

VAST Security Station

A Quick-to-set-up A.I. Surveillance System



Product Description

VIVOTEK's VAST Security Station (VSS) is an easy-to-use, all-around, AI-powered IP video surveillance software designed to help you manage tens of thousands of cameras with ease and focus on only what matters to you through VIVOTEK AI solutions. With two variants VSS Standard and VSS Professional, you can choose what's best for your organization and scale up the whole system anytime.

Diverse Feature Support



Deep Search



Alarm/
Notification

TCP

TCP message



Data Magnet



Digital
Watermark



Video Export
Encryption



Video Recording
Encryption



GIS/GPS



E-map



Matrix

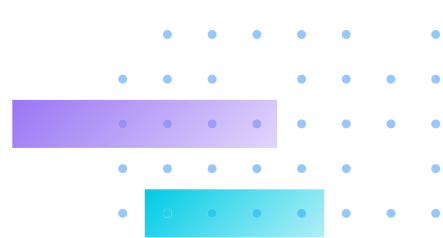


CMS/Substation
Failover

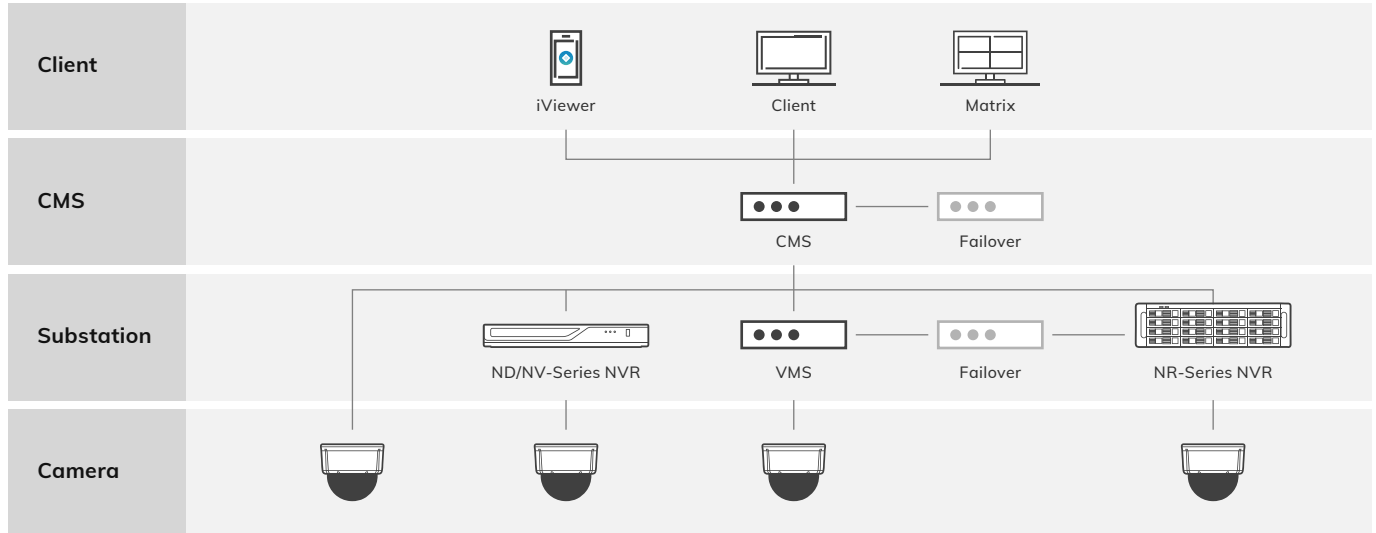


Dashboard





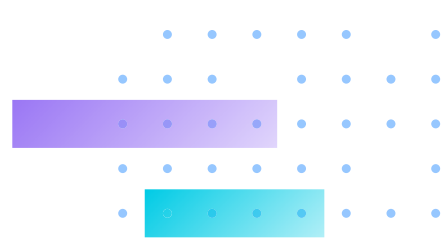
VSS Architecture Overview



Specification

Product Edition	VSS Lite	VSS Std	VSS Pro
	VSS Lite	VSS Standard	VSS Professional
Product Overview	Free entry-level VMS for basic surveillance needs	Cost-effective solution for small and mid-size business	Designed for mid-size to large-scale projects requiring central management and 24/7 operations
Software Version	1.2		
System			
Deployment			
Maximum Number of Cameras Per Server ¹	32	256	320
Maximum Number of Clients Per Server	200 ²		
Maximum Number of Simultaneous Video Streaming Output Per Server	2,048 ³		
Maximum Number of Substations Per System	0	64 ⁴ (ND/NV series NVR)	700 (ND/NV series NVR, VSS Pro NR series NVR, VSS Professional Station)
Maximum Number of Cameras Per System	32	256	22,400 ⁵
Licensing⁶			
Complimentary Camera License	32 (VIVOTEK cameras only)	8	0

1. Please refer to the system requirements when designing your surveillance deployments.
 2. The maximum number of clients per server is based on each client being able to connect to 1 live view of camera. However, this number may vary depending on system workload and network bandwidth.
 3. The number of video streaming outputs a server can handle at the same time depends on the system workload and network bandwidth.
 4. The number of substations per system is limited by the maximum number of cameras per system.
 5. The maximum number of cameras per system is obtained by 320 cameras per server X 70 substations per system or 32 cameras per server X 700 substations per system.
 6. Please refer to the "License Overview" section for further information.



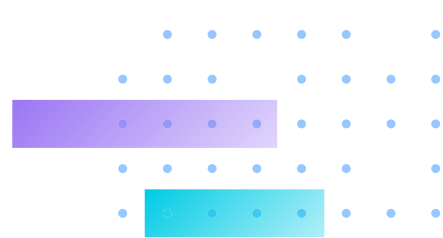
Specification

Platform			
Server	Windows	Windows 11, 10 (64-bit); Windows Server 2022, 2019, 2016, 2012 (Server Core installation type is not supported)	
	Virtual Machine	-	• (VMware®, Microsoft® Hyper-V®)
Client	Windows 11, 10 (64-bit); Windows Server 2022, 2019, 2016, 2012 (Server Core installation type is not supported); macOS 12, 13 ⁷		
Mobile APP	iViewer (iOS/Android)		
Language			
Language	Arabic, Czech, English, French, German, Italian, Japanese, Korean, Portuguese, Persian, Polish, Russian, Simplified Chinese, Spanish, Thai, Traditional Chinese, Turkish, Vietnamese		
General			
Video			
Video Format	MJPEG, MPEG4, H.264, H.265		
Video Resolution	Up to 12 Megapixels		
Audio			
Audio Format	G.711, G.726, AMR, MPEG-2 AAC-LC		
Audio Capability	Two-way audio		
Key Features			
Live View			
Maximum Number of Display Channels Per Monitor ⁸	64		
Multicasting of Live Streams from Servers to Clients	•		
Display Layout Option	Equal	1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7, 8x8	
	Panorama	1P+6, 2P, 2P+3, 3P	
	Focus	1+12, 1+16, 1+3, 1+5, 1+7, 1+9, 2+8	
	Vertical	1V+6, 2V+2, 2V+3, 3V, 3V+4, 4V, 4V+4, 5V	
Custom Layout	•		
Camera Tour	•		
View Cell Source	Camera streaming, E-map, webpage		
Fisheye Display Mode	1O, 1P, 1R, 1O3R, 4R, 2P, 4R Pro, 1O8R		
3 rd Party Fisheye Dewarping	-	•	•
Multi-Sensor Display Mode	1P, 1R, 1P2R, 1P3R		
Display Watermark	•		
Recording			
Maximum Number of Recording Channels Per Recording Group ⁹	32	256	320
Additional Recording Time for Event Recording	Pre-event recording time: 3 ~ 15 (sec.); Post-event recording time: 10 ~ 60 (sec.)		
Recording Stream Type	Unicast		
Recording Stream	Single		
Recording Mode	Continuous, customized schedule, event		
Activity Adaptive Streaming	•		
Recycle Options	By remaining storage space, by the set number of days		
Recording File Format	3GP		

7. The limitations of macOS client: (1) Only supports 3GP as exported video format 3GP; (2) AD login cannot be set up in macOS client; (3) Only supports the joystick AJ-001; (4) Only supports one-way audio; (5) Does not support standalone player; (6) Does not support third-party fisheye dewarping.

8. The maximum number of monitors depends on the capability of your system.

9. Please refer to system requirements when designing your surveillance deployments.



Specification

Video Encryption			
Digital Watermark			•
Exported Video Encryption			• (AES-256 CTR)
Recording Encryption	-	-	• (AES-256 CTR)
Playback			
Maximum Number of Display Channels Per Monitor ¹⁰			64
Display Layout Option	Equal		1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7, 8x8
	Panorama		1P+6, 2P, 2P+3, 3P
	Focus		1+12, 1+16, 1+3, 1+5, 1+7, 1+9, 2+8
	Vertical		1V+6, 2V+2, 2V+3, 3V, 3V+4, 4V, 4V+4, 5V
Custom Layout			•
Playback Mode			Asynchronous, synchronous
Playback Control			1/64X ~ 64X speed control, next/previous frame, pause, play, rewind, stop
Playback Timeline			Event timeline interval display, scale adjustment
Display Watermark			•
Search			
Bookmark Search			•
Calendar Search			•
Event Search			•
Thumbnail Search			•
Log Search			•
Data Magnet Search	-		•
Alarm Search	-		•
Smart Search	-		•
Deep Search ¹¹	Object Search	-	• (People, vehicle)
	Attribute Search	-	• (People: gender, age, clothing color, accessories; Vehicle: type, color)
	Scene Search	-	• (Line crossing, intrusion, loitering)
	Re-Search ¹²	-	-
	Case Vault	-	• (Search by similar appearance)
Export			
Exported Snapshot Format			JPEG, PNG
Exported Video Format			3GP
Exported Video Mask	-	-	•
VIVOTEK Standalone Player			
Layout			Single, multiple
Custom Layout			According to playback export layout configuration
Supported Video Format			3GP, MP4
Playlist Control			Drag and drop, play and delete selected or all videos
Playback Mode			Asynchronous, synchronous
Playback Control			1/64X ~ 64X speed control, next/previous frame, pause, play, rewind, stop
Playback Timeline			Event timeline interval display, scale adjustment
Snapshot			JPEG, PNG
Exported Video Format			3GP

10. The maximum number of monitors depends on the decoding capability of your system.

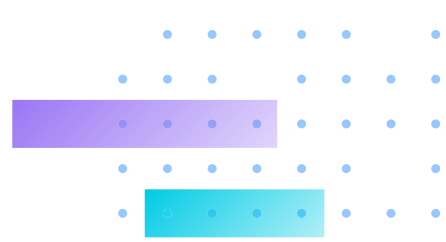
11. Please note that (1) The number of cameras a server can search is limited by your system capability; (2) The supported Deep Search features may vary depending on the specifications of camera models and ND/NV series NVRs. Please refer to <https://www.vivotek.com/ai-driven/deep-search-system-requirement>; (3) An object can generate approximately 0.25 MB of data. For mid-to-high activity scenes, such as parking lots, with about 10 objects per minute, the data capacity can take up approximately 150 MB of storage space per hour per camera.

12. Please note that (1) the CPU and disk performance will influence the search speed; (2) a broader search time frame and more selected cameras require a longer search time and may reach a 90-second timeout.

Specification

Alarm Management					
Maximum Alarm Period		-	30 (sec.)	30 (sec.)	
Schedule Type		-	Continuous, schedule	Continuous, schedule	
Alarm Trigger Type	Camera Event	General	-	Audio detection, camera DI/DO, camera disconnected, IR (Infrared), motion detection, PIR (Passive infrared), recording error, SD card life expectancy detection, shock detection, stop recording, tampering detection, temperature, video loss (Video server only)	
		Video Content Analysis	-	Intrusion detection, loitering detection, line crossing detection, unattended object detection, missing object detection, face detection, crowd detection, running detection, parking violation detection, restricted zone detection, smart tracking, zone detection	
		Trend Micro IoT Security	-	Brute force attack, cyberattack, quarantine	
	System Event	ND series NVR	-	Storage failure, storage full, network disconnected, fan status, brute force attack, cyberattack, quarantine	
		NV series NVR	-	Storage failure, storage full, network disconnected, abnormal g-sensor motion, speeding, GPS disconnected	
		NR series NVR and VSS Professional Station	-	-	Storage failure, storage full, network disconnected
		Counting Report	-	Number of remaining people ¹³	
External Device Event		-	Data Magnet, I/O box DI/DO, TCP message, virtual trigger		
Alarm Action		-	Add bookmark, go to camera presets, go to e-map, play audio file with network audio device, set DO status, start to record video, send email with snapshot, send HTTP requests (GET/POST method), send live streaming, send mobile notification, sound the alarm		
Alarm Result Display		-	By list, by thumbnail	By list, by thumbnail	
Alarm Search Filter		-	Time, trigger type, status, name, trigger source	Time, trigger type, status, name, trigger source	
Alarm Status		-	New, in progress, false alarm, close	New, in progress, false alarm, close	
Alarm Result Export		-	3GP, CVS	3GP, CVS	
Additional Time for Exported Alarm Clip		-	Pre-triggered: 1 ~ 10 (min.); Post-triggered: 1~60 (min.)	Pre-triggered: 1 ~ 10 (min.); Post-triggered: 1~60 (min.)	
PTZ					
PTZ Control Mode	Pan and Tilt Control	Mouse drag and move, click to move	Mouse drag and move, click to move, joystick	Mouse drag and move, click to move, joystick	
	Zoom Control	Area zoom, button, mouse wheels	Area zoom, button, mouse wheels, joystick	Area zoom, button, mouse wheels, joystick	
PTZ Operation		Home, preset, patrol, auto pan, auto focus, manual focus, focus speed, zoom speed, tracking			
Tracking Mode		Auto tracking, Smart Tracking Advanced			
E-map					
Supported Image Format		-	BMP, GIF, JPG, PNG, SVG	BMP, GIF, JPG, PNG, SVG	
Supported Items		-	Camera, DI/DO (Camera, NVR), regional map	Camera, DI/DO (Camera, NVR), regional map	
Map Control		-	Tilt angle adjustment, zoom in/out	Tilt angle adjustment, zoom in/out	
Map Elements Control		-	Add and remove items (Camera, DI/DO, regional map), click icon for live view/ playback/ PTZ control, FOV direction adjustment, icon/ FOV color, icon/ FOV type	Add and remove items (Camera, DI/DO, regional map), click icon for live view/ playback/ PTZ control, FOV direction adjustment, icon/ FOV color, icon/ FOV type	
Alarm Notification		-	Video prompt	Video prompt	

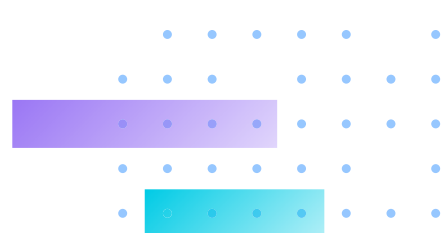
13. This feature requires appropriate configuration on the counting camera and Counting Report.



Specification

Video Content Analysis				
Counting Report		-	•	•
Backup				
External Network Storage	NAS (SMB/CIFS), iSCSI			
Backup Settings	Select cameras, schedule, upload limit			
Video Wall				
Matrix		-	-	•
User Management				
Maximum Number of User Accounts Per Server	4,096			
User Account Management	Basic user account, Windows Active Directory user account			
User Role	Administrator		•	
	Customizable		•	
	User Pre-defined	-	-	•
User Permission Management	Accessible devices, configuration, operation			
Failover				
Server Type	CMS	-	-	1+1 redundancy
	Substation	-	-	N x M redundancy
System Monitoring				
System Monitoring Dashboard	Server Status	CPU, memory, network, storage		
	System Error List		•	
Diagnostic Service			•	
Log Management			•	
Integration and Compatibility				
3 rd Party Integration				
Data Magnet	Data Source Type	-	Access control, POS, standard data source, VIVOTEK License Plate Recognition	Access control, POS, standard data source, VIVOTEK License Plate Recognition
	Data Display on View Cell	-	•	•
	Search Result Display	-	By list, by chart	By list, by chart
	Search Result Exported File Format	-	CSV, PNG	CSV, PNG
TCP Message	-		•	•
Network Audio Solution	-		Trigger recorded announcements; Speak live directly; Broadcast (By group, by schedule)	Trigger recorded announcements; Speak live directly; Broadcast (By group, by schedule)
Transportation Solution	-		-	GIS Maps (Google Map, Open Street Map (OSM)); User-defined maps; Vehicle GPS tracking; Tracks playback

Specification

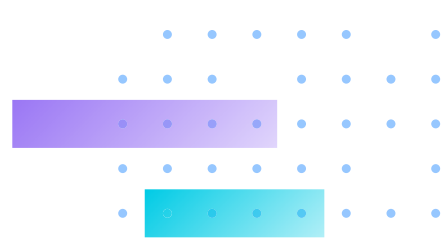


Device Compatibility				
Camera ¹⁴			VIVOTEK 9000 series	
Substation	-	VIVOTEK ND/NV 9000 series NVR	VIVOTEK ND/NV 9000 series NVR, VSS Pro NR series NVR, VSS Professional Station	
Joystick	-	VIVOTEK Joystick AJ001, AJ002	VIVOTEK Joystick AJ001, AJ002	
Network Audio Device	-	VIVOTEK AU-001, AU-002, AU-003, AU-004	VIVOTEK AU-001, AU-002, AU-003, AU-004	
Wiegand Converter	-	VIVOTEK AO-20W	VIVOTEK AO-20W	
I/O Box	-	Advantech ADAM-6000 series; Chiyu CYT-133SC; MOXA ioLogik E1210, E1211, E1212, E1214	Advantech ADAM-6000 series; Chiyu CYT-133SC; MOXA ioLogik E1210, E1211, E1212, E1214	
Access Control	-	Chiyu CSS-R11 (Expanded by CSS-A11); SOYAL AR-837 series; ZKTeco SpeedFace-V4L	Chiyu CSS-R11 (Expanded by CSS-A11); SOYAL AR-837 series; ZKTeco SpeedFace-V4L	
POS	-	ARCH	ARCH	
Managed PoE Switch	-	VIVOTEK AW-GEV-104B-130, AW-GEV-264B-370, AW-GEV-108A-130, AW-GEV-288A-370, AW-GEL-065A-060, AW-GEL-105A-110, AW-GEL-205A-260, AW-GEL-285A-380, AW-IHB-1040	VIVOTEK AW-GEV-104B-130, AW-GEV-264B-370, AW-GEV-108A-130, AW-GEV-288A-370, AW-GEL-065A-060, AW-GEL-105A-110, AW-GEL-205A-260, AW-GEL-285A-380, AW-IHB-1040	
Camera Integration				
Video Source		VIVOTEK	VIVOTEK, ONVIF, RTSP	VIVOTEK, ONVIF, RTSP
VIVOTEK Camera	Settings	Basic	Camera name, streaming protocol (TCP,UDP,HTTP,HTTPS)	
		Video	Video codec, resolution, maximum framerate, intra frame period, video quality, target bit rate, policy (Frame rate priority, image quality priority), Smart Stream	
		Image	Color mode, mount type (Fisheye lens only), power line frequency, timestamp, video title, video orientation	
ONVIF Camera	Profile		-	Profile S
	Video		-	H.265, H.264, MPEG4, MJPEG
	Audio	Format	-	G.711, G.726, MPEG-2 AAC-LC
		Capability	-	One-way audio
Control		-	PTZ control (Up, down, left, right, zoom in/out)	PTZ control (Up, down, left, right, zoom in/out)
ONVIF Camera	Discovery	-	•	•
	Event	-	Motion, camera DI/DO, video lost (Video server only)	Motion, camera DI/DO, video lost (Video server only)
NVR Integration				
Add NVR	Auto Scan		-	•
	Manual		-	•
	From VIVOCLOUD		-	•
Camera Settings		-	•	•
Managed PoE Switch Integration				
Add Managed PoE Switch	Manual		-	•
Web Configuration ¹⁶		-	•	•

14. For supported camera models, please refer to https://www.vivotek.com/device_pack#supported_models.

15. This feature is only compatible with ND 9000 series NVRs with firmware version 4.3 or above.

16. The web configuration interface may be different across supported models.



License Overview

Single Server			
System Architecture		VSS Standard	VSS Professional
Cameras under Single VSS Server	≤ 8 CH	Free-of-charge	VSS Pro Camera License
	> 8 CH*	VSS Std Camera License	
Multi-Server			
System Architecture		VSS Standard	VSS Professional
Cameras under CMS Server	≤ 8 CH	Free-of-charge	VSS Pro Camera License
	> 8 CH*	VSS Std Camera License	
Camera under ND/NV Series Substations	≤ 192 CH	Free-of-charge	VSS Embedded NVR Camera License (Requires on CMS server)
	> 192 CH*	VSS Embedded NVR Camera License (Requires on CMS server)	
Cameras under VSS Substations	≥ 1 CH*	Not supported**	VSS Pro Camera License (Requires on each substation)

* The limitations on the maximum camera channels per server and per system vary among different editions. Please refer to the system requirements when designing your surveillance deployments

**Please upgrade VSS Standard to VSS Professional by purchasing VSS Std-to-Pro upgrade licenses.

System Requirements

VSS VMS Server (Recording Only)				
Operating System	Windows 11, 10 (64-bit) Windows Server 2022, 2019, 2016, 2012 (Server Core installation type is not supported)			
Server	Up to 64-CH	Up to 128-CH	Up to 256-CH	Up to 320-CH
CPU	8th Generation Intel® Core™ i3 Processors desktop version (i3-8100) or above*		8th Generation Intel® Core™ i7 Processors desktop version (i7-8700) or above*	
RAM	8 GB or above		16 GB or above**	
Total Storage Throughput***	288 Mbps	576 Mbps	1152 Mbps	1440 Mbps
Network Interface****	Ethernet, 1 Gbps or above		Ethernet, 2.5 Gbps or above	

VSS CMS Server (Central Management Only)	
Operating System	Windows 11, 10 (64-bit) Windows Server 2022, 2019, 2016, 2012 (Server Core installation type is not supported)
CPU	8th Generation Intel® Core™ i7 Processors desktop version (i7-8700) or above*
RAM	16 GB or above**
Network Interface	Ethernet, 2.5 Gbps or above****

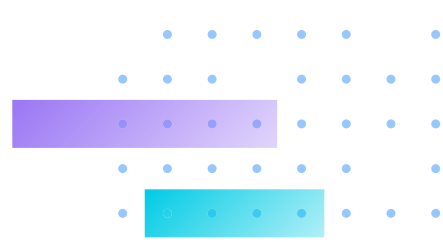
* It is recommended to keep the CPU usage below 80% in normal operating conditions to prevent excessive system load and potential abnormalities in certain situations.

** Please use a dual-channel memory configuration.

*** The total storage throughput refers to 4KB random write throughput. The combined maximum bitrate of cameras cannot exceed the total storage throughput.

**** Please consider the throughput of viewing, recording, and server network bandwidth when designing your surveillance deployments.

[Note] The camera settings in the above table are tested by H.264, 1080P, CBR, and 4 Mbps for each channel; the actual situation depends on the users' system status.



System Requirements

VSS Client & Matrix (Display Only)				
Operating System		Windows 11, 10 (64-bit) Windows Server 2022, 2019, 2016, 2012 (Server Core installation type is not supported)* macOS 12, 13		
CPU		8th Generation Intel® Core™ i3 Processors desktop version (i3-8100) or above	8th Generation Intel® Core™ i5 Processors desktop version (i5-8500) or above	8th Generation Intel® Core™ i7 Processors desktop version (i7-8700) or above
Maximum Display Channels per Client/Matrix	H.264, 720P, 2Mbps for each channel**	8-CH	16-CH	32-CH
	H.264, 1080P, 4Mbps for each channel***	6-CH	10-CH	18-CH
	H.265, 1080P, 4Mbps for each channel	3-CH	5-CH	9-CH
RAM****		8GB or above	8GB or above	16GB or above
Graphics Card*****		Support Direct3D Acceleration with 1GB Video RAM		
Network Interface		Ethernet, 1Gbps or above		

*Independent graphics card is necessary when using Windows Server OS.

** Display requirements of 3MP fisheye camera equal to 720P camera.

*** Display requirements of 5MP fisheye camera equal to 1080P camera.

**** Please use a dual-channel memory configuration.

***** Please update to the latest GPU driver.

[Note]

1. Virtual machines may experience a slight decrease in performance compared to real hardware. It is recommended to use virtual machines with specifications equal to or better than the corresponding physical hardware when installing VSS server or client.

2. If you plan to install both VSS Server & Client on the same PC, please consider the combined loading when evaluating system requirements.