BOQ for Active Material			
Sr No.	Item Description	UoM	Quty
1	Indoor IP Camera 1MP,Day-Night	Nos	394
2	Outdoor IP Camera 3 MP, Day-Night	Nos	51
3	IP PTZ Camera, 2 MP, Day-Night	Nos	55
4	IP66, Camera Housing	Nos	51
5	Layer 2, 24 Port POE Switch with 2 Combo SFP, and Transreceiver Module	Nos	53
6	Layer 3, Chassis Switch, with 16 Port of 10Gbps SFP, 24 Port 10/100/1000 copper, 30 Ports of 1Gbps SFP	Nos	2

7	VMS Server for 600 Cameras	Nos	1
8	Analytics Management Software	Nos	1
9	Video Wall for viewing Cameras	Nos	1
10	Rackmount 2U Xeon Processor Blade Server with 48GB RAM	Nos	8
11	Network Storage Server, 50TB HDD, Raid 5 Support	Nos	4
12	Workstation PCs	Nos	6
13	Network Management Systems for Active Components	Nos	1
14	Back Storage Server, 50TB HDD	Nos.	1

BOQ for Passive Material			
1	42U Rack with Cooling System	Nos	3
2	20U Outdoor Enclosure IP55	Nos	48
3	6 Port 230V ,5A Power Strip	Nos	58
4	2KvA Online UPS with SNMP Card (Backup- 1 hrs)	Nos	48
5	20KvA Online UPS with SNMP Card and Hot Swappable Battery with Redundancy (Backup –2 + 2 hrs)	Sets	1
6	Cat 6 Cable (Mtrs)	Mtr	32400
7	Cat 6 RJ 45	Nos	1750
8	Cat 6 Patch Cord (2 mtr)	Mtr	350

9	Cable Tie (100pcs /Packet)	Nos	49
10	24 Core Armored Fiber Cable (Mtrs)	Mtr	14500
11	6 Core Armored Fiber Cable (Mtrs)	Mtr	8000
12	FOT	Nos	16
13	Fiber Connectors	Nos	250
14	Fiber Patch Chords (5 mtr)	Mtr	100
15	Fiber Junction Box	Nos	70
16	3 Core Armored Power Cable	Mtr	2000
17	Supply of U PVC Pipe 1 Inch Dia	Mtr	35000
18	Supply of GI Fabrication Clamp for PTZ	Mtr	45
19	Labelling and Ferulings	Nos	2000
20	40 MM ISI mark HDPE Pipe	Mtr	14000
21	24 Port LIU	Nos	6
22	24 Port Cat6 Patch Panel	Nos	50

Sr No.	Bill of Material for Civil Work		
1	ITEM DESCRIPTION	UoM	QUTY
2	Soft Soil Digging & Refilling	Mtr	12000

3	Hard Soil / Rock digging & Refilling	Mtr	2000
4	Laying of Fiber Cable	Mtr	16500
5	Laying of HDPE pipe	Mtr	14000
6	Fixing of LIUs	Nos	6
7	Fiber Pigtails Splicing	Nos	280
8	Fiber Core Testing Charges	Nos	280
9	Laying of PVC Conduits	Nos	30000
10	Laying of UTP Cable	Mtr	30000
11	Feruling , Labeling	Nos	2000
12	L2 & L3 Switch installation	Nos	50
13	Rack Installation with Patch cord Routing	Nos	50
14	Installation of Cameras	Nos	550
15	Installation of Fabricated Pole for PTZ	Nos	45
16	Installation of Servers and Configuration of Servers for VMS and Storage NAS	Nos	12
17	Installation of 2KvA and 20KvA UPS	Nos	49
18	Installation of Video Wall	Nos	1

Technical Specification and Solution Overview

Project: CCTV Surveillance system for * Central Jail

This project will consist of IP Based CCTV Camera installation in Outdoor Premises of Jail within Jail Campus and Indoor Premises of Barracks (Excluding Cells) ,Boundary Perimeter of Jail. The camera selection is based on the various environments of Jail Premises taking every aspect of security in consideration.

All the Camera of Old and New Jail will be made viewable at central master control room in Old Jail on a video wall having multiple screens of 40 inch giving a combined view. All the video feeds of cameras will be controlled by a VMS Server which will be responsible for storage of media files and control of cameras.

There is also a provision of Analytics w.r.t cameras where is it necessary such as perimeter crossing, object detection, motion Detection, Camera Masking etc. These analytics will provide the alerts if any such thing happens in the area for which the camera are selected and generate a alert and pop up on screen in master control room.

All the camera feeds will travel to master control room via Fiber Optic media laid in Underground.

Data Center will have a Power Backup UPS to supply continuous power to servers for recording the cameras and displaying the view of camera. Last Mile Camera junction is also accommodated with backup power facility to have a continuous monitoring even if the EB power fails.

There will be different workstations provided for Jailors in their workplace as per the demand and finalization to view the Cameras and keep the continuous watch over the suspected areas.

The Backup of storage will be available up to 30 days after which overwriting will start. In case of Main Storage Failure there will be a backup Disk containing last 7 days Backup.

Master control room will equipped with Access Control System, Smoke Detector and Water Leakage Alarm as safety feature.

ANNEXURE – I TECHNICAL SPECIFICATION

Outdoor High Speed Dome High Definition PTZ 20 X IP Colour Camera (Day/Night):

The camera shall have PAN, Tilt and Zoom feature suitable for indoor and outdoor surveillance. The camera shall have a 1/2.8 inch progressive scan CMOS with minimum 20 X optical zoom & 12X digital zoom.The camera shall work on PoE IEEE 803.af.

The camera shall meet the following minimum technical requirements.

	r **Particular**	**2MP, HD 20 X PTZ Camera**	**Compliances (Yes/No)/ Deviation Remark**
1.	Image Sensor	1/2.8 progressive scan CMOS	
2.	Dual Stream	H.264 and MJPEG Streams	
3.	Resolution and Frame Rate	Both the stream shall be programmable for different frame rate per channel. 30(60 Hz) / 25(50 Hz) fps at all resolutions	
4.	Video resolutions	Configurable. HD 1080p 1920 X 1080	
5.	Video Compression	H.264 (MPEG-4 Part 10/AVC)& Motion JPEG	
6.	Audio Streaming	Two Way	
7.	Image Freeze in PTZ	Yes	
8.	Data rate	64 Kbps to 6 Mbps	
9.	Wide Dynamic Range	Yes	
10.	Operating Temperature	-40* C to +50^{0}C	
11.	Humidity	10% to 100% condensing	
12.	3D Privacy Mask	Required	
13.	Network Protocols	IPv4/v6, HTTP, HTTPS*, SSL/TLS*, QoS Layer 3 DiffServ, FTP, CIFS/ SMB, SMTP, Bonjour, UPnP™, SNMPv1/v2c/v3 (MIB-II), DNS, DynDNS,	

		NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS	
14.	Alarm Inputs / outputs	Four input & one output	
15.	Network Connectivity	Ethernet, 10/100Base T	
16.	Web Server	Internal Web server required with embedded operating system.	
17.	Edge Storage	SD/SHDC Storage Card Slot	
18.	Aperture correction	Horizontal & Vertical	
19.	Lens	20 X optical zoom or better with lens of 4.7 to 94 mm	
20.	Digital zoom	12X or better	
21.	Shutter Speed	¼ s to 1/30,000 s.	
22.	Focus & Iris	Automatic with manual override	
23.	Sensitivity (at 30 IRE, F1.4)	(Scene Illumination)	
24.	Day mode	0.8 Lux	
25.	Night mode (Black and White)	0.04 Lux	
26.	Pan/Tilt adjustment		
27.	Pre-Position speed	100 Preset Positions	

28.	Variable speed		
29.	PoE	High Power PoE as per IEEE 802.3 is Required.	
30.	Preset Titling	The camera shall allow the storage of up to 99 preset scenes with each preset programmable for 16 character titles.	
31.	Housing rating (Outdoor Model)	Wall/ Pipe Mount IP 66, NEMA 4, with inbuilt heater blower kit or better, vandal proof dome and aluminum enclosure. From Camera OEM only with all Pole mounting brackets.	
32.	ONVIF	Required. Camera should be listed on ONVIF website	
33.	Image Stabilizer	Image stabilization is required	
34.	Object Tracking	Automatic object tracking	
35.	Approval	UL and EN and FCC standards for Safety, EMC & Immunity.	

Name and signature (of the authorized person) with company seal.

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Outdoor Fixed Box IP Color Camera (Day/Night):

The camera shall have a 1/3“progressive scan CCD with minimum 3 Megapixel Video Streams. The camera shall work on PoE IEEE 803.af.

The camera shall meet the following minimum technical requirements.

	Particular	**Specifications**	**Compliances (Yes/No)/ Deviation Remark**
1.	Image Sensor	1/3" Progressive Scan CMOS sensor	
2.	Minimum Illumination	Color: 0.3lx, B/W: 0.05lx	
3.	Wide Dynamic Range	Should be available	
4.	True Day / Night	IR Cut Filter On/Off	
5.	Electronic Shutter	1/5 - 1/10000sec Or Better	
6.	BLC	BLC ON/OFF	
7.	Focal Length	f= 3mm~8 mm (Lens Should be Megapixel	
8.	Privacy Masks	3 or more	
9.	Temperature rating	-10 degrees celcius to +60 degrees celcius	
10.	Power Over Ethernet	PoE+ support necessary	
11.	Alarm Contacts	Minimum 1 input	
12.	White Balance	Required	
13.	Video Compression	H.264, M-JPEG Multiple video stream	
14.	Image Set	Saturation, Brightness, Sharpness and Contrast setup is quick and easy and	

		can be customized through IE Browser	
15.	Digital Noise Reduction	ON/OFF	
16.	Audio Input	Mic/Line in, bi-directional audio, frequency responsibility: 50 - 16000Hz, S/N>60dB	
17.	Audio Output	Line out PWL Resistance: 600_	
18.	Day/Night	TDN , IR cut removable	
19.	Ethernet	10/100M auto negotiation	
20.	Streams	Minimum 3 nos of independent H.264 streams should be available.	
21.	Tampering Alarm	Yes	
22.	SD/SDHC Card Slot	Yes should support minimum 32 GB	
23.	Audio Detection	Yes	
24.	Resolution	2048 X 1536 at 20 fps	
25.	Protocol	TCP/IP, UDP, RTP/RTCP, RTSP, HTTP, SMTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, UPNP (SNMP, HTTPS, SIP optional)	
26.	Network Interface Protocol	ONVIF	
27.	Video Motion Detection	Required	
28.	Power Input	12 VDC / IEEE 802.3 af	
29.	Housing	IP 66	

30. Certification	UL and FCC and CE

HOUSING SPECS FOR OUTDOOR BOX CAMERA-SAME MAKE AS CAMERA-

Name and signature (of the authorized person) with company seal.

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	Particular	Specifications	Compliances (Yes/No)/ Deviation Remark
1.	Max Camera Size (W x H x L)	144(W) x 122.5(H) x 450(D) mm	
2.	Camera Mounting	Side Open or Reversible slotted camera	
3.	Weight	Approx 1.5 Kg	
4.	Cable Entry	Compression gland with 0.16 in. (4 mm),0.25 in. (6.5 mm), and 0.27 in.(7 mm) holes	
5.	Material	Die-cast aluminum	
6.	Environmental Rating	IP66	
7.	PoE Support	Housing should work on PoE	
8.	Operating Temp	-10°C ~ +50°C	

High Definition Vandal Proof Dome Type IP Color Camera:

High resolution IP Color camera shall be of fixed dome type suitable for indoor & outdoor surveillance during day or low light (night) operation. The camera shall work on PoE 803.af.

The camera shall meet the following minimum technical requirements.

	Particular	**1MP, True IP High Definition Vandal proof Dome Varifocal Camera**	**Compliances(Yes /No)/Deviation Remark**
1.	Pick-up device	1/4“ progressive scan, CMOS image sensor	
2.	2Dual Stream	H.264 and MJPEG Streams	
3.	Resolution and Frame Rate	Both the stream shall be programmable for different frame rate per channel at 1 MP (30 fps), and 30 fps at HD 720p resolutions.	
4.	Video resolutions	Configurable. 1280 x 800 to 160 X 90 at 30 fps 720 p	
5.	Video Compression	H.264	
	a. Sensitivity (at F1.7)	0.9 lux & .03 B&W	
6.	Signal to Noise Ratio	≥ 50 dB	
7.	Shutter speed	1/6 s to 1/124500 s	
8.	Angle View	80*-24* Horizontal angle of view	
9.	Data rate	64 bps to 6 Mbps	
10.	Audio	Two Way, Built-in Microphone	
11.	Lens Type and mounting	CS Mount- Vari-focal 3 mm - 8 mm DC Iris lens	

12.	Operating Temperature	0 °C to +50 °C (with or without heat sink)	
13.	Humidity	20% to 80% non-condensing	
14.	Approval	UL & EN & FCC standards for Safety, EMC & Immunity.	
15.	Network Protocols	RTP, Telnet, TCP, IP, UDP, HTTP, IGMP v2/v3, ICMP, ARP, SNMP, FTP, TELNET, Multicast.	
16.	PoE	IEEE 802.3af compliant	
17.	Alarm Inputs / outputs	1 input & 1 output	
18.	Network Connectivity	Ethernet, 10/100Base T PoE	
19.	Web Server	Internal Web server required with embedded operating system.	
20.	ONVIF Standard	Camera should be listed and approved on ONVIF website for ONVIF Support	
21.	Multi View Streaming	Required	
22.	Camera Angle Adjustment	Pan: 360* Tilt: 170* Rotation: 340*	
23.	Preset Positions	Required	
24.	Guard Tour	Required	
25.	Digital PTZ	Required	
26.	Image Setting		
27.	WDR	Wide Dynamic Range	
28.	Privacy Mask	Required	

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Keyboard Controller for IP Camera

29.	Image Mirroring	Required	
30.	Image Control	Brightness, Sharpness, Colour Control	
31.	Black Light Compensation	Required	
32.	Intelligent Video Alarms		
33.	Motion detection	Required	
34.	Tampering Alarm	Camera View tampering alarm is required	
35.	Audio Alarm	Required	
36.	Vandal Proof	Vandal and Tamper proof	
37.	Certification	UL and FCC and EN Standards	

	Particular	**Specifications**	**Compliances (Yes/No)/ Deviation Remark**
1.	Power	Via USB interface	
2.	Casing	Polycarbonate ABS	
3.	Operating temperature	0 °C to 60 °C (32 to 140 °F)	

4.	Interface	USB 1.1/ 2.0 compliant	
5.	Approvals	EN 55022: Class B; EN 55024; EN 61000-6-2; FCC Part 15 subpart b; Class B (CISPR 22) C-Tick; VCCI; ICES-003; IP20	
6.	System requirements	Windows 7, Vista, XP, 2000, 2003 Server	
7.	Functionality Joystick Keypad Jog dial	Hall-effect joystick with three axis: - X/Y: for pan and tilt - Z: knob for zoom 6 application defined hotkeys **Deflection** Square delimiter Pan/Tilt (XY): +/- 15° Zoom (Z): +/- 25° 22 keys: 10 application defined hotkeys of which 5 are backlit, 0-9, tab, alt	

		6 application defined hotkeys **Deflection** Shuttle operating angle 160°	

VA SYSTEM DESCRIPTION

1. The Video Analytics (VA) shall be designed to provide Intelligent Video Analysis for 24/7 surveillance with support for devices from different vendors.
2. The VA shall support open platform Video Management System (VMS).
3. The VA shall get video from VMS and send alerts to VMS to view in VMS client
4. The VA shall work as an independent windows application
5. The VA shall work as windows service.
6. The VA shall support failover server mechanism
7. The VA shall log all the alerts sent in a log file
8. The VA shall store alarm video and image files for export
9. The VA shall support Video from at least 10 camera vendors
10. The VA shall support any Video encoding format like H.264/MPEG4/MJPEG
11. The VA shall support ONVIF streaming

Product Features

	Software Requirements	Compliances(Yes /No)/Deviation Remark
1.	The VA shall support simple graphical interface for user defined inputs	
2.	The VA shall support multiple regions from a single video feed	
3.	The VA shall support different features to be enabled for different regions	
4.	The VA shall support scheduling so that that analysis can be enabled or disabled for a certain period of time	
5.	The VA shall support both Virtual line and Virtual area based features	
6.	The VA shall support both indoor and outdoor environment	
7.	The VA shall support setting of minimum and maximum object size for detection	
8.	The VA shall work without any calibration	
9.	The VA shall have the option for calibration to use object height and depth at different depths.	
10.	The VA shall support open VMS	
11.	The alert image with highlighted violator should be seen in open VMS in real time	
12.	The VA alert from fixed camera should trigger PTZ movement to the alert object	
13.	The VA shall be able to directly connect to camera	
14.	The VA shall be able to stream the Analytics video to VMS using open interface protocol like ONVIF	

Video Analytics Features

15.	The VA shall be able to store all alarm details in its own database	

	Features	Compliances(Yes /No)/Deviation Remark
	Intrusion detection features	
1.	Tripwire/Line crossing - The VA shall detect people or vehicle crossing virtual line in either direction.	
2.	Tailgating - The VA shall detect a person (individual) or vehicle crossing the line within a specified time of a person or vehicle crossing the line in front	
3.	Trespass - The VA shall detect people or vehicle entering or exiting virtual area in either direction. The virtual area can be of any shape.	
4.	Camera Tampering – The VA shall detect camera tampering by vandals. The tampering can be due to obstruction of camera by vandals	
	Suspicious incidence detection features	
5.	Loitering - The VA shall detect the person moving around the region beyond a pre-defined period	
6.	Crowd Detection – The VA shall detect crowd assembling in a pre-defined area. The count for the crowd determination should be pre-defined. The VA shall be able to provide count of the	

Advanced Features

	crowd	
7.	Congestion Detection – The VA shall be able to detect congestion due to vehicles and people.	
8.	Left out baggage detection\Abandoned Object detection - The VA shall detect object left out or abandoned by the person beyond a certain pre-defined period	
9.	Missing object detection - The VA shall detect object removed by the person beyond a certain pre-defined period	
10.	Counter flow detection - The VA shall detect people moving in a wrong way	
	Counting features	
11.	Object (People / Vehicle) counting - The VA shall count the people or vehicle crossing virtual line. The VA shall be able to support both overhead counting as well as angular camera counting	
12.	Queue detection – The VA shall be able to find out average waiting time of the queue as well as number of people in the queue	
13.	Face Capture – The VA shall be able to detect face in the camera FOV, captures it and stores it.	
14.	Report – The VA shall be able to provide report of counting with export option provided in image and CSV format. The VA shall be able to send report through Auto Emailer or FTP	

	Features	Compliances(Yes/No)/Deviation Remark
	Advanced Features	
1.	Smart auto PTZ control – The VA shall be able to detect analytic rules like Tripwire on PTZ camera and then immediately do Pan, Tilt and Zoom to violator on violation of rules. After the PTZ operation, the software should enable it to come back home position and start monitoring for violation	
2.	Continuous auto PTZ control - The VA shall be able to continuously track the moving object using PTZ control on PTZ camera. The VA shall be able to track single object and multiple objects through Auto PTZ control.	
3.	Object Classification between human and vehicles – The VA shall be able to classify objects between human and vehicles	
4.	Video stitching with object detection - The VA shall be able to stitch videos from cameras with overlapped view and provide stitched view. The VA shall be able to do object detection and tracking in the stitched view	
5.	Video Stabilization – The VA shall be able to stabilize the video when camera is shaking due to wind	
	Video Stitching	
6.	The VA shall be able to stitch videos from cameras with overlapped view for up to 8 cameras	

7.	The VA shall be able to do object detection and tracking in the stitched view	
8.	The VA shall be able to provide real time video stitching	
9.	The VA shall be able to provide multiple instances of real time video stitching on same server	
10.	The VA shall provide the viewer to view the stitched video	
11.	The VA shall be able to stream the stitched video to VMS	
	Video Stabilization	
12.	The VA shall be able to stabilize the video when camera is shaking due to wind	
13.	The VA shall be able to stream the stabilized video to VMS	
	Smoke Detection	
14.	The video Based Smoke Detection Analytic should be robust enough to raise alarm for a smoke within 30 meters of view.	
15.	The Smoke should cover at least 10 – 15 % of camera Field Of View.	
16.	The minimum frame rate should be 25 fps. Provided the stated conditions are matched, the alarm should be raised within 5 seconds.	
17.	The Smoke can be with or without fire. The Analytic application should detect smoke in	

Alerts and Events

	Indoor/Outdoor environments.	
18.	The Analytic software should allow the operator to define Smoke suspected Zones & Smoke Detection Sensitivity.	

	Features	**Compliances(Yes/No)/Deviation Remark**
1.	The VA shall send rectangles bounding the object and path the object has taken so that alert image can be displayed in the viewer with path and rectangles	
2.	The VA shall send alert Meta data with the following information so that alerts can be searched and categorized based on this information in the viewer.	
3.	Timestamp (date & time)	
4.	Alert Name	
5.	Alert Type	
6.	Alert location	
7.	Text Description	
8.	Region associated	
9.	The VA shall be able to store the alarm videos and images for export	

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Video Management System

10.	VA Performance	
11.	The VA shall have the ability to handle tree swaying, wind and rain	
12.	The VA shall have the ability to handle object occlusion	
13.	The VA shall have the ability to handle sudden and gradual illumination changes	
14.		

	Features	**Compliances(Yes/No)/Deviation Remark**
1.	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	
2.	VMS shall already support IP cameras from at least fifty (50) major vendors. Bidders shall clearly list in their proposal the brands and models	

	already integrated into VMS.	
3.	To ensure openness, VMS and cameras shall not be from the same manufacturer.	
4.	VMS shall support installation and ability to run on virtualized windows servers	
5.	VMS manufacturer shall provide their SDK (or any other integration means) libraries and documentation) to ensure a seamless integration with any other system	
6.	VMS shall be open to any standard storage technologies integration.	
7.	VMS shall be open to any video wall system integration.	
8.	VMS shall have the possibility to integrate external Video Analytics systems.	
9.	The VMS system shall be a scalable client – server architecture built using well known operating systems	
10.	The VMS system shall enable recording to be done at the aggregation sites and shall allow the Command & Control center to import selected video's on demand.	
11.	The VMS system shall have three types of aggregation sites. Each aggregation site shall be enabled to record and retain video files for 30 days archived.	

12.	To facilitate the VMS system architecture, the BIDDER shall ensure that sufficient capacity is designed into the data communications & telecommunications infrastructure to deliver the required functionality, along with the ability to allocate and reserve resources (including bandwidth).	
13.	The Bidder shall ensure that he does not exceed Bandwidth allocation specified by the PSD.	
14.	The VMS data communications and telecommunications network shall use a suitable transport medium and associated cabling and data transmission infrastructure that will support real-time video display of cameras at the nominated operations centers. The type of transmission network shall be determined by the BIDDER.	
15.	The VMS system shall be compatible to single and multiple processor servers. The server processor & hardware shall be optimized in all cases.	
16.	The VMS system shall cluster the processing & memory load across several machines. The failure of any one server in the solution shall not cause a failure in the entire system.	
17.	The VMS system device drivers shall be stored separately to the central core application to ensure any instability in 3rd party SDKs do not affect the core application.	

18.	The VMS management server shall be able to intelligently scan an IP network for new devices (cameras or servers) along with automatic model detection.	
19.	Network infrastructure and installation are the responsibility of the Bidder. Network components both active and required for the successful implementation of the video surveillance detailed in this tender shall be provided by the Bidder. The network infrastructure shall meet the streaming requirement of the project without any bottlenecks. The network infrastructure shall support UDP multicast, UDP unicast and TCP transmission.	
20.	The VMS system shall provide an integrated secure, scalable and easily accessible software-based solution for the management of the existing & future physical security infrastructure	
21.	The VMS system shall provide a powerful and efficient management interface for all the security systems across all monitored sites.	
22.	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and	

	events.	
23.	The Video Management System shall contain recording servers used for recording video feeds and for communicating with cameras and other devices. The recording servers shall process the recordings and playback the video streams.	
24.	The Video Management System shall include a federated architecture allowing clients on the host system with the right user rights to view video sources belonging to multiple independent Video Management Systems simultaneously, as if they were on The Video Management System shall contain a management server that shall be the central manager of the system and control recording servers, cameras, devices and users. The management server shall handle the initial client login, system configuration and logging.	
25.	The management server shall allow access to a system manager from where the administrator can configure and manage all servers, cameras and users.	
26.	The system shall allow the management server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails.	
27.	The Video Management System shall support installation and ability to run on virtualized Windows® servers.	

28.	The Video Management System shall allow an unlimited number of cameras to be connected to each recording server and an unlimited number of recording servers to be connected to each management server across multiple sites, if required.	
29.	The Video Management System shall support high availability of recording servers. A failover option shall provide standby support for recording servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data.	
30.	The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles.	
31.	The Video Management System shall support Microsoft Windows XP Professional, Microsoft Windows Server 2003, Microsoft Windows Server 2008, Microsoft Windows Vista (Business/Enterprise/Ultimate) and Microsoft Windows 7 (Business/Enterprise/Ultimate) with the latest patches and service packs installed. The system must use DirectX and .NET Framework.	
32.	The Video Management System software shall include multicast and multi-streaming support.	
33.	The Video Management System shall include automatic camera discovery.	

34.	The Video Management System shall support archiving for optimizing recorded data storage through unique data storage solutions by combining performance and scalability with cost efficient long-term video storage.	
35.	The Video Management System shall incorporate fully integrated matrix functionality for distributed viewing of any camera in the system from any computer with the client viewer.	
36.	The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. The map functionality shall allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.	
37.	The Video Management System shall support 56-bit encryption of video for export purposes. The 56-bit encryption shall meet the US Government requirements on export limits for encryption.	
38.	The Video Management System shall support full two-way audio between clients and remote devices. Two-way audio integration shall support the following features and functions:	
39.	The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.	

40.	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	
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	with any other system	
46.	VMS shall be open to any standard storage technologies integration.	
47.	VMS shall be open to any video wall system integration.	
48.	VMS shall have the possibility to integrate external Video Analytics systems.	
49.	The VMS system shall be a scalable client – server architecture built using well known operating systems	
50.	The VMS system shall enable recording to be done at the aggregation sites and shall allow the Command & Control center to import selected video's on demand.	
51.	The VMS system shall have three types of aggregation sites. Each aggregation site shall be enabled to record and retain video files for 30 days archived.	
52.	To facilitate the VMS system architecture, the BIDDER shall ensure that sufficient capacity is designed into the data communications & telecommunications infrastructure to deliver the required functionality, along with the ability to allocate and reserve resources (including bandwidth).	
53.	The Bidder shall ensure that he does not exceed Bandwidth allocation specified by the PSD.	

54.	The VMS data communications and telecommunications network shall use a suitable transport medium and associated cabling and data transmission infrastructure that will support real-time video display of cameras at the nominated operations centers. The type of transmission network shall be determined by the BIDDER.	
55.	The VMS system shall be compatible to single and multiple processor servers. The server processor & hardware shall be optimized in all cases.	
56.	The VMS system shall cluster the processing & memory load across several machines. The failure of any one server in the solution shall not cause a failure in the entire system.	
57.	The VMS system device drivers shall be stored separately to the central core application to ensure any instability in 3rd party SDKs do not affect the core application.	
58.	The VMS management server shall be able to intelligently scan an IP network for new devices (cameras or servers) along with automatic model detection.	
59.	Network infrastructure and installation are the responsibility of the Bidder. Network components both active and required for the successful implementation of the video surveillance detailed in this tender shall be provided by the Bidder. The	

	network infrastructure shall meet the streaming requirement of the project without any bottlenecks. The network infrastructure shall support UDP multicast, UDP unicast and TCP transmission.	
60.	The VMS system shall provide an integrated secure, scalable and easily accessible software-based solution for the management of the existing & future physical security infrastructure	
61.	The VMS system shall provide a powerful and efficient management interface for all the security systems across all monitored sites.	
62.	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	
63.	The Video Management System shall contain recording servers used for recording video feeds and for communicating with cameras and other devices. The recording servers shall process the recordings and playback the video streams.	
64.	The Video Management System shall include a federated architecture allowing clients on the host system with the right user rights to view video	

	sources belonging to multiple independent Video Management Systems simultaneously, as if they were on The Video Management System shall contain a management server that shall be the central manager of the system and control recording servers, cameras, devices and users. The management server shall handle the initial client login, system configuration and logging.	
65.	The management server shall allow access to a system manager from where the administrator can configure and manage all servers, cameras and users.	
66.	The system shall allow the management server to be installed on multiple servers within a cluster of servers ensuring that another server in the cluster automatically takes over in case the first server fails.	
67.	The Video Management System shall support installation and ability to run on virtualized Windows® servers.	
68.	The Video Management System shall allow an unlimited number of cameras to be connected to each recording server and an unlimited number of recording servers to be connected to each management server across multiple sites, if required.	
69.	The Video Management System shall support high availability of recording servers. A failover option shall provide standby support for recording	

	servers with automatic synchronization to ensure maximum uptime and minimum risk of lost data.	
70.	The Video Management System shall support a versatile rule system including scheduled or event-driven actions with numerous options including support to time profiles.	
71.	The Video Management System shall support Microsoft Windows XP Professional, Microsoft Windows Server 2003, Microsoft Windows Server 2008, Microsoft Windows Vista (Business/Enterprise/Ultimate) and Microsoft Windows 7 (Business/Enterprise/Ultimate) with the latest patches and service packs installed. The system must use DirectX and .NET Framework.	
72.	The Video Management System software shall include multicast and multi-streaming support.	
73.	The Video Management System shall include automatic camera discovery.	
74.	The Video Management System shall support archiving for optimizing recorded data storage through unique data storage solutions by combining performance and scalability with cost efficient long-term video storage.	
75.	The Video Management System shall incorporate fully integrated matrix functionality for distributed viewing of any camera in the system from any computer with the client viewer.	

76.	The Video Management System shall incorporate intuitive map functions allowing for multilayered map environment. The map functionality shall allow for the interactive control of the complete surveillance system, at-a-glance overview of system integrity, and seamless drag-and-drop integration with video wall module option.	
77.	The Video Management System shall support 56-bit encryption of video for export purposes. The 56-bit encryption shall meet the US Government requirements on export limits for encryption.	
78.	The Video Management System shall support full two-way audio between clients and remote devices. Two-way audio integration shall support the following features and functions:	
79.	The Video Management System software shall provide fast evidence export by exporting in video to various formats, including video from multiple cameras in encrypted native database format with an included viewer.	
80.	The Video Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices, servers and users and must empower a flexible rule-based system driven by schedules and events.	

81.	VMS shall already support IP cameras from at least fifty (50) major vendors. Bidders shall clearly list in their proposal the brands and models already integrated into VMS.	
82.	The Video Management System shall show full awareness of the system through audit logs and shows user activity through comprehensive logs.	
83.	The Video Management System shall include support for a frame work data module designed to integrate multiple third party Video Content Analysis (VCA) solutions seamlessly into client viewer environments.	
84.	The Video Management System shall include a Software Development Kit (SDK) that offers important capabilities for integrating the Video Management System with third party software and applications.	
85.	The Video Management System shall include a stand-alone viewer application to be included with video exported from the client viewer application. The viewer application shall allow recipients of the video to browse and playback the exported video without installing separate software on their computers.	
86.	The Video Management System shall include support for Active Directory to allow users to be added to the system. Use of Active Directory requires that a server running Active Directory, acting as a domain controller, to be available on	

	the network.	
87.	The Video Management System shall be designed to support each component on the same computer for efficiency in smaller systems, or each component on separate systems for large system deployments.	
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	requires that a server running Active Directory, acting as a domain controller, to be available on the network.	
93.	The Video Management System shall be designed to support each component on the same computer for efficiency in smaller systems, or each component on separate systems for large system deployments.	
94.	System Monitor shall Give actual and historic performance and use reports of server performance, storage availability, network usage and camera performance.	
95.	Multi-stream should support two independent streams from a camera to the recording server with different resolutions, encodings and frame rates, dependent on camera capabilities	
96.	Multi-live streaming shall define multiple streams for live viewing with different properties.	
97.	Multi-Stage storage:The recording shall support multiple storage containers with individual archiving schemes and retention times. Recording capacity is limited only by disk space	
98.	The Recording video data grooming shall be supported which enables compression (grooming) of the video by reducing the frame rate of the video data	

Name and signature (of the authorized person) with company seal.

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Approved Make List

Sr. No.	Product Description	OEM
1.	IP CCTV Camera	Bosch, Panasonic, Pelco, Honeywell, Axis, Sony
2.	Video Management & Recording Software	Bosch, Panasonic, Pelco, Honeywell, Axis, Sony, Milestone, Digifort, Nice
3.	Video Analytics software (Server based only)	Bosch, Panasonic, Pelco, Honeywell, Axis, Sony, Allgovision, AgentVi, Cognimatics
4.	Rack 600 * 1200 42U	Rittal/APC/Emerson
5.	In-rack chilled water based cooling solution	Rittal/APC/Emerson
6.	Chiller system	Blue box/ Bluestar, Rittal
7.	LED Monitor	LG/Sony/Panasonic/Samsung
8.	Data base Server/ Recording Server/ Redundant Server/ Analytics Server	HP/IBM/DELL
9.	Client PC (Work Station Grade)	HP/IBM/DELL
10.	Joy Stick Keyboard Controller	Bosch, Samsung, Panasonic, Pelco, Honeywell, Axis, Sony
11.	L3 Chassis Switch	Cisco, Juniper, HP,
12.	L2 Network Switch	Cisco, Juniper, HP,
13.	UPS	APC/Emerson/Rittal
14.	Cat6 STP , 6 core Single mode Armored OFC Cable	TE-AMP/Commscope-Systimax/Belden/ Digilink