VIVOTEK

A Delta Group Company

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

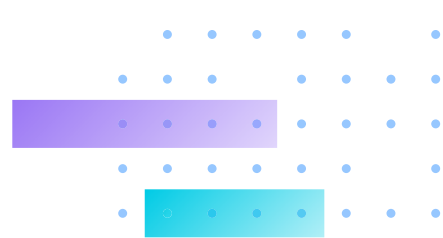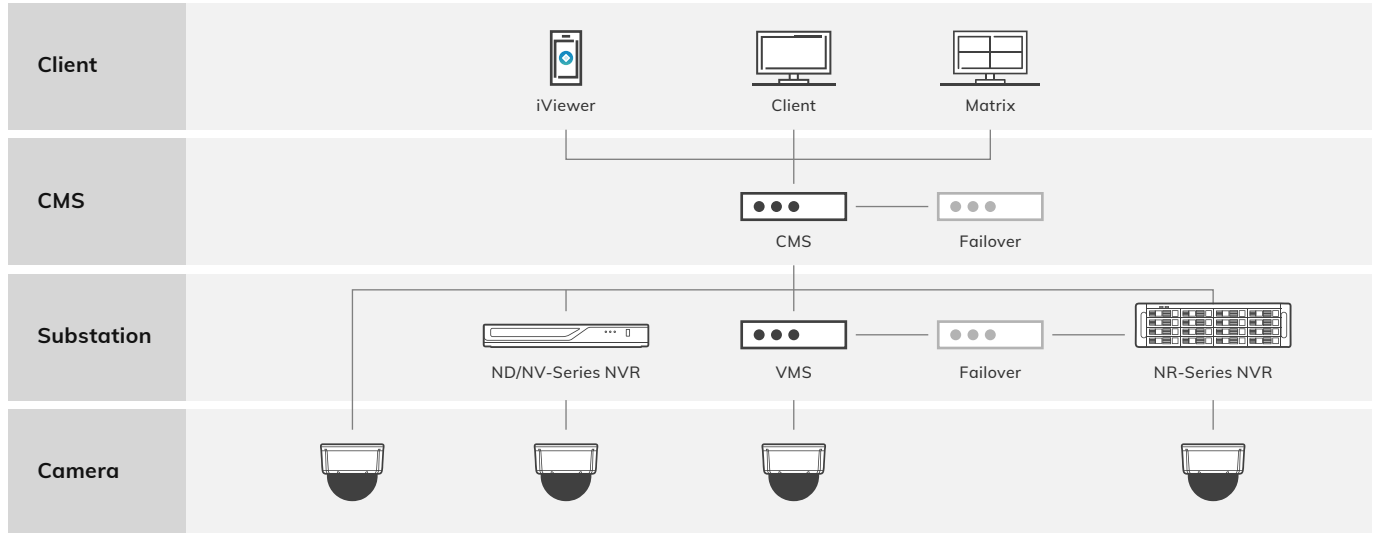|					
Deep Search	Alarm/Notification	TCP message	Data Magnet	Digital Watermark	Video Export Encryption
Video Recording Encryption	GIS/GPS	E-map	Matrix	CMS/Substation Failover	Dashboard

VSS Architecture Overview

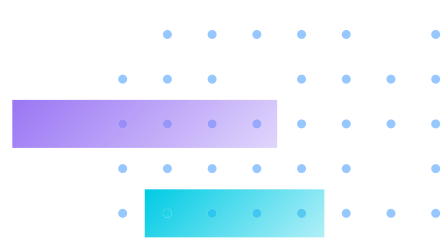| Client	iViewer	Client	Matrix	
CMS		CMS	Failover	
Substation	ND/NV-Series NVR	VMS	Failover	NR-Series NVR
Camera				

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		1.0	
System			
Deployment			
Maximum Number of Cameras Per Server [1]	32	128	320
Maximum Number of Clients Per Server		200	
Maximum Number of Simultaneous Video Streaming Output Per Server		2,048	
Maximum Number of Substations Per System	0	32 [2] (ND/NV series NVR)	700 (ND/NV series NVR, VSS Pro NR series NVR, VSS Professional Station)
Maximum Number of Cameras Per System	32	128	22,400 [3]
Licensing			
Complimentary Camera License	32 (VIVOTEK cameras only)	8	0
Platform			
Server — Windows	Windows 11, 10 (64-bit), 7 (64-bit); Windows Server 2012, 2016, 2019 (Server Core installation type is not supported)		
Server — Virtual Machine	-	-	● (Coming soon)

1. Please refer to the system requirements when designing your surveillance deployments.
2. The maximum number of substations per system is obtained by dividing the number of cameras a ND/NV series NVR supported by the total maximum number of cameras per system.
3. 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.
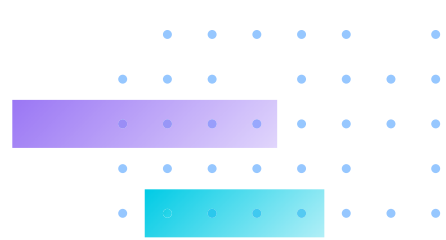
Specification

Client	Windows 11, 10 (64-bit), 7 (64-bit); Windows Server 2012, 2016, 2019 (Server Core installation type is not supported); macOS 10.16 Big Sur [4]
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 [5]	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	●
Camera Tour	●
View Cell Source	Camera streaming, E-map, webpage
Fisheye Display Mode	1O, 1P, 1R, 1O3R, 4R, 2P, 4R Pro, 1O8R
3rd Party Fisheye Dewarping	●
Multi-Sensor Display Mode	1P, 1R, 1P2R, 1P3R
Display Watermark	●

Recording

Maximum Number of Recording Channels Per Recording Group [6]	32	128	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		

4. The limitations of macOS client: (1) Only supports 3GP as exported video format 3GP; (2) AD login cannot be set up in macOS client; (2) Only supports the joystick AJ-001; (3) Only supports one-way audio; (4) Does not support standalone player; (5) Does not support third-party fisheye dewarping.
5. The maximum number of monitors depends on the capability of your system.
6. Please refer to system requirements when designing your surveillance deployments.

Specification

Video Encryption

Video Encryption			
Digital Watermark	●		
Exported Video Encryption	● (AES-256 CTR)		
Recording Encryption	-	-	● (AES-256 CTR)

Playback

Playback			
Maximum Number of Display Channels Per Monitor [7]	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

Search				
Bookmark Search	●			
Calendar Search	●			
Event Search	●			
Thumbnail Search	●			
Log Search	●			
Data Magnet Search	-	●		●
Alarm Search	-	●		●
Smart Search	-	●		●
Deep Search [8]	Object Search	-	● (People, vehicle)	● (People, vehicle)
	Attribute Search	-	● (People: gender, age, clothing color, accessories; Vehicle: type, color)	● (People: gender, age, clothing color, accessories; Vehicle: type, color)
	Scene Search	-	● (Line crossing, intrusion, loitering)	● (Line crossing, intrusion, loitering)
	Re-Search [9]	-	-	● (Search by similar appearance)

Export

Export	
Exported Snapshot Format	JPEG, PNG
Exported Video Format	3GP

VIVOTEK Standalone Player

VIVOTEK Standalone Player	
Layout	Single, multiple
Custom Layout	According to playback export layout configuration

7. The maximum number of monitors depends on the decoding capability of your system.
8. 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; (3) For cameras under ND/NV series NVRs, the supported Deep Search features may vary depending on the specifications of ND/NV series NVRs.
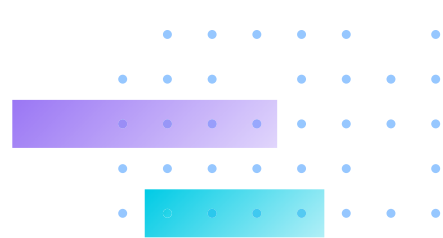9. The maximum number of searchable objects is 200,000, which will limit the number of selectable cameras and search time intervals. Searching beyond the limit will result in a timeout.

Specification

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		
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), PPTZ (Panoramic PTZ), 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	**General:** Audio detection, camera DI/DO, camera disconnected, IR (Infrared), motion detection, PIR (Passive infrared), PPTZ (Panoramic PTZ), 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; **Counting Camera**: Number of remaining people [10]	**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/VSS Professional Station**: Storage failure, storage full, network disconnected; **Counting Camera**: Number of remaining people [10]
	External Device Event	-	Data Magnet, I/O box DI/DO, TCP message, virtual trigger	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 [11], send HTTP requests (GET/POST method), send live streaming, sound the alarm	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 [11], send HTTP requests (GET/POST method), send live streaming, 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.)

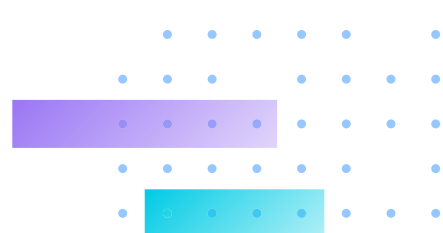10. This feature requires appropriate configuration on the counting camera and VCA Report.
11. This feature requires SMTP server setup.

Specification

PTZ

PTZ Control Mode	Pan and tilt control (Mouse drag and move, click to move); Zoom control (Button, mouse wheels)	Pan and tilt control (Mouse drag and move, click to move, joystick); Zoom control (Button, mouse wheels, joystick)	Pan and tilt control (Mouse drag and move, click to move, joystick); Zoom control (Button, mouse wheels, joystick)
PTZ Operation	Home, preset, patrol, auto pan, auto focus, manual focus, focus speed, zoom speed, tracking		
Tracking Mode	Smart Tracking Advanced, auto tracking		

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

Video Content Analysis

VCA (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		●

Specification

Integration and Compatibility

3rd Party Integration

Data Magnet	Data Source Type	-	3rd party data source, access control, POS, VIVOTEK License Plate Recognition	3rd party data source, access control, POS, 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

Device Compatibility

Camera [12]			VIVOTEK 8000/9000 series	
Substation [13]		-	VIVOTEK ND/NV series NVR	VIVOTEK ND/NV 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	VIVOTEK AU-001, AU-002
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

Camera Integration

Video Source		VIVOTEK	VIVOTEK, ONVIF, RTSP	VIVOTEK, ONVIF, RTSP
VIVOTEK Camera	Basic Setting	Camera name, streaming protocol (TCP,UDP,HTTP,HTTPS)		
	Video Setting	Video codec, resolution, maximumframerate, intra frame period, video quality, target bit rate, policy (Frame rate priority, image quality priority), Smart Stream		
	Image Setting	Color mode, mount type (Fisheye lens only), power line frequency, timestamp, video title, videoorientation		
	Multicasting of live streams from servers to clients	•		
ONVIF Camera	Profile	-	Profile S	Profile S
	Video	-	H.264, MPEG4, MJPEG	H.264, MPEG4, MJPEG
	Audio Format	-	G.711, G.726, AAC	G.711, G.726, AAC
	Audio Capability	-	One-way audio	One-way audio
	Control	-	PTZ control (Up, down, left, right, zoom in/out)	PTZ control (Up, down, left, right, zoom in/out)

12. For supported camera models,please refer to https://www.vivotek.com/device_pack#supported_models.
13. ND8321 is excluded.
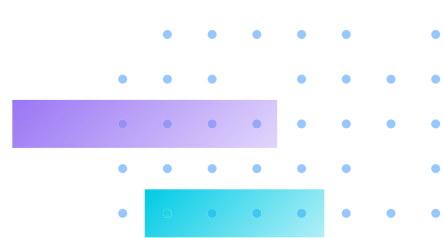
Specification

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	-	-	•

License

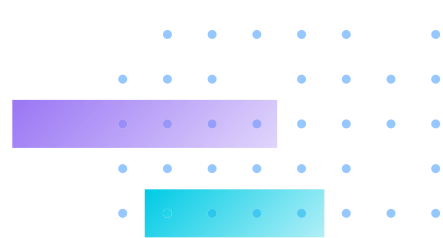| License Type	**VSS Standard**	
	• VSS Std Camera License	Camera License for VSS Standard Edition
	• VSS Std-To-Pro Camera License	Edition Upgrade License from VSS Standard to VSS Professinal
	VSS Professional	
	• VSS Pro Camera License	Camera License for VSS Professional Edition
	• VSS Pro Embedded NVR-Camera License	Camera License for VIVOTEK ND/NV Series Substations on VSS Professional Edition

System Requirements

VSS Server				
Operating System	Windows 11, 10 (64-bit), 7 (64-bit) Windows Server 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
Desktop CPU	8th Generation Intel® Core™ i3 Processors or above		8th Generation Intel® Core™ i7 Processors 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**	

[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.

* Please use a dual-channel memory configuration.
** Please consider the throughput of viewing, recording, and server network bandwidth when designing your surveillance deployments.
*** The total storage throughput refers to 4KB random write throughput. The combined maximum bitrate of cameras cannot exceed the total storage throughput.

System Requirements

VSS Client & Matrix				
Operating System		Windows 11, 10 (64-bit), 7 (64-bit) Windows Server 2019, 2016, 2012 (Server Core installation type is not supported)* macOS 11 Big Sur		
Client Display Channels	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
Desktop CPU		8th Generation Intel® Core™ i3 Processors	8th Generation Intel® Core™ i5 Processors	8th Generation Intel® Core™ i7 Processors
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.
If you plan to install both VSS Server & Client on the same PC, please consider the combined loading when evaluating system requirements.