

VALERUS SMARTANALYTICS | VIDEO ANALYTICS SOFTWARE/SERVER

Vicon-Certified Servers Pre-Loaded with Valerus SmartAnalytics Software



Valerus SmartAction

*Real-time event detections
and alerts*

Valerus SmartSearch

*Detailed event searches
of pre-recorded video*

Valerus Business Intelligence

*Define statistical analysis tasks,
transform data to drive business actions.*

PRODUCT

Vicon's Valerus SmartAnalytics is an on-premise video analytics software solution that offers a wide variety of analytics functionalities through a single, easy to use platform that integrates with Valerus Video Management Systems. Featuring real-time event detection (*SmartActions*), Business Intelligence and video search (*SmartSearch*) applications, SmartAnalytics provides automatic and effortless retrieval and analysis of recorded video for a complete solution to the diverse video analytics requirements of multiple vertical markets. Valerus SmartAnalytics is implemented as a dedicated proxy component running on a PC, enabling support for all edge devices compatible with Valerus.

Valerus SmartAnalytics boasts a set of advanced, automated video analysis tools that provide the immediate detection and extraction of events and valuable data from surveillance footage, replacing the manual time-consuming tasks traditionally employed to monitor live video feeds or sift through recorded video.

By employing SmartAnalytics, users can make optimal use of their surveillance systems and allocate their time and attention in a more effective manner, thus increasing the return on investment in the surveillance system, as well as improving overall security, safety and business operations.

PRODUCT HIGHLIGHTS

- Full integration with Valerus VMS
- Smart responsive user interface
- Real-time event detection
- Video Search function; extensive range of search parameters filters to pinpoint video segments of interest
- Transforms a VMS to a proactive detection system
- Unlimited combinations of analytics detection rules can be applied to each camera
- Detects a wide range of events relating to people, vehicles and static objects
- Increases efficiency in investigation relying on recorded video

VALERUS SMARTACTION

SmartAction delivers highly accurate real-time event detections, eliminating the need to rely on the alertness or response discipline of the system's operator. Using SmartAction, the user can identify risks and react more quickly than conventional security monitoring. Users define rules regarding the event/object of interest that trigger alerts within seconds; this brings attention to the rule activity in real-time monitoring, enabling rapid responses to incidents as they emerge.



Rules defined by the user can include the entrance of a secured zone, vehicle stops on highway, or suspicious bag is left behind. When an area of interest is created, the analytics can detect a breach in that defined area. According to the rule, alerts are then set to notify operators via video display (*tracking boxes*), email or audio notification.

The easy-to-use SmartAction platform makes setup and calibration simple. There are numerous rules for events that should meet any requirement. Multiple rules can be applied to each camera. There is a Rule Test button to review that the setup is exactly what is needed. Rule infringement and alerts occur directly in the Valerus VMS.

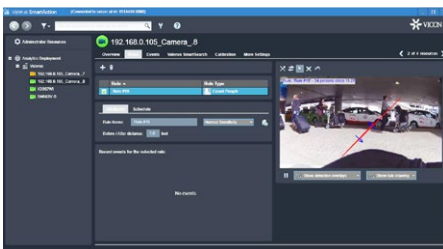


Figure 1: Rule Setup

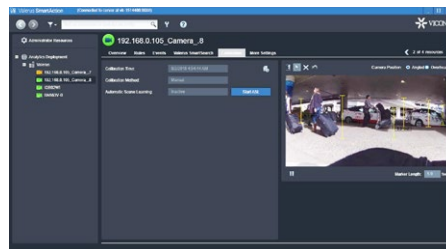


Figure 2: Rule Calibration

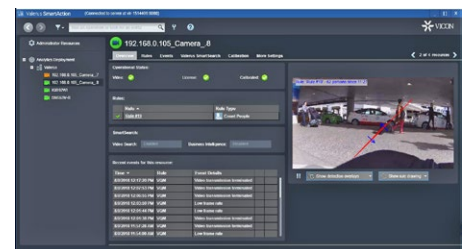


Figure 3: Event Overview

SMARTACTION FEATURES

- Transforms video surveillance system from a passive tool to a proactive detection system
- Detects a wide range of events relating to people, vehicles and static objects
- Analyzes video from multiple sources in parallel
- Enables unlimited combinations of analytics detection rules to be applied to each camera
- Offers innovative "Rule Test" for validation of detection accuracy in the installation phase
- Features an Event Dispatcher tool to enable notification of real-time events via a range of communication applications

VALERUS SMARTSEARCH

SmartSearch scans large time spans of recorded video for a specific event and provides matching search results within seconds, enabling rapid access to specific video segments buried in the stored video. Searches can be filtered by specific activity, color, size, objects and people. SmartSearch can be accessed directly from the Search feature in Valerus.



SmartSearch allows you to work in near real-time for enhanced situational awareness and incident response. Additionally, you can simultaneously search across many cameras at once, reducing search and therefore reaction time. Thumbnail results allow you to visually scan results to quickly focus on events of interest.

Searches are initiated using the SmartSearch query screen. Searches can be refined by resources, time, type (*i.e., person, vehicle or object*) and behavior (*i.e., moving, line crossing, etc. dependent on type*). Selecting a dwell time further refines the search and an adjuster (fewer to more) fine-tunes the tolerance of the search. From the SmartSearch screen the user can review Event Thumbnails, Statistics Report and a Video Summary that collates all search results. If the search was for a Business Intelligence, there is also Target Path/Location, that will show movement paths, and a Heat Map, a visual representation of traffic.

Offered as a separate module or as a bundle with real-time analytics, SmartSearch uses metadata stored in the recording to quickly identify events and objects of interest.

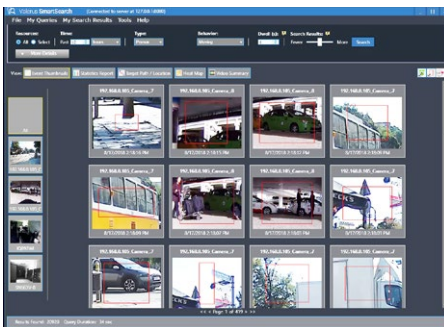


Figure 1: Events Thumbnail

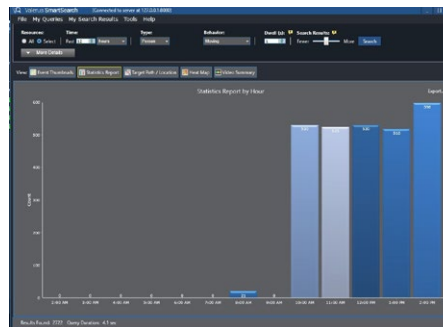


Figure 2: Statistics Report

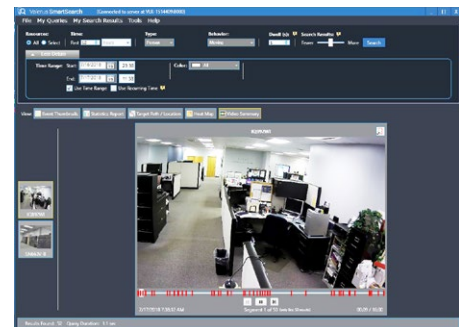


Figure 3: Video Summary

SMARTSEARCH FEATURES

- Offers extensive range of search parameter filters to pinpoint video segments of interest
- Presents versatile visualization displays that minimize video viewing time
- Delivers rapid results: searches 24 hours of video in a few seconds
- Enables simultaneous search on any number of cameras
- Increases efficiency in investigations relying on recorded video
- Allows search to be applied in near real-time for enhanced situational awareness and incident response

VALERUS BUSINESS INTELLIGENCE

Valerus Business Intelligence provides statistical analysis of movements by people and vehicles. It will accurately recognize the movements of people and vehicles while ignoring motion not relevant to a scene.

For vehicles, this data can be used to measure traffic flow and calculate the average speed in a specific area, providing valuable insights into important aspects like traffic patterns. In retail environments, statistics on customer traffic and behavior can be collected and used to analyze performance. A Heat Map provides a visual representation of activity. Visual mapping of customer behavior and patterns is interactive, providing direct links from the pattern to the source video.

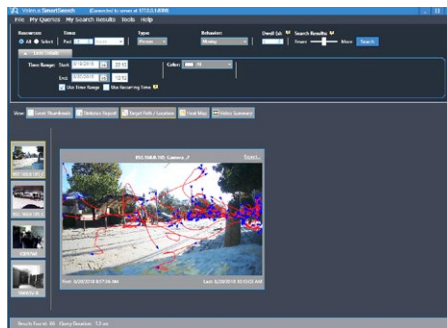


Figure 1: Target Path/Location

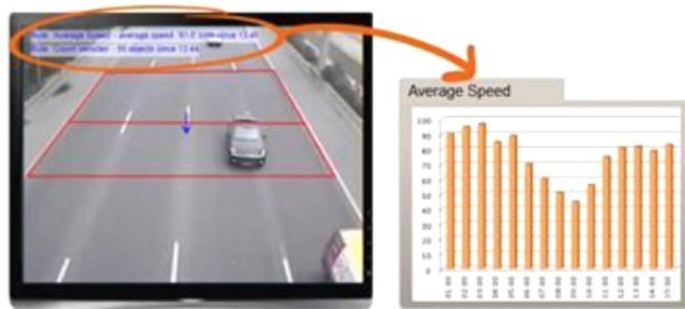


Figure 3: Measure Traffic Flow

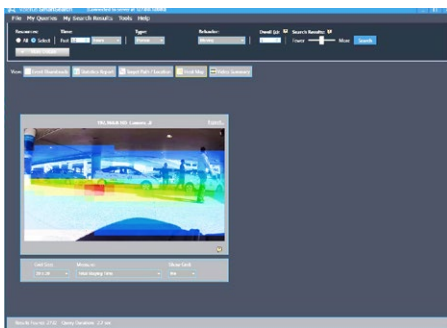


Figure 2: Heat Map

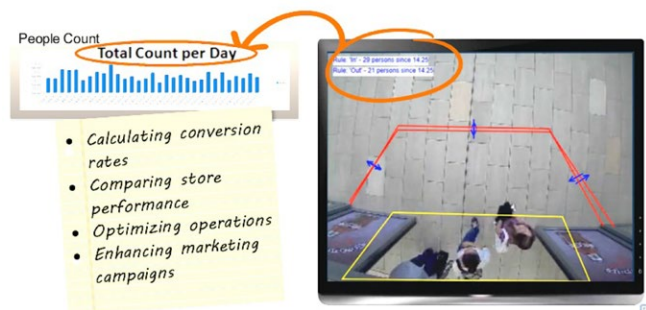


Figure 4: Review Customer Traffic and Behavior

BUSINESS INTELLIGENCE FEATURES

- Delivers accurate, wide-ranging statistical data related to people and vehicles
- Offers advanced visualization tools including charts, graphs and heat maps
- Enables exporting of the raw data for further analysis or integration with other systems
- Enhances operations and marketing decisions for the retail sector through customer behavior analysis
- Provides key metrics for highway operators through vehicle flow and speed analysis

ORDERING INFORMATION

Model Number	License Type	Description
Licenses		
VLR-ANA-RT1	Real-Time Events License - 1 Rule type and Video Search License	Enables 1 rule type for real-time events + video search queries (per camera)
VLR-ANA-RT2	Real-Time Events License - 2 Rule types and Video Search License	Enables 2 rule types for real-time events + video search queries (per camera)
VLR-ANA-RTU	Real-Time Events License - Unlimited Rules and Video Search License	Enables all rule types for real-time events + video search queries (per camera)
VLR-ANA-SRH	Video Search License	Enables video search queries (per camera)
VLR-ANA-BI	Business Intelligence License	Enables business intelligence rule types and generation of statistical information (per camera)
VLR-ANA-BND	Real-Time Events, Video Search and Business Intelligence License	Enables all rule types for real-time events + video search queries + business intelligence capabilities (per camera)
VLR-ANA-UPP	Valerus SmartAnalytics Upgrade Protection Plan	Free upgrades for 1, 2, 3, 4 or 5 years (add -1, -2, -3, -4, -5 to model as needed; 1 year is mandatory)
Description		Model Number
Servers		
Server; for customized preinstallation of selected Valerus SmartAnalytics software license; Vicon certified hardware; desktop/rack-mount		VLR-ANA-SRV/VLR-ANA-SRV-RK
Server; for customized preinstallation of selected Valerus SmartAnalytics software license and Valerus Application Server software; Vicon certified hardware; desktop/rack-mount		VLR-APP-ANA-SRV/ VLR-APP-ANA-SRV-RK
Server; for customized preinstallation of a dedicated VAP unit; Vicon certified hardware; desktop/rack-mount		VLR-ANA-VAP/VLR-ANA-VAP-RK

A Redundancy package is available upon request. Call your representative for Professional Services details.

SPECIFICATIONS

Server (Minimum PC Specifications)	
Hardware Requirements (minimum):	Intel i5 or comparable CPU, 8GB RAM, 500GB/100GB of free disk space for production/demo environment respectively, 256 MB RAM onboard graphics. Contact Technical Support for project specific hardware requirements.
Supported Operating Systems:	Microsoft® Windows Server 2016, Windows 2012 and 2012 R2 (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows 7 SP1 (64-bit), Windows 8.1 (64-bit), Windows 10
Supported Databases:	MS SQL Server Express Edition (2014, bundled with Valerus SmartAnalytics), also 2012, 2016; MS SQL Server 2016, MS SQL Server 2014, MS SQL Server 2012 and MS SQL Server 2008 R2 (Standard and Enterprise editions)
Mechanical (VLR-ANA-SRV/VLR-ANA-SRV-RK series)	
Application:	Indoor
Mounting:	Standard desktop chassis or 19 in. (483 mm) rack-mount, 1 RU height
Dimensions:	Rack-Mount: 1.75" (44.45 mm) H x 19" (483 mm) W x 15.5" (394 mm) D, without connectors, 16" (406 mm) D, including connectors. Desktop: 6.59 in. (167.5 mm) H x 2.13 in. (44 mm) W x 6.59 in. (167.5 mm) D.
Weight:	Rack-Mount: Approximately 18.2 lb (8.3 kg). Desktop: Approximately 8.1 lb (3.7 kg).
Construction:	Steel and plastic

SPECIFICATIONS (CONTINUED)

Electrical	
Input Voltage:	105-240 ±10% VAC, 50/60 Hz
Current:	0.66 A @ 115 VAC; 0.33 A @ 240 VAC
Power Consumption:	76 W nominal
Heat Output:	266 btu/hour
Power Connector:	Standard 3-conductor female socket
Environmental	
Operating Temperature:	32° to 104°F (0° to 40°C)
Humidity:	Up to 95% relative, non-condensing
Warranty	
3 years parts and labor	

MANAGEMENT & ADMINISTRATION

Features	Description
Centralized Management:	All configuration and setup is performed on a single central server
High Availability:	Complete high availability and failover support of all server components
Automatic Set-up & Calibration:	Automatic calibration and camera configuration via the Automatic Scene Learning tool (ASL)
Bulk Camera Management:	Cameras can be configured as a group
Complete Flexibility:	Enables deployment of any combination of video analytics applications on every camera with no restrictions
Deploy in Any Environment:	All analytics capabilities can be used both indoors and outdoors
Video Quality Monitoring	
Obscuring:	Automatic alert when the video feed is obscured
Camera Shifted:	Automatic alert when the camera's field-of-view (angle) is changed
Saturation:	Automatic alert when the saturation of the camera increases beyond a specified level
Low Light:	Automatic alert when the light decreases beyond a specified level
Camera Disconnection:	Automatic alert when communication with the camera is lost or there is no live video stream
Low Frame Rate:	Automatic alert when the frame rate drops beyond a specified level
Database	
Redundancy/Failover:	Deploy redundant servers to eliminate any single point of failure*
Backup & Restore:	Ability to back-up the database and restore the database from a backup when required
Automatic Archiving:	Automatically archives the database and frees space when it reaches a predefined size

*Redundancy server solutions are handled through Vicon Professional Services. Contact your Vicon representative as needed.

SPECIFICATIONS

Valerus SmartAction Real-Time Detection Rules	
Moving in an Area (Person/Vehicle):	Detects a person/vehicle moving in a predefined area
Crossing a Line (Person/Vehicle):	Detects a person / vehicle crossing a predefined line in a certain direction
Tailgating (Person):	Detects a person that crosses a predefined line within a predefined time interval after the person that crossed previously
Tailgating (Vehicle):	Detects a vehicle that crosses a predefined line within a predefined time interval after the vehicle that crossed previously
Loitering:	Detects a person lingering inside a predefined area for longer than a predefined time period
Crowding:	Detects a crowd if the density of people in a predefined area exceeds a predefined threshold (%) for a predefined time period
Occupancy:	Detects a group if the number of people in a predefined area exceeds a predefined threshold (number) for longer than a predefined time period
Stopped Vehicle:	Detects a vehicle that stops in a predefined area for longer than a predefined time period
Speed Analysis (Vehicle):	Detects if the average vehicle speed in a predefined area drops below a predefined threshold for longer than a predefined time period
Suspicious Object:	Detects a static object that has been left unattended in a predefined area for longer than a predefined time period
Asset Protection:	Detects a predefined static object removed or obscured from a camera's field-of-view for longer than a predefined time period; up to 20 static objects can be defined in a camera's field-of-view
Lighting Detection:	Detects a light (signal) appearance in a predefined area of the camera's field-of-view for longer than a predefined time period
Performance	
Number of Rules per Camera:	Unlimited
Number of Detected Targets:	Unlimited
Number of Detection Areas:	Unlimited
Number of Rule Schedules:	Unlimited
Rule Management	
Rule Scheduling:	Activate/deactivate rules according to predefined schedules
Configurable Rule Parameters:	Wide range of advanced parameters to suit various scenarios and environments including: Interval between Events, Camera Type (CCD/CMOS/Thermal), Masking Level and Video Quality Monitoring settings
Rule Testing & Optimization:	Improves the detection and performance of a selected analytics rule by analyzing its previous detections, comparing rule settings and selecting the optimized configuration
Rule Chaining:	Ability to create a sequence of detection rules by configuring a specific rule to activate/deactivate other rule(s)
Event on Non-Detection:	Alert when an activated rule does not detect the target after a specific time threshold
Configurable Sensitivity:	Determines the sensitivity of detection according to the physical conditions of the scene; set to a higher value to improve probability of detection if no events are being generated; set to a lower value if too many false alarms are being generated
Event Dispatcher	
Event Notification:	Events can be sent to external applications, such as designated video alarm management software, email (SMTP), SMS, MMS, etc.

SPECIFICATIONS

Video SmartSearch

Valerus SmartSearch Criteria

Camera Selection:	Apply search on selected/all cameras
Time Period Specification:	Search according to specific time period or recurring time periods
Target Type:	Search for specific target type (Person/Vehicle/ Static Object)
Target Type:	Person: Moving in an area for a specified duration, Crossing a line, Occupancy, Crowding; Vehicle: Moving in an area for a specified duration, Crossing a line Stopping in a specified area; Static Object: Suspicious object, Asset removed
Target Color:	Search according to specific target color
Target Size:	Filter according to specific target size
Dwell Time:	Search according to interval of dwell time
Similar Targets:	Select a vehicle or person and then search for similar looking targets
Search Sensitivity:	Controls the tolerance of the search query by selecting the sensitivity level to include/exclude similarities/proximities

Valerus SmartSearch Results - Viewing Options

Thumbnails:	Displays each search query result in a thumbnail image showing the found target (person/vehicle/object). Users can play back the results. Provides automatic zoom in on the detected target based on the available recorded video resolution.
Video Summary:	Displays all search query results in a single clip, as segments, allowing quick review of the video footage for all detected events
Target Path/Location:	Displays the motion paths of found moving targets (persons or vehicles). Alternatively, a graphical overlay is displayed indicating the locations of found targets (static objects) that were added to or removed from a field-of-view or to/from a predefined area within a field-of-view. Users can play back each motion path/ found target.
Site Map:	Visualization of motion data gathered from individual cameras deployed at one site onto a complete site map. By using "Site Map" view, a user can see the "Target Path/Location" on a larger map, showing multiple camera displays in one view.

Search Query/Results Management

My Queries:	Save a search query definition as a preset for future use
My Search Results:	Save selected items from the search results for future use
Video Clip Export:	Export selected event footage from the search results as an independent video file

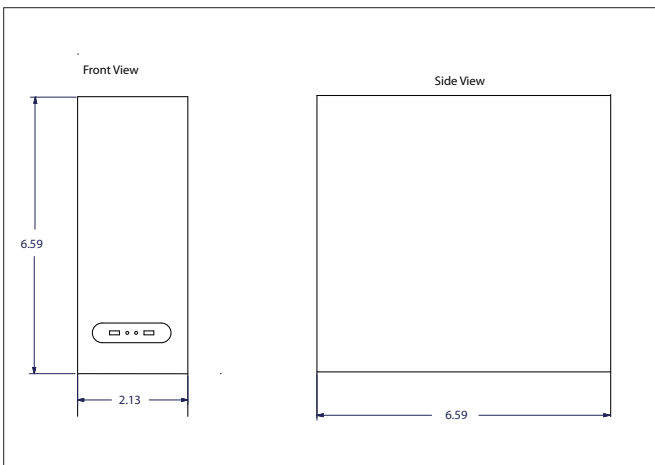
Performance

Number of Cameras for Simultaneous Search:	Unlimited
Number of Detected Targets:	Unlimited
Number of Detection Areas:	Unlimited
Query Time:	~5 seconds per camera per 24 hours of recorded video

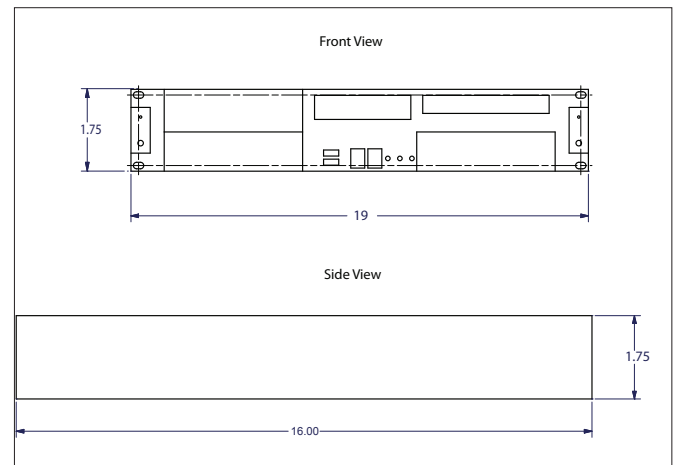
SPECIFICATIONS

Features	Description
Business Intelligence Analytics	
Statistics Reports Application:	Valerus SmartAnalytics's built-in reporting tool that enables the generation of statistics reports
Business Intelligence Rules for Statistics Reports Application:	Counting (People/Vehicles): Counts people/ vehicles crossing a predefined line(s) (bidirectional); Speed Analysis (Vehicles): Vehicle speed data is continuously gathered and collated; Occupancy (People): Occupancy information is continuously gathered and collated; Crowding (People): Crowding information is continuously gathered and collated
Query Results - Viewing Options	
Statistics Analysis:	Presents graphs showing count results, obtained after performing a search, per camera and/or per timeframe.
Target Path/Location:	Displays the motion paths of found moving targets (persons or vehicles). Users can play back each motion path.
Heat Map:	Displays visualization of traffic areas ("hot zones") within the camera's field-of-view. Users can play back each heat map value to show the customer traffic at that location.
Site Map:	Projects motion data (pulled from "Target Path/Location" view or "Heat Map"view) from individual cameras at one site onto a complete site map.

DIMENSIONAL DRAWINGS



Desktop



Rack-Mount