Item #	*Requested Capability*	*Yes or No*	*If yes, describe how the capability is provided and relevant details* *If no, describe a comparable alternate approach for consideration, if available*
	accomplishes security of videos		
5	**APPROACH AND METHODOLOGY – Cameras**		
5.1	System supports both fixed and PTZ IP Cameras; Offerors should review RFP R16-024, Attachment J for CHBS floorplans and initial furniture layouts, then make recommendations on where PTZ and where fixed cameras should be used. Recommend number of spares of each camera type for emergency replacement needs.	Yes	Both fixed and PTZ cameras are supported by Avigilon ACC. MCW feels that PTZ cameras would not be as useful or cost-effective as well-placed and purposed fixed megapixel cameras.
5.2	Describe if the proposed system allows for optical and digital zoom; digital zoom is for live observation, recording, and playback	Yes	Avigilon ACC and cameras have both optical and digital zoom capabilities.
5.3	Cameras should be Power Over Ethernet (POE).	Yes	Avigilon cameras are PoE IEEE802.3af Class 3 compliant and also supports 12VDC and 24VAC
6	**APPROACH AND METHODOLOGY – System Access**		
6.1	Should integrate with Shibboleth (optimal), CAS or LDAP for user Authentication; describe authentication process for proposed system	Yes	Avigilon integrates with LDAP. The authentication process would then be that which is native to LDAP.
6.2	System Security is compliant with HIPPA requirements for the CAPS suite described at the beginning of R16-024, Attachment F – Statement of	Yes	Avigilon ACC is capable of being compatible with HIPAA. Compliancy is maintained by the initial installation, system configuration, built-in security protections and Radford University's procedural protocols. See Section 1.1 above for more information.

Item #	*Requested Capability*	*Yes or No*	*If yes, describe how the capability is provided and relevant details* *If no, describe a comparable alternate approach for consideration, if available*
	Needs		
6.3	Access to the system is securely controlled with individual and role-based privileges assigned by client system administrator; e.g., depending on permission, users may or may not be able to: observe in a given location, operate PTZ control, initiate recordings, playback recordings, edit recordings, delete or export recordings, share recordings, schedule recordings, or initiate other functions	Yes	Avigilon supports a wide variety of customizable user permissions limiting both functionality and device access by user or groups as required to achieve desired functionality.
6.4	Permissions can be limited by location. -e.g. on-campus only for HIPPA videos, off -campus viewing but not downloading for non-HIPPA videos	Yes	The component that provides for off-campus access will not be installed on the Avigilon server designated and segregated for devices in rooms/areas subject to HIPAA compliance.
6.5	Recordings in a given database are searchable by information fields, authors, and dates	Yes	There are many searchable criteria for the video including location, camera, date, etc.
6.6	One server will house only HIPPA compliant data and one or more will house all other secure data	Yes	Please refer to Sections 1.1 and 6.4 above.
7	**APPROACH AND METHODOLOGY – Software**		
7.1	Software should support multiple platforms (e.g., PC, Mac, Tablets)	Yes	Avigilon ACC supports PC and mobile devices with browsers as listed in Section 7.2 below. Mac is not yet supported.
7.2	Should be a browser-independent system; list current supported browsers (such as Internet Explorer, Chrome, Firefox, Safari) -- Describe process for supporting new browsers -- Describe any client software	Yes	Chrome, Internet Explorer, Firefox and Safari are all supported. Avigilon ACC client software is included. The system may be managed via thick or thin clients. MCW recommends thick clients for most functions represented in this particular application for optimal performance.

Item #	*Requested Capability*	*Yes or No*	*If yes, describe how the capability is provided and relevant details* *If no, describe a comparable alternate approach for consideration, if available*
	required for operation of the system.		
7.3	Software used for the system should be a complete, commercial-off-the-shelf (COTS) secure solution currently available for purchase	Yes	Avigilon meets this requirement completely.
7.4	Describe software upgrade process, including frequency, notification, testing, implementation, and fixes; specify when fees do and don't apply	Yes	Avigilon provides software updates including bug fixes, new feature releases, etc. as required. No fees are charged by Avigilon for these minor updates. Major software releases (i.e. moving from ACC version 4.x to ACC version 5) may require a nominal upgrade fee. MCW will check the software for manufacturer-issued (updates, fixes, etc.) revisions at least annually, and update the system software to the latest rev. as needed. Upgrades, if needed, will be assessed on a case-by-case basis. Some upgrades might only require labor to configure, where others may have associated costs from the manufacturer as described above. There are no recurring software support agreements required with the proposed solution.
7.5	Describe the process for your company's acceptance and implementation of client requests for software fixes and modifications; specify when fees do and don't apply	Yes	During the first year, this would be handled under our standard warranty policy. For the second year and beyond, this would be handled under our Full Service and Preventive Maintenance Agreement (FSA). In either case, requests for service, modifications, fixes, etc. are made by simply calling or emailing the MCW Service Portal. Instructions will be provided following system installation.
8	**APPROACH AND METHODOLOGY – Other Technology**		
8.1	Describe compatibility of proposed system with potential client architecture, operating systems, databases, and other IT variables	Yes	Avigilon system architecture consists of system servers which process and record video, video cameras, PoE network switches and Avigilon ACC (management software). Avigilon is an "open-architecture" system that is currently certified and tested to integrate with various access control and intrusion detection systems. As such, Avigilon is willing to work with other system manufacturers on a case-by-case basis to achieve the required functionality including integration to the extent necessary. The word "potential" is the key. MCW will work with Radford University and Avigilon to ensure that the desired functionality and

Item #	*Requested Capability*	*Yes or No*	*If yes, describe how the capability is provided and relevant details* *If no, describe a comparable alternate approach for consideration, if available*
			security safeguards are met, realizing that may require integration with other systems, software, etc.
8.2	Scalable licensing to accommodate varied enterprises	Yes	Avigilon ACC is licensed per camera channel and those licenses can be purchased in increments of 1, 4, 8, 16, or 24.
8.3	Fully describe system scalability and any maximums; Radford University estimates current need of approximately 60 cameras in approximately 30 rooms; future and cooperative agency needs will vary	Yes	Avigilon ACC can support any size system from one camera to tens of thousands.
8.4	Provide all available support options for both hardware and software and describe the Service Level for each of these	Yes	Please reference response section titled "Service and Preventive Maintenance Support" for further clarity as to support offerings.

MCW Response to RFP R16-024 - Attachment I – Security Questions for Technology-Based Procurements (RFP Section B.2)

Name of Technology	Avigilon
Name of Company	MCW Solutions, LLC.
Contact Information	Contractual and Compliance: Chase V. Fisher, Business Development Executive Technical and Cost Management: James Lindsey, Sr. Systems Engineer

1	**DOCUMENTATION**		
	Question	**Response**	**Internal Use**
1.1	Do you have a completed Shared Assessments full SIG questionnaire?	No.	
1.2	Have you undergone a SAS 70 or SSAE 16 audit?	No. MCW freely and regularly submits its financials to audit scrutiny as orchestrated by its accountant. SAS 70 and SSAE 16 are not particular audits that MCW has undergone. However, if these are required, MCW will ask its consultant to add these to future audits.	
1.3	Do you have a documented change management process?	Yes.	
1.4	Do you have a formal Incident Response plan?	Yes.	
2	**APPLICATION/SERVICE/DATA SECURITY**		
	Question	**Response**	**Internal Use**
2.1	Describe the level to which the roles and permissions can be customized by The University.	Permissions are managed with users and groups and can be very granular.	
2.2	What specific encryption algorithms are employed for your product(s), system(s) and/or service(s)?	Control data is managed by SSL, video is managed by containerization encryption.	

2.3	Is all sensitive data (i.e. Social Security Numbers, Credit Card Numbers, Health Information, etc.) encrypted in transit and at rest? If not, please explain.	This data is not typically loaded into ACC however control data is encrypted while in transit.	
2.4	Will University data be encrypted at rest? (Whole Disk Encryption, DB encryption, column level encryption inside a DB)	Avigilon uses a "noSQL database" with encryption encapsulation tools. Video data is stored using an encrypted file structure.	
2.5	Describe the mechanism for transferring data from The University to your organization. Are these transfers logged?	It is not anticipated that there would be a reason for data to be transferred from Radford University to MCW or any other outside organization. Neither Avigilon nor MCW controls what its clients do with data. Avigilon ACC has built-in restrictions that may prevent data from being exported (in such cases, the component that provides for off-campus access would not be installed on the associated Avigilon server.	
2.6	Is login information such as user name and password encrypted during transmission from the client to the server? NOTE: Base-64 encoding is not acceptable.	Yes, Avigilon's login information is encrypted using base-128.	
2.7	Are passwords hashed, so they cannot be decrypted? (SHA-1, SHA-256, MD5, …)	Avigilon ACC passwords are not hashed. If this functionality is required, it is advised to use LDAP.	
2.8	Does your product(s), system(s) and/or service(s) prevent the use of shared credentials or accounts including administrative accounts?	Yes, however with respect to "shared credentials" specifically, Avigilon does not prevent the use of shared credentials or accounts. Please refer to Section 2.5 above. User access is always password restricted. Avigilon and MCW do not restrict what authorized users do with recorded video. Administrative policies should support proper system use.	
2.9	Describe how your product(s), system(s) and/or service(s) authenticate and	Avigilon ACC uses a "double handshake" to confirm the identity of the user.	

	authorize users?		
2.10	Does your product(s) and/or system(s) facilitate compliance with Federal and State laws, such as FERPA, HIPPA and PCI?	Yes, Avigilon is compliant with all these. HIPAA compliance also involves proper installation and use of the system, and adherence to proper procedural protocols.	
2.11	Is all access, including administrative accounts, controlled and logged (i.e. firewalls, file system permissions, ACLs, database table permissions, packet logs, etc.)? If not, please explain.	Yes	
2.12	Will The University data be used in test or development environments?	N/A	
2.13	Does your company own the physical data center where The University's data will reside?	No. The system storage devices will be owned and maintained by The University.	
2.14	Do any of your servers reside in a co-located data center?	No. All servers will reside at The University.	
2.15	If you are using a co-located data center, does this data center operate outside of the United States?	N/A. See section 2.14 above.	
2.16	If this co-located data center operates outside of the United States, will any of The University's data ever leave the United States?	N/A. See section 2.14 above.	
2.17	If The University data will leave the United States, please list all	N/A. See section 2.14 above.	

	countries where it will be stored.		
2.18	Is there a contract in place to prevent data from leaving the United States?	N/A. See section 2.14 above.	
2.19	If you are using a co-located data center, please describe how networks and systems are separated.	N/A. See section 2.14 above.	
2.20	Are intrusion detection technologies and firewalls utilized on the hosted system(s)?	N/A. See section 2.14 above.	
2.21	Describe how your facility is physically secured?	N/A. See section 2.14 above.	
3	**THIRD PARTIES**		
	Question	**Response**	**Internal Use**
3.1	Will The University data be shared with or hosted by any third parties?	No.	
3.2	If so, list all 3rd parties that will host or have access to The University data.	N/A. See section 3.1 above.	
3.3	Do you perform security assessments of third party companies?	N/A. See section 3.1 above.	
3.4	If you do assess third parties, please describe assessment methodology.	N/A. See section 3.1 above.	
3.5	How often do you reassess third party companies?	N/A. See section 3.1 above.	
3.6	Briefly explain why each	N/A. See section 3.1 above.	

	of these third parties will have access to The University data.		

4	PASSWORD/PASSPHRASE MANAGEMENT		
	Question	**Response**	**Internal Use**
4.1	Can you enforce password / passphrase aging requirements?	Yes, password aging is a function that can be enforced in Avigilon ACC.	
4.2	Can you enforce password / passphrase complexity requirements?	No. When this functionality is required, LDAP is typically used.	
4.3	Are user account passwords / passphrase visible in administration modules?	No. Possibly when LDAP is used. Requires verification.	
4.4	Are stored user account passwords / passphrases hashed?	No. When this functionality is required, LDAP is typically used.	
4.5	What algorithm is used to hash passwords?	No. When this functionality is required, LDAP is typically used.	
5	**VULNERABILITY ASSESSMENT/MITIGATION**		
	Question	**Response**	**Internal Use**
5.1	The OWASP 10 identifies the most critical web application security flaws. How does your organization address and mitigate the common application risk identified by the OWASP Top 10. Information about the OWASP Top Ten can be found at https://www.owasp.org/index.php/OWASP_Top_Ten_Project.	No. However, there are at least 3 different aspects to consider, and for which Avigilon is actively addressing: **1) Keeping track of vulnerabilities associated with other people's products that may be embedded or used alongside our products**. Avigilon absolutely does keep track, as much as possible, with known security exploits in the software embedded in Avigilon's devices and software. Avigilon takes action according to their own internal process (see #2 and 3 below) when they become aware in any way of a security vulnerability. **2) The process for dealing with vulnerabilities that are reported against our product.** Avigilon is working to become compliant with ISO/IEC 30111:2013 … Credible reports of security vulnerabilities from end customers, integrators, and other external parties are automatically escalated and quickly triaged within the organization (they are automatically "HOT", in internal terms). Where applicable, Avigilon cooperates actively with national coordinators for controlled handling and eventual disclosure of security vulnerabilities (see, for example, CVE-2015-2860 in the NIST database, which applies to	

		older versions of ACC). **3) The process for communicating vulnerabilities in our products.** Avigilon is working to become compliant with ISO/IEC 29147:2014. Avigilon will soon be able to give an update that makes it easier for Avigilon to communicate security vulnerabilities to their partners.	
5.2	Are your applications scanned for vulnerabilities by a qualified 3rd party?	Yes, by Veracode.	
5.3	Are your systems scanned for vulnerabilities by a qualified 3rd party?	Yes, by Veracode.	
5.4	Are your applications scanned for vulnerabilities prior to new releases?	Yes	
5.5	What application and operating system vulnerability scanning companies do you use?	Veracode	
5.6	How often are operating systems and applications scanned?	Systems are scanned upon compilation.	
5.7	Are updates to your product released on a regular schedule?	No. Releases are done periodically based on the needs for feature upgrades required on the market, updates to Avigilon software for more functionality, and for certain patches and bug fixes from Avigilon's support group.	
5.8	How are critical security patches applied to your systems and applications?	See section 5.7 above.	
5.9	Will we be notified of major changes to your environment that could impact our security posture?	Yes, all software updates are released with documentation that state the information about the release, what issues are resolved, what new features, what firmware updates are included, etc. The user can then decide if an upgrade is desired to enhance system functionality or not.	
5.10	Computer and network security is of paramount	This is generally not a concern for ACC. Avigilon's R&D Department is constantly aware of threats not only in the US but	

	concern. The SANS Institute and the FBI have released a document describing the Top 20 Internet Threats. How does your organization address and mitigate the common application risk identified within the Top 20 Internet Threats? The document is available at www.sans.org/top20.htm for review.	across the world and is maintaining their strategic posture continually.

6	DISASTER RECOVERY/BACKUPS		
	Question	**Response**	**Internal Use**
6.1	Do you have a disaster recovery plan?	Per Addenda 2 Q&A #3, Not Applicable.	
6.2	Are components of your disaster recovery plan located outside of the United States?	Per Addenda 2 Q&A #3, Not Applicable.	
6.3	When was the last time you tested your disaster recovery plan?	Per Addenda 2 Q&A #3, Not Applicable.	
6.4	Are you performing backups?	Per Addenda 2 Q&A #3, Not Applicable.	
6.5	What type of media is used for backups?	Per Addenda 2 Q&A #3, Not Applicable.	
6.6	How long are these backups kept?	Per Addenda 2 Q&A #3, Not Applicable.	
6.7	How is backup media destroyed?	Per Addenda 2 Q&A #3, Not Applicable.	
6.8	Are you encrypting	Per Addenda 2 Q&A #3, Not Applicable.	

	your backups?		
6.9	Will you be willing to encrypt backups of The University data?	Per Addenda 2 Q&A #3, Not Applicable.	
6.10	Are these backups taken offsite?	Per Addenda 2 Q&A #3, Not Applicable.	
6.11	Where are all the locations that will store The University backup data? Please list by country if located outside of the United States.	Per Addenda 2 Q&A #3, Not Applicable.	
7	**EMPLOYEE POLICIES/SECURITY AWARENESS**		
	Question	**Response**	**Internal Use**
7.1	Do you perform background screenings on employees?	Yes. MCW is a Department of Defense Industry Contractor (Cage Code 3FBG8-I), and all employees are subject to investigations to the Secret level.	
7.2	Do you have an information security awareness program?	Yes, per the response of section 7.1, all employees undergo initial and annual protective measures and awareness refreshers.	
7.3	Is the security awareness training mandatory for all employees?	Yes, for all essential and cleared personnel, which makes up about 90% of the company. Our Facility Security Officer, Chase V. Fisher, can be reached at CFisher@MCWSolutions.net or 540-454-9318	
7.4	How frequently are employees required to undergo the security awareness training?	Annually.	
7.5	Do your employees hold Information Technology Security certifications and/or secure coding? If so, which ones?	Microsoft, Cisco, Dell. CCNA, MCSE, CCPS, CQS-FSPS, CQS-CCENT, CQS-CSSSER, CSE,CSE 6.0, CCPS1 and many more.	

MCW Project Summary

Attachment C - NETWORKED VIDEO CAPTURE SYSTEM - Radford University - RFP R16-024 **VERSION 3.3**

PREPARED BY: **Chase V. Fisher & James Lindsey**
DATE: ***11/3/2015***

Item	System	EQUIPMENT	LABOR							NON-EQUIPMENT			Taxes	System Qty:	Total System Cost	NOTES & EXCLUSIONS	Option	Optional System Cost
			ENGINEERING	PROJECT MANAGEMENT	RACK FABRICATION	INSTALLATION	PROGRAMMING	WARRANTY	SUBTOTAL	Project Expenses (Travel, Delivery, Etc.)	Shipping	SUBTOTAL						
1	Networked Video System Bill of Materials	$140,944.67	$23,414.40	$19,707.12	$4,097.52	$58,682.34	$10,926.72	$2,926.80	$119,754.90	$24,216.01	$2,114.17	$26,330.18	$0.00	1	$287,029.75			
2	Maintenance and Service Support (After initial year of warranty)	$54,941.68	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	1			*$1.00*	*$54,941.68*

Equipment Costs		**$140,944.67**		*$54,941.68*
Labor Costs		**$119,754.90**		*$0.00*
Non-Equipment Costs		**$26,330.18**		*$0.00*
Project Sub-Total		**$287,029.75**	Options Sub-Totals	*$54,941.68*
Taxes		**$0.00**		*$0.00*
Project Total		**$287,029.75**		*$54,941.68*

Networked Video System Bill of Materials							VERSION 3.3
ITEM	MANUFACTURER	MODEL	DESCRIPTION	QTY	UNIT PRICE	EXT. PRICE
1	Avigilon	AC-APP-16R-ENT2	**Access Control Manager Enterprise; Web-Based PACS Appliance for 16 Readers - includes: physical appliance, embedded Linux OS & Open LDAP licenses for configuration database, Access Control Manager Security Management Software License, One (1), AC-SW-16RCU, 16 Reader Count Software License; Supports up to 500K identities, 150M stored events, fifty (50) simultaneous operators (via browser); Three (3) year appliance HW warranty begins at date of shipment.**	1	$ 2,438.78	$ 2,438.78
2	Avigilon	AC-LSP-8DR-MER-LCK	8 Door Access/Dual Voltage. This unit is a 12V and 24V DC dual voltage access power system. C8 lock control module provide eight access control inputs capable of voltage or dry contact activation, and eight outputs programmable for failsafe / failsecure operation at either 12 or 24 VDC and controlled by the integrated fire alarm interface circuit on the FPO. D8P module provides eight auxiliary class II outputs and each output is configurable for 12 or 24VDC operation. MClass enclosures are painted steel with removable backplate and include lock, two (2) keys and tamper switch.	1	$ 512.20	$ 512.20
3	Avigilon	AC-SW-LIC-AVIGILON	Access Control Manager License for Video Integration for Avigilon (per Appliance)	1	$ -	$ -
4	Avigilon	AC-MER-CONT-2DR	Controller, 16MB RAM, Ethernet, 8In/4Out/2Rdr (Mercury EP1502)	1	$ 845.12	$ 845.12
5	Avigilon	24C-ACC5-ENT	ACC 5 Enterprise license for up to 24 camera channels and unlimited viewing clients	4	$ 4,898.78	$ 19,595.12
6					$ -	$ -
7			**FIRST FLOOR**		$ -	$ -
8			**Conference Room 1103**		$ -	$ -
9	Avigilon	2.0-H3-D1	2.0 Megapixel (1080p) Day/Night Indoor Dome, 3-9mm f/1.2 P-iris lens	4	$ 446.34	$ 1,785.36
10	ABC	275-025	SPST On/Off Toggle Switch, 50A at 12VDC or 25A at 24VDC, RoHS Compliant, Copper plated terminals	1	$ 6.10	$ 6.10
11	Leviton	R52-88014-00W	Wall Plate, Single-gang, white	1	$ 1.22	$ 1.22
12	RDL	RU-ADA4D	4 channel stereo audio distribution amplifier	1	$ 333.93	$ 333.93
13	RDL	PS-24AS	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug	1	$ 33.06	$ 33.06
14	Miscellaneous		Prewire cable, connectors	1	$ 66.93	$ 66.93
15	SnapAV	WP-SW-ENCL-14	Structured Wiring Enclosure 14 in.	1	$ 35.62	$ 35.62
16	SnapAV	WP-DOOR-HINGE-14	Enclosure Hinged Metal Door 14 in., lockable	1	$ 44.54	$ 44.54
17			**THIRD FLOOR**		$ -	$ -
18			**Interview & Observation Rooms 3014 & 3015**		$ -	$ -
19	Avigilon	2.0-H3-D1	2.0 Megapixel (1080p) Day/Night Indoor Dome, 3-9mm f/1.2 P-iris lens	8	$ 446.34	$ 3,570.72
20	Avigilon	10.0TB-HD-NVR2	HD NVR, 10.0 TB Storage, 2U Rack Mount	1	$ 7,068.29	$ 7,068.29
21	Avigilon	M2300	Monitor, 24", LCD, 2.3 Megapixel, 16:10 Widescreen Aspect Ratio	1	$ 774.15	$ 774.15
22	TRENDnet	TPE-TG160g	16-Port Gigabit PoE+ Switch, 246 Watts total power budget,16 PoE+ ports, 32 Gbps switching capacity, Sturdy metal switch, Rack mount brackets	1	$ 398.77	$ 398.77
23	Tripp-Lite	SMART750RM1U	SmartPro 120V 750VA 600W Line-Interactive Sine Wave UPS, 1U Rackmount, SNMPWEBCARD Option, USB, DB9 Serial	1	$ 532.91	$ 532.91
24	Tripp-Lite	SRW10US	SmartRack 10U Wall-Mount Rack Enclosure Cabinet, with adjustable front and rear vertical rackmount rails, hinged cabinet for easy equipment access, and locking reversible front door and removable side panels	1	$ 447.55	$ 447.55
25	CSC	PC-C6E-YEL-005-B	5' Cat6 Yellow Patch Cord	12	$ 2.85	$ 34.20
26	ABC	275-025	SPST On/Off Toggle Switch, 50A at 12VDC or 25A at 24VDC, RoHS Compliant, Copper plated terminals	2	$ 6.10	$ 12.20
27	Leviton	R52-88014-00W	Wall Plate, Single-gang, white	2	$ 1.22	$ 2.44
28	Middle Atlantic	HPM-6-915	Wall mount rack, 6RU, 9"-15" deep	1	$ 85.60	$ 85.60
29	Strong	SR-SHELF-HB-1U	Hidden Rack Shelf with Blank Panel 1U	3	$ 27.99	$ 83.97
30	Strong	SR-BLNK-1U	1RU blank panel	2	$ 4.82	$ 9.64
31	Miscellaneous		Rack materials	1	$ 21.95	$ 21.95
32	Miscellaneous		Prewire cable, connectors	1	$ 209.76	$ 209.76
33	Crown	PZM-11	Boundary microphone, 1 gang, white	2	$ 102.44	$ 204.88
34	Covid	Custom	Latching Pushbutton, decora plate, white, (Observation mic activation	2	$ 28.05	$ 56.10
35	Extron	60-1054-01	DMP 64	1	$ 969.51	$ 969.51
36	RDL	RU-ADA4D	4 channel stereo audio distribution amplifier	1	$ 273.82	$ 273.82
37	RDL	PS-24AS	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug	1	$ 27.11	$ 27.11
38	RDL	FP-PA18	18 W Mono Audio Amplifier - 8 ?, with Power Supply	1	$ 204.15	$ 204.15
39	Listen	LP-3CV-072	3-Channel RF Value Package (72 MHz)	1	$ 533.84	$ 533.84
40	Atlas	MUSICAVC-50Z	8 ohm Stereo Volume Control	1	$ 54.82	$ 54.82
41	Quam	System 5/8	8" Lay-In Ceiling Mount Speaker, UL Listed (8 Ohms)	1	$ 46.04	$ 46.04
42	Middle Atlantic	PD-915R	9OUT,15A,RCKMNT POWER CEN	1	$ 84.95	$ 84.95
43	Listen	LA-112	RG-58 50 Ohm Coaxial Cable-100' premade cable	1	$ 121.95	$ 121.95
44	SnapAV	WP-SW-ENCL-14	Structured Wiring Enclosure 14 in.	1	$ 29.21	$ 29.21
45	SnapAV	WP-DOOR-HINGE-14	Enclosure Hinged Metal Door 14 in., lockable	1	$ 36.52	$ 36.52
46					$ -	$ -
47			**FOURTH FLOOR**		$ -	$ -
48			**Short/Long Term Data Rooms 4008, 4009, 4010, 4011, 4035 & 4036**		$ -	$ -
49	Avigilon	2.0-H3-D1	2.0 Megapixel (1080p) Day/Night Indoor Dome, 3-9mm f/1.2 P-iris lens	12	$ 446.34	$ 5,356.08
50	Crown	PZM-11	Boundary microphone, 1 gang, white	6	$ 102.44	$ 614.64
51	RDL	STM-LDA3	Studio Quality Microphone Preamplifier with phantom - 3 line outputs	6	$ 186.83	$ 1,120.98
52	RDL	PS-24AS	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug	2	$ 27.11	$ 54.22
53	Miscellaneous		Prewire cable, connectors	1	$ 210.98	$ 210.98
54	Miscellaneous		Metal J-box, plenum, cover	3	$ 24.39	$ 73.17
55			Data Collection Rooms 4004 & 4005		$ -	$ -
56	Avigilon	2.0-H3-D1	2.0 Megapixel (1080p) Day/Night Indoor Dome, 3-9mm f/1.2 P-iris lens	4	$ 446.34	$ 1,785.36
57	Avigilon	10.0TB-HD-NVR2	HD NVR, 10.0 TB Storage, 2U Rack Mount	1	$ 7,068.29	$ 7,068.29
58	Avigilon	M2300	Monitor, 24", LCD, 2.3 Megapixel, 16:10 Widescreen Aspect Ratio	1	$ 774.15	$ 774.15
59	TRENDnet	TPE-TG240g	24-Port Gigabit PoE+ Switch, 370 Watts total power budget, 48 Gbps switching capacity, Sturdy metal switch, Rack mount brackets included	1	$ 554.88	$ 554.88
60	Tripp-Lite	SMART750RM1U	SmartPro 120V 750VA 600W Line-Interactive Sine Wave UPS, 1U Rackmount, SNMPWEBCARD Option, USB, DB9 Serial	1	$ 532.91	$ 532.91
61	Tripp-Lite	SRW10US	SmartRack 10U Wall-Mount Rack Enclosure Cabinet, with adjustable front and rear vertical rackmount rails, hinged cabinet for easy equipment access, and locking reversible front door and removable side panels	1	$ 447.55	$ 447.55
62	CSC - Communication Supply Cor	PC-C6E-YEL-005-B	5' Cat6 Yellow Patch Cord	16	$ 2.85	$ 45.60
63	ABC	275-025	SPST On/Off Toggle Switch, 50A at 12VDC or 25A at 24VDC, RoHS Compliant, Copper plated terminals	10	$ 6.10	$ 61.00
64	Leviton	R52-88014-00W	Wall Plate, Single-gang, white	10	$ 1.22	$ 12.20
65	Crown	PZM-11	Boundary microphone, 1 gang, white	2	$ 102.44	$ 204.88
66	RDL	STM-LDA3	Studio Quality Microphone Preamplifier with phantom - 3 line outputs	2	$ 186.83	$ 373.66
67	RDL	PS-24AS	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug	1	$ 27.11	$ 27.11
68	Miscellaneous		Prewire cable, connectors	1	$ 87.80	$ 87.80
69	Miscellaneous		Metal J-box, plenum, cover	1	$ 24.39	$ 24.39
70					$ -	$ -
71			**FIFTH FLOOR**		$ -	$ -
72			**Group Therapy 5207, Group Therapy 5206, Assess 5208, Assess 5209, Observation 1 Room 5207, Assess 5211, Assess 5212, Observation 2 Room 5216**		$ -	$ -
73	Avigilon	2.0-H3-D1	2.0 Megapixel (1080p) Day/Night Indoor Dome, 3-9mm f/1.2 P-iris lens	31	$ 446.34	$ 13,836.54
74	Avigilon	10.0TB-HD-NVR2	HD NVR, 10.0 TB Storage, 2U Rack Mount	2	$ 7,068.29	$ 14,136.58
75	Avigilon	M2300	Monitor, 24", LCD, 2.3 Megapixel, 16:10 Widescreen Aspect Ratio	2	$ 774.15	$ 1,548.30
76	TRENDnet	TPE-TG240g	24-Port Gigabit PoE+ Switch, 370 Watts total power budget, 48 Gbps switching capacity, Sturdy metal switch, Rack mount brackets included	1	$ 554.88	$ 554.88
77	TRENDnet	TPE-TG160g	16-Port Gigabit PoE+ Switch, 246 Watts total power budget,16 PoE+ ports, 32 Gbps switching capacity, Sturdy metal switch, Rack mount brackets included	1	$ 398.77	$ 398.77
78	Tripp-Lite	SMART750RM1U	SmartPro 120V 750VA 600W Line-Interactive Sine Wave UPS, 1U Rackmount, SNMPWEBCARD Option, USB, DB9 Serial	1	$ 532.91	$ 532.91
79	Tripp-Lite	SRW12US33	SmartRack 12U Wall-Mount Extended-Depth Rack Enclosure Cabinet, 12U with adjustable front and rear vertical rackmount rails, 33" depth, Hinged cabinet swings away from wall bracket, Locking, reversible front door and locking, removable side panels, Fully assembled	1	$ 673.16	$ 673.16
80	CSC - Communication Supply Cor	PC-C6E-YEL-005-B	5' Cat6 Yellow Patch Cord	31	$ 2.85	$ 88.35
81	ABC	275-025	SPST On/Off Toggle Switch, 50A at 12VDC or 25A at 24VDC, RoHS Compliant, Copper plated terminals	8	$ 6.10	$ 48.80
82	Leviton	R52-88014-00W	Wall Plate, Single-gang, white	8	$ 1.22	$ 9.76
83	Crown	PZM-11	Boundary microphone, 1 gang, white	8	$ 102.44	$ 819.52
84	RDL	STM-LDA3	Studio Quality Microphone Preamplifier with phantom - 3 line outputs	3	$ 186.83	$ 560.49
85	RDL	PS-24AS	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug	3	$ 27.11	$ 81.33
86	RDL	STD-600	RDO DSGN DVDER/ COMBNR 600 OHM	2	$ 65.84	$ 131.68
87	SnapAV	WP-SW-ENCL-14	Structured Wiring Enclosure 14 in.	3	$ 29.21	$ 87.63
88	SnapAV	WP-DOOR-HINGE-14	Enclosure Hinged Metal Door 14 in., lockable	3	$ 36.52	$ 109.56
89	Miscellaneous		Prewire cable, connectors	1	$ 134.15	$ 134.15
90	Extron	60-1211-01	DMP 128 12x8 ProDSP Processor	1	$ 1,213.41	$ 1,213.41
91	RDL	RU-ADA4D	4 channel stereo audio distribution amplifier	4	$ 273.82	$ 1,095.28
92	RDL	FP-PA18	18 W Mono Audio Amplifier - 8 ?, with Power Supply	2	$ 204.15	$ 408.30
93	Quam	System 5/8	8" Lay-In Ceiling Mount Speaker, UL Listed (8 Ohms)	2	$ 46.04	$ 92.08

Networked Video System Bill of Materials **VERSION 3.3**

ITEM	MANUFACTURER	MODEL	DESCRIPTION	QTY	UNIT PRICE	EXT. PRICE
94	Listen	LP-3CV-072	3-Channel RF Value Package (72 MHz)	2	$ 533.84	$ 1,067.68
95	Crestron	DIN-AP3MEX	DIN Rail 3-Series® Automation Processor w/infiNET EX® & ER Wireless Gateway	1	$ 792.68	$ 792.68
96	Crestron	HTT-B10EX-B-T	Wireless Tabletop Keypad w/infiNET EX®, black textured	1	$ 274.39	$ 274.39
97	NetGear	GS108PE-300NAS	ProSafe Plus 8-Port Gigabit Ethernet Switch	1	$ 137.79	$ 137.79
98	Crestron	B10-BTNB-T	Set of 5 Backlit Button Caps for HTT-B10EX & HTT-B10X, Engraved or Blank, Matte Black	2	$ 30.49	$ 60.98
99	Crestron	PW-2407RU	18 Watt Cresnet Power Supply	1	$ 60.98	$ 60.98
100	Strong	SR-SHELF-HB-1U	Hidden Rack Shelf with Blank Panel 1U	4	$ 27.99	$ 111.96
101	Strong	SR-BLNK-1U	1RU blank panel	3	$ 4.82	$ 14.46
102	Miscellaneous		Prewire cable, connectors, rack power (45)	1	$ 262.20	$ 262.20
103	Listen	LA-112	RG-58 50 Ohm Coaxial Cable-50' premade cable	3	$ 60.98	$ 182.94
104	Extron	60-1054-01	6x4 ProDSP Digital Matrix Processor	1	$ 969.51	$ 969.51
105	Crestron	CEN-RFGW-EX	infiNET EX® & ER Wireless Gateway	1	$ 274.39	$ 274.39
106	Crestron	HTT-B2EX-BATT--B-T-ENG	Battery-Powered infiNET EX® 2-button Wireless Keypad	1	$ 140.24	$ 140.24
107	Crestron	CNX-B4-W-T	Designer Keypad, 4-Buttons, White Textured	1	$ 219.51	$ 219.51
108	Crestron	B4-BTN-W-T	Engravable Button Cap for CNX-B4, White Textured	4	$ 6.10	$ 24.40
109	Miscellaneous		Prewire cable, connectors	1	$ 314.63	$ 314.63
110					$ -	$ -
111			**Short/Long Term Data Collection Rooms 5008, 5009, 5016, 5017 & 5018, Mock Trial 5012, Observation 5022, Interview Room 5024**		$ -	$ -
112	Avigilon	2.0-H3-D1	2.0 Megapixel (1080p) Day/Night Indoor Dome, 3-9mm f/1.2 P-iris lens	22	$ 446.34	$ 9,819.48
113	Avigilon	10.0TB-HD-NVR2	HD NVR, 10.0 TB Storage, 2U Rack Mount	2	$ 7,068.29	$ 14,136.58
114	Avigilon	M2300	Monitor, 24" LCD 2.3 Megapixel, 16:10 Widescreen Aspect Ratio	2	$ 774.15	$ 1,548.30
115	TRENDnet	TPE-TG160g	16 Port Gigabit POE+ Switch, 2*6 watts total power budget,16 POE+ ports, 32 Gbps switching capacity, sturdy metal switch, Rack mount brackets included	2	$ 398.77	$ 797.54
116	Tripp-Lite	SMART1500RM2U	SmartPro 120V 1.5kVA 1.35kW Line-Interactive Sine Wave UPS, 2U Rack/Tower, SNMPWEBCARD Option, LCD Display, USB, DB9 Serial	1	$ 778.04	$ 778.04
117	Tripp-Lite	SRW12US33	SmartRack 12U Wall-Mount Extended-Depth Rack Enclosure Cabinet, 12U with adjustable front and rear vertical rackmount rails, 33" depth, Hinged cabinet swings away from wall bracket, Locking, reversible front door and locking, removable side panels, Fully assembled	1	$ 673.16	$ 673.16
118	CSC - Communication Supply Cor	PC-C6E-YEL-005-B	5' Cat6 Yellow Patch Cord	22	$ 2.85	$ 62.70
119	ABC	275-025	SPST On/Off Toggle Switch, 50A at 12VDC or 25A at 24VDC, RoHS Compliant, Copper plated terminals	11	$ 6.10	$ 67.10
120	Leviton	R52-88014-00W	Wall Plate, Single-gang, white	11	$ 1.22	$ 13.42
121	Crown	PZM-11	Boundary microphone, 1 gang, white	10	$ 102.44	$ 1,024.40
122	RDL	ST-MX2	2 Channel Audio Mixer - Microphone or line input and output	8	$ 147.79	$ 1,182.32
123	RDL	PS-24AS	24 Vdc Switching Power Supply, North American AC Plug, 500 mA, dc Plug	4	$ 27.11	$ 108.44
124	Miscellaneous		Prewire cable, connectors	2	$ 51.22	$ 102.44
125	Miscellaneous		Metal J-box, plenum, cover	2	$ 24.39	$ 48.78
126	Middle Atlantic	HPM-6-915	Wall mount rack, 6RU, 9"-15" deep	1	$ 85.60	$ 85.60
127	Strong	SR-SHELF-HB-1U	Hidden Rack Shelf with Blank Panel 1U	3	$ 27.99	$ 83.97
128	Strong	SR-BLNK-1U	1RU blank panel	2	$ 4.82	$ 9.64
129	Miscellaneous		Rack materials	1	$ 21.95	$ 21.95
130	Miscellaneous		Prewire cable, connectors	1	$ 268.96	$ 268.96
131	Covid	Custom	Latching Pushbutton, decora plate, white, (Observation mic activation	2	$ 28.05	$ 56.10
132	Extron	60-1054-01	DMP 64	1	$ 969.51	$ 969.51
133	RDL	RU-ADA4D	4 channel stereo audio distribution amplifier	2	$ 273.82	$ 547.64
134	RDL	FP-PA18	18 W Mono Audio Amplifier - 8 ?, with Power Supply	1	$ 204.15	$ 204.15
135	Listen	LP-3CV-072	3-Channel RF Value Package (72 MHz)	1	$ 533.84	$ 533.84
136	Atlas	MUSICAVC-50Z	8 ohm Stereo Volume Control	1	$ 54.82	$ 54.82
137	Quam	System 5/8	8" Lay-In Ceiling Mount Speaker, UL Listed (8 Ohms)	1	$ 46.04	$ 46.04
138	Middle Atlantic	PD-915R	9OUT,15A,RCKMNT POWER CEN	1	$ 84.95	$ 84.95
139	Listen	LA-112	RG-58 50 Ohm Coaxial Cable-100' premade cable	1	$ 121.95	$ 121.95
140	SnapAV	WP-SW-ENCL-14	Structured Wiring Enclosure 14 in.	2	$ 29.21	$ 58.42
141	SnapAV	WP-DOOR-HINGE-14	Enclosure Hinged Metal Door 14 in., lockable	2	$ 36.52	$ 73.04
142					$ -	$ -
143			**MISCELLANEOUS**		$ -	$ -
144	MCW	Misc1	Miscellaneous supplies including screws, anchors, connectors, wire lube, caulk, etc.	1	$ 4,268.29	$ 4,268.29
145	MCW	ES-Permits	Permits	1	$ 600.00	$ 600.00

COST SUMMARY	
EQUIPMENT SUB-TOTAL	**$ 140,944.67**
ENGINEERING	$ 23,414.40
PROJECT MANAGEMENT	$ 19,707.12
RACK FABRICATION	$ 4,097.52
INSTALLATION	$ 58,682.34
PROGRAMMING	$ 10,926.72
WARRANTY	$ 2,926.80
LABOR SUB-TOTAL	**$ 119,754.90**
PROJECT EXPENSES (TRAVEL, DELIVERY, PARKING, ETC.)	$ 24,216.01
SHIPPING	$ 2,114.17
Taxes	$ -
SYSTEM TOTAL	**$ 287,029.75**

Maintenance and Service Support (After initial year of warranty)							VERSION 3.3
ITEM	MANUFACTURER	MODEL	DESCRIPTION	QTY	UNIT PRICE		EXT. PRICE
1	MCW	MCW	**Extended Maintenance & Service - Year 2 (After initial year of warranty service)**	1	$	13,034.98	$ 13,034.98
2	MCW	MCW	**Extended Maintenance & Service - Year 3**	1	$	13,491.20	$ 13,491.20
3	MCW	MCW	**Extended Maintenance & Service - Year 4**	1	$	13,963.39	$ 13,963.39
4	MCW	MCW	**Extended Maintenance & Service - Year 5**	1	$	14,452.11	$ 14,452.11

COST SUMMARY	
EQUIPMENT SUB-TOTAL	**$54,941.68**
ENGINEERING	$0.00
PROJECT MANAGEMENT	$0.00
RACK FABRICATION	$0.00
INSTALLATION	$0.00
PROGRAMMING	$0.00
WARRANTY	$0.00
LABOR SUB-TOTAL	**$0.00**
PROJECT EXPENSES (TRAVEL, DELIVERY, PARKING, ETC.)	$0.00
SHIPPING	$0.00
Taxes	$0.00
SYSTEM TOTAL	**$54,941.68**

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION
COMMONWEALTH OF VIRGINIA

EXPIRES ON
01-31-2017

9960 Mayland Dr., Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

NUMBER
2705094593

BOARD FOR CONTRACTORS
CLASS A CONTRACTOR
CLASSIFICATIONS ESC

MCW SOLUTIONS LLC
20098 ASHBROOK DRIVE
SUITE 150
ASHBURN, VA 20147

Jay W. DeBoer, Director

ALTERATION OF THIS DOCUMENT, USE AFTER EXPIRATION, OR USE BY PERSONS OR FIRMS OTHER THAN THOSE NAMED MAY RESULT IN CRIMINAL PROSECUTION UNDER THE CODE OF VIRGINIA.

(SEE REVERSE SIDE FOR NAME AND/OR ADDRESS CHANGE)

(POCKET CARD)

COMMONWEALTH OF VIRGINIA
CLASS A BOARD FOR CONTRACTORS
CONTRACTOR

CLASSIFICATIONS ESC
NUMBER: 2705094593 EXPIRES: 01-31-2017

MCW SOLUTIONS LLC
20098 ASHBROOK DRIVE
SUITE 150
ASHBURN, VA 20147

(FOLD)

(DETACH HERE)

DEPARTMENT OF PROFESSIONAL AND OCCUPATIONAL REGULATION
9960 Mayland Dr., Suite 400, Richmond, VA 23233

ALTERATION OF THIS DOCUMENT, USE AFTER EXPIRATION, OR USE BY PERSONS OR FIRMS OTHER THAN THOSE NAMED MAY RESULT IN CRIMINAL PROSECUTION UNDER THE CODE OF VIRGINIA.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/24/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Kerxton Insurance Agency, Inc.
7679 Limestone Drive, Ste 155
Gainesville, VA 20155
Jeffrey S. Kerxton, CIC

CONTACT NAME: Beth Underwood
PHONE (A/C, No, Ext): 703-352-0030 FAX (A/C, No): 703-591-3948
E-MAIL ADDRESS: bundwerwood@kerxton.com

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A	Trav Prop & Casualty #25658	28188
INSURER B	Phoenix Insurance Co #25623	28188
INSURER C	Trav Indemnity Co. #25666	28188
INSURER D		
INSURER E		
INSURER F		

INSURED
MCW Solutions, LLC
20098 Ashbrook Place #150
Ashburn, VA 20147

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$	1,000,000
	CLAIMS-MADE X OCCUR			ZLP 81M41669	09/19/2015	09/19/2016	DAMAGE TO RENTED PREMISES (Ea occurrence)	$	1,000,000
A	X Contractual Liab			ZPL 91M42258-E&O INCL	09/19/2015	09/19/2016	MED EXP (Any one person)	$	10,000
	Included			CYBER - $2M W/$25K RET			PERSONAL & ADV INJURY	$	1,000,000
	GEN'L AGGREGATE L MIT APPL ES PER:						GENERAL AGGREGATE	$	2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$	2,000,000
	OTHER:							$	
B	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$	1,000,000
	X ANY AUTO			BA3G137200	09/19/2015	09/19/2016	BODILY INJURY (Per person)	$	
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$	
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$	
	X Comp-$500 X Coll-$1000							$	
A	X UMBRELLA LIAB X OCCUR			ZUP 61M41300	09/19/2015	09/19/2016	EACH OCCURRENCE	$	6,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$	6,000,000
	DED X RETENTION $ 10,000							$	
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N			UB3G134480	09/19/2015	09/19/2016	X PER STATUTE / OTH-ER		
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N / A (Mandatory in NH)						E.L. EACH ACC DENT	$	1,000,000
	If yes, describe under DESCR PTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	1,000,000
A	Installation Fltr			ZLP 81M41669	09/19/2015	09/19/2016	Limit		25,000
A	Leased/Rented			ZLP 81M41669	09/19/2015	09/19/2016	Limit		30,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Verification of Insurance.

CERTIFICATE HOLDER

MCWSOLU

MCW Solutions, LLC
21631 Red Rum Drive, Suite 175
Ashburn, VA 20147

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

R16-024 - Attachment D - Offeror Data Sheet

Attachment D is to be completed and submitted by the Offeror as part of a complete Proposal.
*Note: The following information is required as part of your response to this solicitation. Failure to complete and provide this sheet may result in finding your bid/offer nonresponsive.

Qualifications:
The Offeror must have the capability and capacity in all respects to satisfy fully all of the contractual requirements.

Vendor's Primary Contact for this RFP:

NAME: Chase V. Fisher **TITLE:** Business Development & FSO

PHONE: 703-726-1292 **EMAIL:** CFisher@MCWSolutions.net

Years in Business:
Indicate the length of time the Offeror's company has been in business providing the type of good or service to the type of customer detailed in this RFP:

YEARS: 13 Years **MONTHS:**

References: Indicate below a listing of at least four (4) current or recent accounts (educational, commercial or governmental) that your company is servicing, has serviced, or has provided similar goods/services. Include the length of service and the name, address and telephone number of the point of contact. The Contact should be knowledgeable about the design, implementation, training, and service the Offeror's company provided to the referenced company.

1) Company: Virginia Polytechnic and State University (VA Tech)	**Contact Name and Title:** Tom Booth, Director of Athletics Audio/Visual Programs
Phone: (**)** 540-231-9990 **Fax: ( )**	**Email:** TBooth@VT.Edu
Project: Athletics Practice Field with Game Preparation Audio/Visual System and Control Room Enhancement. Please reference Proposal Section titled "Networked Video & Surveillance Project References" for a more thorough bio about the project.	
Dates of Service: June 2015 - Present	**$ Value:** $240,000.00 +/-
2) Company: Heller Electrical Company	**Contact Name and Title:** Jason Clurman, VP
Phone: (**)** 301-372-6816 **Fax: ( )**	**Email:** jason@hellerelectric.com
Project: Woodrow Wilson High School, Turn-Key Design, Build, and On-going Maintenance Services providing an extensive Audiovisual System throughout the facility. Please reference Proposal Section titled "Networked Video & Surveillance Project References" for a more thorough bio about the project.	
Dates of Service: 2012-Present	**$ Value:** $2 Million +

3) Company: BAE Systems	**Contact Name and Title:** Tony Wooster
Phone: ( ) 703.642.2918 **Fax: ( )**	**Email:** Tony.Wooster@BAEsystems.com
Project: MCW Solutions was retained to provide system upgrades for five (5) of their mid-Atlantic sites including the Reston, McLean, Herndon, Annapolis MD, and McLaren sites. BAE had an end of life product at these sites and MCW Solutions came in to upgrade the systems to the newer PremiSys platform.	
Dates of Service: December 2012 through March 2013 plus support. Estimated completion date: March 2013.	**$ Value:** $170,851.26
4) Company: Washington National Cathedral	**Contact Name and Title:** John Doucette, Captain, Police Operations
Phone: ( ) (202)537-6271 **Fax: ( )**	**Email:** JDoucette@cathedral.org
Project: Numerous Electronic Security, Surveillance, and Audiovisual systems design, installation, and on-going maintenance.	
Dates of Service: 2013 - Present	**$ Value:** $500,000.00 + over the years.

LOST ACCOUNTS: If you have lost accounts in the past (12) twelve months please indicate below providing the reasons as to why.

5) Company: NOT APPLICABLE.	**Contact Name and Title:**
Phone: ( ) **Fax: ( )**	**Email:**
Project:	
Dates of Service:	**$ Value:**
6) Company: NOT APPLICABLE.	**Contact Name and Title:**
Phone: ( ) **Fax: ( )**	**Email:**
Project:	
Dates of Service:	**$ Value:**

RFP R16-024 - Attachment E - SWaM Utilization Plan

Attachment E, Table A is to be completed and submitted by the Offeror as part of a complete Proposal.

A. Table A - Complete the SWaM Utilization Plan table below and submit with Proposal. See www.sbsd.virginia.gov for additional information on DSBSD certification.

SWaM Vendor Name, Address, Phone	Virginia DSBSD Certification # and Expiration	Knowledgeable Contact Name, Title, Email	Goods/Services to be Provided	$ Planned Spend and % of Total $
MCW SOLUTIONS, LLC.	Cert #: 671121 Exp. 05-28-2018	Ghattas E. Hajjo Founder and CEO	PRIME CONTRACTOR	100%

***This information will be used to determine percentage of points assigned to Evaluation Criteria if Offeror is not a DSBSD SWaM certified vendor.**

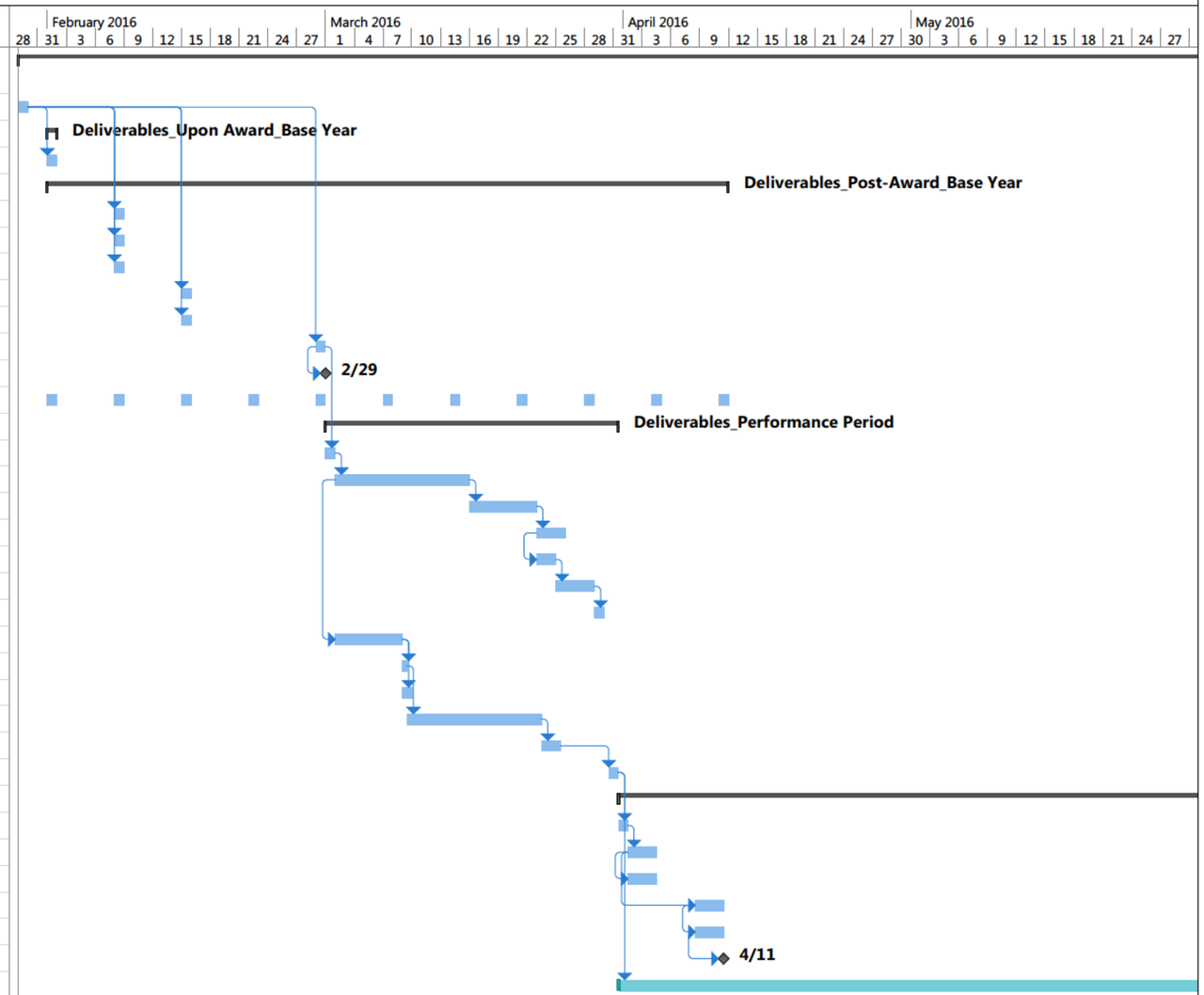
B. Table B is not to be completed for the proposal. If contract is awarded, the contractor shall provide the below quarterly report to the Radford University Director of Supplier Diversity and Contract Administration detailing the small business utilization actual spending. The quarterly report will be due the first week of the subsequent month for each quarter year, consisting of Jan-Mar, Apr-Jun, Jul-Sep, and Oct-Dec. The report must be submitted to the following address (email preferred):

Radford University
Director of Supplier Diversity and Contract Administration
POB 6885
Radford, Virginia 24142
amah@radford.edu

Table B is on the following page for reference only – do not complete the Quarterly SWaM Subcontractor Expenditure Reporting Form as part of the proposal.

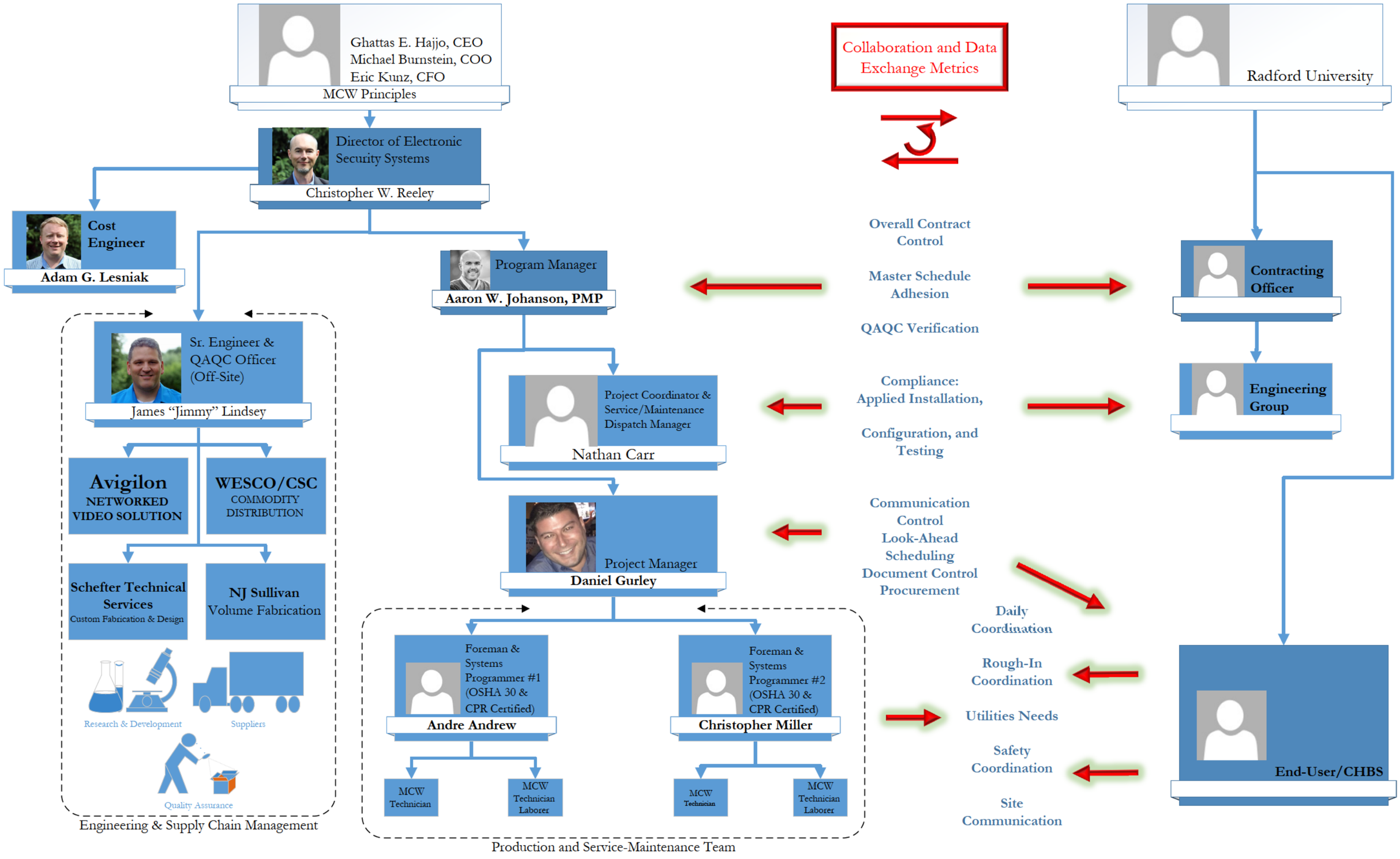
Radford University_RFP016-024 Networked Video Capture System_Progression Schedule

ID	Task Name	Duration	Start	Finish
1	**Radford University_RFP016-024 Networked Video Capture System_Progression Schedule**	**1344.5 days**	**Fri 1/29/16**	**Thu 3/25/21**
2	Letter of Intent to Award/Contract Effort	1 day	Fri 1/29/16	Fri 1/29/16
3	**Deliverables_Upon Award_Base Year**	**1 day**	**Mon 2/1/16**	**Mon 2/1/16**
4	Staffing, Resumes, Credentials, And Emergency Contact Information	1 day	Mon 2/1/16	Mon 2/1/16
5	**Deliverables_Post-Award_Base Year**	**51 days**	**Mon 2/1/16**	**Mon 4/11/16**
6	Project Management Plan	1 day	Mon 2/8/16	Mon 2/8/16
7	Tool & Equipment Listings & Initial Orders	1 day	Mon 2/8/16	Mon 2/8/16
8	Project Manager Work Schedule	1 day	Mon 2/8/16	Mon 2/8/16
9	Pre-Installation Conference Meeting Notes	1 day	Mon 2/15/16	Mon 2/15/16
10	Equipment Documentation/Technical Data/Submittals	1 day	Mon 2/15/16	Mon 2/15/16
11	Equipment Ordering/Delivery Completed	1 day	Mon 2/29/16	Mon 2/29/16
12	Shop Drawings Completed	1 day	Mon 2/29/16	Mon 2/29/16
13	**Weekly Construction/Manpower/Materials Status Reports**	**51 days**	**Mon 2/1/16**	**Mon 4/11/16**
25	**Deliverables_Performance Period**	**22.5 days**	**Tue 3/1/16**	**Thu 3/31/16**
26	Site Staging	1 day	Tue 3/1/16	Tue 3/1/16
27	NVS Field Equipment Installation	10 days	Wed 3/2/16	Tue 3/15/16
28	NVS Audio Field Equipment Installation	5 days	Wed 3/16/16	Tue 3/22/16
29	NVS ---> Audio Componentry Cabling Installation	3 days	Wed 3/23/16	Fri 3/25/16
30	NVS/Camera Systems Equipment Installation	2 days	Wed 3/23/16	Thu 3/24/16
31	NVS/Audio Systems Equipment Installation	2 days	Fri 3/25/16	Mon 3/28/16
32	Equipment Verification	1 day	Tue 3/29/16	Tue 3/29/16
33	Rack Fabrication	5 days	Wed 3/2/16	Tue 3/8/16
34	Final QC of Rack equipment	0.5 days	Wed 3/9/16	Wed 3/9/16
35	Software Loading & Testing	1 day	Wed 3/9/16	Wed 3/9/16
36	System Configuration & Programming	10 days	Wed 3/9/16	Wed 3/23/16
37	Sytems Pre-Testing & Punch List	2 days	Wed 3/23/16	Fri 3/25/16
38	Substantial Completion and Acceptance Testing	1 day	Wed 3/30/16	Thu 3/31/16
39	**Deliverables_Post-Performance Period_Base Year**	**1300 days**	**Thu 3/31/16**	**Thu 3/25/21**
40	Training and Certification for RU Personnel	1 day	Thu 3/31/16	Fri 4/1/16
41	Software Documentation	1 day	Fri 4/1/16	Mon 4/4/16
42	Testing and Acceptance Forms and Reports_Base Year	1 day	Fri 4/1/16	Mon 4/4/16
43	As-Built Drawings and Bill of Materials_Base Year	1 day	Fri 4/8/16	Mon 4/11/16
44	Record Documentation Including O&M Manuals_Base Year	1 day	Fri 4/8/16	Mon 4/11/16
45	Project Closeout Conference Meeting Notes_Base Year	1 day	Fri 4/8/16	Mon 4/11/16
46	Warranty Year	260 days	Thu 3/31/16	Thu 3/30/17
47	Optional Maintenance/Service Year 2 (after initial warranty year)	260 days	Thu 3/30/17	Thu 3/29/18
48	Optional Maintenance/Service Year 3	260 days	Thu 3/29/18	Thu 3/28/19
49	Optional Maintenance/Service Year 4	260 days	Thu 3/28/19	Thu 3/26/20
50	Optional Maintenance/Service Year 5	260 days	Thu 3/26/20	Thu 3/25/21



Project: Attachment F_RFP R16-
Date: Tue 11/3/15

Task | Project Summary | Manual Task | Start-only | Dead ine
Sp it | Inactive Task | Duration-only | Finish-only | Progress
Milestone | Inactive Milestone | Manual Summary Rollup | External Tasks | Manual Progress
Summary | Inactive Summary | Manual Summary | External Milestone


Ghattas E. Hajjo, CEO
Michael Burnstein, COO
Eric Kunz, CFO
MCW Principles
Director of Electronic Security Systems
Christopher W. Reeley
Cost Engineer
Adam G. Lesniak
Program Manager
Aaron W. Johanson, PMP
Sr. Engineer & QAQC Officer (Off-Site)
James "Jimmy" Lindsey
Project Coordinator & Service/Maintenance Dispatch Manager
Nathan Carr
Project Manager
Daniel Gurley
Foreman & Systems Programmer #1 (OSHA 30 & CPR Certified)
Andre Andrew
Foreman & Systems Programmer #2 (OSHA 30 & CPR Certified)
Christopher Miller
MCW Technician
MCW Technician Laborer
MCW Technician
MCW Technician Laborer
Avigilon
NETWORKED VIDEO SOLUTION
WESCO/CSC
COMMODITY DISTRIBUTION
Schefter Technical Services
Custom Fabrication & Design
NJ Sullivan
Volume Fabrication
Research & Development
Suppliers
Quality Assurance
Engineering & Supply Chain Management
Production and Service-Maintenance Team
Collaboration and Data Exchange Metrics
Overall Contract Control
Master Schedule Adhesion
QAQC Verification
Compliance: Applied Installation,
Configuration, and Testing
Communication Control
Look-Ahead Scheduling
Document Control
Procurement
Daily Coordination
Rough-In Coordination
Utilities Needs
Safety Coordination
Site Communication
Radford University
Contracting Officer
Engineering Group
End-User/CHBS

Attachment C

Revised Agreements:

1. **Clarification Question Responses dated 11/10/2015**
2. **Security Question Responses dated 1/13/2016**
3. **Intelligent Video Solutions edited Eula and Standard Hardware Warranty Statement**

Clarification Questions – MCW Solutions Rev.1 Inclusive of Intelligent Video Solutions' Products

Please enter your company's response to the questions below and email back to npressing@radford.edu no later than 3:00pm Eastern time on November 140, 20165. The questions below are organized to match the major section of the RFP Statement of Needs in which the topic appears. Please email any questions to the same email address.

Evaluation Criteria

1) **Attachment F - Qualifications and Relevant Experience:**

A) Item 2.1 - Has your company ever addressed and provided a bundle of hardware, software, and services for environments similar to those described in RFP R16-024?

MCW has been consulting upon, engineering, installing, configuring, and maintaining a wide variety of complex audiovisual, electronic security and surveillance, and IT systems for more than a decade. Although we promote certain manufacturers when we are afforded the opportunity, we are unlike many design and integration firms in that our human technical capabilities are agnostic to product choices. In this case, Radford has a specific software product with which they have prior experience and are thus far satisfied – VALT, by Intelligent Video Solutions (IVS). As such, MCW has engaged CVi's Richard Bungey, an authorized reseller of IVS Technologies. Mr. Bungey has agreed to function as MCW's subcontractor, providing the IVS technologies, servers, and labor required to perform the IVS products configuration, setup, and training.

Within MCW's Response to Clarifications, "Attachment A" Price Proposal, the Authority will find a number of pricing exercise Excel files as options to consider including the following:

- **Base Price: "RFP R16-024_Clarification_Attachment A.1_Base Price_77Fixed 1MP Cameras"**
  - Seventy-seven (77) fixed 1MP (720p) IP mini-dome cameras
  - Service and Preventative Maintenance through year 5
- **Option 1: "RFP R16-024_Clarification_Attachment A.2_Option 1_77Fixed 2MP Cameras"**
  - Seventy-seven (77) fixed 2MP (1080p) IP mini-dome cameras
  - Service and Preventative Maintenance through year 5
- **Option 2: "RFP R16-024_Clarification_Attachment A.3_Option 2_57 Fixed 1MP, 16 PTZ 1MP Cameras"**
  - Fifty-seven (57) fixed 1MP (720p) IP mini-dome cameras
  - Sixteen (16) 1MP (720p) PTZ cameras
  - Service and Preventative Maintenance through year 5
- **Option 3: "RFP R16-024_Clarification_Attachment A.4_Option 3_57 Fixed 2MP, 16 PTZ 1MP Cameras"**
  - Fifty-seven (57) fixed 2MP (1080p) IP mini-dome cameras
  - Sixteen (16) 1MP (720p) PTZ cameras
  - Service and Preventative Maintenance through year 5

B) Item 2.1 - Please describe how you believe the proposed system is different from a security system.

Not applicable when incorporating the IVS solution.

C) Item 2.2 - Please provide references where your company provided a video observation system for use in a clinical environment.

MCW's sub-contractor, CVi Security Inc., has performed the setup and configuration of the IVS VALT Software and solution numerous times. Please reference response to clarifications Attachment B.

MCW does not specifically have **clinical environment video observation systems** past performances. But few exist in the grand scheme of market demands… MCW does have a decade of past performances, the project complexity of which, greatly extend beyond those required of the solicitation. We have performed audiovisual and electronic security and surveillance solutions in the healthcare (Inova Healthcare, HCA, Reston Hospital), higher-education (Virginia Tech, UVA School of Medicine, UDC, and more), and even behavioral and social science buildings like those at Morgan State University. **This solicitation's requirements are an admixture of the technologies found in both the AV and Electronic Security industries.**

2) Attachment F - Capabilities, Skills, and Capacity:

A) Item 3.1 - Describe experience your staff has in configuring, implementing, and supporting clinical / observation type systems.

MCW Staff is composed of systems design engineers, master programmers, technicians, and service/maintenance personnel. We have a decade of successful past performance performing complex systems installations.

CVi Security Inc., MCW's subcontractor for the subject effort, has performed numerous configuration, implementations, in support of clinical/observation type systems. Please reference response to clarifications Attachment B.

MCW has considerable experience installing and servicing synchronized audio/video system deployments in the criminal justice market, which is very similar in application but different primarily in regard to regulatory compliance. These were not security projects, but rather relative to recording and notating such as the case with this project.

In regards to configuration and user-allowance, please reference response to clarifications Attachment E.

B) Item 3.3 - Provide expanded detail on what the proposal includes for warranty, maintenance, and extended maintenance, and specify if inclusive and not-separately-priced or if additional charges apply.

MCW's initial year of warranty is described on page 27 of our Proposal. This year of support and systems functional guarantee ***is*** included in our base pricing.

The proposed systems support, maintenance, and extended maintenance activities outside of those provided for the initial year of warranty are described within our proposal response section titled "Service and Preventive Maintenance Support (RFP Attachment C & Special IT Terms and Conditions, and Attachment F" (begins page 29), and more specifically the table of Preventive Maintenance and Support Services metrics found on page 33 of our proposal. These Preventive Maintenance and Service Support option years are not included in our base pricing, but instead as optional cost items, as described within initial response submission Attachment C.1 and supporting breakout Attachment C.3.

In migrating to IVS' products, a three (3) year advance replacement parts warranty has been included in our provisions.

As found in the optional pricing provisions tab of "Attachment A_MCW_Pricing Proposal_Rev.1", MCW has included Annual Software Support for each year after the initial warranty period, up to the fifth year.

Note that for all service and support options, each subsequent year of service and support can be procured individually.

3) Attachment F - Approach and Methodology:

A) Item 4.1 - Describe in more detail the technical operation of the complete system.

Please reference response to clarifications Attachments C and D.

B) Item 4.1 - Please describe any challenges you see in using the Avigilon software to fulfill the statement of needs in the environment described in RFP R16-024.

Not applicable when incorporating the IVS solution.

C) Item 4.2 - How is audio pickup in each room accomplished? Will the specified boundary microphone provide adequate sound without too much background noise?
Voice audio capture utilizes a boundary microphone specifically designed to be rugged and unobtrusive, yet specifically designed with the ideal characteristics necessary for high quality speech pick up where it is not feasible to provide direct microphone coverage for individual speakers. The specified microphone utilizes the Pressure Recording Process™, which relies on capturing both direct sound as well as the reflection of sound from boundary layers such as the ceiling and wall. Both signals are combined when in phase, thus removing peaks, dips, and other causations of incoherence while doubling the pressure and boosting the amplitude by 6 decibels. Low frequency sounds, such as HVAC, are removed from the signal while the higher frequencies are boosted to enhance the clarity and smoothness of speech.

D) Item 4.2 – How does a ceiling height greater than nine feet impact choice of and quality/functionality of microphones?
The microphone choice is primarily dictated by the need to provide a high quality method of voice capture within a limited space where the furniture style and participant location is flexible. The ideal situation is either a head worn boom style microphone, or a gooseneck microphone placed less than two feet from each speaker. Since this is often not feasible, the boundary microphone is utilized. However, the success of any microphone is still affected by the distance from the speakers. Assuming the rooms are designed and constructed to minimize reverberation and outside noise sources, there is still a limit at how far away from the speaker a microphone will successfully work. Longer distances from the speaker quickly begin to reduce the sound level available to the microphone. In this case, past experience dictates that a ceiling height higher than eight to nine feet would recommend either an alternative microphone type, closer placement on either a wall or table, or a third option. The third option involves attaching the microphone to a more reflective surface, such as an acrylic panel. In the end, the intent is to provide a high quality and affordable solution without the ability to actually examine and measure the sound characteristics of the space in question.

E) Item 4.4 – Clarify proposed system capability for simultaneous recording, specifically, if all rooms and all cameras within each of those rooms are in use at the same time, can recordings for all rooms using all cameras take place at once? What is the maximum number of cameras recording simultaneously for the scale of the proposed system?

MCW will rely on its subcontractor, CVi, as an IVS authorized and certified integrator, to provide clarification of the IVS system limitations in regards to these questions. Mr. Richard Bungey of CVi has read the RFP for this project, and was personally involved with similar installation elsewhere on the Radford University campus, and yet has not relayed any concern regarding this potential issue. It will be addressed prior to acceptance to provide the Authority with confirmation.

F) Item 4.5 – For in-room recording controls, does one switch allow the user to turn on and off the ability to capture live and recorded audio and video broadcasting in that room, or are audio and video each a separate switch? Will this switch override scheduled viewing and recording? Is there any visual indicator in the room that recording is taking place?

Q#1: Yes, one switch will effect both audio and video. Refer to response in Attachment F, Section 4.5

Q#2: Yes, if that is the Authority's desire; that is a function of the software.

Q#3: We have modified our materials provisions to include a switch fitted with a visual LED Indicator light.

G) Item 4.5 - Describe where you will provide switches and where you expect Radford University to provide switches.

MCW has included layer-3 TrendNet switches as required for support within our head-end equipment locations. The proposed switches function as power and data transmission for the cameras and microphones.

We would need Radford to provide connectivity to secure VLAN switches upstream of our head-end locations as required. We don't particularly need additional switches to be provided by the Authority.

H) Item 4.7 – Describe talkback devices in more detail. How does it work? How is signal secured? What is the range of these devices?

The talkback design is intended to allow a person in an Observation Room to privately speak to a colleague in an adjacent Assess Room. It is not intended to be two way; there is no means for a person in the Assess Room to privately speak to someone in the Observation Room. Communication is initiated by activating a switch, toggle, or touch panel button. Once activated, the voice of the person wishing to speak in the Observation Room is captured by the local boundary microphone and this signal is routed to an RF transmitter. Four receivers are paired to this transmitter, and each receiver includes a single ear bud. Additional receivers can be added, and different headphone or ear bud styles can be purchased as need dictates. When the Observation Room speaker is finished, the method of activation is reversed and the local microphone is no longer routed to the transmitter feeding the receivers. Each transmitter is set to one of three channels, and only the receivers set to the same frequency will receive the signal. The signal is fully digital, ensuring that transmission does not drift. The transmitter antenna is extended to the area in which the receivers are to be used. Under ideal conditions the antenna can provide a signal to receivers as far as 1,500 feet away. In this situation, the antenna power will be set to half or quarter power due to the limited distance needed.

I) Item 4.8 - How many hours of video will the proposed systems store at each quality level?

The proposed solution will provide a minimum of 14 days storage, assuming all cameras are recording at full resolution and 30 frames per second. Additional system servers or external SAN type storage may be added to provide longer durations of storage as needed.

J) Item 4.10 – Describe how your proposed software, or alternate software, is structured to allow video indexing, and marking and naming specific points in each video. This key functionality is not clearly provided in the proposal. Is this functionality already developed and ready to use now? Can notations be added along with bookmarks?

Yes, the IVS GUI allows annotations to be added along with bookmarks of video and audio media.

K) Item 4.12 - Describe in detail the available options for clients to set permissions such that students will only be able to see and access those recordings they are authorized to see. The proposal description does not clearly describe this key security function.

The IVS solution is compliant, their response to attachment F, Item 4.12 stating, "User permissions are fully configurable to allow this. Each user must be allocated to a group and assigned unique log-ins."

L) Item 5.1 –The proposal recommends not using PTZ. Please provide more detail and a sample of the resolution at various distances of the type of lens recommended.

Fixed cameras provide static video feeds to ensure desired objects/subjects are always captured.

In our professional opinion, PTZ's are more useful as a supplement to Fixed Cameras because they require user manipulation, and the subject/objects needing to be captured can be missed.

M) Item 5.1 - In the event that room layout changes in the future, are camera systems or microphone placements adjustable?

Microphones are easily moved as needed. The microphone plate mounts to a single gang box or ring and the cable is attached to a three position terminal on the rear of the plate.

N) Item 6.3 - Describe in detail how system access security can be setup and what options are available.

MCW will rely on its subcontractor, CVi, as an IVS authorized and certified integrator, to provide details in regards to this request. MCW does not yet have first-hand knowledge of the IVS software.

O) Item 7.1 – When will support for Mac computers be available?

IVS is compatible with PC, MAC, Tablets, etc.

4) Other Sections and General

A) MCW Scope of Work, page 12 of 37 - For the mock trial room 5012, what type of pre-existing microphones are being assumed as provided by Radford University, and what microphones are provided by your company?

The Communications floor plans (E2.7.3) show multiple microphone outlets as well as speakers and an AV rack for the Mock Trial Room. This clearly indicates a professional audiovisual system is intended for the space. Such a system should include in-room voice reinforcement which requires fixed microphones at each critical participant location, as indicated on drawing E2.7.3. These microphones provide the ideal method of voice capture and must be routed through a digital signal processor, which can easily be specified to provide a microphone mix output which MCW will route to the cameras. By not providing separate microphones for the space, MCW is minimizing the overall system cost.

B) MCW Scope of Work, page 14 of 37 - Related to the training, will written documentation be provided and if so, in a format that faculty end users can utilize (e.g., "one pager" of basic instructions for day-to-day use), in addition to more technical information that would be provided to IT staff?

Documentation
The deliverables list identified in Special IT Terms and Conditions Item #14 includes data we would extend Radford University regardless of the contractual requirement. Your subject matter experts who continuously use and maintain Video & Audio Systems will tell you that the upkeep and use of them is much like any intricate machine; there are methods and means applicable to each individual system and end-user. MCW would also provide the Radford University with the manuals and an interconnectivity diagrams for installed products and systems.

As an added benefit to Radford University, MCW foresees the need for open collaboration between the engineering and end-user entities both during and after the contract performance period. Customization of Video & Audio Systems installed by MCW evolves into site-specific operation details; how equipment is intended to be used. Open collaboration will ensure that Radford University is kept up-to-date as to the conditions and application methods that MCW is developing during the design/layout phase. Open access to the minds behind the system and physical configurations will exceed the need to provide knowledge sharing sessions, which we

embrace the need for as well. The return to Radford University is identification and documentation of the intended system functionality from the time of design conceptualization.

Technical Libraries
MCW, both for internal collaboration purposes, and for the purposes of providing the breadth of support that Radford University is requesting post-installation, maintains a comprehensive catalogue of product and services data available to our client and industry partners at any time. MCW will develop a solutions catalogue specific to this project.

C) Does the RF System provide adequate protection to insure privacy?

The RF talkback system utilizes digital transmission, ensuring the signal does not slip between different frequencies. Each system is set to one of three set frequencies: 72.100, 72.900, or 75.900. Devices not on one of these frequencies or outside the range will not be able to receive the transmission signal. The RF distribution transmitter only broadcasts what is picked up by the Observation Room microphone when it is specifically activated. Higher privacy levels are achievable by utilizing encrypted equipment or infrared transmission requiring line of sight, with a significant increase in cost. This level of security should be specifically detailed if deemed necessary. At this level, though, each room must also be constructed to prevent any intelligible sound from leaking through the walls or plenum ceiling space.

D) Will there be functionality testing with the direct end users prior to finalizing the system?

MCW has included labor to perform initial systems configuration/pre-testing, and acceptance testing with the authority as required for beneficial use.

E) **Terms** - Does your company accept all Terms and Conditions in RFP R16-024, Attachment B and Attachment C? Respond Yes or No. If No, please itemize specific terms for which you request consideration and why.

Yes.

MCW provides the following technical narratives, revised in accordance with the migration from the Avigilon solution to one incorporating the IVS technologies.

Networked Video Capture System

The following scope details the effort to provide IP megapixel, high resolution cameras for video capture with audio synchronization for routing and recording in the new College of Humanities and Behavioral Sciences (CHBS) building at Radford University. This scope details the solutions proposed by MCW to fulfill the requirement of RFP R16-024 of "controlled access video as an instructional and research tool allowing live observation or review of recordings as well as the ability to mark and add descriptions to specific points in the videos as feedback to students".

MCW proposes a solution to include video capture cameras, video server recorders, control interface equipment and VALT system management software, by Intelligent Video Solutions (IVS). VALT software will be installed on owner-supplied computer workstation(s) within Observation/Supervisory Rooms as directed by Radford University. System access is login/password restricted so that each user is granted access only to the features, functions, and portions of the system to which they should have access, including live and recorded video viewing and editing.

Audio microphones will be connected to the cameras in each respective room and synchronized with the video cameras for live view and recorded playback. Please refer to the Audiovisual Microphones section for details regarding the audio components utilized for this project.

Conference Room 1103

- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Option 1) will be installed, one in each corner of the room as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the conference room table.
- Each camera will be ceiling mounted and connected to the head-end control equipment in Audio Control Room 1102.1 via Ethernet cable (furnished and installed [F/I] by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Observation Room 3015 and Interview Room 3014

- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Interview Room 3014 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Observation Room 3015 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Each camera will be ceiling mounted and routed down to the head-end control equipment in Audio Control Room 1102.1 via Ethernet cable (F/I by others). Conduit sleeve between floors is by others, as required.
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Short/Long Term Data Rooms 4008, 4009, 4010, and 4011

- Eight (8) total 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1, or 1MP PTZ cameras – see Pricing Option 2) will be installed in Short Term/Long Term Data Rooms 4008, 4009, 4010 and 4011 (two fixed cameras or, optionally, 1 PTZ camera, in each room), as indicated on the provided floorplan drawings, to provide video coverage as required within the rooms.
- Each camera will be wall or ceiling mounted and routed to the head-end control equipment in Education Lab Equipment Room 4021 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Data Collection Rooms 4004 and 4005

- *Deleted from original scope per email to MCW from Mrs. Nancy Pressing, dated November 13, 2015.*

Short/Long Term Data Collection Rooms 4035, 4035.1, 4036 and 4036.1

- Four (4) total 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1, or 1MP PTZ cameras – see Pricing Option 2) will be installed in Short Term/Long Term Data Collection Rooms 4035 and 4036 (one fixed camera or, optionally, 1 PTZ camera, in each room), as indicated on the provided floorplan drawings, to provide video capture as required within the rooms.
- Each camera will be wall or ceiling mounted and routed to the head-end control equipment in Education Lab Equipment Room 4021 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Group Therapy Rooms 5204 and 5206, and Assess Room 5208

- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Group Therapy Room 5204 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Group Therapy Room 5206 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Three (3) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Assess Room 5208 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Each camera will be ceiling mounted and routed down to the head-end control equipment in DVR Closet 5202 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.
- Video and audio capture/recording in these rooms will be maintained according to HIPAA standards. MCW will coordinate with Radford University compliance officials to ensure compliance while achieving the required functionality.

Observation 1 Room 5207, and Assess Rooms 5209 and 5211

- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Observation 1 Room 5207 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Assess Room 5209 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Assess Room 5211 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Each camera will be ceiling mounted and routed to the head-end control equipment in DVR Closet 5202 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.
- Video and audio capture/recording in these rooms will be maintained according to HIPAA standards. MCW will coordinate with Radford University compliance officials to ensure compliance while achieving the required functionality.

Assess Room 5214, and Observation 2 Room 5216

- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Assess Room 5214 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Observation 2 Room 5216 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Each camera will be ceiling mounted and routed to the head-end control equipment in DVR Closet 5202 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

- Video and audio capture/recording in these rooms will be maintained according to HIPAA standards. MCW will coordinate with Radford University compliance officials to ensure compliance while achieving the required functionality.

Short/Long Term Data Collection Rooms 5008, 5008.1, 5009, 5009.1 (Typical)

- Four (4) total 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1, or 1MP PTZ cameras – see Pricing Option 2) will be installed in Short Term/Long Term Data Collection Rooms 5008 and 5009 (one fixed camera or, optionally, 1 PTZ camera, in each room), as indicated on the provided floorplan drawings, to provide video capture as required within the rooms.
- Each camera will be wall or ceiling mounted and routed to the head-end control equipment in Judges Antechamber 5012.1 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Short/Long Term Data Collection Rooms 5016, 5017, 5018 and 5018.1

- One (1) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1, or 1MP PTZ cameras – see Pricing Option 2) will be installed in Short Term/Long Term Data Collection Room 5016 (one fixed camera or, optionally, 1 PTZ camera), to provide video capture as required within the room.
- One (1) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1, or 1MP PTZ cameras – see Pricing Option 2) will be installed in Short Term/Long Term Data Collection Room 5017 (one fixed camera or, optionally, 1 PTZ camera) to provide video capture as required within the room.
- Two (2) total 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1, or 1MP PTZ cameras – see Pricing Option 2) will be installed in Short Term/Long Term Data Collection Rooms 5018 and 5018.1 (one fixed camera or, optionally, 1 PTZ camera, in each room) to provide video capture as required within the room.
- Each camera will be wall or ceiling mounted and routed to the head-end control equipment in Judges Antechamber 5012.1 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Observation Room 5022 and Interview Room 5024

- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Interview Room 5024 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Four (4) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, one in each corner of Observation Room 5022 as indicated on the provided floorplan drawings, to provide video coverage of persons positioned around the table.
- Each camera will be ceiling mounted and routed to the head-end control equipment in Judges Antechamber 5012.1 via Ethernet cable (F/I by others).
- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Mock Trial Room 5012

- Five (5) 1MP (megapixel) fixed mini-dome cameras (or 2MP cameras – see Pricing Option 1) will be installed, as indicated on the provided floorplan drawings, to provide video coverage of persons positioned in various locations throughout the mock courtroom.
- Each camera will be wall or ceiling mounted and connected to the head-end control equipment in Judges Antechamber 5012.1 via Ethernet cable (F/I by others).

- Each camera will be positioned to achieve the optimal field-of-view. MCW will coordinate with Radford University to ensure that the appropriate field-of-views are captured.
- Software will be installed and configured on owner-supplied computer workstation(s) as required.

Audiovisual Microphone Systems

The following scope details the effort to provide high quality microphones for voice capture and routing in the new academic building at Radford University. The following scope details the solutions proposed by MCW to fulfill the requirement of voice capture for distribution to local surveillance cameras, as part of a recording system, as well as local distribution within spaces designed for observation and collaboration.

Conference Room 1103

- An as yet unspecified audiovisual system is apparently intended for this room. This proposal assumes the audiovisual system will include sufficient installed microphones to cover the overall space or areas where speech must be captured. This minimizes the overall cost of the system by eliminating microphone redundancy as well as the equipment necessary to mix, route, and control the audio feed.
- The audiovisual system, not included in this proposal, must be designed to include sufficient microphones as well as a DSP device with one open output dedicated to provide a microphone mix routing to the security cameras for external recording.
- MCW shall provide a distribution amplifier to split the microphone mix output from the DP. This feed will be routed to a line level input on each of the security cameras in the room.
- The audiovisual system design should include a control system which includes the ability to mute the audio feed to the cameras when privacy is needed.
- The equipment dedicated to distribution of the voice mix shall be located in the audiovisual rack, provided by others, and a metal box located above the ceiling near the cameras.

Observation Room 3015 and Interview Room 3014

- A pressure zone boundary microphone, designed for conference, security, and surveillance applications, will be ceiling mounted in each room above the seating area.
- Each microphone feed will be split and a line level signal routed to the security cameras installed in the same room as the microphone.
- The audio from the microphone installed in 3014 may be played back over a recessed ceiling speaker in 3015. A wall mounted volume attenuator will provide level control to the speaker.
- An infrared (IR) audio distribution package will be installed. It shall provide the means to route the microphone feed in 3015 to an interviewer in 3014. The system utilizes an infrared emitter mounted on the wall or ceiling. An infrared belt pack receiver is worn by the interviewer in Room 3014. A single ear bud is attached to allow for private listening. The infrared signal cannot penetrate walls, ensuring privacy is maintained.
- Two wall plates, each with a latching toggle, will be installed on the wall in 3015, flanking the observation window. Either toggle activates routing the microphone in 3015 to the IR system. Reversing the toggle will deactivate this feed.
- The security camera privacy toggle in 3014 will trigger muting sound to the speaker in 3015, to be used when temporary privacy is needed.
- The primary equipment will be located in a small wall mounted rack in electrical closet 3003. The distribution amplifiers for routing microphone audio to the cameras will be installed in a metal box located above the ceiling in the general space.

4008, 4009, 4010, and 4011

- A pressure zone boundary microphone will be ceiling mounted in each room above the seating area.
- The microphone output in each room will be distributed to the security cameras installed in the same room as the microphone.

- Distribution equipment for each room grouping shall be housed in a small metal enclosure located above the finished ceiling in the general space. The power supply shall be located externally at an outlet located within the space.

4035, 4035.1, 4036, 4036.1

- A pressure zone boundary microphone will be ceiling mounted in each room above the seating area.
- The microphone output in each room will be distributed to the security cameras installed in the same room as the microphone.
- Distribution equipment for each room grouping shall be housed in a small metal enclosure located above the finished ceiling in the general space. The power supply shall be located externally at an outlet located within the space.

Observation Rooms 5207 and 5214, Group Therapy Rooms 5204 and 5206, and Assess Rooms 5209, 5211, and 5214

- A pressure zone boundary microphone will be ceiling mounted in each room above the seating area.
- Audio DSP mixers shall be utilized for source switching and routing.
- The microphone output in each room will be distributed to the security cameras installed in the same room as the microphone.
- Each Observation Room will have the ability to choose one of the Group Therapy or Assess Rooms and monitor that room's microphone feed as well as speak privately to the interviewer.
- An infrared transmitter will be wall or ceiling mounted in each Group Therapy and Assess Room. A belt pack receiver is provided for each of these rooms. The receiver includes a single wired ear bud.
- A twelve bay charging station is included to allow all receivers to be stored and charged when not in use. The receivers for other Observation/Assess Rooms will also use this charger.
- A wireless 10 button keypad will be located in each Observation Room. The keypad allows the observer to choose one Group Therapy or Assess Room. Audio from the microphone in that room will then be routed to a ceiling speaker in the Observation Room. The keypad will also allow the Observation Room microphone to be routed (or muted) to the infrared system in the selected Group Therapy or Assess Room. An RF receiver is located above each Observation Room ceiling to allow communication between the keypad and the control processor and audio system.
- A toggle switch in each Group Therapy and Assess Room will allow the interviewer in that room to ensure the local microphone is not routed to the speaker in either Observation Room. This may be used when complete privacy is briefly needed.
- The primary equipment will be located in the security rack located in the closet adjacent to 5204. Audio distribution amplifiers feeding the cameras will be located in in a small metal enclosure located above the finished ceiling in the general space.

5008, 5008.1, 5009, 5009.1 (Typical)

- A pressure zone boundary microphone, designed for conference, security, and surveillance applications, will be ceiling mounted in each room above the seating area.
- The microphone output in each room will be distributed to the security camera installed in the same room as the microphone.
- Distribution equipment for the room grouping shall be housed in a small metal enclosure located above the finished ceiling in the general space. The power supply shall be located externally at an outlet located within the space.

5016, 5017, 5018 North, 5018 South (Typical)

- A pressure zone boundary microphone, designed for conference, security, and surveillance applications, will be ceiling mounted in each room above the seating area.
- The microphone output in each room will be distributed to the security camera installed in the same room as the microphone.
- Distribution equipment for the room grouping shall be housed in a small metal enclosure located above the finished ceiling in the general space. The power supply shall be located externally at an outlet located within the space.

Observation Room 5022 and Interview Room 5024

- A pressure zone boundary microphone, designed for conference, security, and surveillance applications, will be ceiling mounted in each room above the seating area.
- Each microphone feed will be split and a line level signal routed to the security cameras installed in the same room as the microphone.
- The audio from the microphone installed in 5024 may be played back over a recessed ceiling speaker in 5022. A wall mounted volume attenuator will provide level control to the speaker.
- An infrared (IR) audio distribution package will be installed. It shall provide the means to route the microphone feed in 5022 to an interviewer in 5024. The system utilizes an infrared emitter mounted on the wall or ceiling. An infrared belt pack receiver is worn by the interviewer in Room 5024. A single ear bud is attached to allow for private listening. The infrared signal cannot penetrate walls, ensuring privacy is maintained.
- Two wall plates, each with a latching toggle, will be installed on the wall in 5022, flanking the observation window. Either toggle activates routing the microphone in 5022 to the IR system. Reversing the toggle will deactivate this feed.
- The security camera privacy toggle in 5024 will trigger muting sound to the speaker in 3015, to be used when temporary privacy is needed.
- The primary equipment will be located in the AV rack provided by others for the Mock Courtroom, or a small wall mounted rack located in this same space. The distribution amplifiers for routing microphone audio to the cameras will be installed in a metal box located above the ceiling in the general space.

Mock Trial 5012

- An as yet unspecified audiovisual system is apparently intended for this room. This proposal assumes the audiovisual system will include sufficient installed microphones to cover the overall space or areas where speech must be captured. This minimizes the overall cost of the system by eliminating microphone redundancy as well as the equipment necessary to mix, route, and control the audio feed.
- The audiovisual system, not included in this proposal, must be designed to include sufficient microphones as well as a DSP device with one open output dedicated to provide a microphone mix routing to the security cameras for external recording.
- MCW shall provide a distribution amplifier to split the microphone mix output from the DP. This feed will be routed to a line level input on each of the security cameras in the room.
- The audiovisual system design should include a control system which includes the ability to mute the audio feed to the cameras when privacy is needed.
- The equipment dedicated to distribution of the voice mix shall be located in the audiovisual rack, provided by others, and a metal box located above the ceiling near the cameras.

General Notes

- The specified boundary layer microphone is designed for security and surveillance applications. It is characterized by a consistent pickup anywhere around the mic. Low frequencies below the voice range are rolled off to reduce the pickup of heating, ventilation or air-conditioning rumble (HVAC noise). The high-frequency response is boosted slightly to aid clarity and articulation. It shall be ceiling or wall mounted in a single gang receptacle and features a white finish with an inconspicuous appearance. It features a maximum SPL of 120 dB with a signal to noise ratio of 68 dB-A.
- This proposal assumes microphone shall be installed in an acoustical tile ceiling, not to exceed 9 feet above the floor and located directly above a set seating area. Room characteristics must be designed to maximize voice intelligibility and minimize reverberation, sound ingress, and other factors that negatively affect the ability to successfully record events. Note that the room finish should also be designed to meet the ideal characteristics required by cameras, particularly the wall finish and lighting placement and color temperature. Less than ideal conditions will negatively affect the quality of the audio and video capture and dissemination as well as the overall user experience.
- Additional microphones may be added in any space if additional coverage is deemed necessary. This shall be accomplished via a change order.
- Audio levels from each microphone will be set to the best achievable level possible in terms of pickup and intelligibility, based on the structural and acoustical characteristics of the space. Microphone levels will not be

adjustable by the end user, except where the microphone, DSP, and control system is provided by others, such as Conference Room 1103 and Mock Trial 5012.

- Power outlets for the equipment provided in this proposal must be provided by others.

N66W38493 North Woodlake Circle, Oconomowoc, WI 53066
richard@cvisecurity.com PH: 262-569-1986 www.cvisecuritysolutions.com

CORS INSTALLATION PROJECTS

Over 100 Universities have expressed great interest in **CVi's CORS** Solution so far, with almost all either planning or in the process of purchasing for their Clinics and other Programs (Business, Sales, Nursing, Medical, etc.).
Since June 2012 systems have been installed in:

CORS SYSTEMS INSTALLED PRIOR TO JANUARY 2015 (ISR SOFTWARE)

Fontbonne U, St Louis, MO
10 camera CORS for their Speech Clinic.
- Installed - June 2012

Viterbo U – LaCrosse, WI
6 camera CORS for their Psychology, Business Masters Program
- Installed - July 2012

6 camera CORS expansion for their Psychology Undergraduate Program
- Installed - July 2013

Syracuse U, Syracuse NY*
19 camera CORS for their Speech Clinic
- Installed May 2013

3 camera expansion
- Installed July 2014

2 camera expansion
- Installed February 2015

Truman State U, Kirksville MO*
9 Camera CORS for their Speech Language Clinic
- Installed July 2013

U Minnesota, Duluth MN*
8 Camera CORS for their Speech Language Clinic
- Installed July 2013

4 camera CORS for their Psych Counseling Clinic
- Installed September 2014

Midwestern U, Downers Grove IL*
28 camera CORS for their Speech Language Clinic
- Installed September 2013

U Alabama, Tuscaloosa AL
15 camera CORS for their Speech Language Clinic
- Installed September 2013

12 Camera CORS for their Counseling Clinic
- Installed November 2014

U District of Columbia, DC*
11 camera CORS for their Speech language Clinic
- Installed September 2013

U Vermont, VT*
12 camera CORS for their Speech Language Clinic
- Installed March 2014

Southern Illinois U – Edwardsville, IL
8 camera CORS for their Speech Language Clinic
- Installed May 2014

1 camera expansion
- Installed January 2015

New Mexico State U, Las Cruces, NM
5 Camera Talkback system addition for their Speech Language Clinic
- Installed June 2014

U Northern Iowa, Cedar Rapids, IA*
22 Camera CORS for their Speech Language Clinic
- Installed August 2014

* In process of changeover to **VALT** Software

CORS SYSTEMS INSTALLED/UPGRADED SINCE JANUARY 2015 (VALT SOFTWARE)

U Montana – Missoula, MT
9 Camera CORS for their Speech Clinic
- Installed and Expanded January 2013 –Oct 2014
- Updated to VALT May 2015
- 3 Camera Expansion scheduled November 2015

8 camera CORS for their Counseling Clinic
- Installed May 2015

Portland State U, Portland OR
9 Camera CORS for their Speech Language Clinic
- Installed September 2014
- Updated to VALT January 2015

Drexel U, Philadelphia PA
12 Camera CORS for their Counseling Clinic
- Installed November 2014
- Updated to VALT January 2015

Northwestern U, Evanston, IL
48 Camera CORS for their Speech and Hearing Clinics
- Installed December 2014/January 2015

Touro College, Brooklyn, NY
12 Camera CORS for their Speech Language Clinic
- Installed January 2015

Nazareth College, Rochester, NY
13 Camera CORS for their Speech Language Clinic
- Installed Phase 1 January 2015
- Installed Phase 2 June 2015

5 Camera CORS for their Nursing Clinic
- Installed August 2015

San Jose State U, San Jose, CA
11 Camera CORS for their Speech Language Clinic
- Installed February 2015

Carlos Albizu U, Miami, FL
5 Camera CORS for their Counseling Clinic
- Installed February 2015

Montclair State U, Bloomfield, NJ
23 Camera CORS for their Speech Language Clinic
- Installed May 2015

Radford U, Radford VA
13 camera CORS for their Speech Language Clinic
- Installed May 2013
- Updated to VALT July 2015

30+ camera CORS for their Psychology Program
- Scheduled 2016

Lehman College, Brooklyn, NY
12 Camera CORS for their Speech Language Clinic
- Installed June 2015

U Washington, Seattle, WA
17 Camera CORS for their Psychology Clinics
- Installed June 2015

Marshall U, Huntington, WV
23 Camera CORS for their Speech Language Clinic
- Installed July 2015

Old Dominion U, Norfolk, VA
12 Camera CORS for their Speech Language Clinic
- Installed August 2015

Armstrong State U, Savannah, GA
9 Camera CORS for their Speech Language Clinic
- Installed August 2015

Mercy College, Dobbs Ferry, NY
6 Camera CORS for their Speech Language Clinic
- Installed August 2015

Northern Michigan U, Marquette, MI
5 Camera CORS for their Speech Language Clinic
- Installed August 2015

Molloy College, NY
9 Camera CORS for their Speech Language Clinic
- Installed September 2015

U Wisconsin, Whitewater, WI
9 Camera CORS for their Speech Language Clinic
- Installed September 2015

Chapman U, Orange, CA
7 Camera CORS for their Speech Language Clinic
- Installed Onctober 2015

Grace Harbour Inc., Atlanta, GA
2 Camera CORS for their Counseling Clinic
- Installed October 2015

Arizona State U, Tempe AZ
26 Camera CORS for their Speech Language Clinic
- Phase 1 Scheduled November 2015
- Phase 2 Scheduled 2016

CSU – Chico, Chico CA
8 camera CORS for their Speech Pathology Clinic.
- Installed August 2012
- Update to VALT scheduled for November 2015

U Iowa – Iowa City, IA
25 camera CORS for their Speech Clinic
- Installed January 2013
- Upgrade to VALT scheduled for November 2015

CSU Northridge, Northridge, CA,
26 Camera CORS for their Speech Language Clinic
- Scheduled December 2015

CSU Los Angeles, Los Angeles, CA
12 Camera CORS for their Speech Language Clinic
- Scheduled December 2015

Baylor University, Waco, TX
11 Camera CORS for their Psychology Counseling Clinic
- Scheduled December 2015

N66W38493 North Woodlake Circle, Oconomowoc, WI 53066
richard@cvisecurity.com PH: 262-569-1986 www.cvisecuritysolutions.com

CLINIC OBSERVATION RECORDING SYSTEM (CORS)

Valt Administration Guide

V3.2.1

Table of Contents

Application Information

Client Requirements

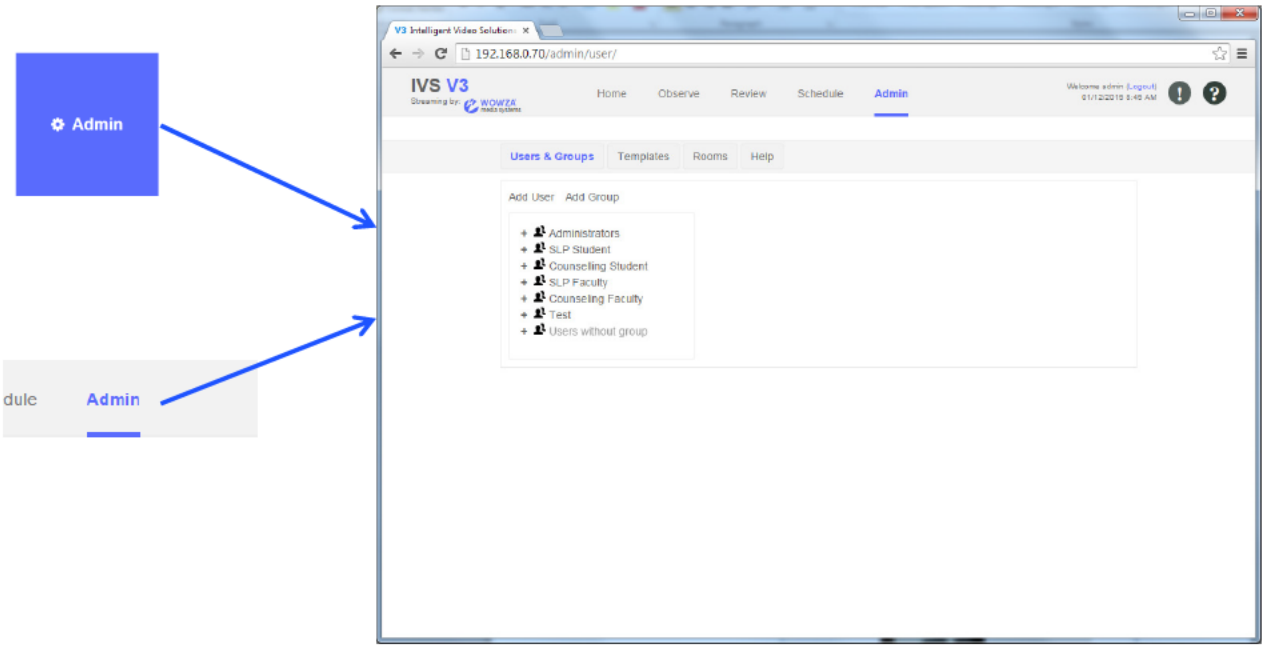
1) PC Requirements:
    a. Dual Core 2GB RAM or equivalent for single HD video stream
    b. Core i3 2GB RAM or equivalent for up to 2 HD video streams
    c. Core i5 4GB RAM or equivalent for up to 4 HD video streams
    d. Core i7 8GB RAM or equivalent for up to 9 HD (max) video streams
2) Client PC Software Requirements:
    a. Flash Player 16.x or greater
    b. One of the following validated browsers: Internet Explorer 9+, Chrome, Firefox, Safari, or Opera.

Network Requirements

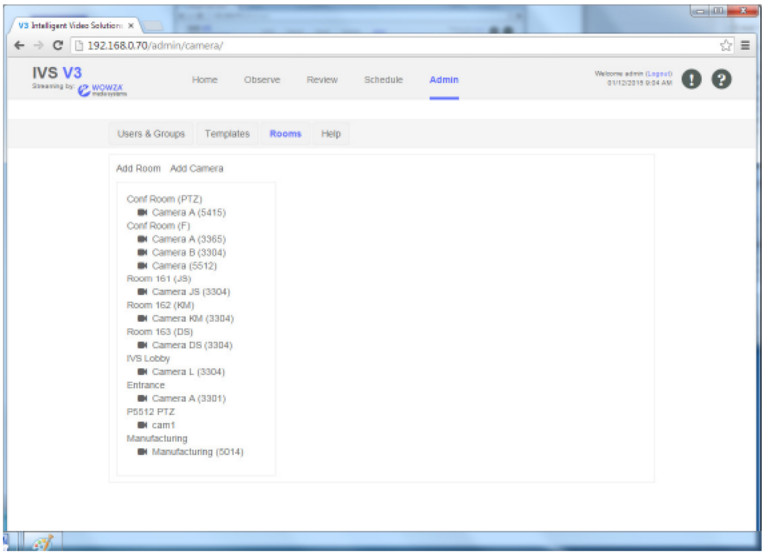
1) Server to Camera(s) access:
    a. TCP 80 - http
    b. TCP 554 - rtsp video
    c. TCP 8086 – Wowza
    d. TCP 8087 – Wowza
2) Client to Server (Non SSL)
    a. TCP 80 – http
    b. TCP 8080 – http nodejs
    c. TCP 1935 – rtmp video
    d. TCP 22 – SSH admin
    e. TCP 8088 – Wowza admin
3) Client to Server (SSL)
    a. TCP 443 –https
    b. TCP 8080 – https nodejs
    c. TCP 1935 – rtmp video
    d. TCP 22 – SSH admin
    e. TCP 8088 – Wowza admin
4) Client to Server (SSL + RTMPS)
    a. TCP 443 – https
    b. TCP 8080 – https nodejs
    c. TCP 444 – rtmps video
    d. TCP 22- SSH admin
    e. TCP 8088 – Wowza admin

Software Data Set-up

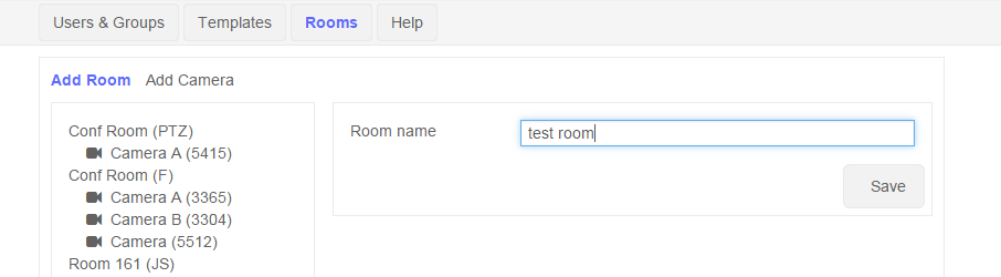
Accessing the System: Clicking on the Admin button after you log in or the Admin menu link when in a different section of the application will take you to the page shown below:



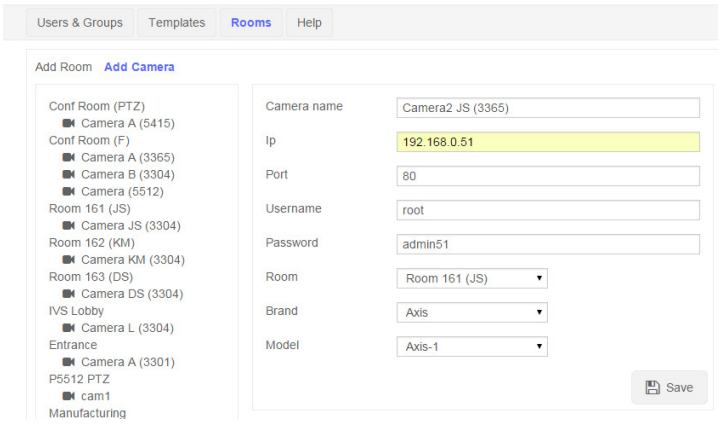
Rooms Overview: Under the admin section click on the Rooms button as shown below. Rooms act like named containers. To add cameras to your system you will first need to create the rooms then add the cameras to the specified room. With our system you can add up to 9 cameras to a single room. When cameras are grouped under a room they are accessed together during both live observation and playback. Too add, edit, or remove a room or camera click on the Rooms button under the Admin section of the application.



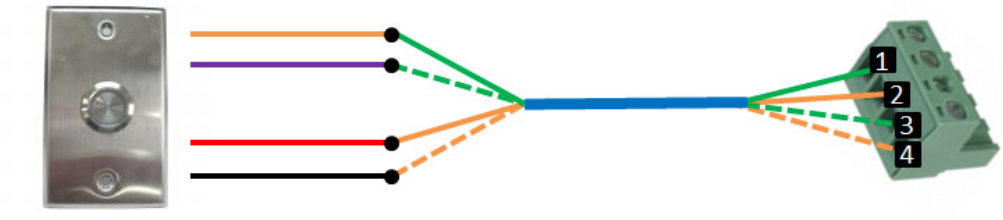
Rooms – Adding a Room: To add a room click on the Add Room button. Give the room a name then click Save. Please note the rooms will be displayed to the users in the order they are added.



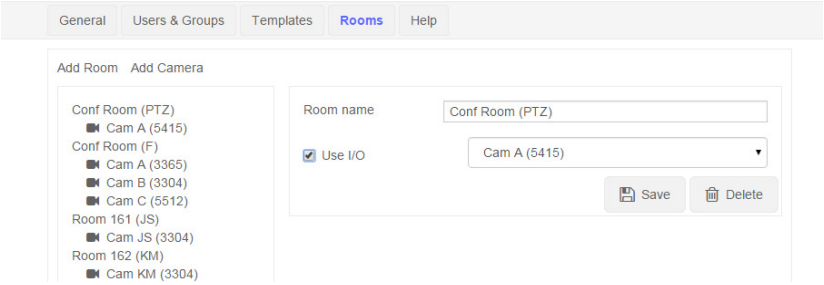
Rooms – Adding a Camera: To add a camera click on the Add Camera button. Next give the camera a name, enter the IP address, port (typically 80), enter the camera username and password, select the Room you want the camera associated with, select the brand and model, then press Save.



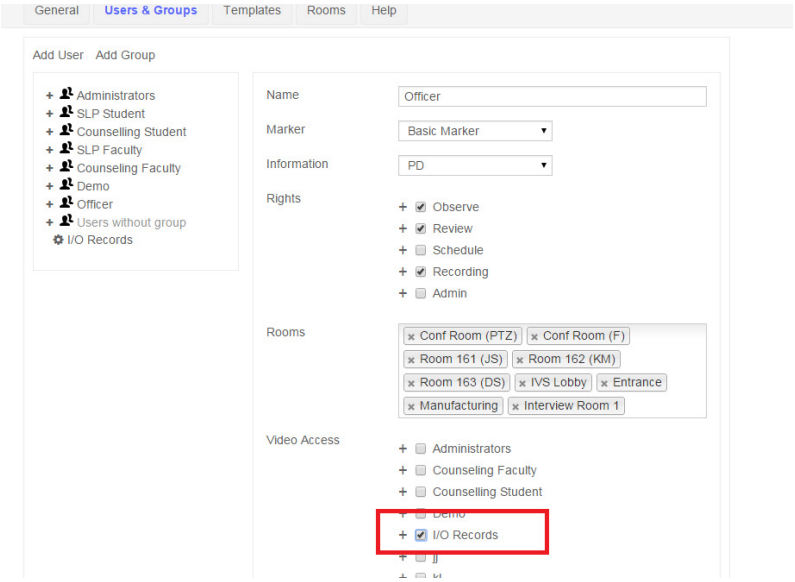
IO Configuration: First wire the button to the desired cameras IO phoenix connector. If you are using our buttons we recommend wiring the buttons using CAT6 as shown below:



Next you will need to go into the admin section under the wired room within our software and define what camera has the button IO hooked up as shown below.



Lastly you will need to add the I/O Records right to any user group you want to be able to review recordings crated by the push button as shown below.

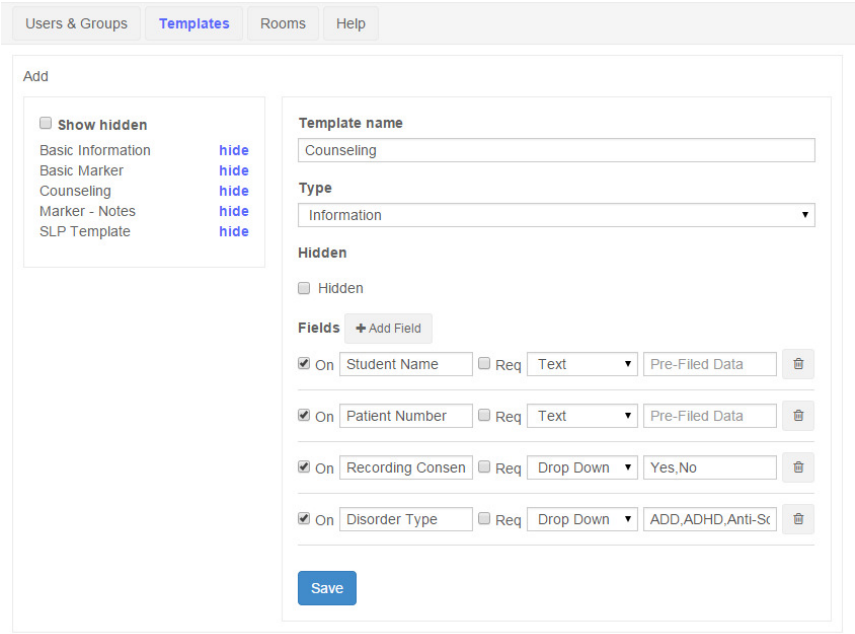


Templates Overview: To access the admin template management click on the Templates button under the admin section. The template section is where information and marker templates can be added, and removed. Information templates are used to define what searchable information is associated with the recordings. Marker templates are used to define what viewable information is associated with specific key points within the recording (markers).

Templates – Adding a Template: Click on the Add button under the template section to create a new template.

a. Give the template a title
b. Select the template Type: Information or Marker
c. Click on the Add Fields button to add custom fields.
d. Check the box to the left of the field to enable the field, give the field a name, check Req if you want to make this field required (forces user to enter information into this field before they can initiate a recording or save a schedule), select the field type (this can be either drop down or plain text), if drop down is selected you can fill out the drop down choices in the

pre filled data box the choices should be separated by commas example: *choice1,choice2,choice3* note there is a 128 character limitation for the drop down options. Repeat these steps for each field you wish to define. Then click Save to save the template.



Templates – Removing a Template: Templates cannot be removed but can be hidden. When a template is hidden it is considered inactive and cannot be assigned to user groups. To hide a template just click on the hide button to the right of the template name. To unhide a template click on the Show hidden checkbox then click the unhide button to the right of the template name.

Users & Groups Overview: To access the user & group admin management click on the User & Groups button under the admin section. The users and groups section is where you can add, edit or remove user groups and user accounts. User groups are what define the user permissions the individual user accounts are where the login credentials are defined.

Adding a User Group: To add a new user group click on the Add Group button.

e. Give the group a name
f. Select the Marker Template & information Template for the group
g. Specify what user rights the group should have
    i. Observe: Allows users to access the observe section and do live observation on the rooms they have access to.
        1. Talkback: Allows users the ability to talk back through the camera into the room if talkback hardware is in place. (Admin, Faculty),
        2. PTZ Control: Allows users to move PTZ cameras associated with the rooms they have access to as long as another user does not have an active session recording on that room.
        3. Edit Presets: Allows users to delete and create preset positions on the cameras associated with rooms they have access to.

4. Can PTZ all authors: Allows users to move PTZ cameras associated with rooms they have access to regardless of whether or not another user has an active recording in progress for that room.

ii. Review: allows users access to the review section and perform searches.
   1. Add / Edit Markers and Info – Allows users to add markers during playback. Markers are points of interest within the recording.
   2. Playback Tools – Gives users' access to jog shuttle control and full screen buttons during playback.
   3. Delete Recordings: Allows users to delete recordings that show up within their search results.
   4. Download Recordings: Allows users to download recordings that show up within their search results.
   5. Edit Information: Allows users to edit the searchable information associated with recordings that show up in their search results.
   6. Sharing: Allows users to grant other users that normally would not have access to the selected recording, that recording will then show up in the specified users' search results
   7. Retention: Allows users the ability to change the default retention period for the selected recording

iii. Schedule: Allows users to view scheduled sessions.
   1. Add Schedules: Allows users the ability to add new scheduled recordings
   2. Exceptions: Allows users to create exception dates. Exception dates are days where all scheduled recording functionality is suspended
   3. Edit Schedules: Allows users the ability to go back and edit scheduled start, stop time, searchable information, and any other rights they have below (example: sharing, retention etc.)
   4. Delete / Remove Schedules: Allows users to delete the next instance of a recurring schedule or remove a schedule completely
   5. Sharing: Allows users to grant other users that normally would not have access to all videos a schedule produces to that schedule, those videos will then show up in those users search results.
   6. Retention: Allows users the ability to change the default retention period for all recordings the selected schedule will create
   7. Control: Allows users the ability to automatically move any PTZ cameras to a predefined position at the beginning of a scheduled recording

iv. Recording: Allows users to initiate a recording on the selected room when in the observe section
   1. Stop all authors: Allows a user to stop a recording regardless of who started the recording. By default users are only able to stop recordings that they have started.
   2. Sharing: Allows users to grant other users that normally would not have access to all videos a schedule produces to that schedule, those videos will then show up in those users search results

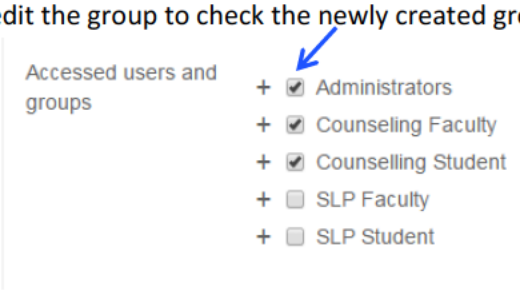
3. Retention: Allows users the ability to change the default retention period for all recordings the selected schedule will create
4. Add markers: Allows users to add markers during live observation.

v. Admin: Gives users access to the admin section.

1. General: TBD
2. Templates: Allows users to add / remove information and marker templates.
3. Rooms: Allows users to add / remove / edit rooms and cameras.
4. Users & Groups: Allows users to add / remove / edit users and groups.
5. Logs: Allows users to view the systems audit trail and logs.
6. Help: Allows users to modify the text associated with the help link that shows up for all users in the upper right hand corner.

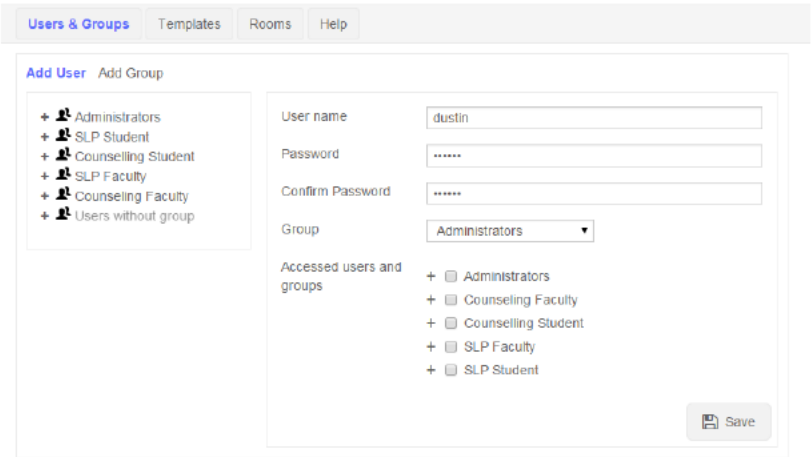
h. Rooms: Give the user group access to desired rooms

i. Accessed by: Assign what videos this group has access to. If you want videos shared across the entire group that you are creating you will have to first create the group then go back in and edit the group to check the newly created groups own checkbox.



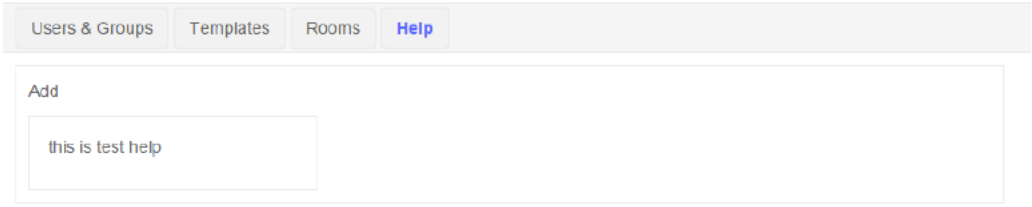
j. Retention rule: Define how long the default rule is for storing videos. This is the length of time a video stays on the server before it is automatically deleted. This applies to all videos created by users within this group; this retention period can be modified on an individual recording or schedule basis if users have rights to retention.

Adding a User: To add a user click on the add user button under the Users & Groups section. Give the user a name, password and if you want that user to have additional access to recordings not defined by their user group you can assign that under the accessed user and groups section. This is particularly useful when you want to set up a user group where only the author of the recordings can view their videos.



Edit a User or Group: To edit a user or group just click on the user or group name.

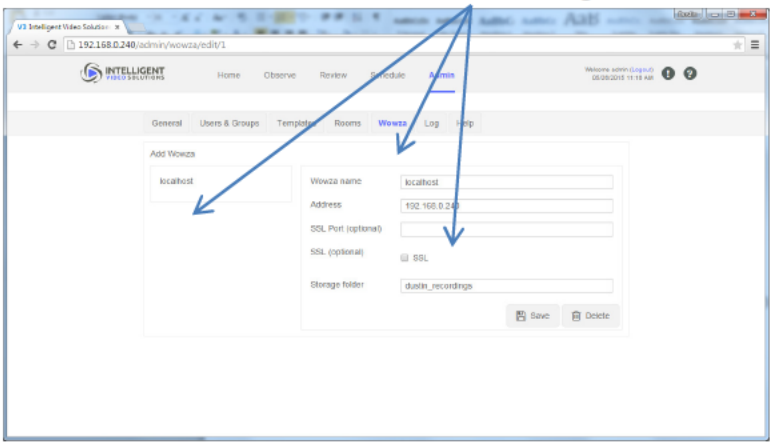
Help Overview: To access the admin help management click on the Help button under the admin section as shown below. This section is used to modify the text that is associated with the help button that appears in the upper right hand corner for all users. Links can also be embedded by placing within this section to direct users to online resources.



Server Software Administration Set-up

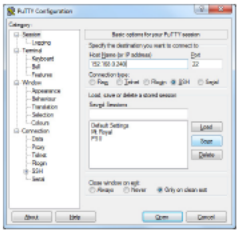
Changing the IP address :

1) Ensure the server is plugged in and both network ports on the back are connected to the proper switch / vlan.
2) Go to the client interface (using chrome, firefox, or other standard web browser) http://192.168.0.99/ then log in (default username: “admin” password: “admin”)
3) Click on Admin→ Wowza → localhost then change the IP Address to match the desired address.

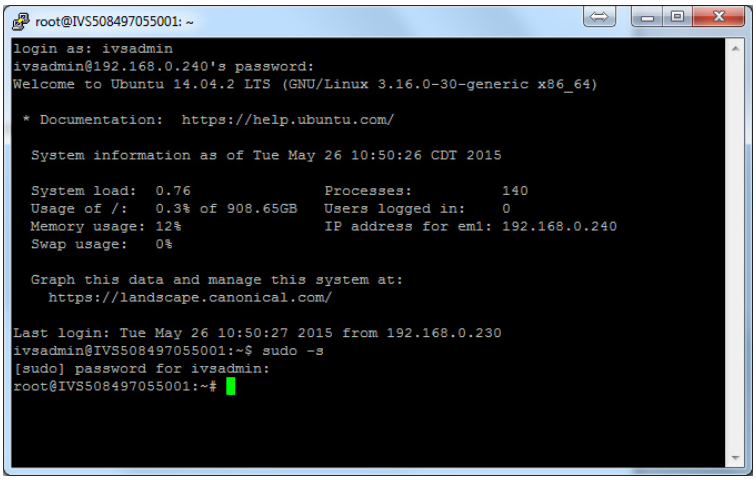


Click Save to update the record.

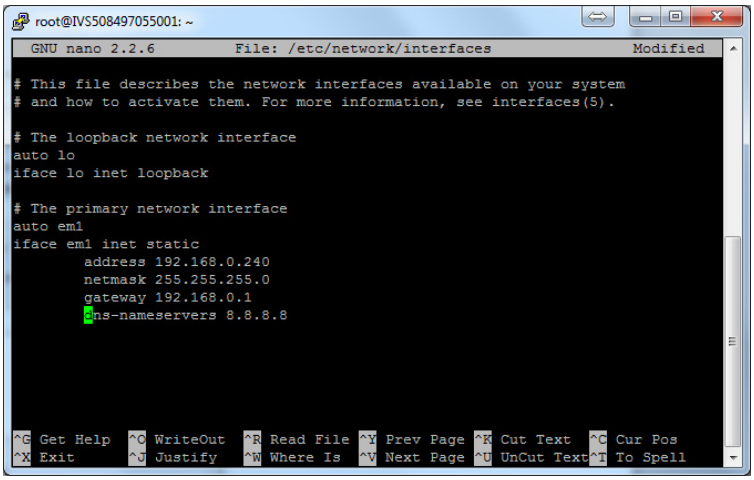
4) From a desktop / laptop computer connect to the server using putty (http://www.putty.org).
   Default IP: 192.168.0.99
   Username: ivsadmin
   Password: @dmin51!!



5) After login from the putty client type “sudo -s” then enter the “@dmin51!!” password



6) Type “nano /etc/network/interfaces” then press Enter to execute
Change address, netmask, gateway, and dns-nameservers to customer specified addresses.



Hit Ctrl+X to exit then hit Y and Enter to save changes

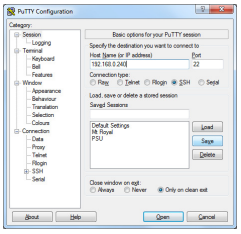
7) Type “sudo reboot” wait for system to restart then reconnect with putty (step 4) using the newly changed IP Address
8) From prompt type “sudo –s”
9) From the prompt type “nano /usr/local/WowzaStreamingEngine/conf/dustin/Application.xml” then press Enter to execute
10) Use page Down button to scroll down near the bottom edit the highlighted IP address info within the properties tag as shown below:

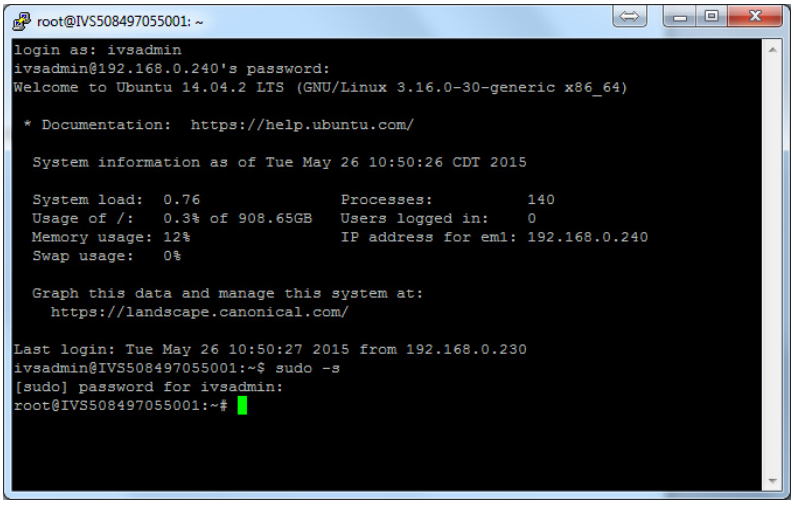
```
<Property>
        <Name>webSiteAddress</Name>
        <Value>http://192.168.0.99</Value>
</Property>
<Property>
        <Name>storageFolder</Name>
        <Value>dustin_recordings</Value>
</Property>
<Property>
        <Name>useWebServer</Name>
        <Value>true</Value>
```

```
</Property>
<Property>
        <Name>serverAddress</Name>
        <Value>192.168.0.99</Value>
</Property>
<Property>
        <Name>webServerPort</Name>
        <Value>8000</Value>
```

11) Hit Ctrl + X to exit press Y then Enter to save changes
12) From Putty type “cd /var/www/v3” hit Enter then type “sh assets.sh” and press Enter again.
13) From Putty type “cd /usr/local/WowzaStreamingEngine/bin”
14) From Putty type “sudo service WowzaStreamingEngine stop”
15) From Putty type “sudo ./startup.sh” wait 60 seconds then hit Ctrl+C
16) From Putty prompt type “reboot now” and press Enter. The reboot process will take 1-3 minutes. When the system comes back up you should be able to use the web browser to browse to the new address http://newipaddress/ for additional technical assistance call 262.746.9290

Changing the Date/Time :

1) From a desktop / laptop computer connect to the server using putty (http://www.putty.org).
    a. Enter new IP Address:
    b. Username: ivsadmin
    c. Password: @dmin51!!
    d. 
2) After login from the putty client type “sudo -s” then enter the “@dmin51!!” password



3) Enter: dpkg-reconfigure tzdata
4) Enter: service apache2 restart

N66W38493 North Woodlake Circle, Oconomowoc, WI 53066
richard@cvisecurity.com PH: 262-569-1986 www.cvisecuritysolutions.com

CLINIC OBSERVATION RECORDING SYSTEM (CORS)

VALT User Guide

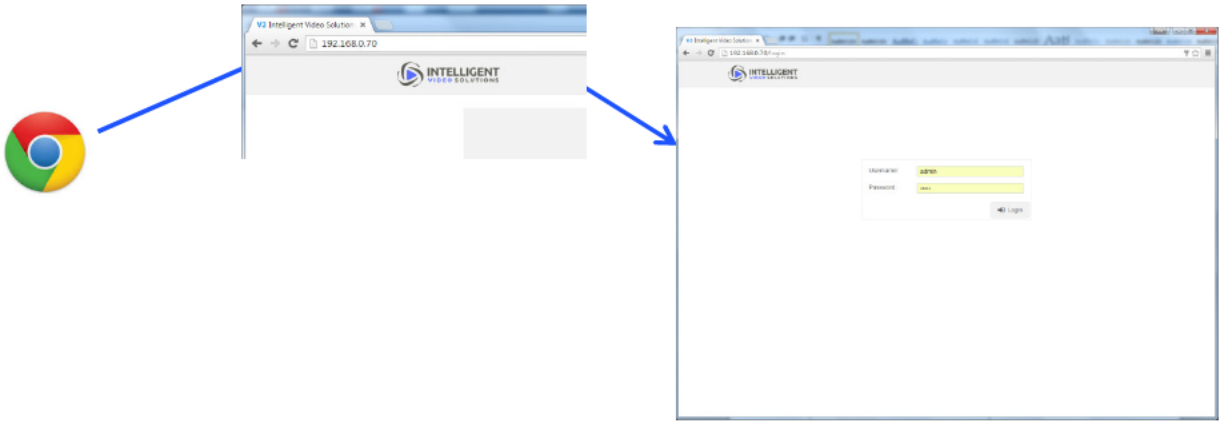
V3.2.1

Contents

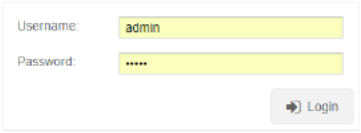
Accessing the system

1) To access the system open up a web browser (Chrome, Firefox, Internet Explorer, Safari) and point it to the DNS name (example: http://video.myschool.edu) or IP address (example: http://192.168.0.70) of the ISR server.

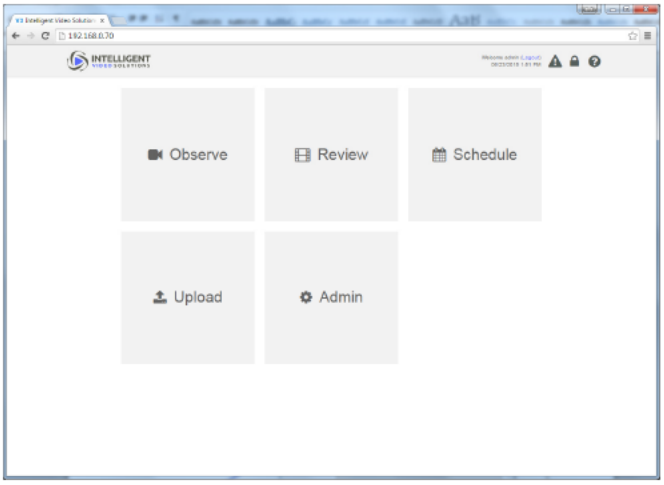
   For all non-chrome browsers if adobe flash player is not already installed it will need to be. (http://get.adobe.com/flashplayer/)



2) Log into the system with the proper username and password.

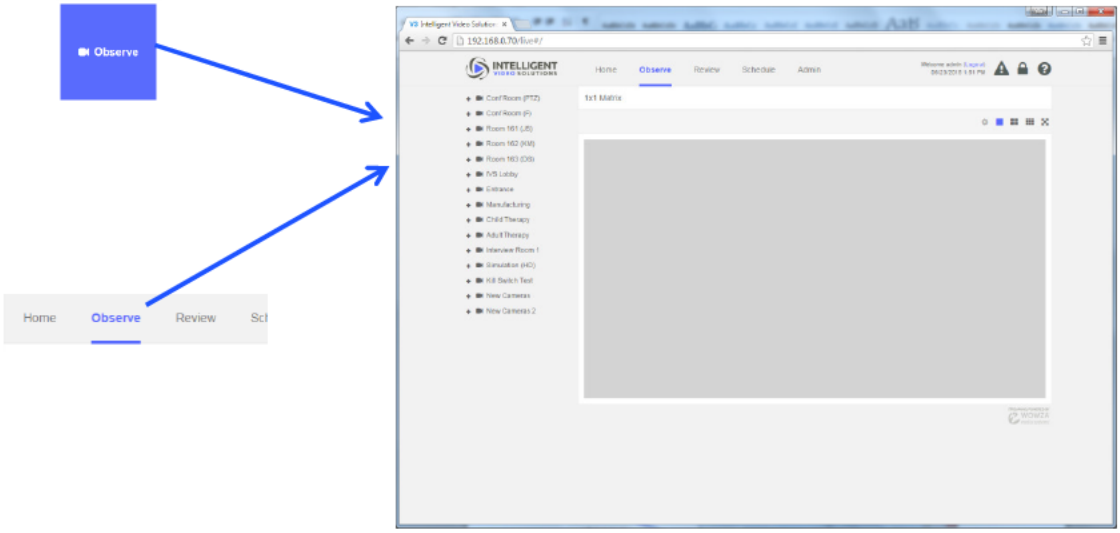


3) Based on your login information you may have access to any of the following sections: Observe, Record, Schedule, and Admin as shown below.

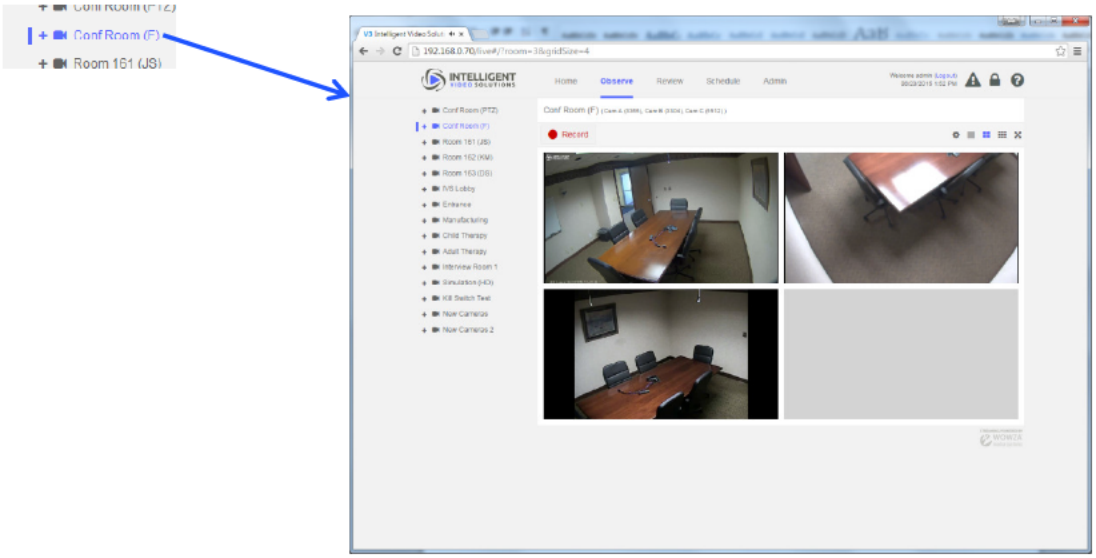


Observe

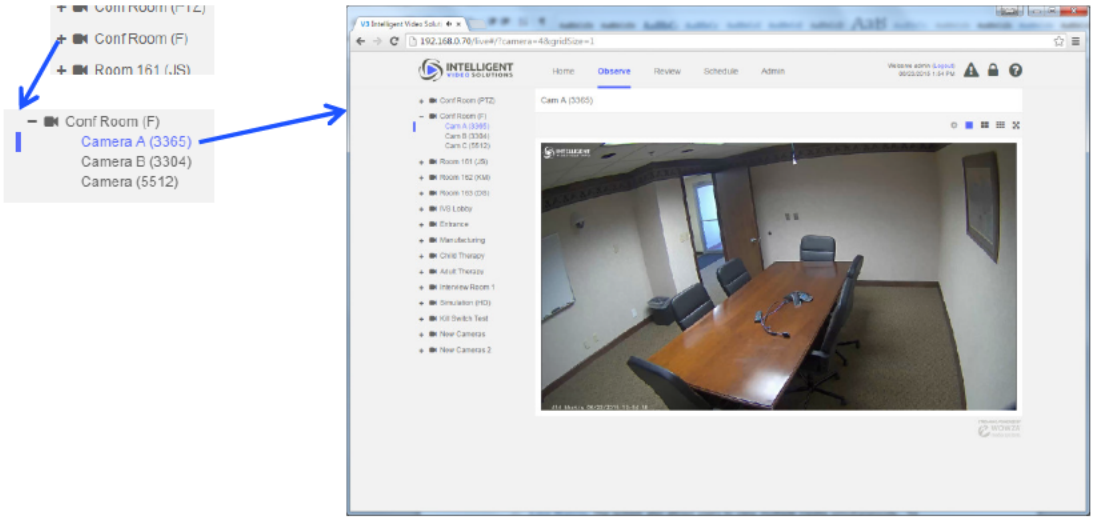
1) **Overview:** Clicking on the Observe button after you log in or the Observe menu link when in a different section of the application will take you to the page shown below:



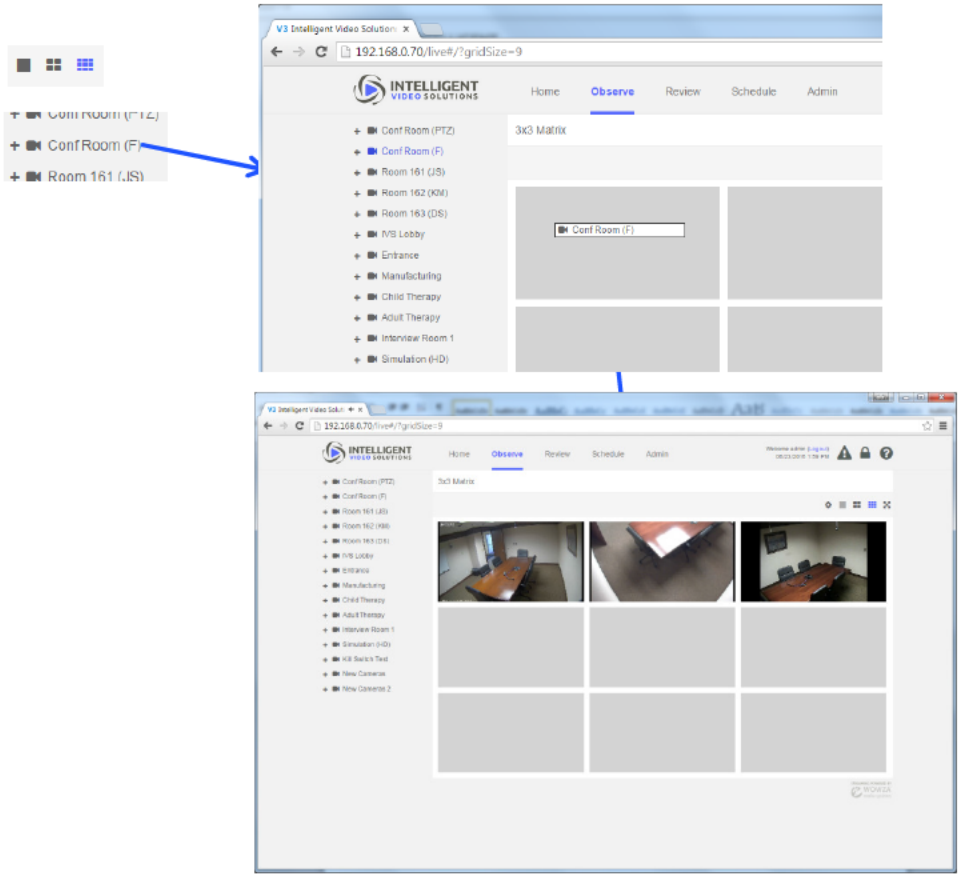
2) **Room Selection:** Clicking on any of the Rooms will pull up all the cameras associated with the room as well as the audio feed for the the first listed camera in the room as shown below.

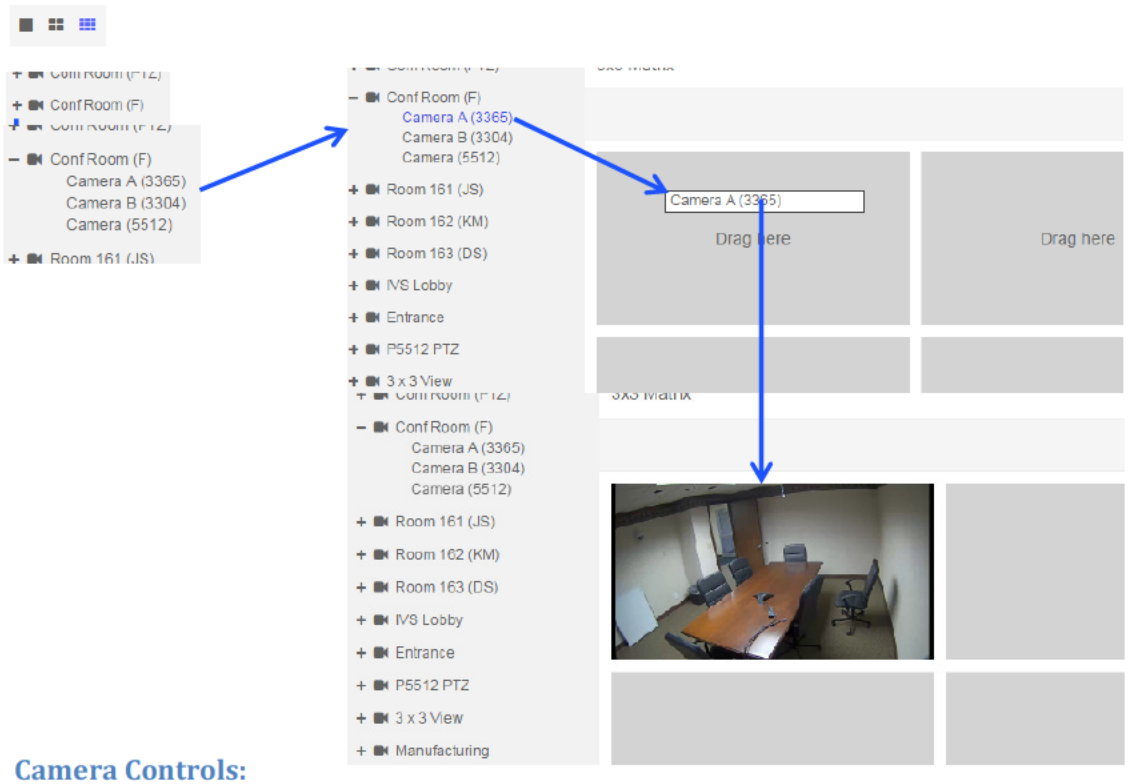


3) **Single Camera:** Expanding the Room (by clicking the + next to the room name) and clicking on any of the cameras within the room will pull up the video and audio feed for that single camera *note: recording controls will be disabled when viewing a camera(s) in this mode*



4) **Live Matrix:** The system also allows users to view multiple rooms simultaneously. To accomplish this click on the desired view (1x1, 2x2, 3x3). You can either drag and drop rooms or individual cameras as shown below. *note: initially the live audio will always be associated with the camera in the upper left most video pane*





5) **Camera Controls:**

Clicking on any of the individual cameras will bring up the camera toolbar for that camera. Based on user rights a user may have access to different options on the toolbar.

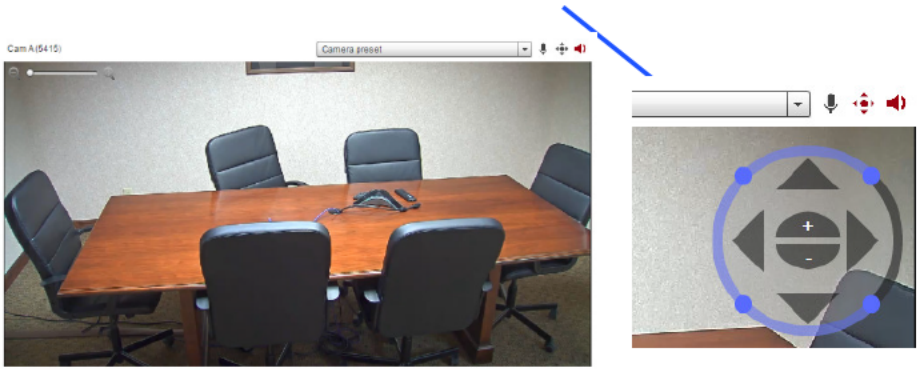
Digital Zoom Slider: Digitally zoom in on an area using this slider. You can reposition by clicking and dragging within the image. This does not affect the recorded image.

Camera Presets: Jumps to predefined spots within the room. Also allows users to add and remove "presets".

Talkback On / Off: Clicking this will turn the icon red when the icon is red speaking into a usb or integrated laptop microphone will be recorded. When you click the icon again to turn it back to grey the audio will be projected through the selected cameras audio output.

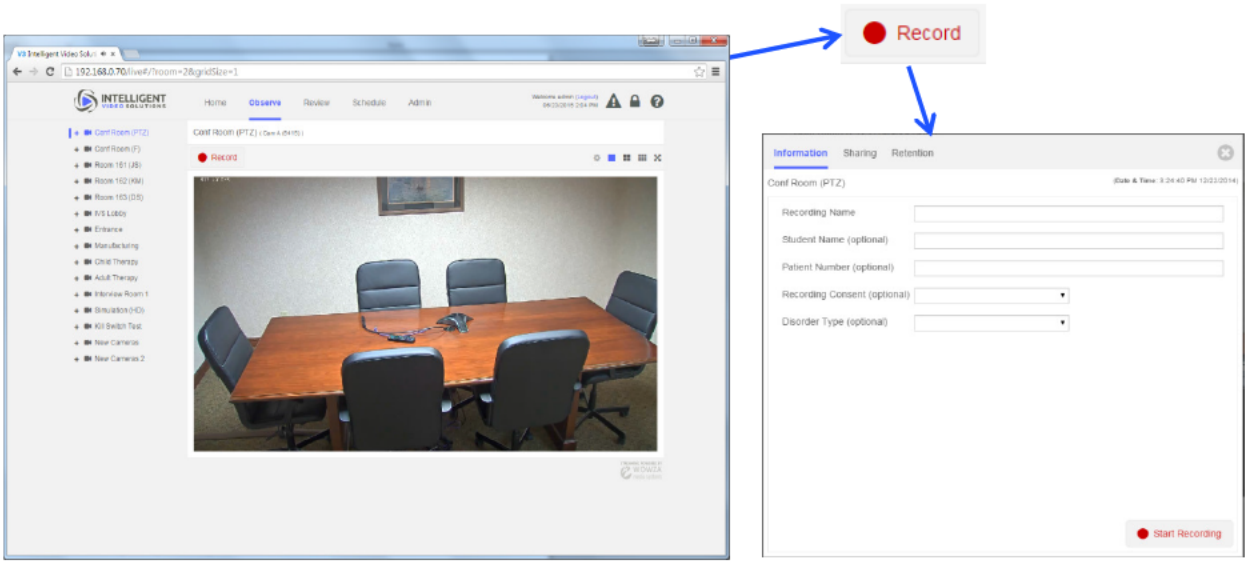
Audio Mute / Unmute: Turns the audio on or off for the selected camera.

PTZ (Pan Tilt Zoom) Enable / Disable: Brings up th PTZ overlay controls. The outer ring of the PTZ control controls the step length: 1x,2x,4x,8x. Changing the PTZ on the camera will change the image that is being recorded if a recording is in progress.

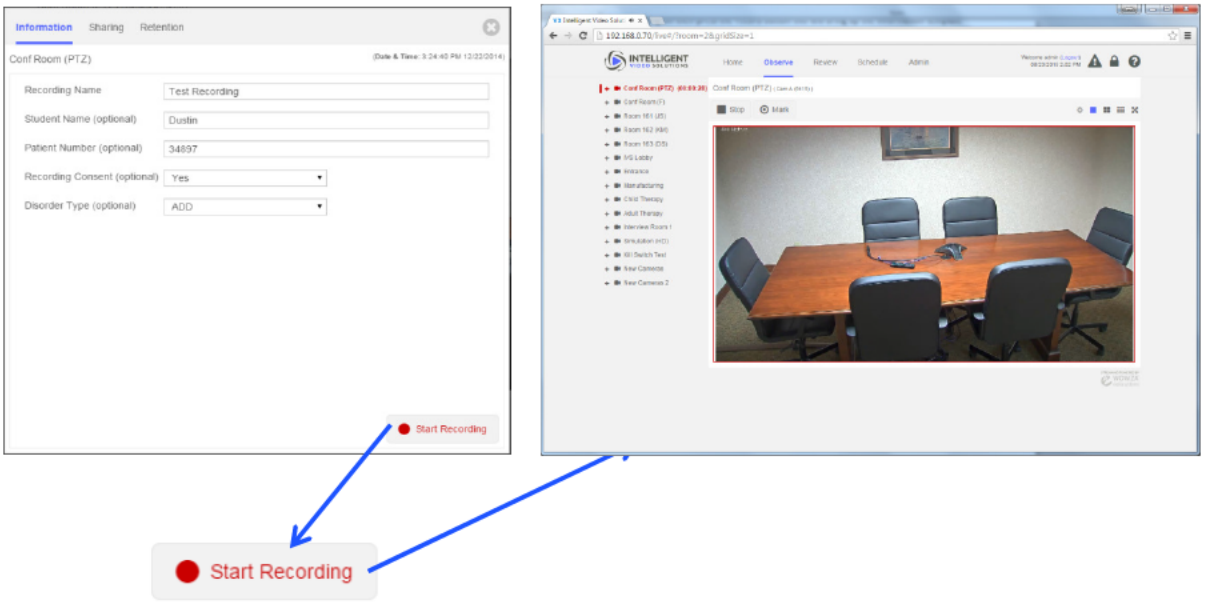


Record

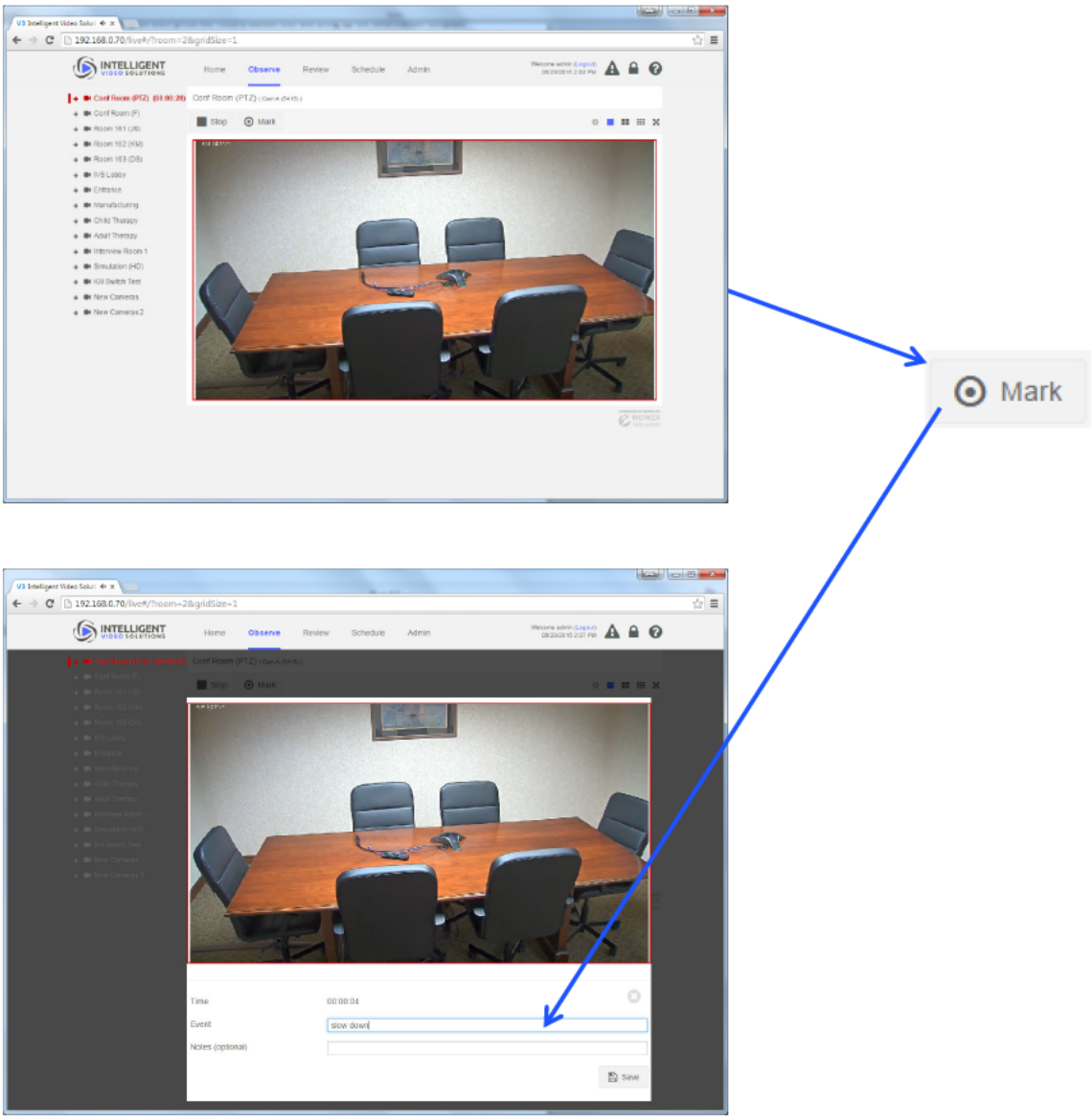
1) **Overview:** To start an recording you can go to the observe section select the room you wish to initiate a recording on then press the record button this will bring up the information template as shown below.



2) **Information Template:** The information template is a set of information that is associated with the recording. This information can be used by users during the review process to search and find the video recording they are looking for. Fill in the information template and press "Start Recording" to begin recording on the selected room.



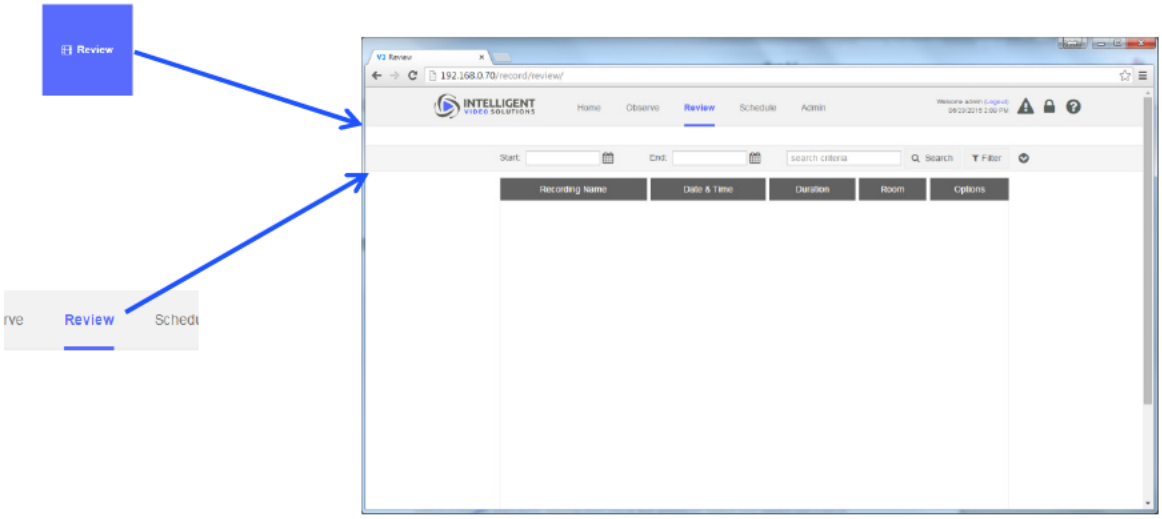
3) **Record Mode:** When a room is actively being recorded the room name is highlighted in red and the duration of the recording is listed to the right of the room. If live observation is occuring on that room the live video window also displays a red border. If the user observing live has rights they can Stop or Mark the video using the buttons above the live video window. Markers are used to index key events during a recording. These act like chapters in a DVD allowing users to easily jump to those points.



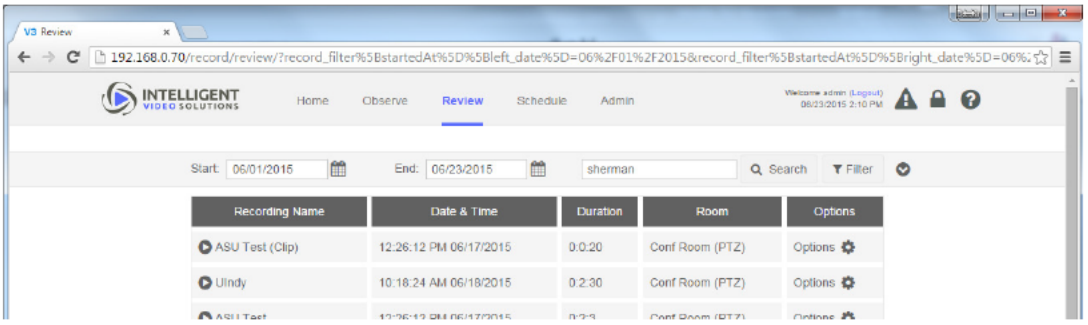
Fill out the appropriate information and click on save.

Review

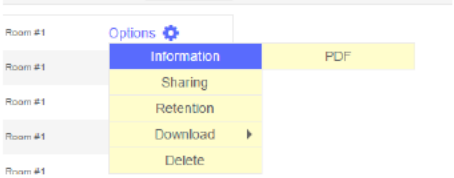
1) **Overview:** To review a recording click on the Review button or link as shown below.



2) **Search Criteria:** Select a start time and end time to specify the range you want to search. *note: leaving "Start" blank will search all videos until the end date, leaving "End" blank will search all videos from the start date, leaving both blank will search all videos that match the criteria*
Specify a search criteria this can be any of the information associated with the recordings. Example: [recording name] or [student name]. *note: leaving the search criteria blank will search all videos within the specified range the active user has access to*

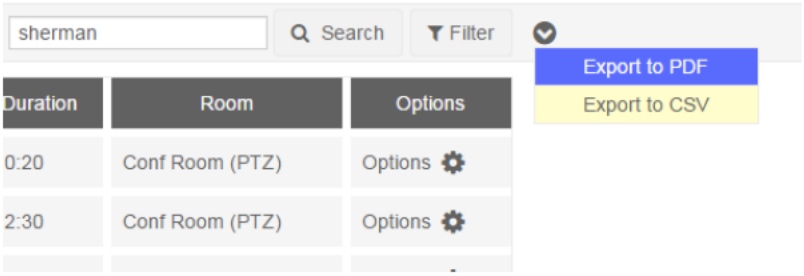


3) **Results & Options:** Once you find the video you are able to do different things based on user rights. To perform actions on the selected recording click on the options button and select the desired action:

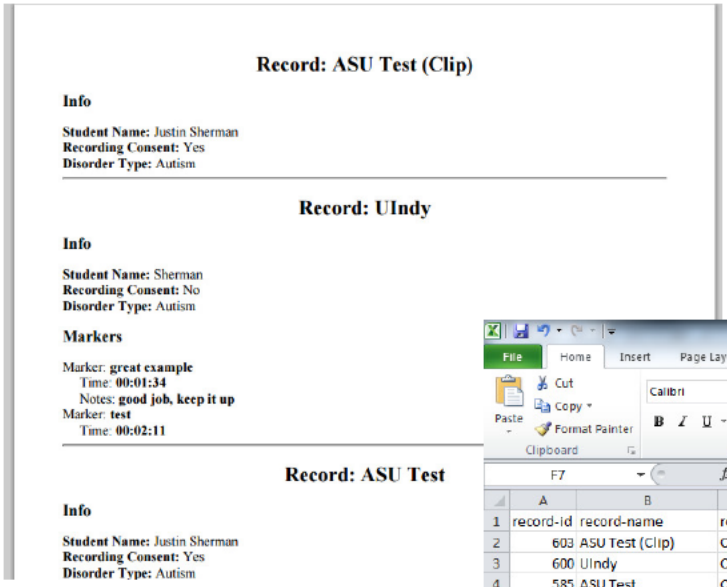


a. ***Information:*** Allows users to view or edit the searchable information associated with the video.

b. ***Export PDF:*** Creates a small PDF report that includes all the recording information and marker information and marker times associated with the recording.
c. ***Sharing:*** Allows users to share the video with other users that would normally not be able to view the recording.
d. ***Retention:*** Allows users to change the retention (period of time before the recording is automatically deleted) period from the user groups defaults for the selected recording.
e. ***Download:*** Download any of the independent video files off of the ISR server.
f. ***Delete:*** Delete the selected recording.



g. ***Export all results to PDF:*** Exports all search results to a pdf "report".
h. ***Export all results to CSV:*** Exports all search resultsa to excel "report" format.



Record: ASU Test (Clip)

Info

Student Name: Justin Sherman
Recording Consent: Yes
Disorder Type: Autism

Record: UIndy

Info

Student Name: Sherman
Recording Consent: No
Disorder Type: Autism

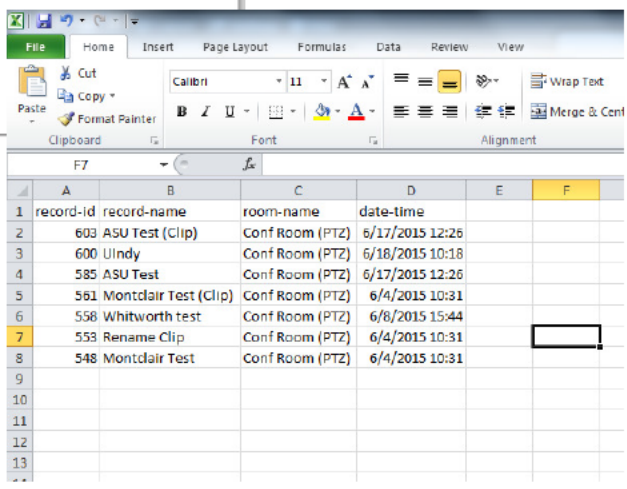
Markers

Marker: **great example**
Time: **00:01:34**
Notes: **good job, keep it up**
Marker: **test**
Time: **00:02:11**

Record: ASU Test

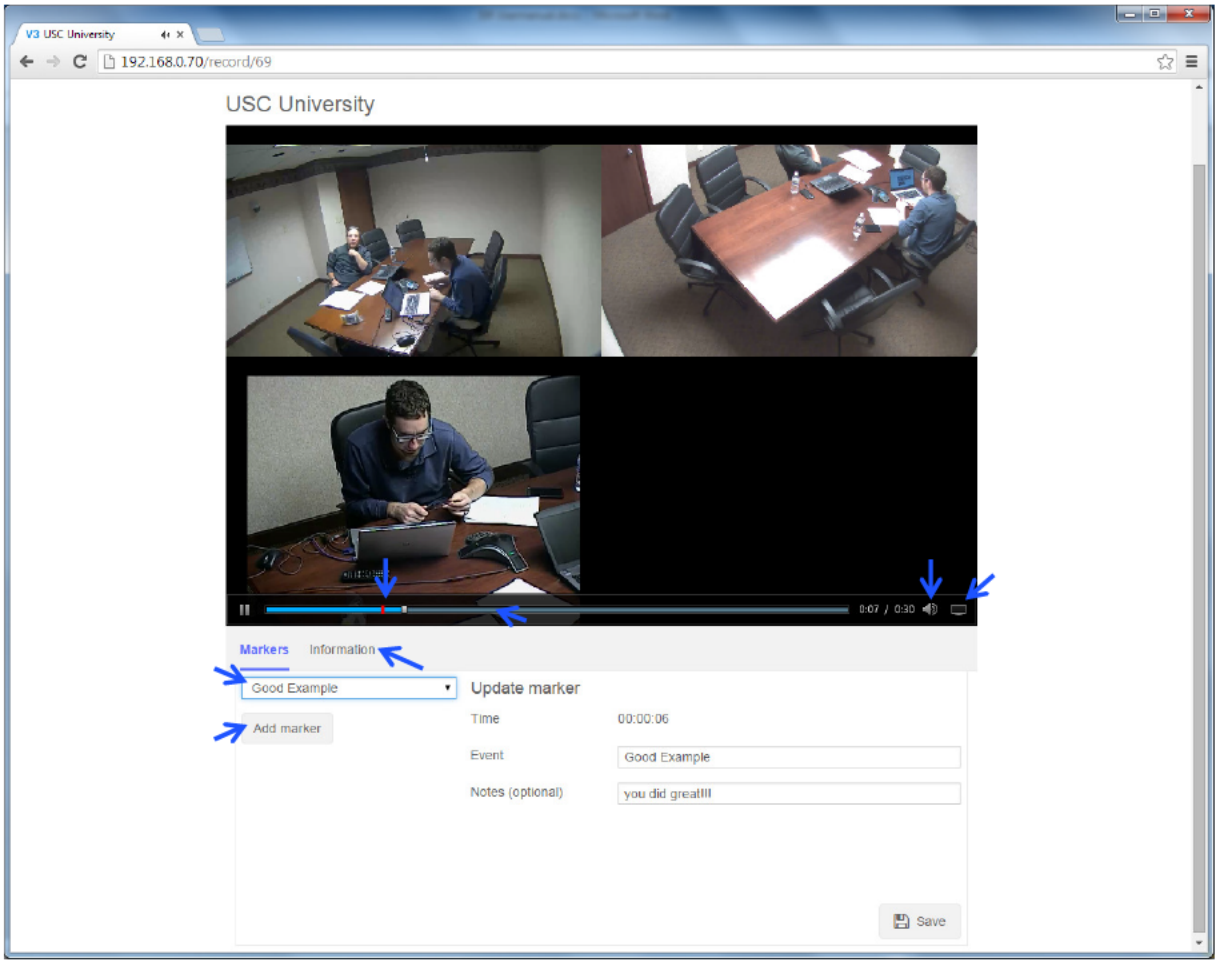
Info

Student Name: Justin Sherman
Recording Consent: Yes
Disorder Type: Autism

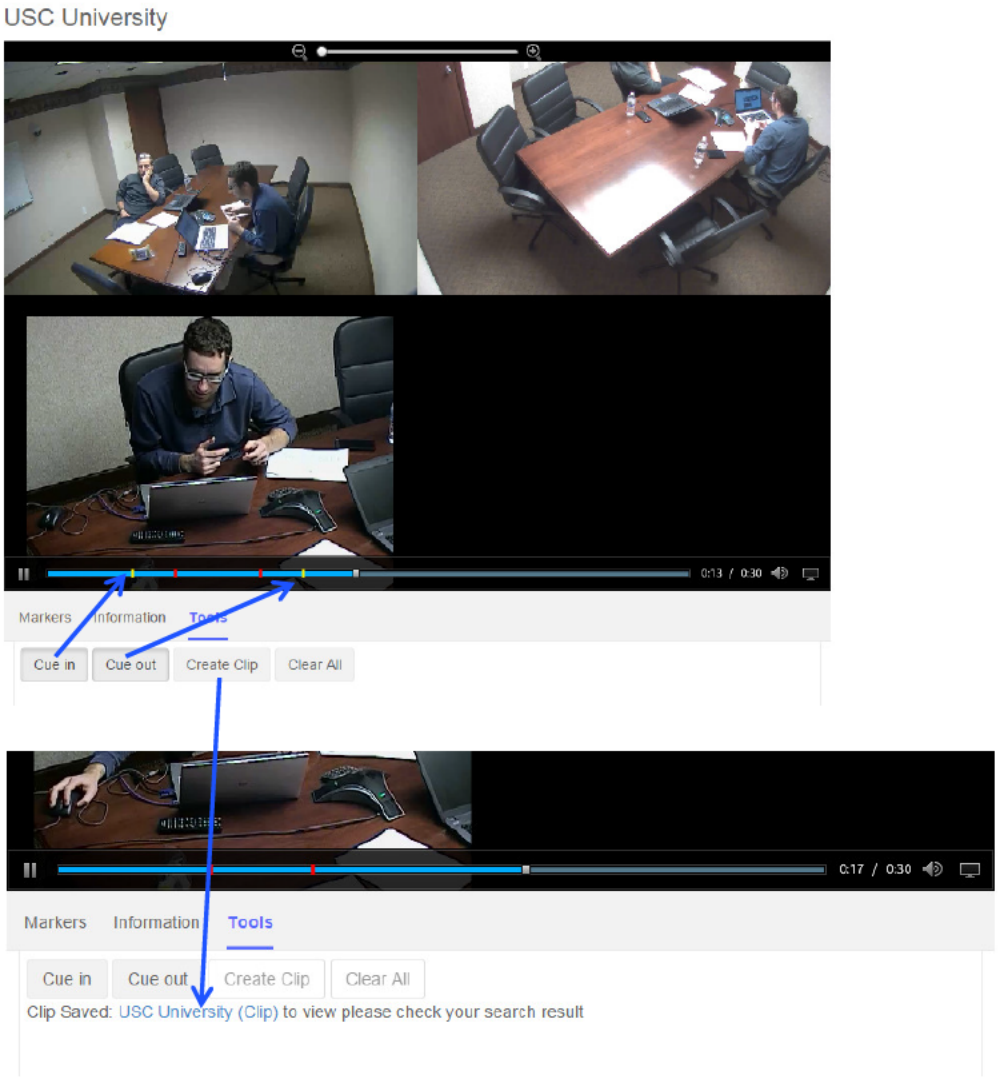


	A	B	C	D	E	F
1	record-id	record-name	room-name	date-time		
2	603	ASU Test (Clip)	Conf Room (PTZ)	6/17/2015 12:26		
3	600	UIndy	Conf Room (PTZ)	6/18/2015 10:18		
4	585	ASU Test	Conf Room (PTZ)	6/17/2015 12:26		
5	561	Montclair Test (Clip)	Conf Room (PTZ)	6/4/2015 10:31		
6	558	Whitworth test	Conf Room (PTZ)	6/8/2015 15:44		
7	553	Rename Clip	Conf Room (PTZ)	6/4/2015 10:31		
8	548	Montclair Test	Conf Room (PTZ)	6/4/2015 10:31		
9						
10						
11						
12						
13						

4) **Playback:** To playback the recording click on the title or the ▶ button to the left of desired recording within your recording results. The video and audio should start playing back in as shown below. You can adjust your position within the recording by either clicking on the timeline or using the marker dropdown (if markers exist within the recording) to jump to specific points. To go fullscreen you can press the ⛶ button (press "Esc" to return), to adjust the audio press the 🔊 button. *note: if more than one camera is associated with the recording the system will automatically play back the audio associated with camera 1 (upper left most)* Clicking Add Marker will add a new marker point to the recording at that specific point. Markers are denoted with red lines on the timeline as shown below. Clicking the information button will allow a user to see and edit associated searchable information.

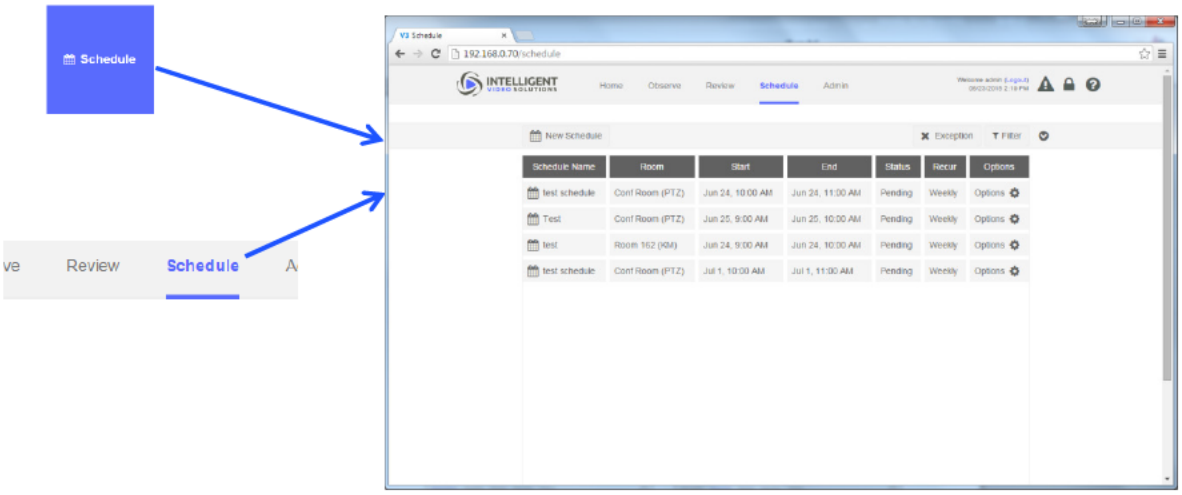


5) **Clipping (Redaction):** Within the playback screen users can be granted the ability to create smaller clips of an existing recording. To do this the user will want to click on the tools section, click "Cue In" to mark the start point of the clip, and "Cue Out" to mark the end point. The user can then press "Create Clip" this will generate a recording with the defined start and end points. It will copy all the original searchable information and the same retention rules and access rules that were set for the original video file will transfer to the new clip. The new clip will be names "<original recording name> (Clip)".

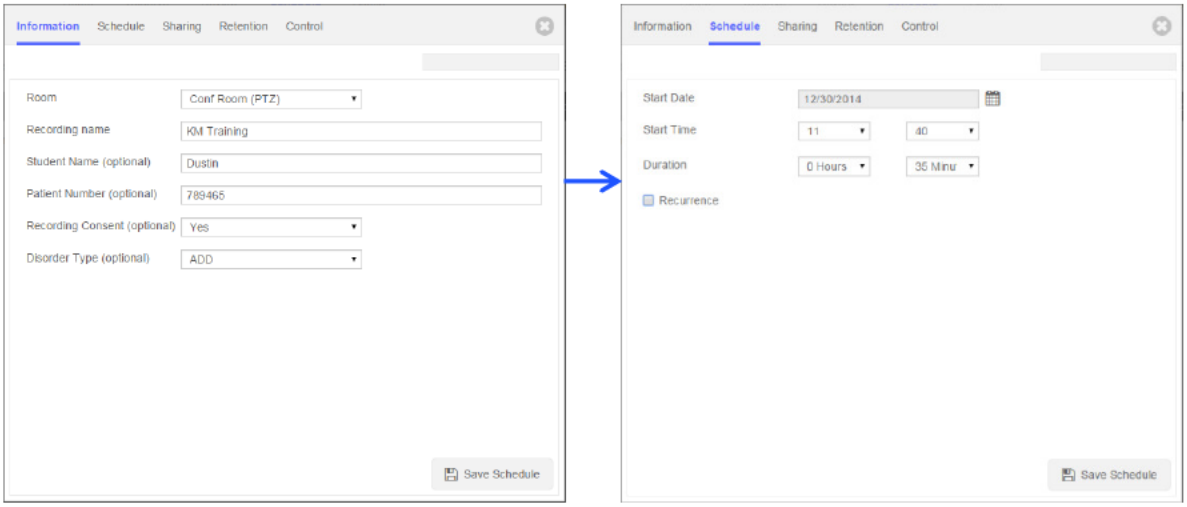


Schedule

1) **Overview:** The scheduler is used to automatically start and stop recordings. You can set up either one time schedules or recurring schedules. All attributes defined in the schedule (sharing, retention, etc.) will apply to any recording created by that schedule. Click on the schedule button or schedule link to bring up the schedule page as shown below.

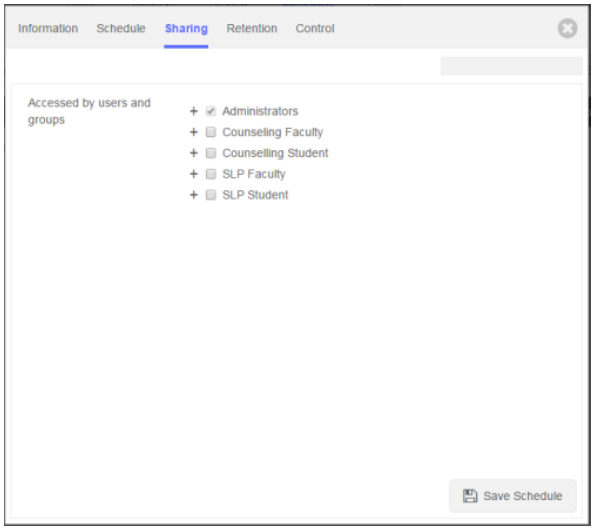


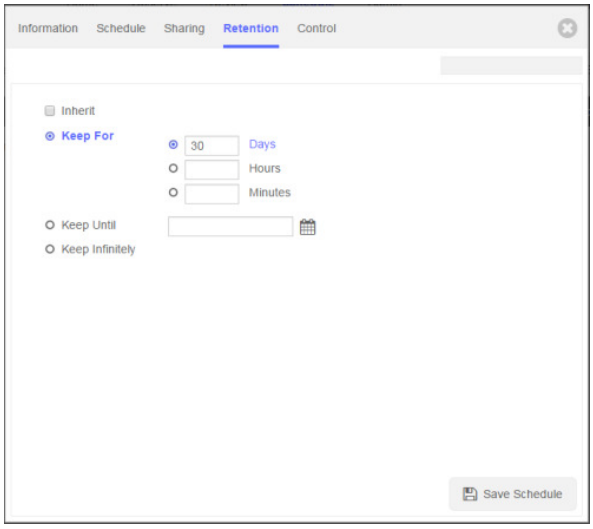
2) **New Schedule:** To create a new schedule click on the "New Schedule" button. Select a room then fill in the appropriate information. Next click on Schedule and set a start date, time, and duration. If you want the schedule to automatically recur you can select the recur option and define how often and when you want the schedule to repeat, you can also set an end date for the recurring schedule. At this point you can either press "Save Schedule" or apply additional attributes described in the next step.

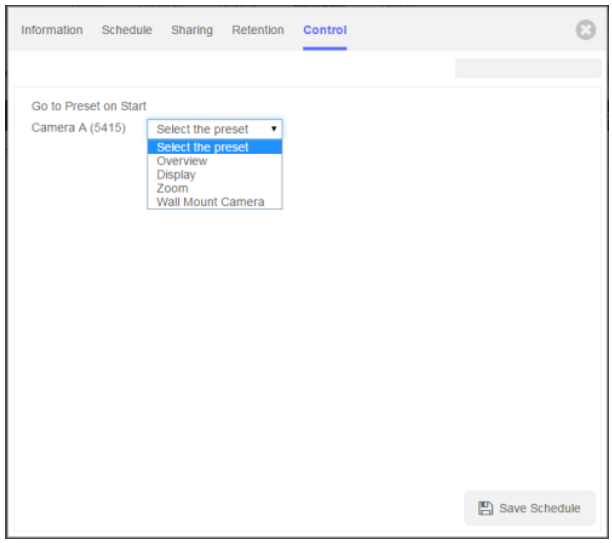


3) **Schedule Attributes:** Schedule attributes will apply to every recording the schedule creates. If attributes are not defined the schedule will inherent the attributes assigned to the user group of the individual that created the schedule.

a. ***Sharing:*** Allows users to share the video with other users that would normally not be able to view the recording.
b. ***Retention:*** The period of time before the recording is automatically deleted
c. ***Control:*** This can move the camera to a predifined position at the start of the schedule. (For PTZ Cameras only)

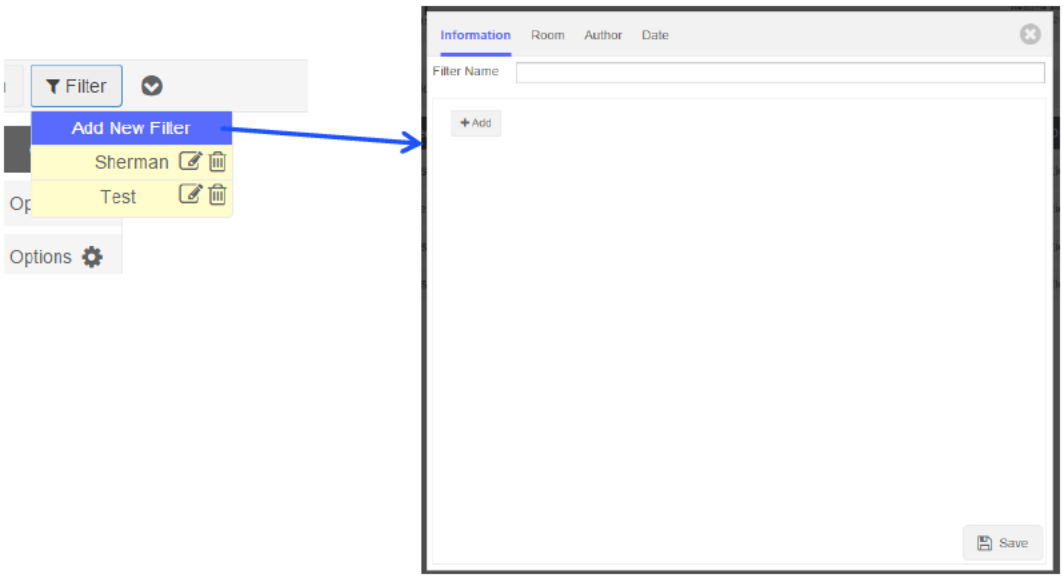






Filters

1) **Overview:** Filters are custom search queries saved to a specific user account that can be used to organize and parse data. Filters can be applied to both the review and schedule sections of the application.
2) **Setting up a New Filter:** To set up a new filter click on the filter button (when it is not active) and select "Add New Filter" as shown below.



a) You are able to filter specific template or marker information using the information section of the filter. To do this click add for each informational field you want to match data to and click the "on" checkbox to enable that specific field filter as shown below. To ignore filtering on information leave this section blank.