

NS9521 VAST2 Station User's Manual

Industrial Compact Enclosure • 32 CH expandable to 64 CH • VAST2 Inside DVI/HDMI/DP • 2x HDD Bays • Full Integration with VIVOTEK Cameras



Rev. 1.0 for VAST rev. 2.6

Table of Contents

Revision History	4
Chapter One Hardware Installation and Initial Configuration	7
Introduction	7
Special Features	7
Safety	8
Installation Instructions	9
Power Supply	
Physical Description	11
Front View	11
Rear View	
Display	13
Chassis Dimensions	13
Installing Hard Disk Drives	14
Connecting Interfaces	21
Initial Configuration	
Chapter Two VAST2 Software Configuration and Management	
Log in	
Introducing VAST2	
Charged Add-on Features	
Installation Option - OpenVPN	
Chapter 2-1 Basics: Control and Elements	
Hot Keys	
View Cell Elements	
VAST Server and Client Components	60
Minimum System Requirements	
Chapter 2-2 Starting Up	64
2-2-1. Selecting Devices	65
2-2-2. Recording Options	66
Seamless Recording	70
Activity Adaptive Stream	71
Adding NAS (Network Attached Storage) as a Storage Option	72
2-2-3. Storage	76
2-2-4. Starting Up - Main Page	77
2-2-5. Saving a View	
2-2-6. Add More Live Views	
2-2-7. Save Your Preferences	
2-2-8. Customizable Layout	
2-2-9. Dashboard	
2-2-10. E-Map	
Placing DI/DO Devices	90
Configuring Google Map and GPS	91
2-2-11. Event Search	

2-2-12. PTZ Control	
2-2-13. Playback	
2-2-14. Alarm	
Group Alarm	
2-2-15. Search Panel	117
2-2-16. Smart search	
2-2-17. Tour	
2-2-18. Thumbnail search	
Chapter 3 Applications:	
3-1. I/O DI/DO Devices: IO Box and Related Configuration	
Configuring I/O Box DI/DO as a Trigger or Action in Alarm	
3-2. Configuring Redundant Servers - Failover	
Failover Configuration Process	
3-3. VCA (Video Content Analysis)	
3-4. VAST Software License	
Updating Licenses for VAST on Virtual Machines	
Reminders for VAST Software License	
Chapter 4 Settings:	
4-1. Settings > System > Preferences	
4-2. Settings > Device > Cameras	
Streaming URL	
4-3. Logical Folders	
4-4. Settings > Recording > Recording Options	
4-5. Settings > Recording > Backup	
4-6. Settings > Device > Sites	
4-7. Settings > Device > POS	
4-8. Settings > Device > Local DB	
4-9. Settings > System > SMTP	
4-10. Settings > IO Box and Related Configuration	
4-11. Settings > User Management	
Add a New User Account - Windows AD Account	
Appendix A: VAST Service Control Tool	
Appendix B: Matrix	
Appendix C: Joystick Support	
Appendix D: Upload Device Pack	
Appendix E: Database Merge Function	
Appendix F: Using LPR Related Functions w/ Data Magnet	

Revision History

Rev. 1.0: Initial release. The description for the software functionality is based on VAST rev. 2.6.

WARNING:

- 1. Do not format or initialize the disk 0: drive on your system. The disk 0: drive contains the operating system. Doing so will disable the system.
- 2. No storage system is completely fail-safe. Damage to data might occur due to file system corruption, operating system malfunction, virus infection, HDD component failures, and so on. Therefore, it is highly recommended to regularly back up your data, and VIVOTEK disclaims responsibilities of data loss or recovery.
- 3. Always power off the system using the power down button on system desktop. Do not disconnect the power cord while the system is still operating. Doing so will result in data inconsistencies. The normal power-off procedure allows cached data to be written to disks.

/ WARNING:

Power cord shall be connected to a socket-outlet with earthing connection.

MARNING:

This equipment is intended to be used in a Restricted Access Location. A restricted access area can be accessed only through the use of a special tool, lock, and key, or other means of security.

The access can only be granted to service persons or by users who have instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.

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Read Before Use

The use of surveillance devices may be prohibited by law in your country. The Network Camera is not only a high-performance web-ready camera but can also be part of a flexible surveillance system. It is the user's responsibility to ensure that the operation of such devices is legal before installing this unit for its intended use.

It is important to first verify that all contents received are complete according to the Package Contents listed below. Take note of the warnings in the Quick Installation Guide before the Network Camera is installed; then carefully read and follow the instructions in the Installation chapter to avoid damage due to faulty assembly and installation. This also ensures the product is used properly as intended.

The Network Camera is a network device and its use should be straightforward for those who have basic networking knowledge. It is designed for various applications including video sharing, general security/surveillance, etc. The Configuration chapter suggests ways to best utilize the Network Camera and ensure proper operations. For creative and professional developers, the URL Commands of the Network Camera section serves as a helpful reference to customizing existing homepages or integrating with the current web server.

NOTE:

The operating system and management software are installed on an SSD mounted on the main board. Except for the plug-ins for onscreen display, there is no need to install software.

Package Contents

- NS9521
- Power cords
- Foot pads
- Mouse
- Quick Installation Guide
- Screws and slide rails

Symbols and Statements in this Document



INFORMATION: provides important messages or advices that might help prevent inconvenient or problem situations.



NOTE: Notices provide guidance or advices that are related to the functional integrity of the machine.

Tips: Tips are useful information that helps enhance or facilitae an installation, function, or process.

WARNING! or **IMPORTANT**: These statements indicate situations that can be dangerous or hazardous to the machine or you.

Electrical Hazard: This statement appears when high voltage electrical hazards might occur to an operator.

Chapter One Hardware Installation and Initial Configuration

Introduction

NS9521 is a VAST2 station that comes with pre-installed VAST2 recording software. The station supports all VIVOTEK camera models, including the latest 5-Megapixel and fisheye cameras.

The unit is equipped with two gigabit Ethernet RJ45 ports which provide network failover functionality to avoid the risk of recording loss. Up to 2 HDDs can be installed in the system.

A VAST2 CMS server runs on the machine that manages surveillance recording and playback. The compatibility with the iViewer application allows for remote access to the system on handheld devices. Integrated with all of VIVOTEK's network cameras, VAST2, and iViewer software, users can realize a fully-featured and robust surveillance system. This ingenious station also features the remote management capability with a full range of server/client structures and thus is capable for robust and diverse applications.

Special Features

- Runs on embedded Windows
- 2 x HDD bays
- 2 x Gigabit RJ45 Ethernet ports
- 8 (USB 3.1 Gen 2 Type-A, USB 3.1 Gen 2 Type-C, 4x USB 3.1 Gen 1, 2x USB 2.0/1.1)
- Size: 330 (H) x 96 (W) x 365 (D) mm
- 32 CH Live View and Playback, expandable to 64 CH
- H.265/H.264/ MJPEG
- HDMI x1, Display port x1, DVI x1.
- PTZ Support
- Snapshot / Export Media
- PiP Video Control
- Bookmark Design
- Fast Configuration Backup / Restore
- Pre-installed VIVOTEK VAST2 Central Management Software*
- Full Integration with VIVOTEK Network Cameras
- VIVOTEK iViewer Support (iOS/Android)

Safety

- 1. Read these safety instructions carefully.
- 2. Keep this User Manual for later reference.
- 3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
- 4. For plug-in equipment, the power outlet socket must be located near the equip-ment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- 7. For rack-mount equipment, please firmly install the device with pallets or sliding rails in the rack.
- 8. Do not leave this equipment in an environment unconditioned where the storage temperature under 0° C (32° F) or above 40° C (104° F), it may damage the equipment.
- 9. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 10. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 11. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 12. All cautions and warnings on the equipment should be noted.
- 13. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
- 14. Never pour any liquid into an opening. This may cause fire or electrical shock.
- 15. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- 16. If one of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.
- 17. **CAUTION**: The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
- 18. This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interferencethat may cause undesired operation.

- 19. **CAUTION**: Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges.
- 20. **CAUTION**: Always ground yourself to remove any static charge before touching the motherboard, backplane, or add-on cards. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.
- 21. **CAUTION**: Any unverified component could cause unexpected damage. To ensure the correct installation, please always use the components (e.g., screws) provided with the accessory box.

Installation Instructions



Warning:

Read the installation instructions before connecting the system to the power source.



Warning:

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250V, 20 A.



Warning:

The system must be disconnected from all sources of power and the power cord.removed from the power supply module(s) before accessing the chassis interior to install or remove system components.



Warning:

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Warning:

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).



Warning:

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



Warning:

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.



Warning:

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.



Warning:

Installation of the equipment must comply with local and national electrical codes.



Warning:

Ultimate disposal of this product should be handled according to all national laws and regulations.



Warning:

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.



Warning:

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire.Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by the manufacturer only.

Power Supply

Watt	300W max. (80+ Bronze, PFC)
Input rating	100 ~ 240 Vac ~ 5A, 50-60Hz
Output voltage	+5V sb @ 2.0A, +12 V @ 18A, +5V @ 16A
Safety	UL/TUV/CE/FCC class B

Physical Description

Front View



Control Pa	nel buttons and LEDs		
	Power switch	Press this switch to turn the sys system shutdown or press this s off the system ATX power. The main power switch is used the power supplies to the server using this button removes the m power supplied to the system. Y before servicing components ins	tem power on or off. Please use switch for a few seconds to turn to apply or remove power from Turning off system power hain power but keeps standby ou must unplug the system side the chassis
	HDD LED*	Blinking: data access. OFF: idle	N/A N/A



Display

Interface	Resolution
HDMI	Supports max resolution HDMI 2.0 4096 x 2160 @ 60 Hz
DVI-D	Supports max. resolution 1920 x 1200 @ 60 Hz
Display port	Supports max resolution 4096 x 2304 @ 60 Hz

Chassis Dimensions









Installing Hard Disk Drives



IMPORTANT:

- Avoid touching the hard drive's circuit board or connector pins. Doing so can damage the hard drive by electro-static discharge.
- 1. Remove top cover by loosening the screws from the rear of the chassis. Slide the top cover backward.



It is recommended to wear an anti-static wrist strap when handling hard drives.



2. Remove the front bezel by lifting its tabs and push forward.



3. Pull the retention levers on the sides and remove the front section bracket.



4. Install 2 hard drives to the locations indicated below: 1. under the bracket; 2. into the drive bay.



Note that the connector side of the hard drive should be facing the inside of the chassis.



5. Secure the hard drive in the drive bay from the side of the bracket. See the through holes below.



6. Install the bracket assembly.

- 6-1. Aim the guide pins underneath the bracket with the holes on the chassis. Make sure the levers are at the OPEN position.
- 6-2. Lower the bracket into its original position.
- 6-3. Once seated, push the levers to the locked position.
- 6-4. Connect the SATA Power and SATA Data cables from the main board to hard drives.





7. Install the front bezel by aligning the bottom first and push to fit to the front section bracket.

8. Install the top cover by sliding it into place and fasten the retention screws.



9. Connect a keyboard and mouse to the USB ports.



10. Assemble the plastic foot pads by snaping them together. Attach the rubber stickers to the bottom of the foot pads. You can then place the chassis in a standing orientation.



Connecting Interfaces

Refer to page 12 for the interface connections.

- 1. Make sure all cameras have been properly installed, either they are powered by 12V power lines or using one or several PoE switches or mid-spans. Refer to the cameras' documentation for details.
- 2. Connect all other interfaces to USB mouse/keyboard, one or two monitors, and audio input/ output devices.
- 3. Make sure you connect the power supply to power mains.



Initial Configuration

1. Power up the system by pressing the power on button.



2. Skip the BIOS screens and select **Enter NVR** at the selection screen. The system will start. Wait for the start-up process to complete.

0 Enter NVR	Enter
1 Restore to default 2 Reboot 3 Shutdown	

3. The system will boot up to the system main screen. Double-click on the **Disk Management** shortcut to start the Disk management utility.



4. The hard drives you installed should appear a new disk partition Disk 1 and Disk 2. You need to initialize and format the partition before using the disk capacity. Left-click to select and then right-click to display the command menu. Click **Initialize Disk** to proceed.

🗟 Disk Manager	ment								
File Action	View Help								
🏟 🔤	2 🧊 😰 🖬	3							
Volume	Layout	Туре	File System	Status	Capacity	Free Spa	% Free	Fault Tolerance	Overhead
•	Simple	Basic	FAT32	Healthy (A	9.99 GB	8.10 GB	81 %	No	0%
📼 (C:)	Simple	Basic	NTFS	Healthy (S	49.62 GB	45.84 GB	92 %	No	0%
👄 (D:)	Simple	Basic	FAT	Healthy (P	1.87 GB	813 MB	43 %	No	0%
	i.							-1	
Disk 0	-								
59.63 GB	10.00 GB EAT32			(C:)	GR NITES				
Online	Healthy (Active,	Primary Pa	rtition)	Heal	thy (System, Boo	t, Primary Par	tition)		
CDick 1									
Removable	(D:)		~					1	
1.87 GB	1.87 GB FAT		-\						
Online	Healthy (Primar	y 🖌	<u>ک</u>				E	1	
		2,					Y/		
Disk 2					Initialian	Diele			
5588.00 GB	2049 00 GP				Initialize	DISK			
Online	Unallocated								
		K	5	\sim	Offline				
		-/	Z						
				\succ	Detach V	HD			
		\sim					-		
					branatia				
					Topercie				
					Help				
Unallocated	Primary partition			<u> </u>			_		
						_			

5. Select **GPT** (GUID Partition Table), and then click **OK** to proceed. This window may automatically pop up when Disk Management is started.

Initialize Disk
You must initialize a disk before Logical Disk Manager can access it.
Select disks:
☑ Disk 2
Use the ing partition style for the selected disks:
GPT (GUID Partition Table)
Note: The GPT partition style is not recognized by all previous versions of Windows. It is recommended for disks larger than 2TB, or disk of the on Itanium-based computers.

6. Once initialized, you can create a new volume. Right-click to display the **New Simple Volume** command. Click to proceed.

Please do not format drive C:. Doing so will disable the system.

Basic 59.63 GB Online	10.00 GB FAT32 Healthy (Active, Primary Partition)	(C:) 49.62 GB NTFS Healthy (System, Boot, Primary Partition)
Disk 1 Removable 87 GB Online	(D:) 1.87 GB FAT Healthy (Primary Partition)	
Disk 2 Basic 5588.00 GB Online	2048.00 GB Unallocated	E.
		New Simple Volume
		New Spanned Volume
		New Spanned Volume New Striped Volume
		New Spanned Volume New Striped Volume New Mirrored Volume
		New Spanned Volume New Striped Volume New Mirrored Volume New RAID-5 Volume
		New Spanned Volume New Striped Volume New Mirrored Volume New RAID-5 Volume Properties

7. The New Simple Volume Wizard will prompt. Click Next to proceed.



8. Leave the volume size unchanged. Click Next to proceed.

New Simple Volume Wizard	
Specify Volume Size Choose a volume size that is between the	maximum and minimum sizes.
Maximum disk space in MB: Minimum disk space in MB: Simple volume size in MB:	5721982 8 5721982
	< Back Next > Cancel

9. When prompted to assign a drive letter, click Next to proceed.

New Simple Volume Wizard	x
Assign Drive Letter or Path For easier access, you can assign a drive lett	er or drive path to your partition.
 Assign the following drive letter: Mount in the following empty NTFS folder: Do not assign a drive letter or drive path 	E Browse
(< Back Next > Cancel

10. On the **Format Partition** page, select the **Allocation unit size** as **64KB**. When done, click Next to proceed.

	New Simple Volume Wizard
	Format Partition To store data on this partition, you must format it first.
	Choose whether you want to format this volume, and if so, what settings you want to use.
	◎ Do not format this volume
	Format this volume with the following settings:
	File system: NTFS 💌
	Allocation unit size:
	Volume label: 512
	Perform a quick format 2048
	Enable file and folder cor 8192
64	
	< Back Next > Cancel
	(m)
	χ

11. Click Finish to end the wizard.

New Simple Volume Wizard		×
	Completing the New Simple Volume Wizard	
	You have successfully completed the New Simple Volume Wizard.	
	You selected the following settings: Volume type: Simple Volume Disk selected: Disk 2 Volume size: 5721982 MB Drive letter or path: E: File system: NTFS Allocation unit size: Default Volume label: New Volume Ourick format: Yes To close this wizard, click Finish.]
	< Back Finish Canc	el

12. The formatting process will run in the background. When done, the new volume shall be indicated as a healthy new volume. Close the Disk Management window.

Online	Healthy (Active, Primary Partition)							
Disk 1 Removable 1.87 GB Online	(D:) 1.87 GB FAT Healthy (Primary Partition)							
□ Disk 2 Basic 5587.88 GB Online	5587.87 GB Formatting							
	1							
Disk 1 Removable 1.87 GB Online	(D:) 1.87 GB FAT Healthy (Primary Partition)							
Disk 2								
Basic 5587.88 GB Online	New Volume (E:) 5587.87 GB NTFS Healthy (Primary Partition)							

13. Start VIVOTEK **VAST** management software by double-clicking its shortbut. Enter **admin** and **admin** as the User Name and default Password. You can change the password later in the utility. Click **Log in** to proceed.



Top row	Control Center: the default desktop.					
	Disk Status: Displays the current storage volume status (system drive and disk volumes).					
	Network Status: Displays the information for the current network connections.					
	System Status: Displays the current system status, license information, and VAST service.					
Desktop Shortcuts						
	VAST2	Starts the VAST2 recording and management software.				
	Service	Enables you to start, stop, or restart the VAST server instance.				
	Import/Export	t/Export Allows you to import or export VAST configurations.				
	Shepherd	herd Use the Shepherd utility to locate cameras within your network.				
	File Manager	Anager Provides access to the files in system disk drive volumes.				
	Keyboard	oard Toggles the virtual keyboard in case you do not have a physical keyboard.				
	Language	nguage Changes the UI language				
	Control	trol Opens the operating system's control panel.				
	Disk	Starts the Disk Management utility in Windows.				
	Managment	Managment				
	RAID Config.	ig. Not functional for this model.				

14. The first time the VAST2 server is started, a configuration wizard will prompt to guide you through the basic configuration. Select drive E:/ as the default location for the server database.

Set up database					
Setup a database path is required at the first time before starting $\begin{array}{c} \hline \\ \hline $					

15. The next screen provides a list of all cameras in the local network. Select the cameras of your choice. Enter the credentials for making the connection with the network cameras. When done, click the **Next** button to proceed.

	Add device			X
Add device	Add 7 devices Q Q IP, MAC, Population Virand(onvif/vvik) Authorize	 市 両 		192.168.5.125 00-02-D1-3E-1D-97
Recording options	 ✓ 169.254.5.99 ✓ 169.254.7.214 ✓ 169.254.43.19 ✓ 169.254.209.189 	Port Model E 80 XNB-6005 80 80 SND-6011R 80 80 A8004-VE 80 80 FE9191 80	Вга	root
Ready to use	 ✓ 169.254.218.164 ✓ 169.254.223.153 ✓ 69.254.238.59 ✓ 69.254.238.59 	80 P5544 80 IT9389-HT 80 FD9389-HTV hronize camera time with system Next	oxvir ovvr Cancel	Apply Cancel

16. Select the recording volumes, such as the E:/ volume you just created. When done, click the **Ready to use** button.



17. You should then enter the Liveview of the VAST2 software. Follow the discussions in later sections for how to configure your VAST2 deployment.





- 1. Cameras and the station must reside in the same subnet. Otherwise, the station will not be able to recruit them into a recording configuration.
- 2. It is recommended all network cameras use static IPs. If you let a DHCP server assign IPs to these cameras, IPs may be changed later and the NVR may not recognize them.

If preferred, change the language of UI text using the Language shortcut on the desktop.



0

Chapter Two VAST2 Software Configuration and Management

Log in

To log in,

- 1. Enter the server's IP address and TCP port number (3443 as the default). If logging in from the server itself, you can select the Local station checkbox.
- 2. Enter the credentials for login. The credentials were created during the installation.
- 3. You can use an existing AD ccount for login. See page 199 for user management and AD account configuration.
- 4. Auto login: After you enter the credentials for the first time, the server will not prompt for credentials the next time you start the VAST software.



Introducing VAST2

VIVOTEK VAST2 is the professional video / central management software designed for managing all VIVOTEK IP surveillance products with intuitive functions and numerous features. It supports hundreds of cameras and stations in a hierarchical structure of system for monitoring, recording, playback and event trigger management with ease-of-use and efficient control.

VAST2 integrates VIVOTEK network cameras to provide diverse solutions and applications, with the cameras for uninterrupted video recording, Smart Search II, Smart VCA, and Cybersecurity management solution. VAST2 performs remote management with full range of the server & client structure and constitutes a robust system for various applications, such as stores, banking and the public space.

New Features

- License Plate Recognition Solution & Data Magnet
 - Shows Data: Displays license plate related data in Live View
 - Edits Display Data: Select which types of data should be shown.
 - Search: Links data with recordings
 - Chart View: Display the search results in line graph.
 - Export: Exports the search results as CSV and PNG files.
 - Alarm: Triggers a alarm when data in certain columns are matched with the preset criteria.
 - Includes Event-Triggering Camera: Sends the live streaming from event-triggering cameras to the Alarm Tab when a alarm is triggered.
 - Data Source macro" Use Data Source macro in actions, such as "Send email" and "Send HTTP requests".
- Alarm Grouping: One Click to Organize Enormous Number of Alarms
- Mute Alarm Notifications
- Easy-to-Use Interface for MAC License Users
- Multi-Sensor Display Modes: 1P, 1R, 1P2R, 1P3R

Key Features

- Cybersecurity Management Solution
- Smart Search II: Powerful people search in one click.
- Smart VCA: AI Powered Video Analytics
- Multi-Monitor Support with Tabbed Windows
- Evidence Lock: Automatically Bookmark Related Recordings When Alarm Triggered.
- Evidence Export: Manually Export Video Recordings or Alarm Clips.
- New Matrix for Video Wall Solution
- Automatic Problem Feedback Mechanism
- Multiple Fisheye Dewarp Modes
- System Overview Dashboard
- Add-on Solutions: Failover, Transportation, Transaction and Data Magnet

- * The number of linked devices will depend on the number of licenses you purchased.
- * The ability to extend devices is also subject to the network bandwidth and computer performance.

Charged Add-on Features

The following are the charged add-on features. These features will not be available unless you purchase and enable their individual licenses:

Transportation License:

- Users have the need to show their mobile server on the Google map.
- Users can use generic GPS device or VIVOTEK's mobile NVR (w/ a built-in GPS)
- We only support IP-based generic GPS.

POS Implementation:

- We provide the following for POS integration:
 - Live view with transaction data.
 - Playback with transaction data.
 - Search using keyword.
 - Highlights specific product item name.

Failover License:

- We support M x N structure.
- The CMS station will be the main station for controlling and monitoring all of the active and redundant servers.
- The Failover license needs to be imported on the CMS server.

Data Magnet License:

- Data Magnet is used for integration with 3rd party data source. For example, POS data, access control, ATM data, LPR data, etc.
- We provide the following for Data Magnet integration:
 - Map the data to specific cameras.
 - Searching 3rd party data using keywords.
 - Show data with live view.
 - Set up alarms using 3rd party data.

Advanced Feature License:

- Advanced License list:
 - Transportation package: Google map / GPS.
 - POS terminal.
 - Failover (VAST server redundancy)
 - TCP message
 - Data Magnet license.

NOTE:

1. Failover license cannot be used on hardware dongle.

2. The related configuration pages/menus will still be available even the license has not been activated.

Calculation - Transportation Package: Google map + GPS



Single Server (50)

Total no. of cameras: 50 Needs 50 packages.

NOTE: camera normal usage licenses are included.



Total no. of cameras: 50 + 32 + 46 = 128 Needs 128 packages.

NOTE: camera normal usage licenses are included.
Calculation - POS License



Total no. of POS terminals: 2 Total no. of cameras: 50 Needs 2 POS licenses and 18 [50 - 32(free)] camera licenses.

NOTE: 32 camera channels are for free.



Calculation - Failover License

Rule:

No. of channels on the active server hosting the largest no. of cameras x the no. of redundant servers.

Channels on each active server: 32, 40, 50 No. of redundant servers: 2 Total no. of cameras: 122 (32 + 40 + 50) Needs 100 Failover licenses (50 x 2), and 90 normal camera licenses (122 - 32).

NOTE: 32 camera channels are for free. These licenses do not come with hardware dongle.

Calculation - TCP Message License



Single Server (32)



- 10 TCP messages 20 camera motion
- 20 Camera moto
 20 DI trigger

Rule:

The no. of licenses depends on how many alarm rules are using TCP Message as the triggering source.

Total no. of cameras: 32 Total instances of Alarm: 50 The no. of other triggering sources: 40 Needs 10 TCP Message licenses, and 0 for normal camera licenses (32 - 32).

NOTE: 32 camera channels are for free.

Calculation - Data Magnet License



Rule:

The no. of licenses depends on how many Data Magnet sources are implemented.

Total no. of Data Magnet sources: 2 Total no. of cameras: 50 Needs 2 Data Magnet licenses, and 18 normal camera licenses (50 - 32).

NOTE: 32 camera channels are for free.

Installation Option - OpenVPN

NAT-traversal with OpenVPN

You can select the "VAST Server with OpenVPN" option when installing the VAST server. A remote connection from NVR via a 3G/4G/LTE network can be made through an OpenVPN tunnel. When the OpenVPN option is selected, an OpenVPN server will be installed with the VAST server.

HMAC authentication and TLS encryption over an encrypted UDP connection are made effortlessly using the traversal methodology.



The sample installation screens are shown below:

VIVOTEK VAST2 Installation	VIVOTEK VAST2 Installation
Select the programs you want to install	V Installing
✓ Server	
Server only	
Server with OpenVPN	Extract: openssl.exe 100%
☑ Client	
Space required: 1009 MB	
< Back Next > Cancel	< Back Next > Cancel

The NVR runs an OpenVPN client that makes remote connection via the RESTful (Repretational State Transfer) API (Application Programming Interface) service to a VPN-enabled VAST server running on the remote site. The applicable service port number ranges from 1 to 65534. The default is port #3443. The NVR automatically registers with CA cert key and becomes a VAST sub-station over a VPN tunnel. Once set, the VAST2 can automatically connect the NVR.

Note that on the side of the VAST server making connection via the OpenVPN, the server/client configuration should be properly configured. On the mobile NVR, a proper gateway setting should be made for VPN connection.

For the server configuration, the configuration file is placed in: C:\Program Files (x86)\VIVOTEK Inc\VAST\Server\OpenVPN\config\server\server.ovpn

You can edit your VPN IP subnet parameters according to your network configuration. The contents of the editable text file looks like this:

port 3939 proto udp dev tun ca ca.crt cert server.crt key server.key dh dh.pem server 10.6.0.0 255.255.0.0 topology subnet client-to-client client-config-dir "C:\\Program Files (x86)\\VIVOTEK Inc\\VAST\\Server\\OpenVPN\\ccd" keepalive 10 30 cipher AES-256-CBC max-clients 50000 persist-key persist-tun status openvpn-status.log log-append openvpn.log verb 3 mute 20 sndbuf 262144 rcvbuf 262144 tls-server

Note that the NVR and VAST server should have a similar time setting when exchanging certificate information. Otherwise, the mutual handshake authentication process may fail.

Enter the OpenVPN DNS domain name and the credentials on the NVR network service configuration page.

A public IP or domain name must be configured on the VAST server for the access through the Internet. The IP or domain name can contain alpha-numeric characters [0-9][a-z][A-Z][-]. [-] can not be the beginning or the ending character.

6		Service port					
¢		HTTP	80				
		HTTPS	443				
		RTSP	554				
		CMS & iViewe	er				
_		🔽 Allow acc	cess				
-		Port	VAST & iViewer		3454		
÷			VAST2 (same as HTTPS)		443		
		CMS	Set up password for VAS	F & VAST2	Reset passwo	rd	
٢	IÞ		VAST2 remote conne	ection			
¢	DDNS		IP	nv9411	p.dnset.com		
			API service port	3443		VAST2	
i	Service		Username (administrator)	admin			
È			Account password	•			
							Apply

Chapter 2-1 Basics: Control and Elements

The basic screen elements of VAST live view, playback, and search pane are shown below:

Live view



Playback is evoked when a view cell is selected, and you click the Palyback button **D** on the upper right of the view cell.



Top Tool Bar



Search Pane

Playback Control



View cell control

Some controls and functions are available when a view cell is selected or via the right-click menus.



Text overlay

Single-click to select a view cell, right-click and select Display information. The Edit display information tab will appear.



44 - User's Manual

Select the checkboxes to determine what kind of text overlay will display on view cells. Note that you can place the overlay either on top or at the lower screen. Simply click and drag an overlay item to a preferred location. When done, click the Apply button.

You can apply your current configuration to all view cells by selecting the **Apply to all view cells** checkbox. Note that you can also display the VCA rules and areas on screen.



Two Way Audio

If your cameras support the Two Way Audio feature and the microphone and audio output to an amplified speakers have been connected, you can right-click on the camera to display the Broadcast function. Click on the Microphone icon in the middle to start speaking. Click again to stop the Two Way Audio.

Note that the Broadcast option only appears when you select a camera that supports the Two Way Audio feature. Currently the VAST2 software supports 1 to 1 broadcast.



Full Screen

The full screen function maximizes the display of view cells, concealing all other tool bar or navigation panels. To return to the normal view, press the **ESC** key on keyboard.

Log Search

System logs can be found via the tool bar tab. All system events will be listed in the Log search panel. If you have multiple server, substations, select a server. You can search specific events by the event types (All triggers, camera, system/site, external devices), or by the time of occurrence using the calendar tool.

Use the Export button it to export the system log as an individual log file.

VAST2 👁	6	+					cru 7% мем 25% 🎛 🌲 🏟 – 🗆 ×
Log Search			7 results				۲
Select stations							
Q. Search stations			2018/06/25 14:25:34	Event	Camera event - Camera connected to the server		Target camera name=FE9180-H
			2018/06/25 14:25:33	Operation	Camera management - Insert camera	server	New camera name=FE9180-H, New address=192.168.5.122, New port=80, New MAC=0002D168
			2018/06/25 14:25:33	Operation	Recording - Update recording schedule	server@CMS	Schedule name=Default Schedule
WMS_Station			2018/06/25 14:25:33	Operation	Recording - Insert recording schedule	server@CMS	Schedule name=VAST2 Default Continuous Recording
			2018/06/25 14:25:31	Operation	Camera management - Insert camera	server	New camera name=IP9191-HT, New address=192.168.5.104, New port=80, New MAC=0002D16B
			2018/06/25 14:25:31	Event	Camera event - Camera connected to the server		Target camera name=IP9191-HT
			2018/06/25 14:25:31	Operation	Camera management - Insert camera	server	New camera name=IB8377-HT, New address=192.168.5.112, New port=80, New MAC=0002D16A
			2018/06/25 14:25:31	Event	Camera event - Camera connected to the server		Target camera name=IB8377-HT
			2018/06/25 14:25:30	Operation	Recording - Delete recording path	server@CMS	Storage group name=DefaultGroup, Path=D:\recording
			2018/06/25 14:25:30	Operation	Recording - Insert recording path	server@CMS	Storage group name=DefaultGroup, Path=G:\\Recordings, Reserve space=1024 MB
			2018/06/25 14:24:43	Operation	Login/out - Login	admin	User account=admin, Address=127.0.0.1
Select time frame		Î	2018/06/25 14:22:56	System	System status - Server start		Service name=VAST Configuration Server
Last hour			2018/06/25 14:22:56	System	System status - Server start		Service name=VAST Recording Server
Category			2018/06/25 14:22:55	System	System status - Server start		Service name=VAST Query Server
			2018/06/25 14:22:53	System	System status - Server start		Service name=VAST Darwin Streaming Server
All			2018/06/25 14:22:52	System	System status - Server start		Service name=VAST Event Server
			2018/06/25 14:22:50	System	System status - Server start		Service name=VAST Backup Server
All		*					
Severity							

Alarm list

The Alarm list is accessed from the top tool bar. The Alarm list provides easy access to all triggered alarms, such as tampering alarms, alarms reported by VCA analytics, external devices connected via a camera's DI pin, etc.



The Alarm list can be displayed in either the List view or Thumbnail view.

CPU 26%	MEM 32%		ê 🐥	: –	• ×
	: =			-	
	t the second sec				
	List view Thur	↓ nbnail view	Export	↓ ⟨port target fold	ler

Below is an example of a Thumbnail view.



On the Alarm list, you can double-click to select a triggered alarm. A related snapshot and configuration panel will appear. An operator can select the Status menu to change the event management status. The configurable statuses can be:

- 1. New: An event that has not been handled.
- 2. In progress: Select to indicate that the event is being handled, e.g., a security personnel has been sent to verify the cause of the event.
- 3. False alarm: Used to indicate the event has been verified as a false alarm.
- 4. Close: A closed case event will be erased from the event list.

When done with designating event status, click the Acknowledegment button.

V	VAST2		a 🔅	I IN I +			MEM 765	6		¢		ъ х
Ala	arm list		OLIVE							Ľ		
			Trigger source									
	Alarm	VMS_Station	IP9191-HT - Tampe	Tampering detection	2018/06/25 14:39	New						
	Alarm	VMS_Station	IP9191-HT - Tampe	Tampering detection	2018/06/25 14:39	New						
	Alarm	VMS_Station	FD9171-HT - DI-1	Camera DI	2018/06/25 14:39	New						
	Alarm	VMS_Station	IP9191-HT - Tampe	Tampering detection	2018/06/25 14:39	New						
	Alarm	VMS_Station	IP9191-HT - Tampe	Tampering detection	2018/06/25 14:39	New						
	Alarm	VMS_Station	FD9171-HT - DI-1	Camera DI	2018/06/25 14:33	New		VMS_Sta	tion			
	Alarm	VMS_Station	FD9171-HT - DI-1	Camera DI	2018/06/25 14:33	New		IP9191-i	T - Tamp	ering		
*	Alarm	VMS_Station	FD9171-HT - DI-1	Camera DI	2018/06/25 14:32	New		Status	In prog	ress		
									New	TIPSS		
									False	alarm		
									Close			
									Act	knowledg	ment	

The Alarm list also supports Hot keys.

Alarm list window			
Mute the current alarm	Ctrl		m
Designate the selected alarms	Ctrl		f
as false alarms			
Select all alarms	Ctrl		а
Select one or multiple alarms	Ctrl		left mouse button
Select multiple alarms		Shift	left mouse button
Select different alarms			Up/Down/Left/Right

When an alarm is muted, a message will prompt asking for how long the alarm will be muted. Enter a number, and the alarm will disappear from the list temporarily.

	CPU 30%	MEM 35%	i 🌲 🌼	- ¤ ×
Mute alarm for: 10 minute	is 🕑 😢	168	IB9389-EH has o window 1	× letected motion on
1 100	1 23	114 14	Alarm	13:54:58

When an alarm is designated as a false alarm, it is immediately removed from the list.

When an alarm is designated as In progress, you can add a comment on the current condition, and click Acknowledge to change its status.

159369-EH - WINDOW 1	Wotion detection	2010/12/22 14:00:20	New	
IB9389-EH - Window 1	Motion detection	2018/12/22 14:04:59	New	100 B 100
IB9389-EH - Window 1	Motion detection	2018/12/22 13:49:42	New	1/2
IB9389-EH - Window 1	Motion detection	2018/12/22 13:48:29	New	Alarm
IB9389-EH - Window 1	Motion detection	2018/12/22 13:48:18	New	VMS_Station
IB9389-EH - Window 1	Motion detection	2018/12/22 13:48:09	New	IB9389-EH - Window 1
IB9389-EH - Window 1	Motion detection	2018/12/22 13:48:04	In progress	Status In progress
IB9389-EH - Window 1	Motion detection	2018/12/22 13:47:37	New	History
IB9389-EH - Window 1	Motion detection	2018/12/22 13:46:58	New	
IB9389-EH - Window 1	Motion detection	2018/12/22 13:45:35	New	
IB9389-EH - Window 1	Motion detection	2018/12/22 13:45:10	New	
IB9389-EH - Window 1	Motion detection	2018/12/22 13:45:00	New	
IB9389-EH - Window 1	Motion detection	2018/12/22 13:41:52	New	one sent to verify
IB9389-EH - Window 1	Motion detection	2018/12/22 13:41:21	New	
IB9389-EH - Window 1	Motion detection	2018/12/22 13:41:10	New	Acknowledge





Trigger by

 All triggers

 All triggers
 All triggers
 Camera
 System/Site
 External devices

 Status



To find alarms of specific types, time of occurrences, and alarm status, click the side tab to reveal the search panel.

You can select the trigger source, e.g., when you need to see camera alarms only.

You can check to see alarms of a specific status. For example, you can select to search for the "In progress" alarms only.

Search crite	ria		
Name	*	Ala	0
Name	Ψ.		6

You can enter one or multiple keywords as the search criteria.

For example, if you have an alarm named as "Alarm3-sidewalk," use the name as the keyword to search for the related alarms.

You can use the Export button it to export a full list of all triggered events into a CSV file. The event type, receiving station, triggering device, time of occurrence, and event status will all be listed. You can also export alarm-triggered videos.

You can also add a comment for an event by entering the description in the comment entry field.

Ľ 💿
1/1
Alarm
VMS_Station
FD9171-HT - DI-1
Status In progress 👻
History
J.
false alarm casued by animal.
Acknowledgment

To review the alarm-related video, click to select an alarm, double-click to playback. The Playback window will appear on the upper right of the screen.



Double-click on the small playback screen again to bring it to the full view. The playback control, time line, export, and alarm tags will be available on screen.



Alarm tab

The Alarm tab is an automated streaming window displaying live videos by the triggered alarms. If you configure an alarm action as "Send live streaming," the alarm streaming will be displayed in this window. Note that this window does not display other alarms.





When a live streaming is sent with an alarm, an orange ringing bell icon will display.



An alarm prompt will also display on the screen.



You can click on the ringing bell icon to open the Alarm tab window. The alarm-trigged streamings will be available on screen.



Hot Keys

Open online document			F1
Close current tab	Ctrl		W
Full screen	Ctrl	Shift	F
Exit full screen	Ctrl	Shift	F
Exit full screen			Esc
View cell			
Select view cell			Arrow keys
Digital zoom	Ctrl	Shift	Z
Snapshot	Ctrl	Shift	C
Instant bookmark	Ctrl	Shift	В
Remove camera from cell			Del
Move to preset position	Ctrl		Digits (1,2,3,)
PTZ model up, down, left, right			Arrow keys
Save current layout as a customized layout	Ctrl		S
Undo layout modification	Ctrl		Z
Redo layout modification	Ctrl		Y
Timeline			
Sync Playback mode	Ctrl	Shift	S
Pause (Play/Rewind)		Onne	Space
Play	Ctrl		Arrow right
Rewind	Ctrl		Arrow left
Speed up	Ctrl		
Speed down	Ctrl		
Next frame	Ctrl	Shift	Arrow right
Previous frame	Ctrl	Shift	Arrow left
Reset speed to 1x	Ctrl		1 (one)
Smart search II			
- Configuration page			
Delete detection range			Esc/Del

Bookmark search			
Select more bookmarks	Ctrl		Click
Select more bookmarks		Shift	Click
Back to bookmark page			Esc
Next bookmark			Arrow right
Previous bookmark			Arrow left
Thumbnail search			
Select thumbnail			Arrow keys
Play a selected thumnail			Enter
Back to Thumbnail page			Esc
Next Thumbnail			Arrow right
Previous Thumbnail			Arrow left
Emap Setup			
- Google map			
Remove selected GPS			Del
DI/DO Device Settings			
Remove selected external I/O			Del
device			
SMTP Settings			
Remove selected SMTP			Del
server			
Camera Management			
Rename selected camera			F2
Rename selected folder			F2
Remove selected camera from			Dei
system			
Siton Managamant			
Denome colocted site			F 2
Remaine selected site			
system			Dei
Lisors Sottings			
Remove selected user			
Schedule Settings			
Remove scheduled time frame			
		1	1

Data Magnet			
Move selected row			Up / Down
Show detail of selected row			Enter
View management			
Rename selected view			F2
Delete selected view			Del
Alarm management			
Delete selected alarm			Del
Alarm list window			
Mute the current alarm	Ctrl		m
Designate the selected alarms	Ctrl		f
as false alarms			
Select all alarms	Ctrl		а
Select one or multiple alarms	Ctrl		left mouse button
Select multiple alarms		Shift	left mouse button
Select different alarms			Up/Down/Left/Right

For a client running on MAC:

Full screen	Command ∺	Shift	F
Exit full screen	Command H	Shift	F
Exit full screen			Esc
View cell			
Select view cell			Arrow keys
Digital zoom	Command H	Shift	Z
Snapshot	Command 💥	Shift	С
Instant bookmark	Command H	Shift	В
Remove camera from cell			Delete
Timeline			
Sync Playback mode	Command 💥	Shift	S
Play/Pause			Space
Rewind/Pause			Space
Play	Command H		Arrow right
Rewind	Command ∺		Arrow left
Speed up	Command H		Up
Speed down	Command H		Down
Smart search			
- Configuration page			
Delete detection range			Esc/Del
- Result page			
Back to result page			Esc
Next result			Arrow right
Previous result			Arrow left

Data Magnet		
Search result table		
Next result		Arrow down
Previous result		Arrow up
Play selected result		Enter

License management				
Show/hide the entry in online	Command 🗮	Shift	Option (or Alt)	V
license management				
Purchase license table				
Switch between license status	Command 🗮	Shift	Option (or Alt)	L
and amount of license				

View Cell Elements

On a view cell, the control elements are different with different types of network cameras. 3 major types are listed below with applicable screen elements:

- 1. Fixed cameras: 🗖 🏾 🖗 🕨 Snapshot Thumbnail search Smart search Replay.
- 2. **Fisheye** cameras:

The Auto pan function applies only to the Regional views. Select a regional view, and click the Auto pan button. The Regional view will pan from side to side to cover more viewable regions. If a fisheye is mounted on wall, a regional view with auto pan can cover a panoramic view region.



3. **PTZ** cameras: \bigcirc \square \blacksquare \blacksquare \blacksquare PTZ - Snapshot - Thumbnail search - Smart search - Replay. For information about PTZ control, refer to the discussion on PTZ on page 99.

To exert PTZ control, first click on this button to enable PTZ control.

When PTZ control is enabled, the following controls are available on screen:



Click Patrols or Presets if these have been configured on the PTZ camera. You will need to open a web console with the camera to do so.



The PTZ settings tab allows you to enable PTZ Tracking and the Pan functions. You can also adjust the Zoom and Focus speed, or manually adjust the focus. Please refer to the camera User Manual for more information about these functions.





For speed dome cameras that comes with wiper blade, the wiper blade control button will be available on the tool bar.

You can use the mouse wheel to zoom in or zoom out on the screen. The zoom ratio is shown on screen for half a second.



When PTZ is enabled, the zoom buttons and a home button are displayed on the right hand side of the view cell.

For more information about Snapshot, Thumbnail search, and the Replay functions, please refer to their specific help pages.

VAST Server and Client Components

VAST2 Server provides a centralized management site for video recording. Users can login and modify the server's configuration, edit the server's recording storage, configure schedules and many other functions. You can browse the recorded video database and video clips related to specific events on the server.



For users who manage large-scale surveillance deployments, please plan the hierarchical structure first. Then you can start to add cameras to each station and connect these substations to the root station. The whole hierarchical management system is thus constructed. VIVOTEK's NVR stations can also be included as sub-stations. The Logical Tree view becomes the default.

Multiple Server Applications

A host with the VAST2 installed is recognized as a stand-alone site. All the functions can be simultaneously performed on one single site.



Please refer to the Sites page for how to enlist VAST sub-stations.

Minimum System Requirements

Before installing the VAST software, please make sure your system meets the following recommended minimum system requirements.

VAST2 Server			
Operating System	Windows 10, 7, Windo	ows Server 2012, 201	6
Server (Recording Channels)	Up to 64 CH	Up to 128 CH	Up to 256 CH
CPU	6th Generation Intel® or above	Core™ i3 Processors	6th Generation Intel® Core™ i5 Processors or above
RAM****	4 GB or above	8GB or above	8GB or above
Hard Drive (Enterprise model only), suggestion	1 Volume Group*	2 Volume Group*	4 Volume Group*
Recording throughput	1 Volume Group: Max	. 200Mbps (Max.)**	
Network Interface Card	Ethernet, 1Gbit recom	mended***	

- * The size of volume group depends on the total recording server throughput.
- ** The maximum combined bit rate of cameras cannot exceed the total recording throughput.
- *** Please consider the combined throughput of viewing, recording, and server's network bandwidth when designing your surveillance deployments.
- **** Please use a dual-channel memory configuration.

VAST 2 Liveview & Playback								
Operating System		Windows Server 2012, 2016 / Windows 10, 7 / MacOS Mojave 10.14						
Clients	720P,2Mbps, H.264,* each CH	8 CH	16 CH	32 CH				
(Display	1080P,4Mbps, H.264**, each CH	6 CH 10 CH		18 CH				
Ghanneis)	1080P,4Mbps, H.265, each CH	3 CH	5 CH	9 CH				
CPU		6th Generation Intel® Core™ i3 Processors	6th Generation Intel® Core™ i5 Processors	6th Generation Intel® Core™ i7 Processors				
RAM***		8GB or above	8GB or above	16GB or above				
Network Interface Card		Ethernet, 1Gbit recommended						
Graphics Card****		Direct3D acceleration with 1GB RAM graphics card						

- * Each recording group can receive recordings for 60 channels.
- * Display requirements of the 3MP fisheye camera is equal to a 720P camera.
- ** Display requirements of the 5MP fisheye camera is equal to a 1080P camera.
- *** Please use a dual-channel memory configuration.

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

If you plan to install both VAST2 server and client on the same computer, please remember to consider the combined load on computing, encode/decode effort, and bandwidth.

The 60-day trial includes 256 channel license and all advanced license features.

The required hard disk space will depend on the video settings, the number of network cameras and recording group settings. Please add more hard disks if you want to extend the system.

Below are approximate numbers for a week-long recording. The actual storage space required also depends on imaging parameters, e.g., a complex retail environment that involves many moving objects requires more pixel data to be transmitted over network than a simple environment such as a parking lot. The following numbers are based on H.264 recording.

32-CH, VGA, about 1 week recording: 750 GB
64-CH, VGA, about 1 week recording: 1TB x 2
32-CH, 2-megapixel, about 1 week recording: 2TB x 2
64-CH, 2-megapixel, about 1 week recording: 2TB x 4

Chapter 2-2 Starting Up

Double-click the VAST2 icon vast2 on the desktop to start the VAST2 main page.

When started the first time, the server automatically polls the local network for reacheable network cameras. For cameras that come with pre-configured User Name and Passwords, the server prompts for entering credentials for the access to cameras. Check out the cameras' MAC addresses to identify the cameras.

The cameras found within the network will be listed. If the need should arise, you can use the Search panel on top to locate specific cameras using their IP, MAC, Port, Model name, or brand name (ONVIF/VIVOTEK).

Use the 📕 Add device button to manually add a camera with its known IP or domain name.

Use the Import Device List button to recruit cameras in a previously-saved device list (CSV files).

Use the Authorize button if the camera found in the Search panel needs credentials.

When search is done, delete the alpha-numeric characters in the search field to return to the device list.

Use the Refresh 🔯 button to search the local network again.

		- 6 ×
	Add device	
		Authorize 3 selected devices
Add device	Add is device(s)	192.168.4.150
	Status IP MAC Port Model Brand	00-02-D1-5F-E7-24
	Authorize 3 selected devices	root
	✓	
	✓ 192.168.6.123 B0-C5-54-06 00-02-01-20-1A-BC 00-02-01-20-1A-BC	
	✓ 192.168.6.124 00-02-01-48 ✓ 192.168.6.126 00-02-01-28 User name	
	✓ 192.168.6.129 F0-7D-68-0F Password ØNKI/	
	✓ 192.168.6.131 00-02-D1-48	
	☑ 192.168.6.143 B0-C5-54-06 Cancel Øxvir	Apply all Cancel
		Next Cancel
_		

2-2-1. Selecting Devices

Use the checkboxes in front of the listed devices to determine which devices will be recruited to your configuration. By default, all cameras are selected. When the selection is done, click on the Next button at the lower right screen.

If any of the selected devices requires credentials, the authorization window will prompt.

NOTE:

For cameras that come without a password protection, you should open the Shepherd utility to locate and open a web console, and configure a password for protecting the access to the camera. If a brand new camera (with no password) is selected for your VAST configuration, it will join your configuration without the password protection.

		Language
FD9181-HT		
Configure password At least 8 characters with no space, one character(uppercase or lowercase), and character	alphabet one numeric	
User name :	root	
User password :	•••••	Medium
Confirm user password :	•••••	
	 Enable https connection to second configuration for password 	ure the
*The new password will be applied to all	connections	
	Save	Cancel

2-2-2. Recording Options

Click Settings > Recording > Recording options. The Recording options window will prompt.

You can configure recording schedules or select the storage options, including the configuration of an external NAS storage.

V A S T	۲	\$	+								18	Ľ	\$	ŵ	?	- 1 <u>0</u> ×
🔊 Settings							Recording	options								
Recording options	• = v	MS_Station DefaultGro	(E)		Archive Storag	e 🔸 N	DefaultGroup	Sit 1.54 TB availabl	 /IMS_Station 71 TB					Re	ecycle Options	
Failover					D:\recordi	ng G:\\Re	select cameras									
					Mar	ne	IP	Streaming	Schedule		Seamless recordin	ıg	Activit	ty Ada	puve Stream	
					FD8	366-V	192.168.4.150	1 💌	Continuous	•						
					FD8	377-HV	192.168.4.171	1 👻	Continuous	*			-			
					VS8	100-v2	192.168.4.172	1 💌	Continuous	*						
													Ap	ply	Cancel	I

Click on the Schedule column on the Camera list for a recording option: Continuous recordings, Events only, None, or Default Schedule, or New template. You can apply a schedule template for all cameras or configure individual schedules for different cameras. When using the Event-triggered recording, a pre-event and post-event time can be configured. An Edit pane is available by clicking the Edit \bigcirc button.

You can manually create a recording template using the **New template** option. When done, each configured template will be listed below.

5 ca	imeras s	elect cameras				
	Name	IP	Streaming	Schedule		Seamless recording
0	All cameras			Schedule_work_hours	1	
	FD8366-V	192.168.4.150	1 💌	New template	1	
	FD8377-HV	192.168.4.171	1 💌	Event only Continuous	1	
	VS8100-v2	192.168.4.172	1 👻	None	ı	
	FE9391-EV	192.168.4.178	1 💌	Default Schedule	1	
	FE9191-v2	192.168.4.149	1 👻	Schedule_work_hours	1	



Click and hold down on the time cells, and drag the mouse to include the time span of your preferrence. The minimum selectable unit is half an hour. You can select separate and multiple time spans on the template.

Enter a name for the template, and click Add to save your template.

The same configuration window apply to both the Schedule template and the customize schedule windows.

If the **Events only** option is selected for the new template, you can determine what kinds of events will trigger the recording. Use the pull-down menu to select Events only.

			Add a sc	hedule temp	olate		×
Templa	te name	Schedule					
00.00	Sun	Mon	Tue	Wed	Thu	Fri	Sat
01:00 02:00 03:00	00:00~21:	30					
04:00 05:00 06:00	Events Only	у 🔺					
00	Continuo	us					
1:00	Events Or	nly					
3:00 4:00 5:00							
7:00							
20:00 21:00 22:00							
3:00 4:00							
							Cancel

When Events only is select, click on the 🍄 Settings button to proceed.

			Add a sc	hedule tem	plate		×
Templa	te name	Schedule					
00.00	Sun	Mon	Tue	Wed	Thu	Fri	Sat
02:00 03:00 04:00 06:00 07:00 07:00 09:00 10:00 11:00 12:00 13:00 15:00 15:00 17:00 19:00 19:00 21:00	00:00~21: Events Onl	30 y •					
23:00 24:00							Cancel

The applicable event types will be listed. Select the types of event triggers that you prefer. Click **Apply** to leave this page. By deault, all applicable event triggers will be selected.

Select trigger events		×
Motion		
PIR		
✓ Tampering		
🕑 РРТZ		
Line crossing detection		
Intrusion detection		
Loitering detection		
Sace detection		
✓ Missing object detection		
Unattended object detection		
Crowd detection		
🗹 Digital Input		
💽 Traditional recording: 🗹 Trigger state 🗹 Normal state		
Recording from DI activated to DI normal		
Recording from DI normal to DI activated		ļ
	Apply	Cancel

Back on the Recording options page, select the new template as a scheduling option. Use the menu on the top to select a scheduling template for all cameras.

VAST2	۲	\$				<mark>% мем 37% </mark>	III 🐥 🌣	- • ×
🔊 Settings				Recording	options			
Ē		VMS_Station		G:\\Recordings				
Recording options		DefaultGrou	p	3 cameras	ect cameras	Straming	Event only Continuous None Default Schedule	
Failover				All cameras	100 160 5 110	Ju -	template-1 tempate-2	
Local DB				FD8177-HT	192.168.5.120	1 +	tempate-2	× .
				4	192,108.3.122		Apply	Cancel

Make sure a Schedule mode is selected when you leave this configuration step.

rding options Backup Backup Salover Coal DB	Station	Archive name	befaultGroup 36i	Site Vi 3.75 GB evaluable of	MS_Station 1.82 TB			Recycle Options
		2 cameras Selec	t cameras	Streaming	Schedule		Seamless recording	Activity Adaptive Stream
		All cameras				-		
		B FD8377-HTV	192.168.42.246	1 - 💌	Continuous	•		
		FE9191	192.168.21.119	1 💌	Continuous	*		

Seamless Recording

Seamless Recording safeguards critical videos in the occurences of network disconnection.

In the event of temporary disconnection, video is stored in individual cameras' SD/SDHC/ SDXC card; and once the connection is restored, a VAST server can automatically resume the recording. More remarkable is that, a VAST server can simultaneously retrieve the time-tagged videos that were temporarily stored on SD/SDHC/SDXC cards. For information about the latest firmware/software revisions that support this feature, please contact your sales representatives or technical support.



The video data retrieved from SD/SDHC/SDXC card also include event-triggered recordings such as pre- or post-event footages, if events were detected during the network outage.

The Seamless Recording feature is enabled when inserting, updating, or batch inserting cameras in the Camera Management window. The firmware/hadware compatibility of this feature is automatically detected, i.e., this feature is not available when a non-compliant camera is attached. If a compatible camera is attached, a checkbox will be available as shown below.

🔊 Settings		Recording m	anagement	i			
Recording options	VMS_Station	Archive name DefaultGroup	Site V 808.75 GB available of	MS_Station 1.82 TB			
Failover Local DB		Storage • New storage G.\/Recordings					Recycle Options
		8 cameras Select cameras	Streaming	Schedule		Seamless recording	Activity Adaptive Stream
		All cameras	Streaming	Scriedule	Ŧ	Seamless recording	Activity Adaptive Stream
		FE9181-H 192.168.5.110	1 -	Continuous	*		
		FD9165-HT-A 192.168.5.112	1 -	Continuous	*		
		MA8391-ETV 1 192.168.5.129	1 -	Continuous	*		
							But Cancel

Activity Adaptive Stream

Activity Adaptive Stream: (Note that this feature may not be available for some older models)

This option will activate the frame rate control according to alarm trigger.

The frame control means that when there is a triggered alarm, the frame rate will raise up to the value you've configured on the Video quality page.

If you enable adaptive recording on a camera, only when an event is triggered on a camera will the server record the full frame rate streaming data; otherwise, it will only request the I frame data during normal monitoring, thus effectively saves bandwidth and storage space.

The alarm trigger includes: motion detection and DI detection. Please refer to Alarm Settings on page 106.

On individual cameras, you can configure the following:

- Pre-event recording and post-event recording
- The Network Camera has a buffer that temporarily holds data for a period of time. Therefore, when an event occurs, the camera can restrieve image frames taken several seconds ago. Enter a number to define the duration of recording before and after a trigger is activated.
- Priority: Select the relative importance of this recording (High, Normal, or Low). Recording with a higher priority setting will be executed first.
- Source: Select a video stream as the recording source.

NOTE:

- * To enable adaptive recording, please make sure you have configured the trigger sources such as Motion Detection, DI input, or Manual trigger.
- * When there is no alarm trigger:
 - JPEG mode: record 1 frame per second.
 - H.264 mode: record the I frame only.
- * When the I frame period is > 1 second on the Video settings page, firmware will force decrease the I frame period to 1 second when the Activity Adaptive Recording feature is enabled.



Adding NAS (Network Attached Storage) as a Storage Option

You can also record videos to a networked storage.

- 1. Click the Add archive 💽 button.
- 2. Enter a name for the configuration.
- 3. Click the Add storage + New storage button.

	Recording management	
VMS_Station	Archive name Site VMS_Station	
DefaultGroup NAS	Storage + New storage	Recycle Options
	0 cameras Select cameras	

4. Click the + New NAS button.

	NAS	×
Select from	+ New NAS	
5. Enter the NAS storage's address and the credentials for access to the networked storage. When done, click the **Connect** button.

	NAS	×	<
New NAS storag	je		
192.168.4.162	2		
Host			
admin			
	0	Connect Cancel	

6. The NAS storage should appear on screen. The connection may take several seconds. Single-click on the NAS storage to select its network shares.

Server	NAS	×
Select from 192.168.4.162 Host	+ New NAS	
	EditDelete	

7. The NAS storage's network shares should be listed. Single-click to select a network share.



8. Click **Select** when done. Note that you can repeat the previous process to select multiple network shares from a single NAS storage.

	NAS	×
Select NAS path		
▲ NAS_share_test	\\192.168.4.162\NAS_share_test	
 #recycle new folder 0002D174E769 	3.27 TB available of 3.58 TB	
	Restore recordings from this path	
	Select	Cancel

9. The selected shares should be listed. Enter a name and select cameras. When done, click the Add button at the lower right to complete your configuration.

	Recording management
 VMS_Station DefaultGroup 	Archive name Site VMS_Station 2.91 TB available of 3.58 TB Storage • New storage V192.168.4.162 V192.168.4.162 V192.168.4.162 VAS_share_test

2-2-3. Storage

By default, VAST will check if the D: drive is available. If no other disk drives can be specified, the system drive C: will still be defined as a storage option. Other disk drives in the system, and the default storage volume (configured in the initial setup) will be listed.

You can add a NAS storage's share volume as the additional storage option. Enter the necessary information for access to a network share. Enter and select a NAS path. The share will then be available for video recording.

	×	્ય	
New NAS storage		Select NAS path	
192.168.6.117		False_NAS	
Host		Tusers	
User name			
Password			
Connect Can	icel	Select Cancel	

Select storage volumes each by a single click.

Click **Ready to use** to continue. The server will take several minutes synchronizing configuration between server and cameras, and time settings between them.

2-2-4. Starting Up - Main Page

You will be defaulted to the Live view once the main page displays. Another tab window is the Search panel where you can search recorded events and recorded videos.



On the initial start up, the server should fill the live camera feed to the available 2x2 view cells (4). You should then select a preferred layout, e.g., 3x3 or others, using the Layout pull-down menu.

The available layouts are categorized into 4 types: Equal, Panorama, Focus, and Vertical.

Equal: 1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7, 8x8.

Panorama: 1P(Panoramic)+6, 2P, 2P+3, 3P. (applies to fisheye cameras)

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. (applies to corridor view)



To design and customize a layout, please refer to the Customizable Layout page.

You can then fill in the view cells by dragging and dropping cameras into the view cells. While dragging, a name tag displays. All cameras should be listed under the VMS_Station Device Group.



You can swap two view cells by dragging one on top of another.

You can also fill in an Emap by dragging and dropping a pre-configured Emap into a specific view cell. Click on the E-Map tab to select a pre-configured E-Map. Note that an E-Map should be placed into a larger view cell.

Depending on the resolution of your monitor, a view cell can be too small for an E-Map. For example, for an HD monitor (1920x1080), a single view cell from a 3x3 layout will have a resolution of 640x360. View cells larger than 330 (width) x 300 (height) pixels can contain an E-Map.



2-2-5. Saving a View

When done with arranging view cells, click the View tag.

Save your current layout and view cell arrangement as a new view.

Device Group	View			×
(+		Add current view as a new View	v view	
Add as a n	new view		Add	Cancel

2-2-6. Add More Live Views

With many cameras in your deployments, you can click the New Tab "+" button to add more Live views.

An empty live view will display, and you should repeat the above process to select a layout, and fill in the view cells. When done, save the view.



Right-click on the screen to display the right-click menu. Select Add a view.



Enter a name for the new view and click **Add** to proceed. The new view will be listed in the View panel.



If you have multiple monitors attached to your server station, you can drag a live tab to a different screen. In this way, you can display live views simultaneously on multiple screens.

Live views can be placed on up to 8 monitors. Please note that this is determined by the capability of your graphics card chipset.

VAST			
@	New tab New alarm tab	>	
Device Group View	Send to screen	>	Screen 1
	Close	_	Screen 2
Q Search devices			
▼ 👕 VMS_Station			
🔻 🁕 VMS_Station			

2-2-7. Save Your Preferences

Go to **Settings** \Rightarrow **Preferences** to save your current layout and display configurations.

Select the options in the startup choices menu to decide what to display whenever your VAST2 client starts. You can display Live view, Tour, Dashboard, E-Map, or Alarm tab simultaneously on multiple screens.

VAST2	۲	\$ + cru 14% мем 28% 🇮 🌲	*
🔊 Settings		System management	
CLOSSE SMTP Preferences Feedback and bugs	Client Station	<pre>Even Laguage figita</pre>	

2-2-8. Customizable Layout

The standard layouts can be manually configured to form layouts of your choice. Depending on the complexity of your design, you should start with a multi-cell layout.

Click and drag the corner mark on a view cell. Drag across the screen and release the mouse button to enlarge the view cell. Choose a standard layout of many view cells, e.g., 7x7 or 8x8, if you want to design a complex customized layout. You can create a special layout, e.g., an especially wide view cell for a multi-sensor camera, such as the panoramic MS-8392.

To abandon a customized layout, simply select a new layout from the layout window. You can also use the Ctrl + Z keys to undo your changes on the layout.



To preserve your customized layout, click to open the layout window. Click on the Add current

layout 🕏 button. You may then change the name of your layout by a double-click on its name. To remove a configured layout, drag it to the garbage can icon on the upper right.

	• +									
						· •				
	Last modif	ied	Custom	ized						Ŵ
			layout	layout	layout	layout				
	Equal					Focus				
	1*1 2	*2 3*3	4*4	5*5		1+12	1+16	1+3	1+5	1+7
		2 00		00						
	6*6 7	*7 8*8				1+9	2+8			
	Panorama		_			Vertical				
	12+6 2	P 2P+	3 3D			1//+6	2\/+2	21/+3	3V	3V+4
	11.10 2							2013		
						4V	4V+4	5V		
						4V	4V+4	5V		
						4V	4V+4	5V		
Snapshot	Ctrl+Shift+C	>				4∨	4V+4	5V		
Snapshot Viewing quality	Ctrl+Shift+C Auto)))				4V	4∨+4	5V		
Snapshot Viewing quality Add a layout	Ctrl+Shift+C Auto) > >				4V	4∨+4	5V		
Snapshot Viewing quality Add a layout	Ctrl+Shift+C Auto	> > >				4∨	4V+4	5V		
Snapshot Viewing quality Add a layout Add a view	Ctrl+Shift+C Auto) > >				4V	4V+4	5V		
Snapshot Viewing quality Add a layout Add a view Replace view	Ctrl+Shift+C Auto) > >				4V	4V+4	5V		
Snapshot Viewing quality Add a layout Add a view Replace view Remove	Ctrl+Shift+C Auto)))				4V	4V+4	5V		

You can also right-click on the screen to display the Add layout option.

You can then click Device Group, and start filling your customized layout with camera views. When done, click **Add a view**.

Also remember to save the current layout as a view, and save your configuration in **Settings** > **Preferences**.

2-2-9. Dashboard

Select to open the Dashboard utility from the tool bar. The Dashboard displays the system resources of a CMS server along with those of its sub-stations. This provides a glimpse of the load on machines when performing the recording and monitoring tasks.

Mouse over the edge of the bottom row to reveal the expansion mark. Pull the status row up to display the system resource statuses.



If you have multiple LAN cards or virtual HBAs, the status row can be pulled to reveal all of their statuses.



If you have multiple sub-stations, single-click to select and reveal their individual status, including CPU usage, memory usage, and network usage.



Note that VAST servers of the earlier revisions and NVRs running older firmware do not deliver their statuses to your Dashboard.



2-2-10. E-Map

To create your E-Map, click **Settings** 🔅 . Click **Import & Setup**. Click E-Map.



Click Import file up or Import folder . An entire folder can be imported.

When done, double-click on the snaphot of E-Map image to configure the E-Map.

Your cameras will be listed on the left. Drag and drop the cameras to the corresponding locations on the map.



When the camera is in place, drag the FOV indicators on the edge to change the shooting angle and the coverage range.



Drag the FOV to change the shooting direction to match the actual installation.



Click on the camera icon. You can also change the color of camera icon and the FOV type. Fisheye cameras, when ceiling mounted, have a round shape coverage.



88 - User's Manual

If you have a larger regional map that covers a geographical area, say, a street block, you can drag one or many E-Maps into it. For example, you can place another E-Map that is used to indicate the camera deployment inside a building that is located on the street.



To see live streams from cameras, click on the camera icons in the E-Map.

When configuring an E-Map, you can use the tilt bar on the right to tilt the E-Map image. Doing so creates a sense of distance and depth of view.



Placing DI/DO Devices

I/O devices can also be planted into an Emap, such as alarm or various kinds of detectors. TheI/O boxes (such as Advantech's Adam series) or the DI/DO connections on an NVR also apply.Select a floor map from the pull-down menu.

- 2. Unfold the sub-trees beneath the network camera, (taking camera DI/DO devices as an example).
- Setting:

 Import & Setup

 <
- 3. Select a DI/DO device. Click and drag to a preferred location on map.

- 4. When a DI/DO device is selected, you can select the display colors of its icons. Configure different colors for the device status when it is normal or triggered.
- 5. When done with placing all DI/DO devices, click the Done button on the lower right of the configuration screen.



Configuring Google Map and GPS

Since Google Map changed its access policy, using the Google Maps feature requires user entering a billing API key. Using Maps, Routes, and Places APIs requires an API key.

For applying a Google API key, https://cloud.google.com/maps-platform/maps/

VAST2		⊙	N	\$ +	CPU 12% MEM 36% 🏭 🌲 🏚	- •	×
ŵ	Settings				Import & Setup		
Google Device Group	e map Regional maps	DI/DO	GPS			\$	
•	VMS_Station FD8177-HT FE9391-EV IP9191-HT				Google Map is not available Invalid Google Map API key. Set up the Google Map API key		
					D	one	

Visit Settings > Emap > Google Map.

Enter the Google API key you previously registered.

Google Map Settings	×	
Google Map API Key		
	l	
<u>Get a GoogleMap API key</u>		
	Apply Cancel]

NOTE: In this revision, Google Map only supports installation on a GPS-enabled vehicles. Placing cameras on a static location on Google Map is currently not supported.

Before configuration on a Google Map, you should prepare an E-map drawing for special installations, such as that on a vehicle. The vehicle, e.g., a train, should come with a GPS-GSM/ GPRS module to collect the position information and passes this information to a web-server. As new data is constantly inserted to the database, the VAST server will update the location information containing coordinates, speed, distance, time, etc.; and when video recording is required, the location information and time tags will be available.

This applies to a mobile NVR that comes with GPS.



Open the E-Map Import & Setup window.



Click to enter the Google Map window.



Click on the GPS tab. Select a VMS station or mobile NVR to apply the configuration, and then select the GPS Add button .

\$	Settings			
Google	map		·	Search Google Maps
Device Group	Regional maps	1/0	GPS	蒙特索克 萊瑟通 Mhère Montsauche-les-Settons 莫爾旺地區 利 间利尼 Lie Alligny-en-Morvan 莫爾旺地區穆 Moux-en-Morvan
▼ ■	VMS_Station			「「「「「「「」」」

Enter a name for the GPS/GNSS server on the vehicle, its IP address, and server port number. You can select an E-map that will display when you click on the GPS location icon. Select the checkbox and an E-Map that corresponds to the deployment on the vehicle. When done, click the Apply button.



You can skip this setting for the mobile NVR that comes with a built-in GPS module.

You can click on the location icon 💡 to bring up the E-Map. The coordinates, speed, and time information also display on the map.



You can click on any cameras on the E-map to search through past recordings. One click displays the live view. A live stream window will display.

To search and review recordings when an event occurs,

- 1. Click on the Playback button.
- 2. Click the Pane button to display the Playback control panel.
- 3. To search for the video of past events, pull the Playhead to a point in time on the timeline.
- 4. The GPS coordinates and time will change to those corresponding to the time you selected. You can then acquire the corresponding location information while tracing the occurrence of an event.



Click on the Setting button on the map to bring up the Map update frequency option. Your GPS target may travel to the outside of the map through time without the map being updated. The map will update by the interval you configure here.



2-2-11. Event Search

The Event Search window is accessed from the top tool bar.



Below is the comparison between the Alarm list and the Event search windows:

Alarm List	Event Search
Reports alarms triggered by user- configurable events, such as DI/DOs, Motion Detection, tampering, VCA analytics, cybersecurity, and so on.	The events on the Event Search window require no user configurations. The Event Search window displays system events and provides a glimpse of all general events.
	The event types include: General events, Smart VCA events, and Trend Micro IoT Security events.

The sample screen for VCA-related events is shown below:

VAST2					MEM 79% 🏢	🐥 🏟 – 🖻 ×
Smart VCA event search	*	1,18	0 results		i 1	L ک
				Event type		Description
Select devices		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 10:04:26	Rule name=Intrusion, Type
Q Search devices		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 10:04:16	Rule name=Intrusion, Type
		VMS_Station	10.17.2.49	Loitering detection	2019/06/25 10:04:12	Rule name=Loitering
VMS_Station		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 10:03:04	Rule name=Intrusion, Type
		VMS_Station	10.17.2.49	Loitering detection	2019/06/25 10:02:53	Rule name=Loitering
		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 10:02:49	Rule name=Intrusion, Type
Select time frame		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 10:02:16	Rule name=Intrusion, Type
Last 24 hours		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 10:00:19	Rule name=Intrusion, Type
		VMS_Station	10.17.2.49	Intrusion detection	2019/06/25 09:59:21	Rule name=Intrusion, Type
Event type		VMS_Station	10.17.2.49	Loitering detection	2019/06/25 09:59:17	Rule name=Loitering
All events 👻		VMS_Station	10.17.2.49	Loitering detection	2019/06/25 09:59:08	Rule name=Loitering
				< 1/24 >	,	



The sample screen for network security-related events is shown below:

From the Search Event window, you can view and search events by its event types, and use the Export button to save a record of these events (in the CSV format).



Use the calendar tool to specify the span of time as the search range.



Use the Event type menu to narrow down the types of events. Select or deselect the event types for search. You may also enter one or several keywords as the search criteria in the following menus.



Click the search button to generate search results.

2-2-12. PTZ Control

PTZ on this page refers to the mechanical PTZ. The discussion on this page applies to cameras that come with PTZ mechanisms that are capable of directional and zoom control.

To begin the PTZ control, click on the PTZ 😳 button.

Click and drag your left mouse button across the screen, towards the direction you wish to move. A light blue trace will appear. The longer the trace, the faster the move.



Note that while the camera is moving, you can change the move direction keeping the mouse button hold down. Release the button to stop moving.

See Appendix C Joystick support if you use VIVOTEK's joystick.

You can also use the mouse wheel to zoom in or zoom out. You can also mouse over the right side of the screen to display the zoom button. A home button is also provided.

The Patrol, Presets, and PTZ control panel is located at the lower right of the screen. You can click to begin a pre-configured patrol, preset points, or enable an Auto tracking, or Pan action.

You can also adjust the Zoom speed, and/or manually adjust the Focus and the Focus speed.



2-2-13. Playback

To start the playback function, select a camera's view cell (whether in full view or ordinary cell size), then click the playback initiative button (\frown or \frown). The button can be found on the upper right of the view cell or at the lower right corner of the view cell in the full view.

Default Time: When started, system normally rolls back to the start of the hour, e.g., your current time is 10:30:00, and the default playback position on the timeline is 10:00:00.

Playback control can be found in 3 places:

1. **Float Panel**: When Playback is started, swipe your mouse to the upper-right of the view cell to display the Playback float panel.



Fisheye Dewarp: For a fisheye camera, you can select different dewarped views during a playback. Click to select an option.

Snapshot: Click to take a snapshot. A small floating window will stay for 2 seconds. You can click the folder icon to access the snapshot files.

Note that a dewarped, regional view allows producing a snapshot of the regional view.



Bookmark: If you find anything of your interest when viewing the playback, click this button to create a bookmark. It helps when you need to return to the point in time after you review all through the recorded videos. Note that the bookmarked video clips are free from storage recycles. They will not be erased when storage space runs short and needs to be recycled.

Smart search II: Smart search II is an independent function. See page 122 for details.

Liveview: Click to return to Live view.

2. Right-click Menu: Right-click on the Playback screen to display this menu.



Digital zoom: If you find anything of your interest when viewing the playback, click this button to create a bookmark. It helps when you need to return to the point in time after you review all through the recorded videos.



Snapshot: Click to take a snapshot. A small floating window will stay for 2 seconds. You can click the folder icon to access the snapshot files.

Bookmark: If you find anything of your interest when viewing the playback, click this button to create a bookmark. It helps when you need to return to the point in time after you review all through the recorded videos.

Synchronized play: When enabled, all cameras in the same view will be playing the video of the same point in time.

The following commands are general purpose commands.

3. Timeline Panel: This panel appears when Playback is initiated.

Timescale is adjustable (minutes, hours, days, to a max. of 3 days) so you can easily find the required time period and begin playback from that point.



Starting from left to right, timeline control functions will be described as follolws:

1. Time Search: Click on the current date to open a calendar. If you want to review videos recorded in another day, select it from the calendar.

Dec, 2016						>
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					2	
4				8		10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Blue: days with recordings. Orange bottom line: Today. White: days with no recordings. Click on the current time. You can use the arrow buttons to change the time you wish to playback, or simply enter a preferred number. You can also pull the playhead along the timeline.



Timeline magnification levels: The default time span is 6 hours. You can change the magnification level for easier browsing. Click the Zoom in and Zoom out buttons to change the timeline time span. The configurable time spans are shown below:



2. Playback control:

From left to right,

- 2-1. Synchronous play: This lets all cameras in the same view to playback video of the same point in time. If you perform synchronous playback on a multi-cell view, your computer can be stressed. It is recommended you create a new view with a 2x2 layout, select and insert camera views into it, and begin the Synchronous playback.
- 2-2. Frame by frame buttons: Click to move forward or backward to flick through the video frames. This may only display the I-frames.



2-3. Forward playback and reverse playback: Click to view the video in the forward or reverse playback manner.

2-4. Speed selector: The selectable speed ranges from 1/64x to 64x.

3. Export Clips: Click the Export Clips button . A range selector will appear. Pull the ends to include the time span you want to export. Note that each end of the selector, when clicked and selected, will turn white, and its location on the timescale is shown on the time line. When done, click the Start to export button.



Depending on the length of video clips to export, it may take minutes to export. When the export is completed, a shortcut to the exported clips is shown. You may then open the folder where the clips are located.



2-2-14. Alarm

The Alarms can be configured to perform a series of actions when different events occur. Alarms can be used to automatically react to possible threats. For example, the VAST server can start a recording or send an Email notification when Motion detection is triggered.

à Settings			Alarm ma	anagement			
			4			Q Search alar	m(s)
	VAST + Add source	Do Select triggers + Add act	on Select actions	At Add a scl Always Customize office	heliule Alarm Instruction		Aut Cancel
No.	A I/O box & external Name Alarm	If the following is triggered	By I/O Box DI	Do Go to camera preseta	On/to "custom_modelname"	At Always	

A wide variety of triggering conditions can be applied, including:

1. Camera triggers 📃

Ge	General					
•	Motion detection	0	IR (Infrared)			
•	Camera DI		PIR (Passive Infrared)			
•	Camera DO		Tampering detection			
•	Temperature	•	Camera disconnected			
•	Recording error		Stop recording			
•	Video loss (Video server only)					
Sm	Smart VCA					
•	Line crossing (VCA)		Intrusion detection			
•	Loitering detection		Face detection			
•	Missing object detection	0	Unattended object detection			
•	Crowd detection					
Tre	end Micro IoT Security					
•	Brute force attack		Cyber attack			
	Quarantine event					

Note that some of the triggers require that you open a web console to individual cameras. For example, VCA and Motion detection windows have to be manually configured on each camera before they can be configured in the Alarm settings.

If you select a trigger and you cannot find a corresponding device, you need to open a web console to that device. Make sure the corresponding VADP is running. Open the VAST2 device tree, right-click on the device to perform a manual refresh "Update device" to acquire the lastest configuration update.

If a triggering condition is associated with event recording, an event prompt will pop up on the screen when a triggering condition is met. For example, the number of people exceeds a preset threshold in a Crowd Detection configuration. The sample prompt is shown below. The related footage can be played back by clicking on the event entry.



2. VAST server and NVR triggers

	- [
rs		-	

	55	
•	Network disconnected	These can be used to send maintenance notifications.
•	Storage failure	
•	Storage full	
•	Fan status	
•	GPS disconnected	The GPS and G-sensor related options apply to the Mobile NVR
	(Mobile NVR)	that comes with the GPS and G-sensor. GPS can be used to track
•	Abnormal G-sensor	the speed and location of a vehicle, while the G-sensor can be
	motion (Mobile NVR)	used to detect abnormal impact.
•	Speeding (Mobile NVR)	
•	Number of remaining	For VCA-capable cameras, the alarm can be triggered when the
	people	number of people staying within a specific area has exceeded the
		preset threshold. For example, when too many people are waiting
		in line in front of a cashier.
		This function requires appropriate configuration on the counting
		camera(s).
•	Brute force attack (Trend	These can be configured as alarm triggers to notify the
	Micro IoT)	administrator that malicious attacks have occurred. Note that
•	Cyber attack (Trend Micro	these triggers are available with cameras or NVRs that come with
	loT)	the protection of Trend Micro IoT packages.
•	Quarantine event (Trend	
	Micro IoT)	

* Note that you should use the pull-down menu to select a triggering condition, and then click to select a mobile NVR.

	Select trigger and source	×	Select trigger and source	<
Event/Statue			Event/Status	
Event/Status			Network disconnected	
Network disconnected	•		Abnormal G-sensor motion (Mobile NVR)	
Storage failure	· •		Number of remaining people	
Storage full			Brute force attack (Trend Micro IoT)	
Fan status			Cyber attack (Trend Micro IoT)	
GPS disconnected (Mobile N			Quarantine event (Trend Micro IoT)	
Abnormal G-sensor motion (
Speeding (Mobile NVR)				
	Add Canc	el	Add Cancel	ή.



Note that the alarms will be received into the Alarm list window. The previous Alarm Search window is replaced by the Alarm list function.

The Alarm tab window is used to display the live video stream when an alarm is triggered, and its responding action is configured as "Send live streaming."
For I/O box configuration, please refer to the I/O Box page.

3. I/O box and TCP triggers

•	I/O Box DI	This applies when an external I/O box is applied, e.g., Advantech's
•	I/O Box DO	ADAM I/O box.
•	TCP Message	
		TCP message comes from the peer VAST servers or external sources (such as an access control system) via the analysis of received TCP message over the 3444 port. This is a paid feature.



To configure a TCP message trigger,

Select TCP message as a trigger type, and enter a description, such as a short term, for VAST to listen and analyze data packages.

Select trigge	er and source X
Event/Status TCP Message (Using default port 3444)	VMS_Station
Q Search devices	Trigger alarm if receive TCP message
VMS_Station	text contains 🔹
	TCP message (Maximum 128 characters)
	Case sensitive
	No repeated triggers within 5 s 1~30s
	Apply Cancel

Below are the messaging parameters:

1. text contains: Messages will be received if some of the textual messages match the keywords.

2. text matches: Textual messages must be exactly identical.

3. Case sensitive: The upper or lower cases letters used in the messages must match within the messages.

You can use Telnet to send a small amount of data matching the term you entered in the TCP message configuration window. A TCP message event will be triggered, and you should see the event prompt as follows.



•	Start to record video	•	Send HTTP requests
•	Set DO status	0	Send live streaming
•	Go to camera presets	0	Send email
	Go to E-map		Sound the alarm
•	Add bookmark		

The available actions include:

The Start to record video will record a video clip of the length of 10 seconds on the occurrence of an event. All triggering conditions can be associated with this action.

The Set DO status will activate a DO connection. For example, to light an illuminator or sound an alarm.

The Send live streaming action will bring up a video prompt on the live view, showing the realtime video feed from a specific camera.



The Go to camera presets requires you to configure preset points on a PTZ camera before the Alarm configuration, such as a speed dome. Once triggered, the PTZ camera lens will move to a preset position.

The VAST server automatically disables unavailable options. For example, when the DO option is selected, the cameras that do not support DO connections will be hidden.

The Send email opens a configuration page where you should enter valid email addresses as sender and recipients. It is required that you configure an SMTP server for mail delivery in Settings > SMTP. Enter Subject and contents. Select the checkbox for including a snapshot of the event. When done, click Add to enable the action.

The Go to E-map opens a pre-configured E-map of where the triggering condition occurs. The user can then click on the camera icon on the E-map for an instant viewing.

The Add bookmark function saves a video clip of a 10-seconds length. Once triggered, you can open a new view tab > Search > Bookmark search to find the existing bookmarks. The bookmarked video clips will not be recycled during the storage cleaning cycles.

The Sound the alarm action provides 5 alarm sounds that will be sounded on the VAST client or server. Your VAST client or server should have spearkers for playing the audible alarm.

	Select actions		×
Sound the alarm	·		
Select an alarm sound:			
Alarm 1			
Alarm 2			
Alarm 3			
Alarm 4			
Alarm 5			
		Add	Cancel

A reacheable Mail server and Email accounts must be provided before you can apply the settings.

	Select actions	×
Send email	▼ No SMTP server. Set up SMTP server on Settings > System > SMTP	
Sender's email	test@gmail.com	
Recipient CC		
Subject	Alarm Notification	
Content	Device: \$(DeviceName) Trigger: \$(TriggerType) Time: \$(EventTime)	
		Cancel

On the **Schedule** page, you can select to activate or de-activate alarm triggers throughout a specific timeline. For example, in some situations you can disable the alarm triggers during the office hours, and choose to enable the triggers only during the off-office hours.



Click on any of the options on the Schedule panel for the alarm to take effect: Customize, Always, or Add a schedule.

You can manually create a effective time template using the New template



Click and hold down on the time cells, and drag the mouse to include the time span of your preferrence. The minimum selectable unit is half an hour. You can select multiple time spans on the template. Enter a name for the template, and click Add to save your template.

The same configuraion window apply to both the Schedule template and the customize schedule windows.

Make sure a Schedule mode is selected when you leave this configuration step.

Enter a name and instructions for users to follow, and then click Add to complete the Alarm setting.

All configured alarms will be listed on the Alarm settings page.

Group Alarm

Multiple triggered alarms can be presented as group alarms. Alarms triggered by the same event type, and by the same camera can be grouped together. In this way, multiple similar alarms can be listed under one entry.

VAST2	•	* *							.5% 📔 .	j ŝ	- 6 ×
Alarm list/sea	arch	O LIVE							· · · · · · · · · · · · · · · · · · ·	<u>کا</u>	
											Group alarm
I											É .
	168 Scrum Room (FE91	191 - Motion detectio	in) •								
				MS_Station							
				MS_Station							
				MS_Station							
				MS_Station							
			vi	MS_Station	FE9191 - Window 1	Motion detection					
				MS_Station							
				MS_Station							
F				MS_Station				r			
				MS_Station				Click to reveal the vi	deo viewing	panel.	\geq
				MS_Station							
				MS_Station							
				MS_Station							
				MS_Station							
				MS_Station							
				MS_Station							
				MS_Station							

On the alarm list, click the Group alarm button to display the alarm group.

In the list mode, you can expand the right-hand-side panel. The video of the latest alarm will display.

When the alarm-triggered action is configured as sounded alarm, you can mute all alarms in the group by clicking the alarm sound icon.

			Name	Station	Trigger source
	J		Alarm (FE9181-H - Motion detection) •		
	<u>.</u>	•	Alarm (FE9181-H - Motion detection) •		
(0		Alarm	VMS_Station	FE9181-H - Windo
			Alarm	VMS_Station	FE9181-H - Windo
			Alarm	VMS_Station	FE9181-H - Windo
			Alarm	VMS_Station	FE9181-H - Windo

The same applies to the thumbnail view. To leave the group alarm view, click the Group alarm button again.



When the alarm action is set to "Send live streaming," the videos coming from the same camera will occupy only one view cell.



On the alarm playback view, use the thumbtack *button* to freeze the current screen. If thumbtacked, the other incoming alarms will not affect the current screen.

On arrival, the latest alarm will display with a blinking red frame. A selected view cell will display with a yellow frame.

The alarm notification can be turned off by clicking on the Alarm tab. Use the slide toggle to do so. You can also select to let the notification automatically turn on after a configurable span of time. Enter the number in the mins field. The max. time span is 9,999 minutes.

The notification configuration is kept on the client computer.

When the Alarm notification is turned off, the Alarm tab icon is greyed out igaplus

▼	VAST2	•	A		CPU 12%	MEM 37%		¢a – □ ×
Ala	arm list/search	Out	Æ		(💉)	Alarm notifications Mute until 15:49, 09/09		Ľ
						Turn on in 1	I0 mins	
				Event type		Until I turn it bac		
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 🛒	Alarm list/search		
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09	Alarm tab		
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09			
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:50:44	Ne		
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:50:39		168 Scrum Poo	m
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:50:33		VMS_Station	WA
•	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:50:28		FE9191 - Windo	w 1
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:50:23		Status In pr	rogress 👻
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:50:18			History
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:49:55			
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:49:30		Updated status	to In progress
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:49:24		17-	
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:49:19			
	168 Scrum Room	VMS_Station	FE9191 - Window 1	Motion detection	2019/09/09 14:48:55			
	2019/9/2 1	3 : 34 : 05						
	00 13	:3'0:00		13:300	13:36:00		13:38:00	13:40

Note that the default for the alarm notification is "Until I turn it back on." If you turn off the alarm notification, you need to re-activate it after you turn off the notification the first time.



116 - User's Manual

2-2-15. Search Panel

The Search panel is accessed via the Search substitution. 2 key functions are provided: Search by **POS** transaction, and Search by **Bookmark**.

1. Search by POS transaction: The VAST station can collect coordinated database information from a POS machine. This function provides access to the video clips associated with the sales record on the POS machine. Details of transaction can be listed on screen so that a manager can see the live view when controversial events occur.

To search the POS-related recordings,

- 2-1. Select the VAST station which the POS machine is connected to (via the Settings > POS configuration).
- 2-2. If you know the approximate time of occurrence (bill void, content adjusted, shortage of products, and other frauds), use the calendar to select a time span.
- 2-3. Select a POS machine, if there are many.
- 2-4. Select a search condition, such as item name, subtotal, or the transaction number. You can use the >, <, or = signs to specify the amount you are searching for. For example, key in >100 for amounts larger than \$100.
- 2-5. You can click the add button below to append more search conditions.
- 2-6. When done, click the search button.



NOTE: The Alarm search panel is replaced by the Alarm list function. The Alarm list is accessed from the top tool bar.

2-7. Click on any of the search results. Details of the transaction will display along with the recording of the time of occurrence.



2. Search by Bookmark: Bookmarks are manually created when users review recorded videos in the Playback mode. Each bookmark comes as a 10-second video clip.



In the Bookmark search panel,



Click the Bookmark search 🔯 button. The Bookmark Management window will prompt. All existing bookmarks will be listed with thumbnails.

- a. On this window, you can specify a range of time during which the video streams were recorded and its points in time were bookmarked.
- b. You can then click on a bookmark to display the short video clip extracted from within the recorded video. The default is 10 seconds.
- c. To remove an existing bookmark, left-click to select an entry, and then click the Delete bookmark(s) button. Bookmarks will be indicated as "Invalid" if the videos where the bookmarks were appended were erased, e.g., when the original recording was erased by cyclic recording.
- d. Currently you can search for bookmarks using the name of the camera.
- e. You can also select the display types for the bookmark search in either the thumbnails or list mode.

2-2-16. Smart search

The Smart search function enables a quick glimpse of activities occurred within a userconfigurable detection area from the recorded videos. **Smart search** is available in the **Playback** mode.

Click to select a camera view cell. Click on the Smart search button we to enter the Smart search window.

There are two Smart Search modes: Smart search II and Smart search I. The Smart search II applies to the recordings of the cameras that come with the Smart Motion Detection feature.

To use Smart search,

- Use the date and time selectors to specify a time span on which to perform the Smart search. If preferred, you can tune the Sensitivity, Continuous detection for exclusion, and the Interval between search results. The Continuous detection option specifies the length of occurences that an event must last longer than the configured threshold to be considered as an effective occurrence.
- 2. Draw one polygon with multiple mouse clicks to include areas where activities of your interest occurred. Double-click to close a polygon.



3. Click the Search button.

Please refer to VIVOTEK's website pages that are related to the Smart motion and Smart VCA features for the supported cameras.

There are two Smart search modes: Smart search II and Smart search I. The Smart search II applies to the recordings of the cameras that come with Smart Motion, and other VCA capabilities. There are two kinds of metadata polled from camera VCA packages:

- 1. Motion cell: Pixel-based information. The search results will include all moving objects in the scene.
- 2. Object information: Human-based information. If People detection is selected, only objects detected as human will be displayed as the search results.

Search parameters:

Time frame	Use the calendar tool pane to specify the time span within which the activities in scene will be searched.
Human detection	Human detection enables the display of the alarms detected via the human silhouttes algorithm. This can be used to filter out video analytics alarms that are not related to human activities.
Sensitivity	Configure the sensitivity for the detection of the activities in scene. Low for near scene, high sensitivity for long distance scenes.
Continuous detection for exclusion	If the detected motion persists for longer than the time threshold, the motion will be counted as a detection result.
Intervals between search results	The intervals for defining and revealing the detection search results.

4. The search results display as the snapshots of the associated video clips. Click to playback the video clips with activities in the detection zones.

Hover the screen with your mouse, and the length of each video clip is displayed.

Note that unless interrupted, the playback continues with all detection zone clips, by continuing to the successive clips.



Smart search II is available only for newer line of cameras that come with Smart Motion detection. Smart search II has the following benefits:

- Faster search: Metadata is saved with videos coming from cameras running Smart Motion detection. With the help of the metadata, the search focuses on the effective alerted vectors and the adverse effects, e.g., headlights causing dramatic contrast or small animals passing through, have already been eliminated by the camera. The search can be more rapidly completed.
- 2. Human detection: The search can be conducted for human activities only. Activities matching the silhouettes of human will be considered as effective results.
- 3. Multiple-point polygon: Users can select a region of interest by drawing a polygon.

Note that the Smart Motion detection areas must have been configured on each camera before the Smart search can take effect.



You can specify the time span, Human detection, Sensitivity level, and time filter parameters in a Smart Search II panel. Below are the statuses of the Smart Motion detection polygon:

Normal

Motion window (normal)



Selected by a mouse click. You can click on the delete button to remove a configured window.

Motion window (focus)

When motion is triggered in the When moused over. You can edit the end points. window.

Motion window (trigger)



Motion window (hover on area)



Click and drag the end points to edit the coverage of the motion window.

Motion window (hover on point)



5. You can then click to open any clip of your interest. Each marked event clip will be indicated by a lighter color on the time line. Select and double-click on a video clip, and then right-click or select the bookmark or snapshot functions from the upper-right.



 If you find important events, use the Export function to mark the start and end points on the timeline to export a video clip. Use the pull tabs on time line to determine the export length. By default, the export length is 2 minutes long.

The playback control in the Smart search window is identical to that on the Playback window.



2-2-17. Tour

A tour can be configured to consecutively display multiple views. A tour allows users to quickly glimpse through many view cells in a timed pattern. As a tour can contain multiple views, you should design and configure camera views before configuring a tour.

To configure a tour,

- 1. Click on the Add a camera tour 😐 button.
- 2. Click the Add button.



- 3. Enter a name for the tour.
- 4. Single-click to select a view. Select multiple views each by a single click.
- 5. Click the Add Tour button.



The default for the duration of the disaplay of each view is 5 seconds. You can right-click on each view to display the Duration of each view. You can apply the same duration of all views, or allow each view to display on screen for a different span of time.



Mouse over a configured tour, and then click to start a tour.



When playing a tour, and you want to stop the tour, you can left-click or right-click on the screen. Click the Tour icon again to return to the singular live view.

2-2-18. Thumbnail search

The Thumbnail search function is like doing a post-production editing in film making. Screens from across different time spans are shown to facilitate the search for evidence.

Click on the Thumbnail serach button to enter the Thumbnail search window. The default time span is 100 minutes, starting an hour earlier of the current system time.

To use Thumbnail search,

- 1. Use the date and time selectors to specify a time span during which you suspect the event of your interest has occurred.
- 2. If preferred, tune the interval and clip size. The default length for each clip is 10 seconds.
- 3. If you find a clip might contain an event of your interest, you can click to select, and then slide left and right to watch the activities within.



4. Hover your cursor to the lower center of a clip to display the Play and the More snapshots options. If you click More snapshots, another window will prompt to display all frames within the clip.

When you select to display the clip details (specific time span), the time span and the interval information will change accordingly.

When you find an event of your interest, you can play that video clip and use the export function on screen to output the evidence. You may also place a bookmark on the timeline.



Chapter 3 Applications: 3-1. I/O DI/DO Devices: IO Box and Related Configuration

Use the software utility that comes with the IO box, e.g., Advantech's Adam/Apax.NET utility, to configure IP address, and test the DI/DO connectivity. The connections to external devices should be completed before configuration on the software.

Advantech Adam/Apax .NET Utility (Win32)	Version 2.05.10			
File Tools Setup Help				
🕒 🔜 🔍 🕫 🖌 🐌 📂 📾				
CoM3 Derror 192.168.017 Foronb Group CoM3 Foronb Group CoM3 CoM3	Setting Network setting: M&C address: IP address: Subnet address: Default gateway:	00-D0-C9-F0-EF-3B [192168.6.118 [255.255.0.0 [192168.6]1	Applychange	
ADAM/APAX				

Enter Settings > Device > DI/DO Device. Click the add I/O button on top.

V A S T	• •		
🔊 Settings		I/O Box	
Cameras	(10) (10) 9. Search devices(s) • • • • VARS.Station	Edit I/O Box Destemane ADAM	
Recording options	NO ADAM ID11 ID2 ID3	IP 192.168.5118 502 Uter name Paceword 0000000	
Pos	 DI 4 DI 5 DI 6 DI 7 	Di number 8 D0 number 8	
DI/DO devices	 D18 D01 D02 D03 	0 02 002 0 03 003 0 04 004	
	0 D0 4 0 D0 5 0 D0 6	0 04 00 005 0 04 00 006 0 07 00 007	
	0 D07		

Enter the I/O box's IP addess and credentials, and select the correct model name from the pulldown list on the right. Click the **Apply** button to proceed. The current I/O connections are also displayed on screen, such that the status is displayed when DI pins are connected to detection devices.

Configuring I/O Box DI/DO as a Trigger or Action in Alarm



Select the External Device event 🧾 , and then click the Add trigger + Add trigger button.



The Select trigger and source window will prompt.

Select either the I/O Box DI or DO as the triggering source.



Select one or multiple DIs as the triggering source and click the **Apply** button.

Select trigg	er and source	×
Event/Status		i
I/O Box DI 🗸		
Q Search device(s)	DI 2	
VMS_Station	DI 3	
	DI 5	
	DI 6	
	DI 7	
		l
		-
	Apply	ancel

Click Add action + Add action, and select a corresponding action, such as sending live streaming, record videos, trigger a DO, sending an HTTP request, or sending an Email. When done, click the Add button.

	Select actions	×
Send live streaming	•	
Q Search device(s)		
VMS_Station		
• custom_modelname*		
FE9182-H		
■ IB8377-H в SD9366-EHL		
■ ■ IP8166		
		Cancel

Configure a schedule during which the Alarm configuration will take effect. If no special time span is needed, you can simply select Always.

	Add a schedule template							
	te name Office	•						
00:00	Sun	Mon	Tue	Wed	Thu	Fri	Sat	
01:00 02:00 04:00 05:00 06:00 07:00 08:00 10:00 11:00 12:00 13:00 14:00 15:00 15:00 15:00 15:00 19:00 20:00 22:00 22:00		00.00-23.30						
24:00	2400 Add Cancel							

Enter a name for your Alarm, and add description for your configuration, e.g., "intrusion detected on the front door." When done, click the Add button. The Alarm configuration takes effect immediately.

🔻 VAST	Ø	• +			ceu 16% Men	76% 🔛 🛤 🌲 🏟	- 15 ×
🔊 Settings			Alarm ma	nagement			
			4			Q Search alarm(s)	
If		Do		At			
				+ Ad	d a schedule Alarm		
-				Always	Instruction		
				Customize		AL.	
	+ Add source	+ Add a	tion	✓ Office		Cand	el
No.	Name	If the following is triggered	Ву	Do	On/to	At	
1	Alarm	ADAM DI 1	I/O Box DI	Send live streaming	FD8177-H	Office	

NOTE:

If an I/O module is started later than the VAST server, you may not be able to access the I/O module. You should then re-start the VAST service.



3-2. Configuring Redundant Servers - Failover

VAST2 servers can be configured into two groups: Active and Redundant. The Active group performs daily recording and monitoring tasks, while the Redundant group acts as the standby servers. In the event of server failures, the Redundant group becomes active, and takes over the recording task.

The Redundant server group configuration consists of the following:

- 1. One VAST2 server designated as the **CMS** (Central Management server) VAST central management server.
- 2. At least one VAST2 server in the Active group.
- 3. At least one VAST2 server in the Redundant group.
- 4. Gb/s network or higher-speed connection among the servers. All Active and Redundant groups can reside in different subnets, provided that static IPs are configured for these servers.

IMPORTANT:

For a Redundant server configuration, you must first enlist VAST servers in the **Sites** configuration page before configuring the Redundant server groups. See the **Sites** configuration page.



Below are the definitions of server roles:

- 1. **CMS** VAST server: The main access portal for the configuration.
 - 1-1. CMS server is where the **Failover** configuration takes place.
 - 1-2. CMS continuously polls to check the hearbeats to monitor the statuses of all Active and Redundant servers.
 - 1-3. CMS regularly backs up the configurations on Active servers.
 - 1-4. CMS assigns redundant server(s) to the takeover of a failed Active server.
 - 1-5. In a Redundant server configuration, the CMS is supposed to be up and running at all time. If the CMS server fails, the server failover and failback operation will not take place. It is therefore preferrable to install the CMS server at a high up-time environment, such as on a VMWare configuration.
- 2. **Active** servers: Active VAST servers are the work horses that perform recording and monitoring tasks.
- 3. **Redundant** servers: The Redundant servers are actually active-standbys. They participate to continue video recording in the event of active server failures. It is recommended for the Redundant server to have an equivalent or higher processing power than the Active servers. The same applies for the storage volume and write performance.

Note that you cannot configure a Redundant server by opening a local console.

The conditions during the failover are illustrated below:

Multiple Active and Redundant groups can be created.



Each Redundant server can serve as the backup for ONE Active server. Depending on the number of the Active and Redundant servers, if the number of failed servers exceeds the number of Redundant servers, the failover will be abandoned. For example, if 2 Active servers failed, and there is only 1 Redundant server available, the second Active server that failed will be abandoned.

In the event of a server failover, a VAST2 server in the Redundant group takes over the recording task. Note that depending on the network environment, the takeover can take up to 5 minutes.



Once the server in the Active group is restored to normal operation, and a CMS server requests for the recordings and data occurred during the time the active server failed, the requests will be fulfilled by a shared volume on the redundant server. Due to the concerns with network bandwidth and processing power, the restored active server does not synchronize its recording pool with that on the redundant server.



In terms of network failure, the VAST2 configuration supports Seamless Recording. For cameras equipped with an SD card, video is recorded to the SD cards in the event of network failure. Of course, the camera must be powered by a secondary power source, such as a DC 12V input. In cases such as the only PoE switch or PoE mid-span fails, power is lost.



Once the network connection is restored, the VAST2 servers resume the recording task and also retrieve video segments from the SD cards. The video segments recorded during the network failure will be stitched up with those occurred before and after the network failure. The retrieval speed varies depending on the available network bandwidth and CPU resources.



To enable Seamless recording, find the associated option in Settings > Recording options, and select the Seamless recording checkboxes. Camera models that support the Seamless recording option will have it listed.

VAST2	\$	(t)								
🔊 Settings	1		R	ecording mar	lageme	nt				
Recording options	* =)	AKS_Station	Archive name	efaultGroup 16.	Site 95 GB available	VMS_Station of 100.1 GB				
Failover			Storage + New s	torage					Recycle Options]
Local DB			D:\Recordings							
			5 cameras selec	t cameras						
			Name	IP	Streaming	Schedule		Seamless recording	Activity Adaptive Stream	
			All cameras				*			
			10.17.2.49	10.17.2.49	1 💌	Continuous	*			
			IB9367-EH	192.168.4.179	1 💌	None	*			
			FE8191	192.168.4.168	1 *	None	*			
			FD8377-HTV	192.168.4.128	1 *	None	*			
									Anuly Cancel	•

Failover Configuration Process

Before Failover configuration, you need to add other servers to your Failover configuration. Below is a screen from the Sites management window.

- If you are adding a Redundant server, select the "Add as a redundant server" checkbox.
- If you are adding a server without selecting this checkbox, it will be considered as an Active server.
- When adding a Redundant server, you will need to provide a Windows account 802.1x domain user name and password. A Redundant server requires this because a full access to the recorded data is required during the failover and failback process.

VAST2	* +		сгч 9% мем 66% 🛛 🏭 🌲 🏟	- 1 <u>0</u> ×
🔊 Settings		Device management		
Cameras States Pos Dr/D0 devices Data magnet External devices	 ↓ Let a let a	New site IP/Domain name IPI IPI </th <th>Ad Caned</th> <th></th>	Ad Caned	

When the "Add as a redundant server" checkbox is selected, enter the name of your Windows domain and the user credentials for a full access to the Redundant server.

	Si	te manage	ement		
New sites	Search				
IP	192.168.4	1.177			
Port	3443	SSL only			
Add as a r	edundant serve	r			
Windows accou	nt (optional)	VIVOTEK	0		
		eric.lu			
			••••		
CMS password					
				Add	Cancel

Note that it is a must for the Redundant server to be installed differently by selecting a "**Redundant server**" checkbox during the installation process.



When a Redundant server is successfully added, the server will be listed under your VMS station.

Search devices	Name VMS_Station_R	er.	
 VMS_Station VMS_Station_R 	Windows account (optional)	VIVOTEK eric.lu	0
A Redundant server comes with a	n associated icon		

An Active server must have a CMS password configured for the hierarchical configuration.

Note that on the Active servers, you should configure them as the subordinates to your CMS VAST server. On a web console to these servers, open the Site management page, and select "Allow CMS to access this site." Create a common password for the CMS hierarchy.


Two agents will be running on the Active and Redundant servers, "stunnel" and "VMSWebServer." Make sure they are not blocked out by your firewall. These agents can be found in the default folders below:

C:\Program Files (x86)\VIVOTEK Inc\sTunnel\stunnel.exe C:\Program Files (x86)\VIVOTEK Inc\VAST\Server\VMSWebServer.exe

	+	- 0	×
← → < ↑ 💣 > Control Panel > System and Security > Windows Firewall > Allowed apps 🗸 🗸	Search Control Panel		Q
le Edit View Tools			
Edit View Tools Allow apps to communicate through Windows Firewall To add, change, or remove alloweing an ap to communicate? What are the risks of allowing an app to communicate? Allowed apps and features: Name VIELD Streaming IN-Streamer TCP Exception VIELD Streaming SSAU UDP Exception VIELD Streaming SAU UDP Exception VIELD Streaming SAU UDP Exception			

Click on the Add Dutton to create a Redundant server group. The Active and Redundant servers you enlisted on the Sites page should all be listed below. Select the members of the Redundant group, and click Add to complete.

The default for the network disconnection timeout is 30 seconds. It is not recommended to configure a very short timeout, e.g., 5 seconds, because if doing so, a temporary network disorder can make servers consider the Active server(s) have failed.

V A S T			сгч 16%, мем 76%, 🛛 🇮 🌲 💠 — 😜 ж
🔊 Settings		Failover	
Recording options Backup Fallover	Image: A search groups	Group name Fallower group. Description	Security
		Back up data after network is disconnected for 30 seconds. (5-3600)	Add Cancel

3-3. VCA (Video Content Analysis)

The VCA Report utility is started from the tool bar on top, C. The VCA Report utility provides comprehensive graphs and line charts for quick access to the data collected through VIVOTEK's People Counting modules, such as the SC8131 stereo camera. Statistical results is refreshed by hour or minutes, and you can compare the results acquired through different time periods or among different surveillance areas. These data help figuring the customer flow in retails so that shop owners can optimize the arrangement of store layout, or mange queues more efficiently.

Note that the configuration of detection methods in People Counting still occur on a web console to individual cameras. It is not configurable through the VAST LiveClient.

Prerequisites:

The prerequisites for using the VCA Report are:

1. The monitoring server running the VCA Report utility must be up and running during the time the counting VCA is taking place. If you power off the server, the counting metadata generated during the server down time will not be available for analysis.

The VAST2 server instance runs in the background. The VAST2 management console needs not be started during the VCA Report data collection process.



 Cameras running the VCA utilities have been configured and added into the VAST deployment. The instances of available VCA rules will be listed in the Area panel.

- **3.** The life expectancy of VCA records is 5 years.
- **4.** Currently the utility supports Windows XP, 7, 8, and 10.
- 5. The latest revision VAST supports Seamless Recording, in order to retrieve collected data and recording during Ethernet disconnection. Provided that an SD card is installed on the VCA-enabled cameras, the VAST station gradually retrieves data from the SD card after the connection is restored.

To start VCA report:

- 1. Click on VCA report 🗠 button on the tool bar.
- 2. Select People Counting.
- 3. Click on the Add area + button.



4. Select a camera that is VCA-enabled, and then click the Create button.



5. The pre-configured counting rules (areas) will automatically display. Select a counting rule and enter a name for the area. When done, click the Create button.



If only one camera is selected, its name will apply as the Area name. If not, enter a name for the area.

6. Click to select one or multiple areas. Those selected will be highlighted in a different color.



7. Select Date & Time

- 7-1. By default, the time displayed on the calendar is the current system time on the client computer running the utility. Select from the **Date** selector on top.
- 7-2. Select a date or span of time from the calendar or use the **Time** selector to select a span of time.
- > Single-click to select a date or click and drag to select multiple dates.
- > You can select a month or a year using a single click. If you select a month, the timeline unit will be days within the month. If you select a year, the timeline units will be the months in a year.
- In the Month or Year panel, single click to select the entire month or an entire year. Doubleclick to select sub-units, e.g., days within a month. If you double-click on a Month panel, you will enter the Day panel.



You can select a different month in the **Month** or **Year** panels. The **Calendar** panel disappears if left unattended for 2 seconds.

On a **Month** panel, double-click to select a month, and the **Day** panel for that particular month will display.



Note the following when making the configuration:

- When a date is selected, the Date and Time panel will not automatically close, and the configuration changes will not take effect until it is closed. You can click on the outside of the panel to leave the panel.
- You can select multiple days to form a span of time. Select one date with a single click and select multiple dates by draging your cursor across the screen to a preferred end date.
- To select a year, click to open the **Year** panel. Single click to select a year. Multiple years can be selected using the click and drag method.

7-3. Select the hours to be included in the statistical poll using multiple clicks on the chart.

Single-click to select an hour or click and drag to select multiple hours.

Jan 31 - Feb 09, 2015	O ↓ ▶
Ē,	<u>()</u>
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 15:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00	Selected 00:00 - 23:00

Note that you can only compare the counting results from two spans of time if you select only one Area. If you selected multiple Areas, you can not compare the results from multiple time spans.

7-4. Click outside the Calendar panel. The statistical results will display. The default display is the bar chart. Below is a sample screen showing the results polled from 3 areas. Up to 8 areas can be selected in one view.



Select different display modes using the Bar 🔟 , Line 🗠 , or Pie 🕓 chart buttons.



Note that the timeline units can vary depending on the span of time you selected on the Calendar panel. If a date was selected, hourly data will display in chart. If a year was selected, monthly data will display in chart.

Use the following functional buttons to change the display parameters

Show data on chart

: Displays the collected numbers on chart.

Average 🕂 : Displays the average number per time span unit (e.g., per hour). If the interval

is changed to 30 mins, the average number will be halved comparing to the number acquired by every hour.

Report Interval : Configure the intervals for polling data from the camera. The default for displaying results is by every hour. If you enter 30 minutes as the display interval, all data will be listed on the basis of the 30 minutes time span. The configurable range is 1 to 1440 mins.



You can use the update menu on the side of the Refresh button to determine an automatic update schedule. You can let the statistic chart update itself by a regular interval.



If you selected only one area, you can use the Shift key to select multiple areas (or two spans of time). You can select multiple dates in the Calendar panel.

Use the **Refresh** button **C** to poll the latest data from camera.

Đ

Use the time selector on the **View Report from** pane to select the start time of your statistics view window. Data collected before that time will not be displayed.



A number is displayed when you mouse over an area on the chart. Move your cursor to an area on chart, and the number is displayed.



Data on a time line will be generated. To close the window, use the close button on the second date information. Equivalent spans of time can also be used for comparison. For example, you can compare the data in a span of 4 days against another span of 4 days.



Note that the Compare function only applies when you select to display only one area on screen.

In a comparison result displayed in a line chart, mouse over to the peak value to display the percentage of an increase or decrease rate.



See below for the functions of buttons on screen.



In addition to the charts, a summary of displayed data will be listed below showing the areas involved, visits/Day or Month, Average visits / Hours / Days, Average duration of stay / person, and the Peak hour.

Areas		All visits / 4 days	Avg. visits / Day	Avg. duration of stay / Person	Peak day
Floor 3		490,870	122,718	106.3 mins	12/04
Floor 2		959,482	239,870	105.9 mins	12/02
site 2		3,873,510	968,378	108.0 mins	12/01
	Total	5,323,862			

8. When done with displaying the results, you can use the **Export** button to produce an image file to preserve the current results. Both a spreadsheet and a graphic chart will be produced.



By default, the exported report is placed in:

C:\ProgramData\Documents\VIVOTEK Inc\ VAST\Client\VCAReport Click the Reports Subscription button to configure the regular report sent to your Email account or a specific location on the server itself.
 Select the following:

1.	Report type: People counting results, or Heatmap (Heatmap does not produce CSV file)
2.	Area: All areas or a preconfigured area.
3.	Subscribe: Enter the sender and recipient Email addresses. You can also configure to
	send the report to a specific location on the server.
4.	Attachment: Select to attach graph Charts in JPG or PNG, and the CSV data files.
5.	Time frame: Select the time coverage of the report, during which data is collected.
6.	Frequency: Specifies when and how frequently to deliver the reports.

Select the time to deliver your mail notification. Enter valid Email addresses as the sender and receiver addresses and make sure the SMTP mail server configuration has been properly configured on your VAST server. This VCA mail notification utilizes the mail service on VAST for regular notification. You can then receive Email notification every day on your Email account. You can enter up to 5 recipient addresses.

Select the report interval to determine how often you receive an aggregated report.



User's Manual - 157

Note that the notification contents is your current field of view, including a Bar, Line, and Pie chart combined into one image file. The In/Out/Remaining results will be generated into 3 charts. Each Area will generate one CSV file, and each CSV data file will contain In/Out/Remaining/Summary information.

The generated file names will look like this: 20160226_test02_Remain.jpg for charts and 20160226_Summary.csv for CSV files. The Email subject will be "VCA Daily Report - 2016/02/26."

Note that if you manually export a report, the default is sending the data collected until one hour before the manual export. For example, if you generate the report at 14:07, the report will only cover the data collected until 13:59. You may use the Refresh button to manually generate immediate data inputs (those occurred between 14:00 and 14:07).

You may configure to receive regular VCA report as Weekly or Monthly using the associated menus.

Below are the messages with the Email test function.



3-4. VAST Software License

To activate the software, refer to the flow chart below:



The VAST software provides 32 free channels. Since revision 1.11, the VAST software is activated using a software license instead of the original hardware dongle.

For users running the previous dongle version, there is no need to upgrade their original license. If they need the license for more channels, They can export their license file, and purchase more dongle licenses. For users who require more than 32 channels, they can install the 256 channel trial version first, and go to **Help** > **License** page, and click on the **Export License** button. Send the request back to VIVOTEK to purchase more channel licenses.

VAST2	\$					5% 📔 🏢	ê 🐥	- 6 ×
🔊 Settings			License manag	gement				
i License			Export licens	e Import license]			
SMTP			Export license and update it i) the online license manag	ement system			
ţţţ	Stat.	. Site name	# VIVOTEK c # OI	nvif cam Advance	Pac Purchased li			
Preferences		VMS_Station	3	0 Purchased	package 256			
Feedback and bugs								
		Total	3	0	256			

When you purchased and received the official software license, use the **Import License** function to activate the official license.

When importing purchased licenses, you can manally select which station/license file to update, or click the **Auto Dispatch** button and let system decide the distribution of license updates especially when there are substations under a managing VAST server.

Before the Auto Dispatch function is available, license has to be individually updated on every substations.

Below is a sample procedure for importing the camera licenses:

1. Continue to import the camera licenses.

	×				6% NEM 51%	
🔊 Settings		;	System manage	ment		
C License SMTP			Export license Import li	online license	e	
964 						
Preterences	Sta S	ite name	# VIVOTEK cameras	# Onvif cameras	Purchased I	Advance Pa
Preferences	Sta S	ite name MS	# VIVOTEK cameras	# Onvif cameras	Purchased I	Advance Pa
eedback and bugs	Sta S	ite name MS Store 1 Store 2	# VIVOTEK cameras 1 1 1 (MAC license excluded)	# Onvif cameras	Purchased I 0 0 <u>MAC license</u>	Advance Pa Purchased packa_ Purchased packa_ Purchased packa_
Feedback and bugs	Sta S	ite name MS Store 1 Store 2 Store 3	# VIVOTEK cameras 1 1 1 (MAC license excluded) 0 (MAC license excluded)	# Onvif cameras 0 0 0 (MAC license excluded) 0 (MAC license excluded)	Purchased L 0 0 MAC license MAC license	Advance Pa Purchased packa- Purchased packa- Purchased packa- Purchased packa-

2. When in the Import page, click the Add button to select camera licenses.

	Stat	us Site name	Purchased licens
		CMS	C
		-Store 1	C
Drop camera licenses here		-Store 2	MAC license
or click add button		-Store 3	MAC license
Add			
13			

3. Select the target servers, click Import.

010			Stat	tus Site name	Purchased licens.
CMIS.IIC				CMS	0 (CMS.lic
Store1.lic	8		Z	-Store 1	0 (Store1.lic
				-Store 2	MAC license
		Import		-Store 3	MAC license
				2	

4. When done, a successful import will be indicated.

Camera licenses are bundled with hardware information. When import camera licenses, the software will automatically match the licenses with corresponding servers.

		Status Site name	Purchased licens
		CMS	10 (CMS.lic)
		-Store 1	10 (Store 1.lic)
Drop camera licenses here		-Store 2	MAC license
or click add button	N	-Store 3	MAC license
Add	45		

5. Select the target servers, click Import.

CMS.lic	(x)		Status	Site name	Purchased licens.
		E		CMS	0 (CMS.lic
Store1.lic	×		1	-Store 1	0 (Store 1.lic
				-Store 2	MAC license
		Import		-Store 3	MAC license
				6	

Updating Licenses for VAST on Virtual Machines

NOTE:

- 1. The VAST server supports the installation on VMWare, Virtual Box, Parallel, and Hyper V.
- 2. A MAC address authentication mechanism is implemented for VAST running on virtual machines.
- 3. The license requests have to be generated from the VAST2 installed on a Virtual Machine. It does not work if it is generated from a VAST2 installed on a non-Virtual Machine.

This instruction includes:

- 1. How to Export a license request from VAST2 on a virtual machine.
- 2. How to acquire the MAC addresses of the inserted or non-inserted cameras?
- 3.Send us request files & MAC addresses (If you have multiple sites, please remember to designate grouping information, such as which MAC addresses belong to which camera deployments).
- 4. How to Import MAC licenses to VAST2?
- 5. How to buy more MAC licenses for future distribution?

1. How to export request from VAST2 on VM?

- 1-1. Install VAST2 server on a Virtual machine (usually VMware workstation full 12.1.1), or download VAST2 from VIVOTEK website.
- 1-2. Insert cameras for the VAST station(optional). Go to virtual machine, Open VAST2 > Settings > Insert cameras (You may already have more than 32 cameras inserted if you are using the trial version).
- 1-3. Go to VAST2 > Settings > License > Export license.



		Export license	Import license		
		Export license and update it in the	online license management system		
Status Site n	ame # VIN Station	2	ameras Advance Package 0 <u>Purchased package</u>	Purchased licenses	

1-4. Click the Export license button and select your Windows desktop as the destination folder. A VAST2 license folder will display on the desktop, zip the folder and send the request file back to your sales representative, distributor, or VIVOTEK.

The generated MAC list should look like this.

VAST2Generated_I	MacList.txt - 記事本		
檔案(F) 編輯(E) 格式	(O) 檢視(V) 說明(H)		
CMS 0002D118F6C9			
Store 1 0002D118F6C9			
Store 2 0002D130D08B 0002D118F6C9			
Store 3 0002D13A0741			

You can examine your current license status. Click on Purchased package. The licenses currently in use will appear.

		Purch	ased package ×		
		Name	License (used/total)	10 - 10 - 10 - 10	
Status	Site name	Google map	8/101	Purchased licenses	Advance Package
1	Lori's CMS	GPS receivers	3/100	100	Purchased package
	-Active Server			100	Purchased package
		TCP message	0/100		
		POS	1/100		
		Failover	5/101		
		Data Magnet	0/101		

1-5. Once you acquired the MAC licenses from VIVOTEK, click Import MAC license button. You will enter the import page. Use the Add button and locate your license files.

To use the MAC license import function, both the CMS and its substation servers should both be running VAST revision 2.6 or above.

Add a MAC license, then select sites to import your MAC license.			
	Status	Site name	Purchased licenses
		Lori's CMS	100
		-Active Server	100
Drop a MAC license here			
or click add button			
Add			
+			

1-6. Select the license file.

🔽 開放苦増				—]	
🕢 🕑 - 📕 🕨 🖬 🖡	Acer (C:) 🔸 Program Files (x86) 🔸	VIVOTEKInc + VAST + Client + VAST2 +	▼ 49 提尋 VAST2		
組合管理 ▼ 新増資料3	¢.		⊫ • 🗖 🤅	Inagement	
☆ 我的最爱	名稱 🎍 audio 🎍 imageformats	修改日期 2019/9/9 上午 10 2019/9/9 上午 10			window 1
下載 ■ 桌面 型 最近的位置 = ○ 焼麺櫃 ● 文件 ● 文件 ■ 接換	Innguage Indiaservice Iplatforms Iplatforms Qt	2019/9/9 上午 10. 2019/9/2 上午 10. 2019/9/9 上午 10. 2019/9/9 上午 10. 2019/9/9 上午 10. 2019/9/9 上午 10. 2019/9/9 上午 10.	温 取要预费的偏素。	Status Site name	Purchased licenses
■ 日本 ■ ■ 本 ■ 電磁 ▲ Acer (C:) □ Data (D:)	QtQuick QtQuick.2 QtQuick.2 QtWebChannel QtWebEngine Ctwebengine Incales	2019/9/9 上午 10 2019/9/9 上午 10 2019/9/9 上午 10 2019/9/9 上午 10		Lori's CMS -Active Server	100
45.2	(橋(N):	or click add button Add	 【keense file (*.lic) ● ●<		
			+		

1-7. The selected file appears on screen.

nport MAC license			
dd a MAC license, then select sites to import your MAC	license.		
		Status Site name	Purchased licens
		CMS	0
		-Store 1	0
		S-Store 2	0
MacLicense.lic	100 B	-Store 3	0
+			

1-8. Select the target server sites to import the license file. When done, click the Import button.

MAC licenses are not bundled with server hardware. You can import licenses from the CMS server to one or multiple virtual machines running the VAST software.

		Sta	tus Site name	Purchased licens
			CMS	0
			-Store 1	0
			-Store 2	0
MacLicense.lic	Impor		-Store 3	0

1-9. Select the virtual machines (sites) running the VAST server to import the license file. When done, click the Import button.

Add a MAC noense, then select sites to import you	Ir MAC license.		
		Status Site name	Purchased licens
		CMS	0
		-Store 1	0
		-Store 2	0
MacLicense.lic	Import	-Store 3	0

1-10. When done, the MAC licenses display on the license page as shown below.

n Settings			System manage	ment			
0							
License							
SMTP			Export license Import li	Import MAC licen:	e		
۵۱۱۸			Export license and update it in the	online license management sy	stem		
I I T Preferences							
	Sta	Site name	# VIVOTEK cameras	# Onvif cameras	Purchased I	Advance Pa	
lback and bugs		CMS	1	0	0	Purchased packa	
		-Store 1	1	0	0	Purchased packa	
		-Store 2	1 (MAC license excluder)	0 (MAC license excluded)	MAClicense	Purchased packa	
		-Store 3	0 (MAC license excluded)	0 (MAC license excluded)	MAC license	Purchased packa-	
		Total (MAC license excluded)	3 (Free:32)	0	0		

2.How to Acquire the MAC Addresses of the Inserted and the Non-inserted Cameras?

2-1. Search for the MAC addresses of the inserted cameras:

On the Settings > License page, press the Hotkey combination: Ctrl + Shift + Alt + M.

2-2. Open the Download folder and send us the file (VAST2Generated_MACList.txt). The MAC address related information is included inside.

Eile Home Share View					- 0	
← → × ↑ 🖡 > This PC > Des	sktop > MAC			∨ ບ Sea	irch MAC	م
Quick access VAST2 shared_Leslie Remote Management Scrum DemoToolkit Deektop Downloads Documents Rictures Others Sales Training VAST2 OneDrive This PC Desktop	**************************************	Name	Date modified 11/14/2017 1:49 PM	Type Text Document	Size 1 KB	
🔃 Documents 🍺 Downloads	~					
1 item						

- 2-3. To acquire the MAC information of the cameras that have not been deployed using the VAST2, use the Shepherd utility.
 - 2-3-1. Download the Shepherd utility from VIVOTEK website.

: × +				
https://www.vivotek.com/shep	nerd#downloads			See 2
	Overview	Specifications	Downloads	
	D	ownloads		
Software_v3.0.0.1**	Software_v2.4.0.201	* D	evice Pack	User's Manual
		Photo		

- 2-3-2. Double-click on the Shepherd.exe to run the program. It will search and list the searched cameras on LAN.
- 2-3-3. Authorize those cameras and select the cameras you want to enable their use in VAST2 by imposing a license.

٩		Authorize	+ E	All devices	C C	amera	NV
Status ^	Model				НТТР	HTTPS	Client
4	IB9380-H	User	name		80		
e.	FE8191	Passy	vord		80		
e.	FD8377-HTV	••••	••••		80	443	
6	IB9367-EH		Apply		80		
8	FD8365-HTV-v2		OPPO		80	443	
•	FD9365-HTV	192.168.4.172	00-02-D1-6E-08-11	0110b_69	80		
8	IP9167-HT	192.168.4.146	00-02-D1-6E-3F-39	0113a	80		
•	IB9365-EHT	192.168.4.152	00-02-D1-72-9A-EB	0110b_69	80		
8	IB9391-EHT	192.168.4.167	00-02-D1-74-A3-43	0110b_69	80		
	FD9187-HT	192.168.4.165	00-02-D1-75-02-9F	0107e	80		
8	FE9180-H	192.168.4.173	00-02-D1-7D-DB-E3	0113a	80		
•	IT9389-HT	192.168.4.107	00-02-D1-7E-15-24	0110e	80		
٩	TROSAS_HT	107 169 / 171	00.07.01.7E.3E.88	0110h 60	20		

2-3-4. Make sure the selected cameras have been successfully authorized, click on the "Export device list and debug report" button. Multipe camera entries can be simultaneously selected.

Soorob with	IB mana						
Search with	1P range						
٩		A	+ 🖻	All devices		amera .	N
Status ^	Model	IP	MAC	Firmware	HTTP	HTTPS	Clie
4	IB9380-H	192.168.4.140	00-02-D1-83-A5-22	0100h	80		
€ γ	FE8191	192.168.4.168	00-02-D1-32-39-51	0103a	80		
E.	FD8377-HTV	192.168.4.128	00-02-D1-5C-58-84	0104e	80	443	
e.	IB9367-EH	192.168.4.179	00-02-D1-70-33-43	0101c	80		
8	FD8365-HTV-v2	192.168.4.222	00-02-D1-62-89-BE	0119a_88	80	443	
	FD9365-HTV	192.168.4.172	00-02-D1-6E-08-11	0110b_69	80		
•	IP9167-HT	192.168.4.146	00-02-D1-6E-3F-39	0113a	80		
•	IB9365-EHT	192.168.4.152	00-02-D1-72-9A-EB	0110b_69	80		
•	IB9391-EHT	192.168.4.167	00-02-D1-74-A3-43	0110b_69	80		
•	FD9187-HT	192.168.4.165	00-02-D1-75-02-9F	0107e	80		
	FE9180-H	192.168.4.173	00-02-D1-7D-DB-E3	0113a	80		
	IT9389-HT	192.168.4.107	00-02-D1-7E-15-24	0110e	80		
Δ	TROZES_HT	102 169 4 171	00.02.01.7E.2E.00	01106 60	20		

2-3-5. Click the Export now button.



2-3-6. The exported contents will be stored as a csv file with the MAC information. Please send this csv file back to your sales representative, distributor, or VIVOTEK.

3. Send the Following Request Files & MAC Addresses to VIVOTEK

- 3-1. Generate the request file from a VAST running on a virtual machine. If the request is not generated from a VAST instance on a virtual machine, then an error will occur while updating the MAC licenses.
- 3-2. Send the MAC addresses of the cameras you want to insert. The file names should look like: VAST2Generated_MACList.txt, or shepherd csv.



4. How to Import MAC licenses to VAST2

When you acquired the MAC licenses, you can import the licenses to VAST2 using the LiveClient application. You can check the MAC status on the VAST1 server, because VAST2 does not

have information for MAC licenses yet.

- 4-1. Go to LiveClient > Help > license > Import license.
- 4-2. Select the license file.
- 4-3. The License management page will display the message of a successful import. The number of purchased licenses will still be displayed.

	Expor	t license		
	# VIVOTEK cameras	# Onvif camera: Advance Package	Purchased licenses	
Status Site name				
Status Site name	0	Eurchased Dackage	. V	

5. How to Buy More MAC Licenses for Future Distribution?

Chances are users may find it troublesome when their camera deployment expands, and need to purchase more new camera licenses. Assuming that you have 100 cameras, you may only need to buy 68 more MAC licenses because 32 of them are free. You can purchase 100 MAC licenses since you already have those cameras' MAC address, and use the 32 free licenses as backup.

In the event of camera break-down, the replacement camera needs to be activated using another MAC license.

To update MAC licenses for VAST running on virtual machines:

- 1. Export VAST2 license request from on the virtual machine (VMWare, Hyper-V, etc.)
- 2. Go to VAST2 license page.
- 3. Use the Hotkey combination, Ctrl + Shift + Alt + M.
- 4. Go to the download destination folder to open the MAC file, VAST2Generated_MACList.txt. Copy all MAC addresses. See previous discussion.
- 5. Contact your sales representatives for the purchase process.
- * MAC license is now not tied to PC hardware components and changes to hardware components will not affect the validity of licenses.

Reminders for VAST Software License

Limitations:

- The Batch import/export function applies when a managing VAST server needs to collect and update the licensing information from subordinate VAST substations and itself. An enterprise may have a central management server and several VAST instances running in branch offices. In that case, the substations will be listed on the device list, and may not be displayed on a hierarchical structure.
- 2. The batch download/import function only takes effect on a VAST instance running on server, not on the Linux-based NVR.
- 3. The trial channels on VAST substations will not be available for use on a managing VAST server (one that manages multiple substations).
- 4. If you access a VAST deployment via a web console, the license related information will not be available.
- 5. In this revision, an identical software license applies to both VIVOTEK and other-brand cameras (ONVIF). You do not need to activate two different kinds of software licenses.
- 6. The Batch export update of the current license profile is supported.
- The licensing mechanism does not apply to machines running Virtualized OSes (VMWare, VirtualBox, Hyper-V, Parallels), either through an upgrade or generating software license on a new installation.
- 8. If the VAST server is removed and then re-installed, the number of licensed channels remains intact.
- 9. If users plan to integrate the software licenses from previous dongle licenses, problems may occur if users changed the exported license file name.

Chapter 4 Settings: 4-1. Settings > System > Preferences

The Preferences page for VAST client and Station sides allows you to configure the following:

Client Setting:

- 1. Select the UI text language.
- 2. Configure a default destination for exporting video, snapshots, or configuration backups. The default is "C:\Users\Public\Documents\VIVOTEK Inc\VAST\Downloads". You can change the media format via the checkboxes.
- 3. Select the format for the snapshot as either JPG or PNG.
- 4. You can select the length of the Alarm-triggered videos by specifying pre- and postalarm recordings.
- 5. You can designate the VAST client interface to automatically start once the client computer is started.

VAST2	\$	+ CPU 6% MIM 69% 🏭 🌲	\$ - 16 ×
🔊 Settings		System management	
Clent Clent Satton		Language Export Location C:/Users/Public/Documents/ Snapshot format O JPG PNS Additional video before alarm trigger 1 mins (1-10) Additional video after alarm trigger 5 mins (1-60)	
		On startup Start application on system startup Open set of pages Screen display 2 1 View View 2 View View 2 View View 2 Cancel	

5. The default Live view, which may span across multiple monitor screens and display Live view, Tour, Dashboard, E-Map, or Alarm prompts. The precondition is that you should configure one or many views before making the Startup configuration.

Below is a server/client with dual monitors, you can select one view to be displayed on one monitor, or place an E-Map on another. Up to 8 monitors can be configured.

Click the Apply button for the configuration to take effect.

On startup							
Start application or	system startup						
Open set of pages							
Screen display		Screen 1	View	Ŧ	Select one view	Ŧ	
1	2	Screen 2	Emap	*	Select one map	*	
		0					

Station Setting:

- 1. Alarm Reservation time: Configure the preservation time of the alarms and logs. Note that some alarms can be triggered with recorded videos. Configuring a preservation time can help reduce the use of storage space on server.
- 2. Log: Use the menu to configure the preservation time of the Major, Normal, or Minor logs.
- 3. Bookmark: Configure the days of preservation for bookmarks.
- 4. Trend Micro events: Configure the days of preservation for events related to cyber security.
- 5. Database: Configure the destination of the database folder. The database contains information for system log, alarms, Bookmarks, data magnet, VCA reports, POS transaction data, snapshots, and Trend Micro IoT security information.

4-2. Settings > Device > Cameras

In addition to the add device process during the initial setup, you can add more cameras or arrange the device list in Settings > Cameras.

Below are the locations of the functions for adding devices to the VAST server.

Settings	e [Camera management
	Start Scanning	Refresh Authorize Manual Add
Cameras	Q Search device(s) Edit device list & Logical folders	Q IP, MAC, Port, Model, Brand(onvil/vvtk) Authorize Import CSV
Recording options Sites	 VMS_Station Site1 SD9366-EHL VMS_Station SD9366-EHL VMS_Station SD9366-EHL CD8371-HNVF2 FD8177-H 	Status IP - MAC Port Model Brand Image: Status 192.168.6.107 00-02-D1-20-1A-BC 80 ProCam v1.0 Image: Status Image: Stat
I/O I/O Box	 "custom_modelname" "custom_modelname" CD8371-HNVF2 DCS-5615 FD8177-H 	Sync time w/ VAST - or - Sync w/ another NTP server Synchronize camera time with system

Note that you must know the credentials for password-protected cameras. You will not be allowed to enlist cameras that come with unknown credentials.

For cameras outside the local network, you can manually enter its IP address, or use a preconfigured device list to automatically introduce new devices.

If all devices come with the same credentials, you can select these devices and click Authorize to enter the credentials.

Retrieve RTSP streaming on specific port: The default port for RTSP streaming is 554. If you want to change this port, please check this item and fill in a desired port number.

Streaming URL

This is an optional feature. You can enter a camera's IP address to add a camera's RTSP streaming for live view and recording, and playback.

To insert a camera using the URL-like command,

1. Select the camera Brand as "RTSP."



- 2. Enter the camera's IP address.
- 3. Enter the camera's MAC address as printed on the camera label, or one found by the Shepherd utility.
- 4. Enter "554" in the Configuration port.
- 5. Enter "live.sdp" in the URL field, as this is part of the original RTSP streaming command: "rtsp://172.18.204.58:554/live.sdp". If streaming stream #2, enter live2.sdp.
- 6. Select a preferred protocol.

Note that the free 32 channel licenses does not apply when inserting a camera using the URL command. Only the live view, recording, and playback functions are supported if thus connected. All other functions are not supported, such as auto streaming size or changing to another video stream. Neither are camera DI/DO supported.

6. For administrators who need to synchronize device time with a NTP server, he can deselect the "Synchronize camera time with system" checkbox.
4-3. Logical Folders

The Logical Folders allow you to re-define the logical relationships between the real-world deployment and the physical devices (cameras). For example, according to your deployments, you can designate several cameras to be listed under a logical sub-directory named as "Building A," and the other cameras into "Building B." In this way, you can re-arrange your cameras and devices on a tree view that is geographically more accurate.



To create logical folders,

- 1. On the Settings > Cameras page, click the Edit 🖉 button.
- 2. Click on the Add a folder button.
- 3. Enter a name for the folder, e.g., 1st floor, 2nd floor,... according to your needs as shown below.
- 4. Repeat the process to create more folders.
- 5. Make sure you enlisted all cameras in your deployment. You can start moving cameras to specific folders. Click on the Move Selected Items button.

VIVOTEK - A Leading Provider of Multimedia Communication Solutions

Settings	3	
	•••	 Q Search device(s) +→→ →→ →→<
Cameras	Q, Sav device(s) +2 ⇒2 Done	■ — 50507.11112
Recording options	Add a folder VMS_Station 1st floor	"custom_modelname"
Sites	2nd floor	CD8371-HNVF2
POS	VMS_Station	С 🛒 FD8177-H
I/O I/O Box	■ ➡ FD8177-H	 ✓ ➡ FD9171-HT ■ ➡ FE9182-H

6. Select a logical folder to move the devices to. The selected devices will be listed under the logical folder you selected. Repeat the process to move cameras to each logical folder.

Q Search device(s)	Q Search device(s)
• Done	
 VMS_Station 1st floor 	 *custom_modelna *custom_modelna CD8371-HNVF2
and floor	DCS-5615
3rd floor	FD8367
VMS_Station	2nd floor
VMS_Station	🔲 👕 3rd floor
	VMS_Station

You can also use the add device button to select devices from the list and move them to a specific folder.



Return to live view, and you can see the configuration change takes effect.



4-4. Settings > Recording > Recording Options

Click Settings > Recording options. The Recording options window will prompt.

You can configure recording schedules or select the storage options, including the configuration of an external NAS storage.

VAST2	\$	18			III 🐥 🏟 – ™ ×
🔊 Settings			Recording options		
Recording options	/MS_Station	D	Archive name DefaultGroup Site VMS_Station 190.79 GB available of 916.15 GB	1	Recycle Options
Backup Failover			D.vrecording		
			2 cameras Select cameras	e	Seamless recording
			All cameras	•	
			SD9361-EHL 192.168.4.169 1 • Continu	ous 👻	
					Apply Cancel

Click on any of the options on the Schedule panel for a recording option: Continuous recordings, Events only, None, or Customize.

 Submitted
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You can manually create a recording template using the New template + New template button.

Click and hold down on the time cells, and drag the mouse to include the time span of your preferrence. The minimum selectable unit is half an hour. You can select multiple time spans on the template. Enter a name for the template, and click Add to save your template.

The same configuraion window apply to both the Schedule template and the customize schedule windows.

Make sure a Schedule mode is selected when you leave this configuration step.

4-5. Settings > Recording > Backup

The Backup function allows you to regularly back up the video recordings of one or multiple cameras to local hard disks or a Network Attached Storage device. Currently, the VAST2 server does not support backup to external storage devices such as a storage devices connected via Fibre Channel. VAST supports backup to an external storage attached through a USB 3.0 connection.

Note that the alarms associated with individual cameras will not be backed up.

VAST (OD)	# CPU 16% NEW 76%	₩ ♣ ≈	t – n ×
að Settings	Backup		
Recording options	Enable backup		
Backup	Storage + New storage		
Failover	Select backup cameras		
	Schedule Not in Working Hours		
	Options		
	1M 100 M 30 Broken from: 2 days and 3		
	Delete old backups if there's not enough storage available	Gancel	ļ

To enable a backup schedule,

- 1. Enable the backup by selecting the "Enable backup" slide switch.
- 2. Click to add New storage. A configuration window will prompt showing all accessible storage. Click the NAS tab to enable access to a network share.



3. Select the cameras whose videos will be backed up.



4. Select or configure a new schedule template for the backup process to take place. You can select a time when the network load is low, such as the off-office hours, to avoid network congestions.



5. On the Options pane, you can configure an upper bandwidth threshold (in Megabytes) for the backup operation (for all selected cameras/channels).

You can select the extension of time, such as starting from how many days ago, of your backup task. You can select to remove old backups when you run short of storage volume.

Options						
Upload limits:	Enable					
	1M 10	00 M 30				
Backup from:	2 days ago	,	•			
🔽 Delete old	backups if there's	not enou	gh storage	e available		
						Cancel

Storage

By default, VAST will check there is a D: drive. If not system drive C: will still be defined as the first storage option. Other disk drives in the system, and the default storage volume (configured in the initial setup) will be listed.

You can add a NAS storage's share volume as the additional storage option. Enter the necessary information for access to a network share. Enter and select a NAS path. The share will then be available for video recording.

	×			×
New NAS storage		Sele	ct NAS path	
192.168.6.117		-	False_NAS	
Host			Users	
User name				
Password				
Connect	Cancel		Select	Cancel

Select storage volumes each by a single click.

Click **Ready to use** to continue.

4-6. Settings > Device > Sites

The VAST2 allows a deployment consisting of multiple VAST instances at different sites. A VAST server can be selected as the CMS (Central Management Server) to manage sub-stations in a hierarchical structure.

Each individual VAST station manages its own surveillance deployments. To build a hierarchy, proceed with the following:

- 1. Open the VAST 2 client on a sub-station.
- 2. Enter Settings > Sites.
- 3. Enter a TCP Port number if your network configuration requires a different port.
- 4. Select Allow CMS to access this site.
- 5. Click Change password. This password will be used to authenticate the connection between a CMS VAST server and sub-stations.

VAST	•	•	CP9 16% MLY 76% 🖽 单 🕸 - Fa 🤉	ж ्रे
🔊 Settings	a.		Site management	
Cameras Cameras Recording options Sites Sites POS I/O I/O Box	Image: Control of the second seco	N P N C	Fame VMS_Station Not 3443 SSL.only SSL.only Added VAST CMS Allow CMS to access this site Image password Epi CMS connection only Epi CMS Apply	

- 6. Click the Apply button.
- 7. Open the VAST 2 client on the server chosen as the CMS.
- 8. Click the Add sites 💷 button.

9. You can click the Search button if the sub-station is reacheable in a local network, or manually enter the IP address, and password for making the connection.

IP/Domain name]	
Port	3443	SSL only

10. Enter the password you configured for the Sites configuration, and then click the Authorize button.

¢ Settings Add 1 sites 🔍 Q Sites MS_Station B Status Name ▲ IP Port Model 443 192.168.4.169 ND9322P ND9322P 192,168,4,191 443 ND9322P ND9322P 1/0 C..... 4

Click the Apply button for the configuration to take effect.

The sub-stations and its subordinate devices should be immediately listed under the CMS station. You can create separate views to place the sub-stations' cameras.

🔻 VAST	@ [[
Device Group	View
Q. Search device(s)	
 WMS_Station WMS_Station 	
🔻 👕 VMS_Station	
CD8371-HNVF2	
 custom_modelname* CD8371-HNVF2 	
🧮 FD8177-H	
₩ FD8377-HV	

When you want to enlist an NVR into your configuration, please remember to enable the access from VAST server in the NVR's Service page.

The connection between VAST and NVR is made via encrypted https.

If the connection port is changed to a non-SSL port, the access from VAST to NVR will fail. For adding the ND series NVR, use port 443.

Y	IV©TEK	•	r 🔅	_	14:57	06/25/2019	43	● admin (Log out)
	Overview		Sonico por	+				
-	Camera		HTTP	80				
			HTTPS	443				
	Alarm		RTSP	554				
	System		CMS & iVie	wer				
	User		Allow ac	cess				
			Port	VAST & iViewer	3454			
	Storage			VAST2 (same as HTTPS)	443			
٢	Network	IP	CMS	Set up password for VAST & VAST2				
	Applications	DDNS		Confirm password				
i	Information	Service		VAST2 remote connection				

4-7. Settings > Device > POS

To connect a POS machine, make sure the POS machine is connected to the local network. Click

on the Add POS 💷 button.

- 1. Enter a device name, such as POS on the 1st floor counter.
- Select the POS brand name. Currently VAST2 supports Lafresh, POSNET, Gulfcoast(POS Gateway).
- 3. Enter the IP address assigned to the machine.
- 4. Enter the TCP port number utilized by the POS machine for network connection
- 5. Select a related camera whose video feed will be used to display POS transaction data. This is the camera which covers the customers and cashier.
- 6. Enter specific item name or a total amount exceeding a high threshold, such as using >100 as a threshold. You can enter multiple highlight conditions using the add button below. The highlighted entries will be displayed in bright font colors on screen.

VAST2		\$			CPU	Add a PO	s		
🔊 Settings			POS m	nanagemen	t				
						Device name			
						Brand	LaFresh	•	
_	Q Search	devices				IP			
Cameras						Port			
Sites						Related came	ra FE9381-EHSV	•	
E						Highlight text	of transaction details on L	ive	
POS						Press "Enter" fo	r each logword		
I/O						All	• e g >100, blue per		
DI/DO devices						All	▼ e.g. >100, blue per		0
C.						All	• e.g.>100, blue pen		0
Data magnet						All	_		
4						Item name			
External devices						Total			

4-8. Settings > Device > Local DB

Since some of VIVOTEK's NVRs runs on Linux, you have to install the Ext2 File System Driver for Windows to access the recording files from a NVR hard disk.

The file system driver can be found here: https://sourceforge.net/projects/ext2fsd/?source=typ_

redirect

Run and install the Ext2fsd-0.xx.exe. Follow the onscreen instructions to complete the installation.







Maluma	Turne	Tile unitere	Tatal day	معند اسما ا	Codenana	Discriminal actions
Voiume	Type	File system	i otai size	Usea size	Lodepage	Prhysical object
~	Basic	RAW	128 MB	128 MB		\Device\HarddiskVolume1
\$	Basic	FAT32	99 MB	99 MB		\Device\HarddiskVolume2
🥯 (C:)	Basic	NTFS	916 GB	916 GB		\Device\HarddiskVolume3
\$	Basic	NTFS	499 MB	499 MB		\Device\HarddiskVolume4
🥯 (D:)	Basic	NTFS	916 GB	916 GB		\Device\HarddiskVolumeE
9	Basic	NTFS	29 GB	29 GB		\Device\HarddiskVolumeE
\$	Basic	RAW	128 MB	128 MB		\Device\HarddiskVolume7
ം രി	Basic	NTES	1862 GB	1862 GB		\Device\HarddiskVolume8
•			III			•
	Туре	File system	Total size	Used size	Codepage	Partition type
DISK 0						
	Basic	BAW	128 MB	128 MB		GPT
	Basic	FAT32	99 MB	99 MB		GPT
(C:)	Basic	NTFS	916 GB	916 GB		GPT
	Basic	NTFS	499 MB	499 MB		GPT
(D:)	Basic	NTFS	916 GB	916 GB		GPT
	Basic	NTFS	29 GB	29 GB		GPT
DISK 1						
	Basic	RAW	128 MB	128 MB		Microsoft reserved partiti
(C-)	Dania	NTEC	1962 GB	1862 GB		Basic data partition

- 1. Remove the disk tray box from a mobile NVR.
- 2. Connect the disk tray box to your VAST server using a USB 3.0 type A to Micro B cable.



- 3. From VAST, enter **Settings > Device > Locabl DB**.
- 4. There are 3 import types:
 - 1. **NVR disk**: the drive tray box removed from a mobile NVR.

2. **NVR backup**: the recorded videos exported from an NVR using a USB thumb disk or portable drive.

3. **VAST backup**: scheduled backup from the local machine. They include: VAST backups from previous software releases, and scheduled backups.

VAST2	\$ +		cru 13% млм 75% 🏭 🌲 🏟 – 🙃 ×
🔊 Settings		Recording management	
Eccording options Backup Falover	Image: Compare to the compar	Add local DB	Image: Second

- 5. Taking a mobile NVR's disk drive as an example, click the 🔎 Source select button to locate the disk drive.
- 6. The NVR will be mounted as a local DB.



7. A Local DB sub-tree will be listed under your server, and you can view the existing recordings on the NVR's disk drive.



4-9. Settings > System > SMTP

Configure a mail server via which the system alarms or notifications can be delivered to a receiver.

Enter the Settings page, select SMTP. Click on the Add SMTP button.

Enter your mail server's domain name or IP address. Enter credentials for access to the mail service.

If SSL encrypted transmission is preferred, select its checkbox.

Click Add to complete the configuration.

4-10. Settings > IO Box and Related Configuration

Please refer to page 129 for information.

4-11. Settings > User Management

The User Add & Delete page allows you to create users with the permissions for different operational capabilities.

To specify the authorized privileges, select Customize in the Role menu, then select the Permissions and/or the Accessible devices tabbed menus.

🔊 Settings		Add & Delete
C Search users	New user	
admin admin vivotek.tw\eric.lu	User name	operator AD account
	Password Confirm password	•••••
	Role	Administrator Administrator Customize
		Add Cancel

Use the Customize option to limit the authorized actions of a user.

In the Permissions tab, click the expand button 🕨 to unfold the Operation and Configuration menus. Select or deselect the checkboxes to

configure the user privileges. For example, you may not want

a user to operate Alarm and E-Map. If so,

deselect these checkboxes.



In the Accessible devices tab, click to select the cameras that a user can access. Some users may only need to access specific devices.



When done with the privilege settings, click Add to create a new user.

The new users will be listed under the Administrator's icon. Repeat the process to create more users.

Add a New User Account - Windows AD Account

In an established, enterprise network environment, the support for Windows AD (Active Directory) infrastructure enables ease of integration using the credentials of existing users. Using the same AD authentication methodologies, you can configure the clients or users in an established network to access the VAST server configuration.

Note the following with Windows AD support:

- 1. If you install VAST server on a Windows XP machine with Postqre SQL server, the login using a Windows AD account will not work.
- 2. The VAST server must reside in a domain managed by the AD server.
- 3. This function does not support the environment that spans across multiple AD domains.
- 4. A user account hosted by an AD server cannot be modified in VAST.
- 5. A User Group and its members configured in AD cannot be managed in VAST.
- 6. You cannot add an account having the same name as one you used to log in VAST.
- 7. There are 3 types of account for VAST: VIVOTEK account, AD single user, AD group.
- 8. The userPrincipalName of your Windows AD account can be different from the sAMAccountName. However, You can only use the sAMAccountName to login VAST 2.
- 9. The userPrincipalName field of your Windows AD account should not be empty.

To add an existing AD user,

1. Select the AD account checkbox.

🔻 VAST 💿	\$ +	
🔊 Settings		Add & Delete
 email of the email of		New user User name wvotek.twl/fank.chang AD account AD account AD account Confirm password Role Administrator To administrator An administrator has all permissions and is allowed to access all devices Add
	0	

2. Click the Search **button**.

3. Enter a user name or group name to search, e.g., Frank. Click OK when done.

	Select Use	r or Group	(?	×	
elect this object type:					
Jser, Group, or Built-in s	ecurity principal		Object Types		
rom this location:					
ericthegreat 123.com			Locations		
nter the object name to	select (examples):				
admin			Check Names		
				_	
Advanced		OK	Cancel		
	Mu	Itiple Names Fo	und		
lore than one object ma sject from this list or, to r Matching names:	Mu tches the following ob reenter the name, click	Itiple Names Fo ject name: "admin". S k Cancel.	und elect an		
lore than one object ma oject from this list or, to r Matching names: Name	Mu tches the following ob reenter the name, click Logon Name (pr	I <mark>ltiple Names Fo</mark> iject name: "admin". S k Cancel. E-Mail Address	elect an Description Put in account f	In Folder	
lore than one object ma oject from this list or, to r Matching names: Name Administrator	Mu tches the following ob reenter the name, clici Logon Name (pr Administrator Administrators	Itiple Names Fo ject name: "admin", S c Cancel. E-Mail Address	und elect an Description Built-in account f	In Folder encthegreat 123 ericthegreat 123	
lore than one object ma oject from this list or, to r Matching names: Name Administrator Administrators	Mu tches the following ob reenter the name, clici Logon Name (pr Administrator Administrators	Itiple Names Fo ject name: "admin". S < Cancel. E-Mail Address	und elect an Description Built-in account f	In Folder encthegreat 123 ericthegreat 123	
lore than one object ma oject from this list or, to r Matching names: Name Administrator	Mu tches the following ob reenter the name, clici Logon Name (pr Administrator Administrator	Itiple Names Fo ject name: "admin". S < Cancel. E-Mail Address	und elect an Description Built-in account f	In Folder encthegreat 123 ericthegreat 123	
lore than one object ma oject from this list or, to r Matching names: Name Administrator	Mu tches the following ob reenter the name, clici Logon Name (pr Administrator Administrator	Itiple Names Fo ject name: "admin". S < Cancel. E-Mail Address	und elect an Description Built-in account f	In Folder ericthegreat 123 ericthegreat 123	
lore than one object ma oject from this list or, to r Matching names: Name Administrator	Mu tches the following ob reenter the name, clici Logon Name (pr Administrator Administrator	Itiple Names Fo ject name: "admin". S < Cancel. E-Mail Address	und elect an Description Built-in account f	In Folder ericthegreat 123 ericthegreat 123	
lore than one object ma oject from this list or, to r Matching names: Name Administrator	Mu tches the following ob eenter the name, clicd Logon Name (pr Administrator Administrator	Itiple Names Fo ject name: "admin". S k Cancel. E-Mail Address	und elect an Description Built-in account f	In Folder ericthegreat 123 ericthegreat 123	

- 4. Enter the password twice for the AD user.
- 5. Select the privilege role for the user, configure his/her privilege settings as described above and then click Add.

Appendix A: VAST Service Control Tool

VAST service control tool is a tool for server control and for user to be aware of the VAST Server status. It starts up as Windows OS startup.

Under Microsoft Windows, choose "Start > VIVOTEK Inc VAST > VMServiceControl."



You may also find it in the system tray icon of the tool bar, which indicates that the service is running:

It shows a disconnection icon when the service is stopped: 🔎

A menu for the service control tool will pop up when you **right-click** on the icon:



Here you can manually start, stop and restart the service.

Appendix B: Matrix

The virtual matrix feature enables the display of any cameras on any monitors in an IP surveillance network. Combinations of live or playback streams can be displayed simultaneously. In addition of pre-configured live views, E-maps, Google maps, and Alarm panes can all be placed on a remote matrix. Users gain realtime awareness of scenes and access to past events.



Prerequisites:

- 1. One VAST2 server and another computer running the Matrix client utility.
- 2. The first 2 digits of software revision numbers of VAST server and Matrix client must be the same: e.g., 2.3.x.x and 2.3.x.x.
- 3. Sufficient network bandwidth among network cameras, VAST servers, and Matrix clients.

Configuration procedure:

1. Install the Matrix client utility on a computer equipped with multiple monitors. Follow the onscreen instructions to install the utility.

VIVOTEK Matrix Installation	VIVOTEK Matrix Installation
Choose the folder in which to install the Matrix.	Read this license agreement carefully before YVIVVOTEK installing. V2.1.0.223
Setup will install Matrix in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.	End-User License Agreement PLEASE READ CAREFULLY: This End-User License Agreement ('EULA') is a legal agreement between VIVOTEK Inc. ('VIVOTEK') as
Installation folder C:\Program Files (x86)\VIVOTEK Inc\Matrix Browse	licensor, and you, as licensee, for the VIVOTEK software that accompanies this EULA, which includes remote management software and other applicable software (the "Software"). YOU AGREE TO BE BOUND BY THE TERMS OF THIS EULA BY INSTALLING, COPYING, OR OTHERWISE USING THE SOFTWARE OR CLICKING THE BUTTON MARKED 1 AGREE' OR "YES" BELOW. IF YOU DO NOT AGREE.
Cancel < Back Next >	Cancel
VIVOTEK Matrix Installation	VIVOTEK Matrix Installation
Installing YVVVTEK	Тунопк
<u>v2.1.0.223</u>	<u>v2.1.0.22</u>
Installing Matrix client	♥
36%	Install successfully
Cancel Retry	Cancel Done

2. On the VAST server, create a user account for the Matrix client. Depending on the operation on the client computer, assign the client user with adequate operation privileges.

VAST2	۲	\$ +	
🔊 Settings	1		Add & Delete
C Search users	nt		New user User name Image: AD account Password Confirm password Role Administrator An administrator An administrator has all permissions and is allowed to access all devices

3. Open the Matrix utility, log in to the VAST server address, using the Matrix client account credentials.

Matrix Client		
192.168.5.121	3443	
Matrix_client		
Password		
AD account		
Auto login		

4. From the VAST server, open the Settings > Matrix Management window.

VAST2	۲	\$	+				
		A .				((🌒))	1000
		Device	è	Recording	g	Alarm	User
		Cameras		Recording options	Recording options		Add & Delete
		Sites		Backup			
		POS		Failover			
		Local DB					
		DI/DO devices					
		Data magnet					
		Matrix	¢.				
		Matrix managen	ent				

5. Enter the name of your Matrix client, e.g., Matrix_client in the search pane of the Matrix Management window. Note that the Matrix client must have logged in to establish the connection before the VAST server can find it (as previously described).

VAST2 💿	\$	
🔊 Settings		Matrix management
Q Search users or computers	>	All

6. Once the VAST server found the Matrix client, the available monitors will be listed. Click and drag the pre-configured Views, Tour, Dashboard, E-maps, or Alarm panel to any of the monitors.

VAST2 💿	🌣 🖂 I +	CPU 8% MEM 29% 🛛 🏭 🌻	- • ×
🔊 Settings	Matrix mana	agement	
Q Search users or con ✓ admin 	All Drag the following feature View Dashboard E-M View Tour Name Dashboard Goo	es to your displays ap Alarm E = = = = = = = = = = = = = = = = = =	Reset all
		JL	

7. The views should immediately appear on the Matrix monitors.

8. If you need to log out, move your mouse cursor to the top of the Matrix client screen to end the session.



If necessary, change your client settings. Here you can change the displayed language, Export target folder, Start-up option, and the streaming connection options.

	Settings	×
System preference		
	English +	
	Export Location C/Users/Public/Documents/ T Snapshot format O JPG PNG	
	On startup Start application on system startup	
	Substation streaming connection CMS Relay Direct link	

Appendix C: Joystick Support

Configurable joystick buttons

- 1. Connect the joystick's USB cable between the USB ports on the joystick and a VAST server/ client.
- 2. Once connected, you should be prompted by a connection message.



- 3. Enter Settings > Device > External devices.
- 4. Single-click to select the detected joystick. The configurable buttons will be listed. Click ► to expand the Live, Playback and Common menus.

VAST2	۲	\$	Ļ	1 🖂	- I - G		CPU 12% MEM 34%	I III ♠	¢	
🔊 Settings					External	devices				
Cameras Cameras Sites POS I/O DI/DO devices Cameras		3D Joystick Keyb	board		Assign Select on Clive Live Play	joystick buttons e of the actions belo is e of the actions belo is Parcus Pan Stop Patrol Patrol Preset ESC ESC Rewind Pause Play Speed up	S w and press a Joystick button to a Buttons Button 3 Button 3 Button 1 Button 2 Button 7 Button 7 Button 7 Button 23 Button 23 Button 25 Button 26	assign to	Cancel	II)

5. To assign or re-assign a button's function, single-click on the button number besides a

function. Click the Delete 💿 button. The below message will display.

Stop

Press a joystick button

Press a preferred button on your joystick to complete the setting.

If a button conflict occurs, (another function has already been assigned to the same button), the below message will prompt. You can Cancel or click Apply to change the assignment.



Repeat the above process and click the **Apply** button to preserve your settings.

VIVOTEK's joysticks

The AJ-002 is a USB joystick with HID 3-axis PTZ control, a twist wheel for zoom in/zoom out, and 29 configurable function buttons for use on a VAST server station.

Following are the conditions for making the connection:

- 1. The joystick can either be powered by a DC 12V adaptor or via the USB. If powered by USB, plug the USB cable twice to the USB port to enable USB power.
- 2. Connect the included USB cable between the USB ports on the joystick and a VAST server.



- 1. Avoid spilling water onto the device. Avoid using this device in a high-moisture environment.
- 2. This device should be operated in the indoor environment.
- 3. When the temperature is lower than -10°C, the LCD panel may not function normally.
- 4. If the included power adapter should be replaced, use a 9-15V/1000mA alternative.
- 5. Avoid impact to the device.
- 6. This product is manufactured to comply with the requirements of the following directives: 89/336/EEC, 92/31/EEC, 93/68/EEC.

KEYPAD DEFINITION

Below is the keypad numbering sequence:



The following keypad functions will be available as the defaults for the joystick.

1	Pan	9	#1	17	#9	25	Pause
2	Patrol	10	#2	18	Cancel/Clear/Esc	26	Play (Playback)
3	Stop	11	#3	19	#0	27	Speed Up
4	Home	12	#4	20	Enter	28	Speed Down
5	Focus Near	13	#5	21	Full Screen		
6	Focus Far	14	#6	22	Manual recording		
7	Snapshot	15	#7	23	Change Layout		
8	Preset	16	#8	24	Rewind		

When a joystick is connected, the VAST server should automatically detect the connection.



The following controls are available:

- * PTZ control Basic PTZ control: Direction, Home, Zoom in/out, and Focus near/far.
- * Playback control Play, Pause, Stop, Rewind, Speed up and Slow down.
- * View switch Switch to existing View (Users need to create views first).

Left-click to select your server on the device tree, and right-click to display and select the "**Show joystick key number.**" The camera key numbers are determined by the sequence when the cameras were added to the VAST configuration, and cannot be changed. By default, the key numbers are not shown.

Press the key number on the joystick keypad and the Enter key -1, e.g., 5 + -1. The full view of the selected camera will display.



Press the ESC key to leave the full view.

To move to a preset position, press the number key + Preset, and the Enter key - . The number key corresponds to the sequence number for the preset position regardless of the name of the preset.

Note that the RS232/485 terminal connection is currently not supported.

Note that the Manual Recording button is currently not effective.

If you have multiple views, press the number key and the Change Layout, and the Enter key to switch to a different view. The number key corresponds to the sequence number for the view you configured regardless of the name of the view (layout).

The Play button toggles the playback window. From here you can trace back the past recordings. You can use speed up, slow down, and rewind buttons here. Once the Playback mode is toggled, the point-in-time defaults to the start of the current hour.



Appendix D: Upload Device Pack

A device pack is contantly updated for the latest profiles of VIVOTEK's new camera/NVR models. If you install new cameras/NVRs to your configuration, you can visit VIVOTEK's website for the latest device pack updates, and upload the pack file to your VAST server. New functional parameters and functions in the new cameras are available through the device pack.



Enter Settings > About to see the upload button.

A device pack file looks like the following.

		• Decision •		Saarah Dasktan		0
· · · · · · · · · · · · · · ·	IS PC	> Desktop >	V 0	Search Desktop		þ
Organize 👻 New folde	er				EE 🔹 🛄	?
PIM ^	N	ame	D	ate modified	Туре	
VAST 2.3 annour		1.12.7.1	9	/13/2018 3:36 PM	File folder	
ConeDrive		Nr9x81	9	/17/2018 2:15 PM	File folder	
		NR9x82	9	/17/2018 2:16 PM	File folder	
This PC	24	PicPick 5.0 Portable BY GDaily	6	/24/2018 11:10 PM	File folder	
3D Objects		VAST 2.3 announcement	9	/17/2018 2:01 PM	File folder	
E Desktop		device_pack-5.9.200.vdp	9	/17/2018 3:50 PM	VDP File	
Documents		Product	9	/12/2018 2:42 PM	Shortcut	
Downloads						
Music						
E Pictures						
Videos						
🚣 Acer (C:) 🗸 🗸	<					
File n	ame:	device pack-5.9.200.vdp	~	Device Pack (*.	vdp)	~
					100 B B B B B B B B B B B B B B B B B B	
Appendix E Database Merge Function

The Database Merge function applies in the following scenario:

1. A VAST server A failed or was intentionally depleted. The precondition is that the disk drives containing the recordings remain intact. Server B must also have the configuration profile of the Server A.



2. The VAST server B is used to continue video recording. The previous recordings on server A can be retrieved by attaching the hard disk(s) to server B or manually copying to a storage device on server B. You can then designate the location of these files as the "Recovery path" from server B. An administrator can then use the VAST software to access the past recordings.



- It is **IMPORTANT** to move or copy the entire storage group folder, e.g., D:/recording/2016-06-17/1-FE9181-H..., which is a root directory configured by VAST server as the recording folder. The default recording folder contains file folder structure, video files, and database metadata. If you copy the video files only, the database data will not be synchronized, and you will not be able to access the recordings.
- The video streams received from cameras will not be recorded on to the Recovery path folder. It is designed to maintain previous recordings. The Recovery path folder becomes static.



 It is also a good habit to export and preserve your VAST system configuration to prevent losses in the event of system failure. In case you want to migrate or upgrade your VAST server, you can use the Import-Export utility to duplicate your VAST configuration to another server. Copy the configuration file and import the configuration from another VAST server.





218 - User's Manual

When the file folder is ready for server B, designate the location of recovered files from another VAST server, go to Settings > Recording management > Recording options.

Select the recording folder that contains the recordings from the counterpart VAST server. Select the **Restore recordings from this path** checkbox and click **Add**.

VAST2	@ \$\$ +			🖩 🌲 🏟 🛛 – 🖻 ×
🔊 Settings	1	Recording mana	gement	
Recording options	VMS_Station	Archive name DefaultGroup Server	Site VMS_Station	i
Backup Failover Local DB	DefaultGroup	Select a folder	C:/ 42.29 GB available of 136.6 GB	Recycle Options
			Restore recordings from this path	Seamless recc

The Local Database you incorporated will be listed on the device tree, which is separated from your current deployment. There are two different scenarios"

1. Using Recovery path:

Server B incorporated Server A configuration file, selected Recording options and the "Restore recordings from this path" option. The device tree will look similar to the original VAST server A configuration.

2. Using Local DB:

A Local DB sub-folder will appear on the device tree. Click to select the cameras in the sub-folder to access the past recordings. The recordings in the Local DB is only accessible from the computer which has a copy of the Local DB.

For system backup options, refer to page 196.

Appendix F: Using LPR Related Functions w/ Data Magnet

Acquiring data sources from 3rd-party software:

1. Select a camera that comes with the LPR (License Plate Recognition) functionality, e.g., IB9387-LPR as shown below. Click "More settings on Web" to open a web console to the camera.



2. On the web console, enter **Configuration > Applications > Package management**. Click on ANPR to open a web console to the license plate recognition software.

		Home Clie	ent settings	Config	guration	Language
	Applications > Package mana	gement				
System	Status License					
Media	- Upload package					
Network	Save to SD card Select file	Browse	Upload			
Security						
РТΖ	Resource status CPU Status:					
Event	Storage status:					
Applications	SD card status: Ready					
Motion detection DI and DO Tampering detection	Memory status: Package list					
Audio detection	Package name	Vendor	Version	Status	License	1
Shock detection	O Trend Micro IoT Security	VIVOTEK	1.2b.a1.4.1	Installed	N/A	P 88
Package management	O ANPR	VIVOTEK	2.4.6	ON	N/A	SD 🐹
Recording	Start Stop	Schedule				
Local storage						
Version: 0119a		-				

3. Click on the Lists tab.

	TEK	Live Review Lists L	PR configuration General co	onfiguration	Audit Logs
		- The second and	Atribute	Value	Last Change
	mm and		Results:	9984	12:02:26.809 18/09/2019
122		Second States	Actions:	15201	12:05:19.732 18/09/2019
			Exports:	29	12:00:00.737 17/09/2019
		Service -	Imports:	1462	18:51:22.681 16/08/2019
A. C. Constant and and			Triggers received:	0	00:00:00.000 01/01/2018
The second second	And and a second se		Frames processed:	29216441	12:06:03.522 18/09/2019
Charles and	and the second se	1	FPS:	2	12:05:26.639 18/09/2019
- Andrews		and the second second	SD space free (%):	86	12:06:00.984 18/09/2019
•	The second second	and the second second	Camera space free (%):	66	12:06:00.989 18/09/2019
			Last Size (pixels):	37	12:02:28.082 18/09/2019
			Last OCR time (millis):	701	12:02:28.075 18/09/2019
Show ROI	Show lanes	Calibration pattern	Function mode:	MOTION	12:06:03.525 18/09/2019
5L7640 (Taiwan) 99.16% 24.33px 2019-09-18 11:35:19.087	8817L8 (Taiwan) 94.70% 23.17px 2019-09-18 11:50:29.541	ASE5538 (Taiwan) 81.34% 27.29px 2019-09-18 11:57:05.356	1258RK (Taiwan) 87.46% 26.33px 2019-09-18 12:00:56.316	20	AHX8086 (Taiwan) 80.33% 37.14px 019-09-18 12:02:25.546

4. Select a list whose data will be transmitted to the VAST server.

	VIVOTEK	Live Review	Lists LPR configuration	General configuration Audi	t Logs	
▼ Lis	it types					
				+ D Search		
ID 1	Name					
-2 a	all plates				Edit Delete	
-1 r	not in list				Edit Delete	
1 6	BLACKLIST				Edit Delete	
2 \	WHITELIST				Edit Delete	
▼ Ac	tion for the list: all plates (1)					
ID	Description	Action type	Active			
6	Lori	Socket client	Enabled		Edit Delete	
► Ex	ports for the list: all plates (0)					
				Em		
► Im	ports for the list: all plates (0)					

- 5. 5-1. Find the "Action for the list" pane. Click the "+" Add a row button.
 - 5-2. Enter a short description for the row.
 - 5-3. Select "Socket client" as the action type.
 - 5-4. Click to select **Enabled**.
 - 5-5. Click the **Save** button.

	Live Review Lists LPR configuration General configuration Au	dit Logs
 List types 		
ID Name -2 all plates -1 not in list 1 BLACKLIST 2 WHITELIST ▼ Action for the list: all plates (1)	Socket client Socket server Onvif event IO FTP HTTP MILESTONE WEGAND Trigger server Trigger server	Edit Delete Edit Delete Edit Delete Edit Delete
ID Description 6 Lori	Action type Socket client Active	Edit Delete
 Exports for the list: a enter a short description 2 	Copyright © 2019	

6. Roll down to enter your VAST server's IP address. If necessary, select **XML_IMG** as the file format for your data that will be collected on VAST.

Sc	hedul	er									
ACT	ΓΙVΑΤ	TION SCI	HEDU	LER							
	0:00	1:00 2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00	23:00
Sun											
Mon											
Wed											_
Thu											
Fri											
Sat											
~	Save so	cheduler									
Action	Info						?				
Host:							192.168	.4.166			
Port:							17000			A V	
Format	t						XML	•	XML_I	IMG JSON JSON_IMG	?
											_

 Close the web console and return to the VAST Settings > Device management > Data magnet page.

Click the Add button, and click the License Plate Recognition button.

VAST2	\$ \$ +	CPU 17% MEM 76% 🧮 🦛
🔊 Settings	1	Device management
Cameras Cameras Sites Distes Di/D0 devices Cata magnet	C Search devices	Add a data source × License Plate Recognition Third party data source

NOTE

- 1. The License Plate Recognition data source will not be charged with a Data Magnet license fee.
- 2. The VAST server port for License Plate Recognition data source can be customized; It is not limited to 17000.
- 3. If you have more than one VIVOTEK LPR camera, you only need to (and can only) add a License Plate Recognition data source.
- 4. If you add a 3rd-party data source but you name it as "VIVOTEK ANPR", it will be recognized as a VIVOTEK ANPR (License Plate Recognition) data source.
- 5. Different Data sources cannot have the same name.
- 6. Different 3rd-party data sources can share the same server port, but they cannot use the same port the License Plate Recognition is using.

If you need the development document for integrating 3rd-party software, please contact VIVOTEK's technical support.

You can designate how many days the data from the data sources is retained on server in **Settings > System management > Preferences**.

VAST2	\$ +	cru 11% Max 79% 🗰 🌲	\$ -	ъ×
að Settings	- 1	System management		
License SMTP Preferences Feedback and bugs	Client Station	Alarm Reserve time 60 days(1~365) Log level Normal • Reserve time 60 days(1~365) Bookmark • Reserve time 60 days(1~365)		İ
		Data magnet Reserve time 60 days(1~365) Apply Cancel		

Selecting data display options:

1. On the VAST live view, right-click on screen to display Data Magnet > Edit display data.



2. On the Edit pane, select all or manually select multiple display elements.

Edit display	/ data	×		Edit display data	×
VIVOTEK ANPR All Camera	Plate number: 93MR List name: not in list Timestamp: 2019/08/2 Country: Taiwan Camera: IB9387-LPR	E Cancel	VIVOTEK ANPR	Camera: IB9387-LPR =	

3. Click and drag individual elements to change their top-down positions on the screen. When done, click the **Apply** button.

	Edit display data	×
VIVOTEK ANPR -		
image top image width	93 MR -	
lane name list	List name: not in s∯ ≡ Timestamp: 2019/08/2 ≡	
 list name plate image 	Camera: IB9387-LPR 🛛 🗮	
plate number	Plate number: 93MR 🛛 🗮	
🗹 timestamp		
	Apply Cancel	

Searching for data and linked recordings:

1. On the VAST live view, click on the Applications tab.



2. On the Data Magnet window, select the LPR camera, and then begin with configuring the search conditions. Select the time span from the calendar. Select to display character height, country, data source, identity, image height, lane name, list name, or enter a plate number. You can select multiple filtering conditions.



💙 VAST2 🔊	C ^{in.}	+
VIVOTEK ANPR		•
Select devices		
Q Search devices		
🔻 👕 VMS_Station		
∎ Scrum Room		
∎ Satissian and a set the set of		
■■ FE9191		
MS8391-EV		
■∎ SC8131		
Select time frame		
09/02 12:59 ~ 09/18 12:59 😵		
Search criteria		
confilevel 🔻 90 💿	8	
•		



3. Click the Search button. The search results will display. Single-click to display the related video. You can also review the video in a full-screen mode.

VAST2 💿 🗸	+							
VIVOTEK ANPR	*	10,000+ results						
							Carr	9/18/2019 12:40:27
Select devices	- 11	2019/09/18 12:40:17	4693 QB	4693QB	not in list	Taiwan	192	
		2019/09/18 12:37:11	0228 PT	0228PT	not in list	Taiwan	168 :	
▼		2019/09/18 12:36:31	0228 PT	0228PT	not in list	Taiwan	168:	
■ Scrum Room		2019/09/18 12:33:44	0228 PT	0228PT	not in list	Taiwan		
■• FE9191		2019/09/18 12:31:56	0228 PT	0228PT	not in list	Taiwan		VIVOTEK ANPR
MS8391-EV		2019/09/18 12:31:02	0228 PT	0228PT	not in list	Taiwan		AC02.0D
		2019/09/18 12:25:01	0228 PT	0228PT	not in list	Taiwan		4033 QD
Select time frame		2019/09/18 12:21:37	0228 PT	0228PT	not in list	Taiwan		Plate number: 4693QB
		2019/09/18 12:15:47	0228 PT	0228PT	not in list	Taiwan		Timestamp: 2019/09/18 12:40:17
confilevel 👻 90 💿		2019/09/18 12:11:13	28 PT	28PT	not in list	Taiwan		List name: not in list
€		2019/09/18 12:10:57	28 PT	28PT	not in list	Taiwan		Camera: 192 Parking Lot
		2019/09/18 12:07:16	0228.57	0228PT	not in list	Taiwan		Uata source: VIVOTEK ANPR
	<u> </u>			00 >				
9/18/20	019 12 :-	40 : 27		• II м (L. 9 0 0
	12:36:01	0 12	.:38:00 12:40:00	•	12:42:00		12:44:00	12:46:00

You can click and drag the display names of individual columns to switch their positions on the screen. The changes to layout are stored on the client computer. After you re-arrange the order of columns in search results, the display order will also be applied to the exported CSV file.

VAST2 💿	¢ ^{h.}	+						CPU 10%	MEM 82%	III 🔺 🌣		
VIVOTEK ANPR		•	10,000+ results 👒							i	đ	
			29428									
Select devices		_										
Q Search devices		_										
🔻 🍯 VMS_Station												
I68 Scrum Room												
∎ contraction and a state and			09/02 09	09/05 09/06 09/*	~/08	09/09 09/10 Days						
FE9191						L. Ultra and						
MS8391-EV				Prate image	Plate-number							
■• SC8131			2019/09/18 11:40:33	0228 PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	9.90
			2019/09/18 11:38:25	0228-PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	^{9.90}
Select time frame			2019/09/18 11:37:13	0228PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	9.90
09/02 12:59 ~ 09/18 12:59 😵			2019/09/18 11:36:31	0228 PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	9.90
Search criteria			2019/09/18 11:35:11	0228-PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	9.90
confilevel 👻 90 💿			2019/09/18 11:33:23	5507·J5	5507J5	not in list	Taiwan	192 Parking Lot	VIVOTEK ANPR		99	9.90
Ŭ			2019/09/18 11:32:30	0228 PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	9.90
			2019/09/18 11:31:38	0228-PT	0228PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		99	9.90
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4. You can select and export a license plate capture using the Export function. Click on the export button. A folder button will display. Click on it to access the exported file.

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VIVOTEK ANPR	10,000+ results						≣ Ľ	I 🗹 📄	
Select devices	Timestamp 2019/09/17 20:02:54	Plate image	Plate number 5823R8	List name not in list	Country Taiwan	Camera 192 Parking Lot	Data source VIVOTEK ANPR		Confide 90.03
Q Search devices	2019/09/09 10:07:53	243.6622	263662	BLACKLIST	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.03
	2019/09/18 10:11:36	28 PT	28PT	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.04
 WMS_Station I68 Scrum Room 	2019/09/09 10:11:16	ARU-5168	ARU568	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.05
■ Parking Lot	2019/09/17 12:45:27	ARF 5986	ARF5986	not in list	Taiwan	192 Parking Lot	VIVOTEK ANPR		90.06
MS8391-EV	2019/09/09 10:04:29	ARU-5168	ARU568	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.07
■ SC8131	2019/09/09 10:03:24	ARU-5168	ARU568	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.10
	2019/09/17 07:37:05	1 <u>395-L2</u>	1395L2	not in list	Taiwan	192 Parking Lot	VIVOTEK ANPR		
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09/02 12:59 ~ 09/18 12:59 🔇	2019/09/16 14:58:25	2436622	236622	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		
Search criteria	2019/09/16 16:09:38	436622	436622	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.14
confi_level	2019/09/18 09:32:48	ATL 8600	ATL8600	not in list	Taiwan	192 Parking Lot	VIVOTEK ANPR		90.16
Ŭ	2019/09/09 10:01:17	ARU-5168	ARU568	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.21
	2019/09/09 09:53:21	ARU 5168	ARU568	not in list	Taiwan	168 Scrum Room	VIVOTEK ANPR		90.23
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The target directory will open. Open the exported CSV file to view the search results.

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VIVOTEK ANPR -	10,000+ results Refine cri						≡ Ľ	I 🗹 🗎	
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E los Scrum Room	Clipboard	Organize	New Kinc > VAST > Download	Open Sele	nt Search		VIVOTEK ANPR		90.05
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You can also open a chart view by clicking the Chart view button. The chart view can also be exported as a png file.

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Select devices Q Search devices III VMS.Station III III IIII IIII IIII IIII IIIII IIIII IIIII IIIIII			29428 22071 14714 0 00002 09/03 09/04 0	09/05 09/06 09/07 09/08 09/09	99/10 09/11 09/12 Days	09/13 09/14	09/15 09/16 0	9/17 09/18	VIVOTEK ANPR	Export data magnet
■ NS8391-EV ■ SC8131			Timestamp 2019/09/17 07:37:05 2019/09/17 09:45:28	Plate image 39512 AAE:7339	Plate number 1395L2 AAE7339	List name not in list not in list	Country Taiwan Taiwan		1,395	12
		1	2019/09/16 14:58:25	2436622	236622	not in list	Taiwan	168	Plate number: 1395L2 Timestamp: 2019/09/17 07:37:05	
111 09/02 12:59 ~ 09/18 12:59			2019/09/16 16:09:38	436622	436622	not in list	Taiwan	168	List name:	
			2019/09/18 09:32:48	ATL 8600	ATL8600	not in list	Taiwan		Camera:	
confi_level 👻 90		2019/09/09 10:01:17	ARU-5168	ARU568	not in list	Taiwan	168:	Data source:		
€			2019/09/09 09:53:21	ARU 5168	ARU568	not in list	Taiwan	168:	VIVOTEK ANPR	
			2019/09/18 08:56:13	7151 KG	7151KG	not in list	Taiwan			
			2019/09/09 10:01:54	ARU-51 CP	ARU568	not in list	Taiwan	168		
				× 2/2						

Configuring Data Magnet alarms:

1. Enter Settings > Alarm > Add & Delete to create a new alarm setting. Click to select External devices.

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🔊 Settings		Alarm m	anagement			
				Q Set	arch alarms	
If	+ Add trigger	Do + Add action	At Add a schedule Always Customize	Alarm		Cancel
No.	Name	If the following By	Do	On/to	At	*
1	168 Scrum Room	FE9191 ··· Motion dete	ction		Always	
_						

2. Select VIVOTEK ANPR as your triggering source. Select and create triggering conditions such as character height, image width, list, list name, country, etc. Use "=" for text matching, "~" for text containing, or approximately matching specific characters, and also ">," "<," ">=," "<=" for text containing, or approximately matching specific characters, and also ">," "<," ">=," "<=" for numbers larger or smaller than a preset value.</p>

\$ +				MEM 78%		¢		ō×
	Ala	arm management						
		Select trigger and source				×		
Event/Status								
Data magnet		VIVOTEK ANPR	*					
Set up trigger condition. Select of	ata and the type. Then k	ey in operator and keywords.						
Data	Туре	Condition					Cancel	
char height 💦 🔻	Text 👻	Key in "=" for text match, "~" for text	contain		0			
€								
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¢ Settings Alarm management Select trigger and source Event/Status lf VIVOTEK ANPR * Data magnet * -Set up trigger condition. Select data and the type. Then key in operator and keywords. char height Value >40 💿 ÷. * * =Taiwan country Text No. ٠ * • 1 No repeated triggers within 5

3. Continue to configure your triggering conditions. You can create multiple conditions.

4. Continue to configure the actions for a triggered alarm, such as sending live streaming.

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🔊 Settings			Alarm n	nanagement						
			Sel	lect actions				>	<	
lf	Send live s	treaming	Ŧ	ļ						
-	Select carr	nera 🔽	Include event-triggering camera							Add
_ i	*	VMS_Station	-							Cancel
No.		NV9411P FE9191								•
1		• IB9365-EHT								
		■ IB9387-LPR								
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5. When done, enter a name for the alarm and click the **Add** button to complete.

VAST2	\$ +			33% MEM 77% 🏭 🐥 🗱	🕸 – 🖻 ×				
🔊 Setting	Settings Alarm management								
				Q. Search alarms					
lf		Do	At						
-	Data Magnet	+ Ad	dd action + Add a sc	thedule 168 Scrum Room					
	VIVOTEK ANPR char height, country	Send live streaming	✓ Always	Instruction	Mdd				
		Event triggering came	ra Customize		Cancel				
No.	Name	If the following By	Do	On/to At	•				
1	168 Scrum Room	VIVOTEK ANPR Dat char height, country	ta magnet Send live streamin	g Event triggering ca Always					
2	168 Scrum Room	FE9191 Mo Window 1	tion detection	Always					

6. You can now receive alarm notifications triggered by license plate recognition via the Data Magnet.

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Alarm list/search	Ou	VE					Ľ		
							(Group alarm	\bigcirc
									ì
168 Scrum Room	VMS_Station	VIVOTEK A	NPR - char height: 55.17(>40), country: Ta	aiwan(=Taiwan) D	ata magnet	2019/08	22 15:13:14	New	•
168 Scrum Room	VMS_Station	FE9191 - W	indow 1	N	lotion detection	2019/08	22 15:13:11	New	
168 Scrum Room	VMS_Station	VIVOTEK A	NPR - char height: 75(>40), country: Taiw						
168 Scrum Room	VMS_Station		indow 1		lotion detection		22 15:13:06		
168 Scrum Room	VMS_Station	VIVOTEK A	NPR - char height: 55.17(>40), country: Ta				22 15:13:04		
168 Scrum Room	VMS_Station	FE9191 - W	indow 1		lotion detection		22 15:12:58		
168 Scrum Room	VMS_Station				lotion detection				
168 Scrum Room	VMS_Station		indow 1		lotion detection		22 15:12:48	New	
168 Scrum Room	VMS_Station		indow 1		lotion detection		22 15:12:43		
168 Scrum Room	VMS_Station		indow 1		lotion detection		22 15:12:38		

Note that if you select "Include event-triggering camera" during the alarm configuration stage, the camera delivering the data source will be automatically selected.

VAST2	\$ +	сру 20% мем 77% 🏭 🌲 🏟 — Га 🗙
🔊 Settings	Alarm management	t
	Select actions	×
If 	Send live streaming • Select camera Include event-triggering camera Q Search devices • • • • • • • • • • • •	Add Cancel
No. 1	 NV9411P FE9191 1B9365-EHT 1B9387-LPR 	
		Add Cancel

Configuring Data Source macro via Send email and Send HTTP requests:

In **Settings** > **Alarm** > **Add & Delete**, Email and HTTP requests can be used to send data source macro to receivers. Use "
'' as the line break command. Note that an SMTP server should have been configured before the Email settings in Alarm.

