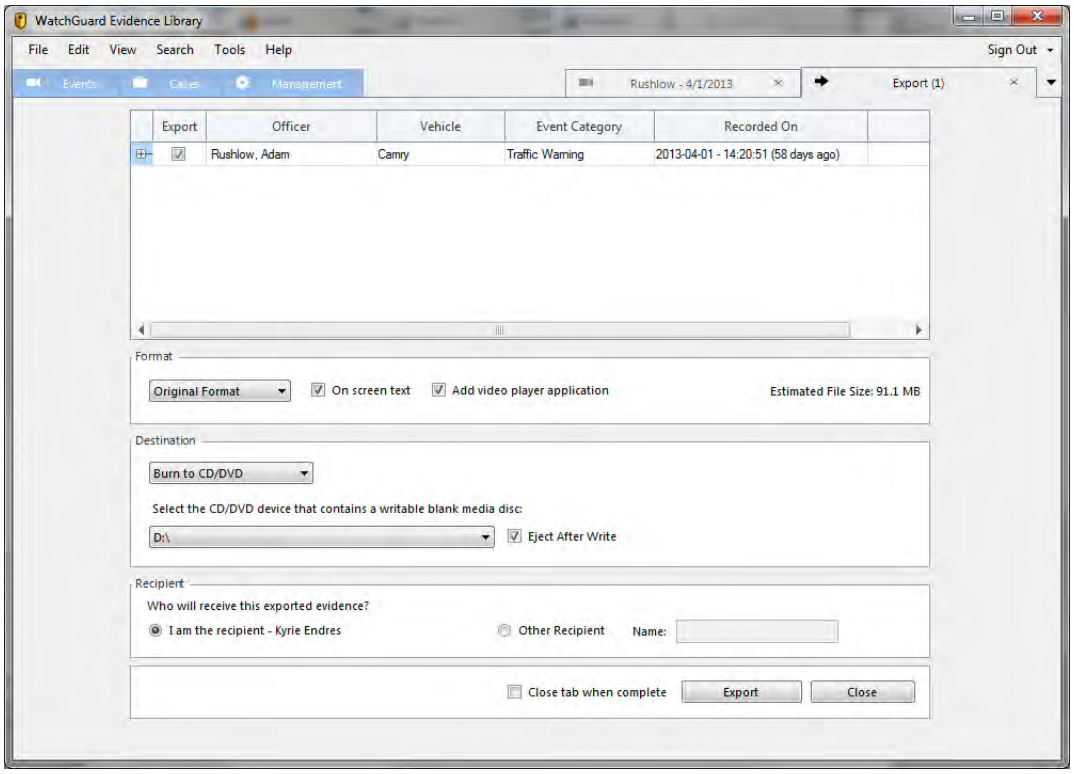
After launching the player, the playback window begins the process of streaming the event to the client. This streaming protocol allows playback to initiate prior to the event being fully downloaded by the client. As the screenshot above shows, the user is allowed to view the dynamic metadata graph, which shows a full representation of the event's triggers and speeds throughout the entire event. Using navigation arrows next to each trigger, the user can quickly skip to upcoming occurrences of the event. Full playback controls are included along with a snapshot feature that allows saving of JPEG images of the video.

If multiple camera views are available, the use can toggle to that video from the playback window.

Exporting Video

Exporting video is done from the Record Event Properties window of a given event. The user has the option of burning the event to a DVD (or CD if space allows) in a data format or to a file system, such as a USB drive or portable hard drive. The original video format may also be changed to: DVD Video, MPEG2, WMV, MP4, or AVI. Exporting video is fully IACP compliant and includes the following:

- Choice of whether to include both camera views or a single camera view
- Choice of adding a portable WatchGuard player to the exported files.
  - This player may be run completely from the media it is located on. Nothing has to be extracted or installed on the local machine that is accessing the exported media. This player allows full subtitles to display all metadata for courtroom presentation, as well as the ability to snapshot portions of the video for closer examination.
- The exported information contains all of the video, metadata, player (if specified) and audit information showing every transaction that has taken place for this record event since it was first imported, including the results of all file hashing along the way.

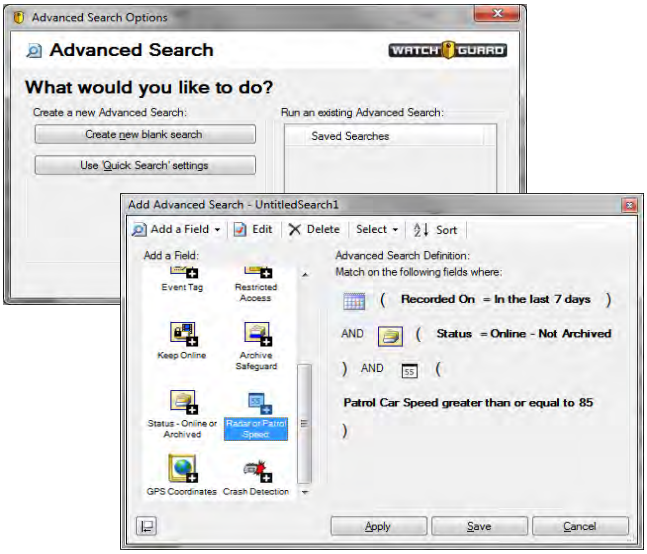


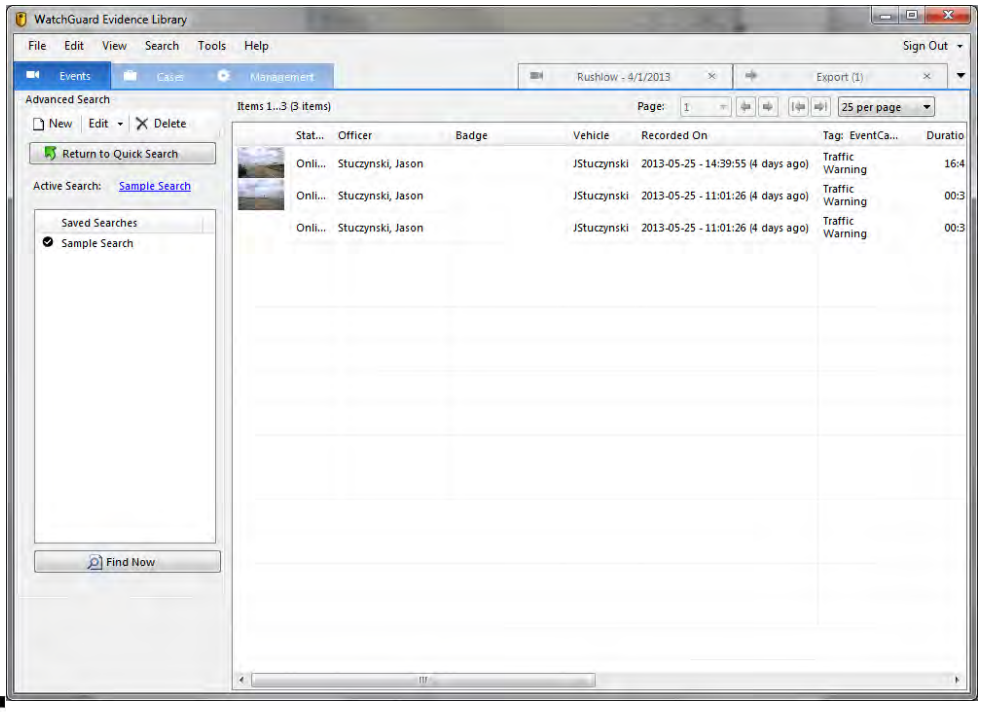
EL3 also has the capability to do Export Disc Spanning. If an export job will not fit on a single optical disc, EL3 will programmatically split and fix-up TS files to occupy the necessary amount of discs to complete the export process. All resulting discs will be playable with the included Export Player on each disc, if requested by the user.

An Optical Disc Robot may also be integrated into the system. Any EL3 export can be sent to the optical disc robot, which will be able to queue and process multiple burning jobs for all EL Client users. The robot will automatically label each disc created and give it a unique ID. The robot will also be able to make multiple copies of the same disc or spanned disc set, including DVD Video discs and discs containing converted file types. Entire cases can be exported to the robot and the robot will span as many discs necessary to burn all case files.

Advanced Searching and Reporting

EL3 includes an advanced, but easy-to-use reporting and searching section called Advanced Search. It is in this area that more complex searches may be created and saved. For example, detailed GPS radius searches, patrol speed searches, radar speed searches, and relative time searches may be saved for constant access to a particular type of event that has happened x days ago. It is in this area that searches will be saved by administrators to search for events that may be protected or restricted so that this data may be cleaned up or freed up when the time comes. The following screenshot summarizes an advanced search that yields all of the online events recorded in the last 7 days where the patrol car speed eclipsed 85 miles per hour. This and any other saved search could be saved and recalled very easily for future evaluation.





DATA FLOW FROM THE VEHICLE TO THE BACK OFFICE

Vehicle to Server

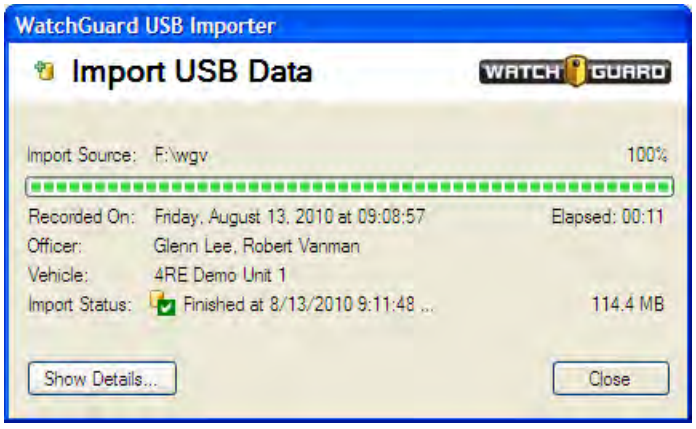
The 4RE HD system has three methods for video transfer: manual USB transfer, wireless transfer, and through a wired Ethernet connection. Each of these methods, and the data flow process are described in more detail below.

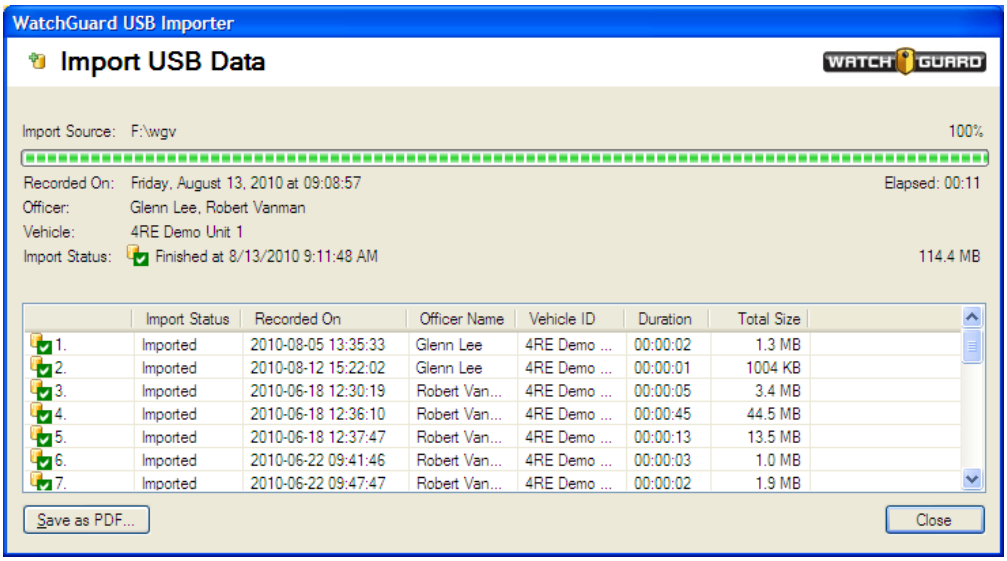
Manual USB Flash Drive Transfer – The manual USB transfer option provides a high level of security and simplicity. As stated in earlier explanations, when the USB drive is used to transfer video, 4RE is still maintaining that video on its integrated hard drive. If the USB drive becomes damaged or lost 4RE is still protecting its copy of the video in the car. The DVR in the car will protect the video on the integrated hard drive until it receives secure confirmation from the server that the event is secured on the back end. Only then will the in-car version of the event be freed up for deletion. Unlike other systems, you never risk losing important evidence during manual transfers should the flash drive be lost or destroyed.

When a transfer is necessary the removable USB flash drive can be taken from its secure position behind a locked door on the DVR, and a manual transfer of the video can take place. This transfer of video from the USB flash drive to the server can be done on any EL Remote Client on the LAN (with appropriate permissions). When transferring video files with the USB, the WatchGuard Import Scanner is used. This is a lightweight application that may be installed on any Windows XP or Windows 7 workstation where there is a potential for officers to perform USB Video transfers. The Import Scanner runs in the background with an icon in the taskbar. It is continually looking for a USB drive containing video files from a 4RE unit. If it finds one, it automatically launches the small application window and prompts the user for credentials to begin uploading the video. See screenshots below.


WatchGuard USB Importer
File
Minimize to Tray
Help
Import USB Data
WATCH GUARD
WatchGuard evidence detected...
Source: F:\wgv
(114.4 MB)
NOTE: Do not insert another USB Device until this data import has completed
Username:
Password:
Please Sign-In:
Import Now
Cancel
Staged: 0 bytes (0 files) Free: 185.24 GB


WatchGuard USB Importer
Import USB Data
WATCH GUARD
Import Source: F:\wgv
43%
Recorded On: Friday, August 13, 2010 at 09:08:57
Elapsed: 00:07
Officer: Glenn Lee, Robert Vanman
Vehicle: 4RE Demo Unit 1
Time remaining: 00:05
Import Status: Downloading evidence data...
49.2 MB of 114.4 MB
Event 5 of 24
Cancel


WatchGuard USB Importer
Import USB Data
WATCH GUARD
Import Source: F:\wgv
100%
Recorded On: Friday, August 13, 2010 at 09:08:57
Elapsed: 00:11
Officer: Glenn Lee, Robert Vanman
Vehicle: 4RE Demo Unit 1
Import Status: Finished at 8/13/2010 9:11:48 ...
114.4 MB
Show Details...
Close



This process is also secured by an MD5 hash of each file as it is transferred. Upon successful completion of the transfer, the user is dismissed while the "behind the scenes" file movements take place (in the same manner as the wirelessly uploaded video.

The 4RE solution is designed to work with any combination of transfer mechanisms, so if a USB deployment is desired initially, a wireless system can be added in the future.

Wireless Transfer – 4RE system uploads are 100% hands free over an 802.11n wireless connection. 802.11n is the most advanced wireless technology available today. Compared to the earlier 802.11g, 802.11n has up to five times the performance and nearly double the range. Using an industrial grade 802.11n wireless radio system in the car and sophisticated antennas at the agency, the 4RE system is able to achieve wireless transfer speeds roughly equal to the wired transfer speeds reached by most other digital in-car video systems.

Anytime during the shift the Officer is present at the Department and within the 802.11n connection put in place by the Department, 4RE will automatically begin negotiating with the Server. While unbeknownst to the Officer, who will only see a connection icon and signal strength on the 4RE user interface, the server will begin to "ask" the DVR to begin sending its recorded events. Also during this time, any DVR configuration changes that have been made are also pushed to the DVR and immediately engaged.

During this process, the Officer is under no constraints. If they shut the vehicle off, the DVR will continue its transfer in the Wireless Timer. If the Officer drives off or loses connection with the server, the server will retain the partial event it has and standby for the vehicle to return. After a period of time of not seeing the vehicle back at the Department, the server will package up this "partial" event and enter it into the database. This is to protect any and all video that the server receives. It will never throw away any video, even partially transferred events. When that vehicle does return, the server will recognize it and resume the upload, without any intervention.

Wired Ethernet Transfer - 4RE supports a wired Ethernet transfer. This transfer can be done by connecting the 4RE DVR to data port equipment (if in use) within the vehicle.

After the server receives an event the processor intensive task of parsing the metadata files begins. This parsing is converting the Static and Dynamic Metadata XML files into a format which may be handed to the SQL Database Server for entry into the Online Database. Also entered into the Database is the location of the video files. The video storage location is configured at installation. To the server, this will look like a file system that it has permission to write to. The video files are not kept within the SQL database, only a reference to the files.

At this point, the record event, and all of its video and information, is accessible via any WatchGuard Evidence Library Client.

Server to Client

Now, the Client searches can be performed on the record events. Client connections are made to the server. SQL queries and requests are sent to the server, which then sends them upstream to the client. This allows clients the ability to view, edit, revise, and even export video to any client. Of course, each of these abilities is tightly guarded through user and group level security that is set by the Department.

EVIDENCE STORAGE CONSIDERATIONS

Video Size, Compression, and Sampling

High Definition video files run anywhere from 2 to 2.5 times the size of the average D1 (720x480) IACP compliant video files which, on average, run around 1GB per hour. 4RE addresses this reality with the first and only system to offer Multiple Resolution Recording. 4RE allows the forward camera to record in two resolutions simultaneously; a "standard" resolution and a "maximum" resolution. Prior to deploying 4RE into the fleet, decisions must be made in how to "categorize" events so that the automated purging and archiving may act accordingly. It is in this same breath that we apply one additional rule (Critical Event Rule) to each event "categorization;" whether to keep the event in the "standard" resolution or the "maximum" resolution.

On average, around 10% of all the recorded events made at an agency are ever needed, or even watched once they have been recorded and uploaded. The other 90% of "routine" video fills up storage space, slows the transfer speeds, and in a twist of irony, drives the decision of what video quality to record in (because of how much of a factor it is). The good part of all this is that nearly all courtroom bound video (the evidentiary video) can be predicted by the event's categorization.

For example, after stopping a recording, the Department may show the Officer a list of event categories such as "DUI," "Traffic Stop," "Arrest," "Citizen Contact," etc. This is completely customizable by the Department. During configuration, the answer, "DUI," and "Arrest" may force the event to be kept in the "maximum" resolution whereas the answers, "Traffic Stop," and "Citizen Contact" may force the event to be kept in the "standard" resolution. The beauty of this is that we are not only optimizing the back office storage, we are also optimizing the wireless transfer as well as the transfer to the server. No longer will the Department have to compromise video quality because of the size that is consumed by the most routine of events.

Video recorded in 4RE is recorded and compressed using the most advanced H.264 High Profile (HP) compression technology. H.264 HP Technology leverages a highly intelligent video compression algorithm to render video at much higher quality using the same data rate, or it can

render video at the same quality using a much lower data rate. The following table shows the currently available video quality settings and associated resolution, sampling rate, and resulting file size (per hour):

4RE Video Quality and File Sizes			
Setting	**Resolution (pixels)**	**Sample Rate (megabits/second)**	**Average File Size Per Hour (gigabytes)**
HQ-High	1280x720	5	2.32
HQ-Medium	1280x720	4	1.89
HQ-Low	1280x720	3	1.46
SQ-High	864x480	2	1.09
SQ-Medium	864x480	1.5	0.88
SQ-Low	864x480	1	0.66

Let's examine this a bit closer with the notion of Critical Event Rules in mind. We will use the following situation depicting 1 car working 1 shift:

- Amount of Total Video Recorded: 2 Hours
- Amount of Routine Video: 1.8 Hours
- Amount of Evidentiary Video: 0.2 Hours

The following Calculations will be used to calculate the "Average File Size" for a given situation:

(Amt. of Routine Video x Routine Avg. File Size) + (Amt. of Evidentiary Video x Evidentiary Avg. File Size)
/ (divided by)
(Amt. of Routine Video) + (Amt. of Evidentiary Video)

Situation #1 (Aggressive use of HD Video)

- Routine Resolution: SQ-Medium, 720x480 at 0.88 GB per Hour
- Evidentiary Resolution: HQ-High, 1280x720, 2.32 GB per Hour
- This situation results in an average file size of 1.024 GB per hour
    - [(1.8hrs x 0.88GB/h) + (0.2hrs x 2.32GB/h)] / (1.8hrs + 0.2hrs) = 1.024 GB/h

Situation #2 (A conservative use of HD Video)

- Routine Resolution: SQ-Low, 720x480 at 0.66 GB per Hour
- Evidentiary Resolution: HQ-Medium, 1280x720, 1.89 GB per Hour
- This situation results in an average file size of 0.78 GB per hour
    - [(1.8hrs x 0.66GB/h) + (0.2hrs x 1.89GB/h)] / (1.8hrs + 0.2hrs) = 0.78 GB/h

Situation #3 (Optimizations without any HD Video)

- Routine Resolution: SQ-Low, 864x480 at 0.66 GB per Hour
- Evidentiary Resolution: SQ-High, 864x480, 1.09 GB per Hour
- This situation results in an average file size of 0.78 GB per hour
    - [(1.8hrs x 0.66GB/h) + (0.2hrs x 1.09GB/h)] / (1.8hrs + 0.2hrs) = 0.70 GB/h

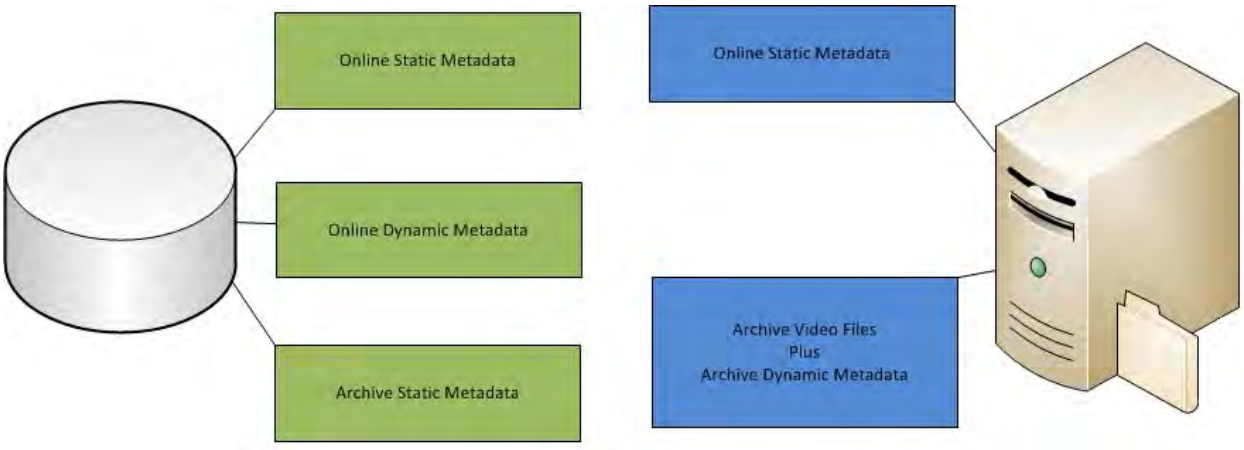
You'll notice that 4RE's Multiple Resolution Recording and Critical Event Rules may be applied using any two resolutions. If a connection of any kind proves slow enough to cause the Department to focus heavily on the smallest file size possible, 4RE can be setup to record two D1 resolutions, resulting in an average file size of 0.7 GB/hr., which is 30% smaller than any other system. The most important message to remember with 4RE is that with Critical Event Rules and Multiple Resolution Recording, you can maintain the same average file size of all other systems available, while saving nearly all of your courtroom bound video in High-Definition.

How We Store Video

The 4RE Back Office Solution is architected in such a way that there are two types of stored video; Online and Archive. Online Video refers to video whose Dynamic Metadata is still contained within the SQL tables. The video files themselves are stored on a secure storage device readily accessible by the Server. Archive Video is video whose Dynamic Metadata and video have been removed from the SQL tables and packaged into a file folder (Archive Location). An Archived Video will not show up in searches related to Dynamic Metadata (such as GPS Radius Searches) but can quickly be found using the Static Metadata (Date, Officer Name, Vehicle ID, etc.) and, if needed, re-imported into the Active Storage.

Most systems archive video in order to free up storage space, which can sometimes be very costly. However, in order to truly make this cost effective, they will often recommend you keep only 30 days (or so) of video in your active storage and then archive off any video that is needed for longer periods of time onto DVD or tape drive. The big negative of this is that any archived event that is needed by anyone at the agency needs to be "found" in the archive (which is usually a large stack of DVDs), and then re-imported. This may sound simple at first, but the reality of this use case is that a considerable amount of time is spent (by a human) re-importing video so that the person who needs to watch or copy the video may do so. This also includes the delay involved between the time that the person needs the video and the time it actually becomes available to the system.

With our solution, the biggest benefit of archiving events out of Active Storage is the efficiency that the database feels from having all the Dynamic Metadata removed, making searching the database faster. However, archiving to a media such as DVD or Tape introduces a lot of cost and labor when any of those events are needed again. Our solution proposes that the Department archive their events to another device so that the events may be re-imported with the push of a button.



Our architecture archives events into their own folder, to the file system that we designate. If these file systems are accessible to the server, events can be re-imported immediately, without delay. This removes the manual steps involved with managing DVDs, tapes, maintenance to DVD Robots, and the actual time and energy needed to re-import each event manually.