

Cisco Kinetic for Cities Safety and Security Video Analytics (Kiwi Security)

Cisco® Kinetic for Cities Safety and Security Video Analytics from Kiwi Security transforms existing and new video surveillance systems into proactive and intelligent tools, unifying privacy, security and operational efficiency. It accelerates response time to incidents and helps to gain a better understanding of the traffic situation. Video analytics accurately detects events in videos, instantly informs or alarms operators and triggers processes by sending this information to the Cisco Kinetic for Cities digital platform. The Kinetic for Cities Safety and Security solution has an open architecture and can therefore be integrated with all leading VMS systems and camera vendors.

About KiwiSecurity

Founded in Vienna, Austria in 2005, KiwiSecurity is a developer of video analytics applications for security, safety, business, and traffic intelligence. With a strong R&D background, KiwiSecurity created a scalable, patented product line proven in a worldwide installation base, constantly aiming to push the limits of what is possible in video analytics. KiwiSecurity's mission is to provide the most accurate detections while eliminating any false alert, utilizing world-class patented algorithms.

KiwiSecurity has further challenged the contradiction of safety and privacy: The unique KiwiVision Privacy Protector protects people's privacy in video surveillance and makes it compliant with international privacy regulations. To date it is the first and only video security product certified with the European Privacy Seal. KiwiSecurity has a global channel and support partner network.

Video Analytics

- **Intrusion Detector:**

Detection of persons, vehicles or objects into critical areas and independent from weather conditions (filters for rain, snow and fog + image stabilization). Applicable for the protection of perimeters, buildings, areas and borders.

Fields of Application

- Vulnerable buildings, rooms and areas, critical infrastructure
- Examples: prisons, borders, power stations, premises, government buildings, private properties

- **Object Detector:**

Detects definable objects or persons that are added to, or removed from a scene. Applicable for security and safety (left luggage), as well as protection from vandalism, loitering or littering.

Fields of Application

- Public transport, critical buildings, infrastructure
- Examples: detection of people or objects on runways, railway tracks, immobilized vehicles on highways, garbage disposal, graffiti, illegal parking and congestion

- **Activity Visualizer:**

Detailed evaluation makes motion, activity, hot-spots, paths, dead zones and dwelling-time visible.

Fields of Application

- Public areas: pedestrian zones, parks, squares
- Events and exhibitions: museums, concerts, festivals
- Retail: comparison of stores and shops, products and displays

- **Queue Detector:**

Analyzes movement pace, motion and density in order to detect crowding and queues.

Fields of Application

- Airports: passport check, check in, boarding
- Retail: checkout areas, service counters
- Concerts, sports events: entrances, exits

- **People Counter:**

Automatically counts people passing a defined area. Counting results can be summarized in interactive reports (e.g. for the evaluation of customer frequency at a shopping mall).

Fields of Application

- Public Transport: airports, railway and metro stations
- Retail: stores, shops, shopping malls
- Events and exhibitions: trade fairs, museums, concerts, sports events

- **Traffic Analyzer:**

Automatically counts and classifies vehicles for statistical evaluation. Results can be exported automatically. Vehicles can be classified into cars, busses, trucks and motorcycles.

Fields of Application

- Freeways, highways, urban traffic, arteries
- Parking lots, garages

- **Vehicle Counter:**

Automatically counts vehicle passing a defined area. Results can be exported automatically.

Fields of Application

- Freeways, highways, urban traffic
- Parking lots, garages

- **Direction Controller:**

Detects objects moving against configured directions.

Fields of Application

- Urban traffic and highways: one way streets, detection of wrong-way drivers
- Transport and logistics: airplanes, trucks, trains, busses on runways, entrances and exits

- **License Plate Recognizer:**

Detects license plates on vehicles of more than 130 countries and compares them with specific blacklist and whitelist to trigger definable actions (e.g. to open gates for authorized vehicles).

Fields of Application

- Urban traffic management: traffic evaluation, vehicle searches
- Access control: car parks, garages, and parking lots
- Marketing purposes: evaluation of origin of visitors (shopping centers, events, ...)

- **Privacy Protector:**

Worldwide patented solution for privacy-protected video surveillance. EuroPrise certified (European Privacy Seal) → compliant to European data protection laws. People are obscured automatically while the original video is encrypted and recorded in the background. It can be accessed via user rights, TAN codes or chip-cards with PIN codes (four-eye-principle).

Fields of Application

- Urban video surveillance: parks, squares, streets, pedestrian zones
- Public transport and logistics: airports, railway stations, ports, metro stations
- Semi-public buildings: company buildings, museums, stadiums, healthcare
- Government buildings: public offices, hospitals, courts, prisons
- Events: concerts, sports events, festivals

Technical Specification

Camera Specification

The following table shows the minimum camera specification to run different types of video analytics.

Analytics	Minimum Resolution	Minimum Object Size	Minimum Frame Rate	Minimum Camera Height	Camera View
Activity Visualizer	640 x 480 px	20 x 20 px	12	–	Optimal: Top Down
Direction Controller	640 x 480 px	20 x 20 px	12	–	–
Intrusion Detector	640 x 480 px	20 x 20 px	12	–	–
License Plate Recognition	640 x 480 px	20 x 100 px	12	–	Max 30°
Queue Detector	640 x 480 px	20 x 20 px	12	–	–
Traffic Analyzer	1280 x 720 px	20 x 20 px	12	–	Min 45°, max. 80°
Vehicle Counter	640 x 480 px	20 x 20 px	12	–	Min 45°, max. 80°
Object Detector	320 x 240 px	5 x 5 px (constant conditions) 20 x 20 px	1	–	–
People Counter	320 x 240 px	–	8	2.5 m	Top Down
Privacy Protector	320 x 240 px	–	3	–	–
Parking Space Analyzer	640 x 480 px	20 x 20 px	12	–	–

*Constant Condition: Reference Camera View remains same.

Software Specification

The Video Analytics server runs on Microsoft Windows 32- and 64-bit operating systems.

Prerequisite

Prerequisite to install the Video Analytics software. We need to have a server with any of the following operating systems on the hardware mentioned in the next section.

Prerequisite
Windows 7 Professional/Enterprise/Ultimate
Windows Server 2008 R2
Windows 8.X
Windows Server 2012 R2
Windows 10
Windows Vista

Kiwi Video Analytics Software Package

Kiwi Video Analytics software package contains the following software.

KiwiVision Configuration
.Net 3.5 SP1
.Net 4.0
.Net 4.5
Visual CPP Runtime 2008, 2010, 2012 & 2015
MS SQL Server 2008 Express

Hardware Specification

The following server is used in the next section for the sizing matrix. Any Cisco UCS® server with similar, or more, specifications can be used to run the analytics server.

Sizing Matrix

In this section various parameters used for sizing of the Cisco UCS servers are elaborated.

Component	Minimum
CPU	Intel Xeon-6 core E5-2643 v4 Processors (20M Cache, 3.4 GHz, 9.6 GT/s)
Memory	16 GB FBDIMM DDR3-1333Mhz with ECC
Hard Disk	1 x 256 GB SSD or 1 x 256 Gb SATA2
Power	Dual Power supply
Virtualization	VMware

Different Applications and Number of Channels

- Small: 5 channels
- Medium: 60 channels
- Large: 500 channels
- Camera parameters fixed for simplicity: VGA, 15 fps
 - Bandwidth per channel: 0.1-0.5 mbit/s

Hardware

Component	Minimum
CPU	Intel Xeon-6 core E5-2643 v4 Processors (20M Cache, 3.4 GHz, 9.6 GT/s)
Memory	2 x 16 GB FBDIMM DDR3-1333Mhz with ECC
Hard Disk	1 x 256 GB SSD or 1 x 256 Gb SATA2
Power	Dual Power supply
Virtualization	VMware

Sizing Table

The following table lists the required amount of Cisco UCS servers per application and project size.

Application	Small (5 Channel)	Medium (60 Channel)	Large: Dual CPU (500 Channel)
Object Detector	1	2	5
Intrusion Detector	1	4	21
Object Detector & Intrusion Detector	1	5	26
Privacy Protection	1	4	25
Activity Visualizer	1	2	15
Privacy Protection & Activity Visualizer	1	5	40
License Plate Recognizer	1	12	50
People Counter	1	2	9
Vehicle Counter	1	4	16
Queue Detector	1	5	20
Traffic Analyzer	1	3	13
Direction Controller	1	4	15

Ordering Information

SKU's

Product SKU	Product Support SKU	Description
SS-CIM-KW-CP1=		Kiwisecurity Per Camera Channel Feature License – Intrusion Detector, Object Detector and Privacy Protector
	SS-CIM-KW-CP1-1Y	Kiwisecurity CP1 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP2=		Kiwisecurity Per Camera Channel Feature License – Intrusion Detector
	SS-CIM-KW-CP2-1Y	Kiwisecurity CP2 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP3=		Kiwisecurity Per Camera Channel Feature License – Object Detector
	SS-CIM-KW-CP3-1Y	Kiwisecurity CP3 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP4=		Kiwisecurity Per Camera Channel Feature License – Privacy Protector
	SS-CIM-KW-CP4-1Y	Kiwisecurity CP4 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP5=		Kiwisecurity Per Camera Channel Feature License – Activity Visualizer
	SS-CIM-KW-CP5-1Y	Kiwisecurity CP5 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP6=		Kiwisecurity Per Camera Channel Feature License – People Counter, Vehicle Counter, Queue Detector, Direction Controller
	SS-CIM-KW-CP6-1Y	Kiwisecurity CP6 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP7=		Kiwisecurity Per Camera Channel Feature License – Traffic Analyzer
	SS-CIM-KW-CP7-1Y	Kiwisecurity CP7 Software Upgrade and Support Services for 12 Months

Product SKU	Product Support SKU	Description
SS-CIM-KW-CP8=		Kiwisecurity Per Camera Channel Feature License – License Plate Recognizer
	SS-CIM-KW-CP8-1Y	Kiwisecurity CP8 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP9=		Kiwisecurity Per Camera Channel Feature License – Parking License
	SS-CIM-KW-CP9-1Y	Kiwisecurity CP9 Software Upgrade and Support Services for 12 Months

Year 2 Onward Support SKU	
Support SKU	Support SKU
SS-CIM-KW-CP1-1Y=	Kiwisecurity CP1 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP2-1Y=	Kiwisecurity CP2 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP3-1Y=	Kiwisecurity CP3 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP4-1Y=	Kiwisecurity CP4 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP5-1Y=	Kiwisecurity CP5 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP6-1Y=	Kiwisecurity CP6 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP7-1Y=	Kiwisecurity CP7 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP8-1Y=	Kiwisecurity CP8 Software Upgrade and Support Services for 12 Months
SS-CIM-KW-CP9-1Y=	Kiwisecurity CP9 Software Upgrade and Support Services for 12 Months

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