HIRSCH

Velocity Vision Advanced 7.1 (2026 R1)

Specification Sheet

Copyright

Copyright 2026 © Hirsch Inc. | All rights reserved. This document is Hirsch public information.

Contents

Feature Overview 4
Key features 4
Integration options 4
Detailed Product Features 6
Velocity Vision Mobile server 10
Server Configurator 10
Velocity Vision client 11
Velocity Vision client – Player 14
Velocity Vision Web Client 14
Velocity Vision Mobile Clients 15
Miscellaneous 17
FIPS 140-2 compliant mode 17
Minimum system requirements 17
Licensing structure 17
Server base license 17

Feature Overview

Key features

- Scalable multi-server and multi-site solution:
  Velocity Vision Advanced supports an unrestricted number of users, hardware devices, servers and sites. It allows the expansion of any installation as it is required
- High-performance recording server:
  Building on a native 64-bit Windows implementation and a highly optimized database technology with RAM-based pre-buffering, the recording server supports up to at least 3.1 Gigabit/s from several hundred cameras
- Hardware accelerated Video Motion Detection: Video motion detection decoding takes advantage of processing power in Graphical Processing Units to significantly reduce the CPU load and improve performance of the recording servers. It requires CPU with support for Intel Quick Sync Video
- Centralized management:
  A Management Client connected to the management server enables full remote system configuration of all recording servers, devices, rules, schedules and user rights
- Interconnect:
  A unique system concept that allows all Hirsch VMS to be
  interconnected with a central Velocity Vision Enterprise system to gain central surveillance operation across geographically dispersed sites
- Alarm Manager:
  Single-point alarm function that provides a consolidated and clear overview of security and system-related alarms
- Centralized Search in Vision Client:
  Dedicated tab for searching recording sequences, bookmarks, motion, vehicle[1], people[1] and location[1]. These Search categories can be combined, also with third party search agent plugins
- Metadata support:
  Supports reception, storage and export of metadata, including metadata from camera-resided video analytics and location data in Video Push from Velocity Vision Mobile
- Edge Storage with audio support:
  Uses camera-based storage as a complement to the central storage in the recording servers, with flexible video retrieval based on time schedules, events or manual requests, including the ability to combine centrally and remotely stored video using Scalable Video Quality Recording (SVQR).
- Intuitive map function:
  Multi-layered and interactive maps display the location of every camera and offer control of the entire surveillance system.
- Bookmarking:
  Allows users to mark video sections of particular interest and add descriptive notes for later analysis or sharing with other users
- Multiple language support:
  Lets most operators use the system in their native language with support for more than 30 different languages, while the Management Client is available in 14 languages
- Fast evidence export:
  Deliver authentic evidence to public authorities by exporting video to various formats, including video from multiple cameras in encrypted Velocity Vision format with dedicated player application included
- Audit logs:
  Enables extensive logging of all user system accesses, configuration changes and operator actions
- Flexible user and rights management:
  Strict privileges on management of users' access to functions and camera actions. Modular user management with support for basic user accounts to global user management with single sign-on Microsoft Active Directory accounts.
- Versatile rule system:
  Facilitates the automation of different aspects of the system, including camera control, system behavior and external devices, based on events or time schedules
- Customer Dashboard
  Support for sending system, server, storage and device status and errors to the Hirsch Customer Dashboard
- Virtual environment
  Support for VMware and Hyper-V virtualization solutions (to exclude hardware acceleration which is not supported in a virtual environment)

Integration options

- The MIP SDK and APIs enable seamless integration of video analytics- and other third-party applications with Velocity Vision, as well as extensions to the Vision Client and Management Client
- LPR for license plate recognition. Compatible with Transact, which integrates video surveillance with ATMs, point-of-sale (POS), and enterprise resource planning (ERP) systems for managing and analyzing transactions.
- Compatible with Velocity Vision Access for video enabled physical security, which integrates with access control and intrusion systems
- Compatible with LPR for automatic reading and tracking of vehicle license plates
- Supports Vision Open Network Bridge that enables full video interoperability in multivendor installations using a standardized ONVIF compliant video-out interface
- The MIP VMS API enables external applications to use REST & JSON, to read and update the system's

[1] Limited to certain camera models that can perform video analytics and export ONVIF compliant metadata

configuration, and working with Control, Events and Alarms

- The MIP VMS API enables external applications to subscribe to events in the VMS, using WebSocket communication
- The MIP VMS API enables live and playback video and audio streaming via WebRTC, for easy access to Velocity Vision media streams in browser-based applications across networks. Cameras PTZ can also be controlled
- Webhooks facilitate integration and communication with other services and applications based on Events- & Rules
- Supports display of MIP SDK plug-in items and Access Control units on the Smart Map
- MIP SDK Mobile enables integrations to third party Mobile- or Web applications
- MIP SDK Driver Framework enables device manufacturers to develop their own device drivers for Velocity Vision, enabling wider device support and deeper integration of cameras, IoT devices, etc.
- MIP SDK Human Interface Device (HID) plug-ins enable integration of joysticks, controllers, and keyboards with the Vision Client
- Hirsch AI Bridge simplifies the integration and deployment of AI and intelligent video analytics (IVA) applications, especially targeted towards developers utilizing Docker containers and Linux. Video, Events and Metadata can be exchanged in multiple formats, including RTSP, JSON and ONVIF
- Visual controls supporting the Hirsch UI Design System are available for plug-in and standalone integrations to facilitate 3rd party development with a visual expression identical to that of Velocity Vision client applications
- Documentation, Libraries, Samples, and a Developer Forum, helps developers being effective utilizing the MIP SDK and APIs

Detailed Product Features

Recording server

System

- Simultaneous digital multi-channel MJPEG, MPEG4, MPEG-4 ASP, MxPEG, H.264, H.265 and AV1 video recording of IP cameras and IP video encoders without any software limitations on number of cameras per server
- Two-way audio allows users to transmit and record audio from connected microphones and audio from the operator's microphone to attached speakers
- Generic framework for receiving and storing metadata from compatible devices and clients
- Route traffic between multiple connected cameras and multiple clients requesting live view, playback and export
- Multi-live streaming makes it possible to define multiple streams with different properties such as resolution, encoding and frame rate for live viewing. It also enables Adaptive streaming. The number of streams supported is determined by the camera driver[2]
- Multi-stream recording. Two video streams can be selected for simultaneous recording. It enables optimization of stream properties such as resolution, encoding and frame rate for video storage and enables Adaptive playback.
- Adaptive streaming sends a lower resolution stream from the recording server to the viewing clients when a high-resolution stream is not required. It optimizes the viewing client performance and lowers bandwidth utilization.
- Adaptive playback. Same as Adaptive streaming but for playback. Uses the fact that two video streams with different resolutions can be recorded from a single device and adaptively chooses between them. Adaptive Playback is supported by Vision Client.
- Secure high-speed recording database holding JPEG images or MPEG4, MPEG-4 ASP, MxPEG, H.264 or H.265 streams
- Flexible control of recording characteristics for MPEG4/H.264/H.265 streams, making it possible to toggle between recording key frames only or the full stream
- Record more than 30 frames per second per camera, limited only by hardware
- Recording quality depends entirely on camera and video encoder capabilities with no software limitations
- Possibility to import pre-event images recorded locally in camera or video encoder
- Pre-recording buffer (used for event/motion-based recording) in RAM minimizes the disk read/write operations when no video is recorded
- Edge Storage with flexible retrieval enables video retrieval from camera storage based on time schedules, events or manual requests. This enables users to effectively retrieve video recordings across low-bandwidth connections
- Scalable Video Quality Recording (SVQR) enables seamless merging of video stored centrally in the recording server and video retrieved from a camera associated edge storage
- Built-in, real-time, camera-independent motion detection with the ability to generate motion metadata for Smart Search
- The recording server runs as a Windows service under local system account or optional local Windows user or Microsoft Active Directory account with run-as-a-service privileges
- Port forwarding enables clients to access the recording servers from outside a network address translation (NAT) firewall
- Support for both IPv4 and IPv6 addressing
- Secure HTTPS camera connection on devices supporting HTTPS
- Encrypted communication between Recording Server and services retrieving streaming data
- Video motion detection decoding takes advantage of processing power in Graphical Processing Units. This includes the GPU part of the Intel CPU (requires CPU with support for Intel Quick Sync Video)
- Functional recording server even if a recording storage area is unavailable. Continued recording of video from devices with available recording storage and live video on devices without available recording storage
- Support for shutdown of recording server if recording storage becomes unavailable, to enable fail over to take over

[2] Please view list of supported devices and number of supported streams here: Supported Devices

Pan-tilt-zoom (PTZ)

- "Pass-through" control of manual PTZ operation from clients with user priority
- 3 PTZ priority levels for control of rights between different operators and automatic patrolling schemes
- Execute rule-based go-to preset position on events and patrolling
- Pause PTZ patrolling on event and resume patrolling after manual session timeout
- Import PTZ presets defined in the PTZ camera
- Rename imported PTZ presets

I/O and events

- Support for devices with one or more input and output ports
- Powerful rule processing engine for execution of start and stop actions triggered by events or time profiles

Setup and management

- Download and install the recording server from a web page on the management server. The recording server is completely managed via the Management Client, and configuration changes are applied instantly while recording is in operation
- Selecting "Single computer" set up during the initial installation the system automatically performs certain configurations for an easier installation experience
- Local recording server configuration data is available during periods where the management server is inaccessible
- Recording server manager is available in the local console notification area (icon tray) for status messages, start/stop of the service and change of network settings

Client access

- Facilitate client access
- Clients are authenticated and authorized at the management server and use a session-limited access token to access the recording server
- System administrators controlling systems with multiple users can control access permission per client for each of the three Velocity Vision clients, resulting in safer security access

Logs

- Logging of system, audit and rule entries to the management server with local caching during offline scenarios

Management server and Management Client

System

- Management server for user authentication logon, system configuration and logging
- Management Client for central administration of the system such as recording servers, devices, security, rules and logging
- All system configuration for the entire system is stored in a centralized SQL database, and accessible by the management server only
- Server Logs are stored in a separate database
- Failover solution for the management server provides a resilient system solution based on Windows Server Clustering, ensuring high system availability
- Secure and encrypted communication between system components
- Management server manager is available in the local console notification area (icon tray) for status messages and to start/stop the service
- The management server runs as a Windows service under local system account or optional local Windows user or Microsoft Active Directory account with run-as-a-service privileges
- To register and validate your licenses, the system offers easy-to-use automatic or manual online activation via the Internet and alternatively, offline activation via email and web for closed surveillance networks
- Support for both IPv4 and IPv6 addressing

Interconnect

- Velocity Vision Advanced is compatible with Interconnect enabling multiple Velocity Vision Advanced systems to be connected with a central Velocity Vision Enterprise system to gain central surveillance operation across geographically dispersed sites

Storage

- Definition of one or more storage containers with individual archiving schemes and retention times. Recording capacity is limited only by disk space
- Each storage container is defined as live database and one optional archive, where the video data is moved from the live database to secondary disk systems or network drives. The archived data is still online and available for clients
- Archiving scheme defines when video is archived and how long the video data is retained before deletion
- Ability to allocate individual devices to different storage containers
- Move a device or a group of devices between two storage containers
- Storage overview gives instant indication of used vs. available storage in total and for individual cameras

Devices

- Hardware wizard to add devices; automatically using Universal Plug and Play (UPnP) discovery, via IP network range scanning, or using manual device detection. All methods support automatic or manual model detection
- Wizard for swift replacement of malfunctioning devices with preserved configuration settings and recordings
- Wizard for easy moving of hardware devices (with attached cameras, microphones, speakers, inputs, outputs and metadata devices) between recording servers in runtime without losing settings, recordings, rules, permissions etc.

- Enable and disable devices if they are not used or are down for maintenance
- Adjust settings such as brightness, color level, compression, maximum bit rate, resolution and rotation per camera or camera group
- Enable up to two streams per camera; one stream for live viewing and one stream for recording
- Select and configure video format, frames per second (FPS), resolution and quality for the video streams used per camera
- Adjustable group of pictures (GOP) length for MPEG4 H.264 and H.265 encoded video
- Assign camera shortcut number for easy operation by clients
- Optional preview window for immediate verification of video settings per camera or for a group of cameras
- Define multiple PTZ preset positions per camera
- Import PTZ preset positions from cameras
- PTZ scanning on supported devices
- Define multiple PTZ patrolling schemes with adjustable wait time between shifts and customizable transitions with disabling of motion detection to avoid false alarms
- Run multiple patrolling schedules per camera per day. For example, run different schedules for day/night/weekend
- Privacy masking conceals certain parts of the image, both in live and playback video and in exported material. It supports permanent masks and liftable masks that can be lifted and managed with user credentials. Masking level is adjustable and ranges between 'light blur' to 'solid grey'
- Configure device events like motion detection with pre- and post-buffers, or input signal behavior options
- Fine-tune motion detection sensitivity per camera manually or automatically
- Apply one or multiple exclusion zones for where motion detection is to be disabled to avoid unwanted detection
- Manage device password on one or multiple devices from within the Management Client[3]
- Device firmware upgrade of single devices[4]
- Adding devices on HTTPS
- Initial setup of credentials on devices without factory default credentials increases the level of security in the customer's system.
- User handling: Add/change VMS user account that communicates with the device. List and delete existing device's users.[5]
- Network configuration: enabling change of IP address, subnet mask, and default gateway for a device[3]
- Management client contains a field showing the firmware version of each device
- Option "Update Hardware" updates the information about the firmware and features available for a specific device
- Full list of devices, firmware versions and features supported by Hirsch can be found here
  Supported Devices
  and
  drivers are available in Device Packs here:
  Download Drivers

Rules, time profiles and notifications

- Powerful Microsoft Outlook-style rule system supports an unrestricted number of rules
- Rule actions can be triggered by events, time interval, time schedule (recurring, or a combination of event and time). Rules can be optionally stopped by an event or after a certain time
- Time profiles with recurring time selection and expire condition support an unrestricted number of time profiles
- Dynamic day-length time profile follows daylight changes over the year for a given location defined by a GPS position, including daylight savings time
- Play audio files on rule making it possible to automate announcements over speakers.
- Trigger events:
  The Velocity Vision Advanced VMS system and connected devices support a wide set of events that can be used to trigger actions using the rule system. Events are grouped in the following categories:
  - Hardware: events that relate to physical hardware devices connected to the system
  - Devices: events that relate to certain functions and states of devices available to the Velocity Vision VMS system via the connected hardware devices
  - External Events: events that relate to VMS integrations
  - Recording server: events that relate to archiving and database functions.
  - Analytics: events from integrated applications and systems
- For further details on available trigger events, please refer to the Velocity Vision VMS Administrator's Manual.
- Start actions: The triggering events may initiate a wide set of actions in the VMS system, connected devices or integrated systems.
  For a complete list of available actions, please refer to the Velocity Vision VMS Administrator's Manual
- Stop actions: The rule engine may also trigger stop actions in the VMS system, connected devices or integrated systems upon the completion of a rule.
  For a complete list of available stop actions, please refer to the Velocity Vision VMS Administrator's Manual
- Multi-recipient customizable email notification with image and/or AVI attachment of incidents

[3] Not supported for all devices. For details read latest Hirsch Velocity Vision device pack release notes

[4] Applicable only for devices integrated through Axis, Bosch, Hanwha and ONVIF drivers (drivers in Legacy Device Pack excluded)

[5] Applicable only for devices integrated through the Hirsch ONVIF drivers and that are ONVIF Profile T & Q compliant

User rights management

- Common and central management of all user rights across all user and programmatic (MIP SDK) interfaces
- Overall system security definition makes it possible to globally allow or deny permission to devices and functions (such as manage, read, edit and delete).
- Device-specific security definition makes it possible to allow or deny permission to individual devices and functions (such as manage, read, edit and delete).
- Roles control user and administrator access to:
- General: Management Client and Velocity Vision client profiles, dual authorization rights
- Cameras: visibility, administrate, live view (playback search sequences, export, smart search, AUX commands, manual recording, bookmark functions
- Microphones and speakers: visibility, administrate, listen to live audio, playback audio search sequences, export, manual recording, bookmark functions, speak to speakers
- Inputs and outputs: visibility, administrate, status, activation
- PTZ: manual control, activate PTZ presets, PTZ priority, manage PTZ presets and patrolling, lock/unlock PTZ presets and release PTZ session
- Remote recordings: retrieve remote recordings
- External events: visibility, administrate, trigger
- View groups privileges
- Servers: Velocity Vision Enterprise, Velocity Vision Advanced and Velocity Vision Standard slave server access and authentication details,
- Alarms: visibility of alarms and ability to manage alarms
- Role-based alarm management
- MIP: Plug-in permissions
- General application permissions: Management Client, Velocity Vision client, Velocity Vision Web Client and Velocity Vision Mobile
- Scripting disable/enable option

User Management

- User provisioning and deprovisioning using Microsoft Active Directory
- The SCIM protocol is supported for automatic user provisioning and deprovisioning using the organization's own Identity and Access Management (IAM) system that supports OAuth 2.0 and OpenID Connect (OIDC).
- Dedicated system user accounts (Basic users) with username and password authentication for the individual user.

Logging

- Logs of system, audit and rule entries are consolidated from all recording servers and clients
- Each system component log file has adjustable size and time limitations

Velocity Vision client profiles

- Centralized management of Velocity Vision client application options enables optimization of Velocity Vision client for different user categories and skill levels
- Ability to enforce or recommend optional Velocity Vision client application options for a user or group of users, using maximum three different Velocity Vision client profiles
- Define general Velocity Vision client application options, including (listing not exhaustive): visibility of time, visibility of camera live indicators, default image quality, default frame rate, keyboard and joystick setup, startup mode and de-interlacing filters
- Access to live mode and the availability of individual control panes and overlay buttons
- Access to playback mode and the availability of individual control panes, overlay buttons and settings for specific functions, such as default export path
- Access to setup mode and the availability of individual control panes and setup functions
- Access to Centralized Search and Alarm Manager
- Definition of available view layouts

System administration

- Built-in backup and restore support for manual system backup of all configuration data, including (listing not exhaustive): system configuration data, maps, alarm settings and definitions and client views
- Configuration data and backup can be password protected, to enhance security around restore procedure.
- Configuration Reporting enables complete or partial documentation of system configuration. Custom and site-specific free-text information, integrator's notes and logo can be added to the printer-friendly reports
- License administration
- License overview including add-on products, SSA coverage and renewal date
- License owner information, that is synchronized with the software registration page on the Hirsch website
- Expanded license information for multi-site installations where both the total used licenses for the common SLC is presented and the license use in the specific system
- License overview that presents the license use of all the individual sites running on the same SLC
- "Changes without activation" function that allows additions and replacements of limited number of hardware devices without requiring license activation

Authentication & Authorization

- When installing Velocity Vision, the user can choose between the following authentication options:
  - Basic user
  - Microsoft Active Directory (supports Windows NTLM and Kerberos authentication)
  - Single sign-on (SSO) using the organization's own Identity and Access Management (IAM) system

that supports OAuth 2.0 and OpenID Connect (OIDC).
- Support for Azure Active Directory for integrated security
- Dual authorization offers an optional additional level of system security, where Management Client users are granted access to the system only when a second user or supervisor has confirmed the log-in with a successful authorization of the second user

Event Server

Alarm Manager

- Single-point alarm management of all internal system alarms and external security alarms
- Alarm descriptions and work instructions make alarms actionable for operators
- An alarm location map can be linked to each alarm providing instant situational awareness to the operator dealing with the alarm
- Customizable alarm priorities allow operators to focus on the most critical alarms
- Customizable alarm categories enable logical grouping of alarms dependent on their type and nature
- Customizable alarm statuses enable alignment of the alarm handling workflow with existing workflows and security systems
- Role-based alarm management provides options to view-only access to the alarm, full access including acknowledging the alarm, and restricting access to alarms for specific roles
- Alarm handling result code enables tracking of the outcome of the alarms
- Automatic allocation to alarm owner with escalation and alarm forwarding possibilities
- Time profiles for definition of active alarms
- Possibility to associate one or more cameras with an alarm (maximum 15 cameras can be displayed simultaneously in the alarm preview window)
- A set of alarm handling reports gives valuable information about alarm inflow and alarm handling performance
- Extensive logging of alarms
- Microsoft Clustering support for the event server enables secure and redundant alarm handling

Velocity Vision Mobile server

- The Velocity Vision Mobile server runs as a dedicated service, allowing it to be installed either on the same server as other system components or on dedicated hardware in more demanding installations
- The Velocity Vision Mobile server can serve video directly to the Web client/Mobile clients via the direct streaming feature. No transcoding to MJPEG required which significantly reduces the load on the Mobile server
- The Velocity Vision Mobile server can transcode video and can adapt to changing connection bandwidth as well as optimize the use of available bandwidth to get the best possible stream quality in the Velocity Vision Web Clients and Velocity Vision Mobile clients
- Adjustable transcoding logic enables capping of video resolution and frame rate for video streams provided to Velocity Vision Web Clients and Velocity Vision Mobile clients
- The Velocity Vision Mobile Server encodes audio in a format suitable for Web Client and Mobile Client, so users can play live or recorded audio.
- Installing the Velocity Vision Mobile Server plugin in the Management Client will give access to Velocity Vision Mobile Server management in order to change settings, read out miscellaneous status information, configure codecs used for exports as well as manage ongoing and completed exports
- Velocity Vision Mobile servers can be installed in parallel, offering redundancy and/or allowing more simultaneous users
- Velocity Vision Mobile servers can be configured through the tray controller to easily adjust or update settings
- Connect securely to the Velocity Vision Mobile server using trusted CA certificates for HTTPS encryption. Velocity Vision Mobile clients do not support self-sign certificates. Unencrypted HTTP connection is supported in the Velocity Vision Mobile client
- Video Push configuration is done from the server, so users can push video via Velocity Vision Mobile without having to apply any additional setting
- Velocity Vision Mobile Server supports creating server-side export through Velocity Vision Web Client and Velocity Vision Mobile
- Video decoding in Velocity Vision Mobile Server takes advantage of processing power in Graphical Processing Units. This includes the GPU part of the Intel CPU (requires CPU with support for Intel Quick Sync Video) and in the GPU of additional external NVIDIA cards

Server Configurator

- Makes it easier to select and assign security certificates on the server/computer where it is running
- The security certificates for the Management Server, Recording Server, Mobile Server, Data Collector can be configured from the same place.

- Registration functionality is available through server configurator. This can be used to update configuration after changing hostnames such as when setting up a Windows Server Failover Cluster

Velocity Vision client

General

- Dedicated task-oriented tabs for the Centralized Search and Alarm Manager in addition to Views, Export, and Incident Manager
- Dedicated task-oriented multiple tabs for views
- Application themes support the choice of dark or light themes
- Multi-window support where secondary windows have full functionality and can be operated in independent mode or synchronized mode where they follow the control of the main window
- Shortcuts to select a specific window or specific camera in a window
- Camera search function promptly finds cameras, types of cameras and views in the system with the ability to create temporary views to display all or a subset of cameras matching the search criteria
- Display Metadata bounding boxes from supported devices in live views and playback
- Generic 360 dewarping allows users to cover a wide area with a single device with 360 cameras, but at the same time get a 'normal' view of a fisheye image.

Customization

- Application options enables customization of the general behavior and look of the Velocity Vision client
- The customization can either be made as individual personalization managed by each operator, or centrally enforced through Vision Client Profiles
- Control of general look & feel and navigation properties, such as color mode, camera title bar, grid sizes etc.
- Availability of control panes and functions in live and playback tabs, and in setup mode
- Information included in timeline in playback tab
- Behavior and availability of expert function
- Setup of keyboard shortcuts and joystick controls
- Specific behavior of alarms and access control notifications
- Advanced application settings such as use of hardware acceleration, video diagnostics overlay and time zone settings
- Restore windows and tabs at login
- Supports more than 30 different application languages

Live view

- View live video from 1-100 cameras per computer monitor/view
- Multiple computer monitor support provides a main window and any number of either floating windows or full screen views
- Live view digital zoom allows a full view of recordings while the operator can digitally zoom in to see details
- Adaptive streaming enables a lower resolution stream from the recording server to the Vision Client, Vision Wall, Mobile Client or Web client when a high resolution is not required, i.e. when displaying video where the view items do not require high resolution streams
- Supports multiple view layouts optimized for 4:3 and 16:9 display settings in both landscape and portrait
- Independent playback capability allows for instant playback of recorded video for one or more cameras, while in live mode
- Centralized storage of shared and private camera views enables coherent access to views across the system
- Possibility to instantly rearrange cameras in views for optimized monitoring of incidents, with single click restore of original view
- Instant camera placement in live view allows for instant replacement of cameras in a view, where new cameras can be placed in a particular view and positioned through a simple drag-and-drop operation
- Update on "motion only" optimizes CPU use by allowing motion detection to control whether the image should be decoded and displayed
- Global hotspot function allows users to work in detail with any camera selected from any view
- Local hotspot function allows users to work in detail with a camera selected from the same view
- Carousel function makes a specific view item rotate between predefined cameras that are not necessarily present in the view at the same time. Operators can select default or custom display times for each camera, and they are able to manually switch to the next or previous camera in the carousel list
- Matrix function shows live video from multiple cameras in any view layout with customizable rotation paths, remotely controlled by computers sending matrix remote commands
- Import static or active HTML maps for fast navigation to cameras and to provide a good overview of premises
- Hide HTML page toolbar in HTML page views
- Activate matrix via graphical maps of premises using JavaScript or integrate with centralized access control systems
- The operator can assign outputs, PTZ presets and views as actions to joystick buttons and as keyboard shortcuts.
- Two-way audio support enables Velocity Vision client to record and play live audio from camera-connected microphones and outgoing audio from the operator's microphone to one or multiple camera speakers
- Adaptive de-interlacing option secures high video quality, based on the actual video content received. Velocity Vision client can optionally apply a filter to areas of the image where jagged edges would otherwise show up

- Operators may start/stop manual recording on individual cameras, where the recording status is propagated to all Velocity Vision client users active in the system

PTZ

- Control PTZ cameras by using:
  - PTZ preset positions
  - PTZ point-and-click control
  - Overlay buttons
  - PTZ zoom to a defined rectangle
  - Video overlaid PTZ control
  - Virtual joystick function
  - Joystick
  - Manage PTZ presets
  - Start, stop and pause patrolling
  - View who has PTZ control and time to automatic release
  - Lock PTZ control
- Take manual control of a PTZ camera that is running a patrolling scheme. After a timeout with no activity, the camera reverts to its scheduled patrolling scheme
- PTZ camera specific icons to easier identify PTZ cameras
- 360° Fisheye Lens Viewing: Capability for fisheye lens camera views provided through utilization of the ImmerVision Enables panomorph lens technology. Other lenses than ImmerVision can be supported by using the integrated generic dewarping lens profile or a third-party plug-in

I/O and events

- Overlay buttons provide intuitive control of cameras, camera-integrated devices and other integrated systems directly from the camera view
- Manually trigger output port relay operation, for example when controlling gates
- Manually trigger events by activating a server-defined event from a list

Bookmarking

- Manually define quick or detailed bookmarks with the bookmark function
- Bookmarks are shown in timeline with instant preview
- Listing and previewing bookmarks in recording search
- Bookmark reports enable effortless incident documentation
- Direct video export of a bookmark reduces the time needed to prepare forensic video material
- Search and apply filters to bookmarks (searching by camera and keywords, and adding time frame)

Playback

- Playback video from 1-100 cameras per computer monitor/view
- Advanced video navigation includes fast/slow playback, jump to date/time, single step and video motion search
- Integrated video timeline with time navigation and playback controls, including an integrated function to select a time interval for export, or video retrieval from Edge Storage devices
- Overview of recorded sequences and bookmarks
- Independent playback capability allows the independent playback of recorded video from one or more cameras
- Instant camera placement in playback view allows users to instantly replace cameras in a view, where a new camera can be placed in a particular view and position with a simple drag-and-drop operation
- Digital zoom allows the operator to see magnified details in the recorded video

Export and print

- The snapshot function enables operators to produce instant visual documentation of a camera by saving the camera image to a file, or sending it directly to a printer
- The storyboarding function makes it possible to include video sequences from different or overlapping time intervals from different cameras in one and the same export
- Export in Velocity Vision format; including the standalone Velocity Vision client - Player application for instant and easy viewing by authorities
- Export preview with looped playback
- Encryption and password protection of exported video material based on 256-bit AES encryption algorithm
- Secure video evidence handling with a digital signature of exported video material that enables users to verify the video has not been modified or tampered with when viewing the export in the Velocity Vision client – Player
- Create evidence material in media player format (AVI files), MKV format, or still image format (JPEG images)
- Disable re-export option to prevent undesirable distribution of sensitive evidence material
- Bulk camera export in multiple formats to multiple destinations, including direct export to optical media, results in more efficient video exports and more secure handling of evidence material
- Export comment function enables users to add general and/or camera-specific comments to a video export when exporting to Velocity Vision format.
- In media player format comments can be added as pre/post slides
- Print incident reports including image, surveillance details and free-text user comments
- Export with audio support in media player format (AVI & MKV) – individual files (containing one video sequence)
- Export with audio support in media player format (MP4 & MKV) – combined file (containing several combined video sequences, in either single camera or Adaptive View, that shows cameras side-by-side in a grid view)

Centralized Search

- Dedicated tab for Centralized Search (replacing Sequence Explorer)
- Search categories are video sequences, bookmarks, motion, vehicle[6], people[6] and location[6]
- Easy application of filtering with dynamic update of search window
- Preview of selected search results with direct options for exporting video, making bookmarks, exporting to pdf, and more
- Hide/show search results that are not matched on all search agents

Map function

- Built-in map function in Velocity Vision client provides intuitive overview of the system and offers integrated access to all system components
- Map images can be in standard graphic file formats including JPG, GIF, PNG and TIF
- Any number of layered maps such as city, street, building and room
- Instant camera preview on "mouse over" and one-click shows all cameras on map
- One-click function to open floating window with all cameras (maximum 25 cameras) on the map
- Depiction of camera view zones on map with clickable PTZ zones for instant PTZ control
- Easy drag-and-drop and point-and-click definition of cameras, servers, microphones, speakers, I/O devices, hot-zones for map hierarchies, camera view zones and PTZ camera presets position view zones
- Integrated control of speakers, microphones, events and output I/O control, including doors, gates, light and access control systems
- Real-time status monitoring indication from all system components including cameras, I/O devices and system servers
- Graphical visualization of the system status through color coding
- Hierarchical propagation of status indications to higher ordered maps
- Different levels of status indications available (alarm, warning and errors)
- System performance data for cameras and servers including camera resolution, FPS, network use and disk space
- Ability to suppress status indications (such as error and warning) for a given device
- Possibility to edit device names in a map and assign map-specific names and references to devices in a map
- Map editing subject to user rights

Smart Map Functions

- Map function that provides seamless geo-navigation, with seamless drilldown across different layers
- Supports Hirsch map service, Bing, Google, and OpenStreetMap.
- Supports locally installed tile servers for OpenStreetMap for systems with no internet access.
- Supports geo-referenced GIS maps (shapefiles)
- Ability for users to toggle different layers on and off in the map. Examples of such layers are cameras (names, field of view, name), quick links and different layers provided by the maps and drawings used (street names, buildings, etc.)
- Supports geo-referenced buildings with floor-level navigation for easy identification and operation of relevant cameras
- Supports geo-referenced floor plans inside buildings
- Configure cameras inside buildings, ensuring they are only shown on relevant floor levels
- Location links enables quick navigation across different sites and locations
- Map links enables drilldown to existing classic Velocity Vision client maps
- Instant one-click camera preview
- Easy multi-camera selection with camera preview
- Easy drag-and-drop and point-and-click definition of cameras, camera field of view, location links and quick links
- Selection of 10 different camera icons
- Depiction of camera field of view on map
- Camera object aggregation preserves the overview when several cameras are closely located
- Visualize location of Search result
- Alarms on Smart Map, see where on the map an alarm has been triggered
- Input devices on Smart map, see where on the map an input device has been activated.
- You can add and enable output devices on the Smart map
- Microphones on Smart map, activate to listen by clicking on the map
- Auto-place devices on map via positioning and direction settings
- Possibility to edit device names in a map and assign map-specific names and references to devices in a map

Alarm Manager

- Dedicated tab for the Alarm Manager
- Alarm list with extensive filtering capabilities and an alarm preview in both live and playback mode
- Extensive alarm sort and filtering functions allow operators to focus on most critical alarms
- Instant preview of primary and related cameras helps reduce the number of false alarms
- Tight integration with the map function allows operators to indicate and acknowledge active alarms in the map
- Alarm descriptions and work instructions make alarms actionable for operators

---

[6] Limited to certain camera models that can perform video analytics and export ONVIF compliant metadata

- Alarm escalation and alarm forwarding possibilities allow operators with appropriate skills to handle different alarms
- Alarm reports enable incident documentation
- Alarm location map presents the alarm operator with a map showing the alarm area when an alarm is selected
- Desktop alarm notification linked to alarm manager
- Alarm notification to a single user or a group of Velocity Vision Mobile client users using Push Notifications
- Optional sound notifications for different alarm priorities for notification of new incoming alarm
- Alarm disabling option enables users to suppress alarms from a given device in a certain time period
- Instant access to both live and recorded videos from the cameras that are related to the alarm
- Alarm handling reports give valuable information about alarm inflow and alarm handling performance

Setup and management

- Download and install Velocity Vision client from a web page on the management server
- Notification about new updates at log-in
- Application options allow users to adapt the layout and personalize the application to their particular preferences

Authentication & Authorization

- When installing Velocity Vision, the user can choose between the following authentication options:
  - Basic user
  - Microsoft Active Directory (supports Windows NTLM and Kerberos authentication)
  - Single sign-on (SSO) using the organization's own Identity and Access Management (IAM) system that supports OAuth 2.0 and OpenID Connect (OIDC).
- Support for Azure Active Directory for integrated security
- Dual authorization offers an optional additional level of system security, where Management Client users are granted access to the system only when a second user or supervisor has confirmed the log-in with a successful authorization of the second user

System

- Support for IPv4 and IPv6 addressing
- 64-bit Windows operating system support enables better performance when viewing and operating many cameras
- Hardware video decoding is done to significantly reduce the CPU load and improve performance of the recording servers. Velocity Vision supports video decoding done in the GPU part of the Intel CPU (requires CPU with support for Intel Quick Sync Video) and in the GPU of additional external NVIDIA cards

Velocity Vision client – Player

- Play back recorded or archived video and audio evidence, including edited storyboard exports
- Same user-friendly interface and most functions as Velocity Vision client
- Instant one-click playback for easy viewing of exported video evidence
- Adaptive View in the Vision Client Player - adapting the camera layout according to the number of cameras playing simultaneously, to maximize view size
- Advanced second-level investigation tools make it easy to refine exported video and re-export the most essential evidence
- Metadata bounding boxes included in exports are displayed time synchronized in Velocity Vision client – Player
- The project tool allows users to merge video exports or archives from two different locations or Velocity Vision systems together into one new export
- Generic 360 dewarping. Dewarping allows the user to cover a wide area with a single device, but also to have a 'normal' view of an otherwise distorted or reversed image
- View up to 100 cameras time-synched during playback
- Camera search function promptly finds cameras, types of cameras and camera views in the system
- Scrollable activity timeline with magnifying feature
- Instant search on recordings based on date/time and activity/alarm (video motion detection)
- Evidence can be generated as a printed report, a JPEG image, an AVI or MKV film or in Velocity Vision format
- Export audio recordings in WAV, MKV or AVI format
- Exported video can be digitally zoomed to view an area of interest and minimize export footprint size
- Re-export evidence containing Velocity Vision format and Velocity Vision client - Player for instant, easy viewing by authorities
- Encryption and password protection of exported video material based on 256-bit AES encryption algorithm
- Secure video evidence handling with a digital signature of re-exported video material enables users to verify that the video has not been modified or tampered with when viewing the export in Velocity Vision client – Player
- View, modify or add general and/or camera-specific comments for a given video export
- De-interlacing of video from analog cameras
- 360° ImmerVision Enables panomorph lens technology

Velocity Vision Web Client

- Access Velocity Vision views through the browser and avoid advanced setup. No installation needed on client computer
- Shared views can be managed centrally via the server with administrator/user rights and user groups

- Timeline with the switch between live and playback within a view or single camera, ability to adjust playback speed, timeline ruler scale, play forward and backward, scrub between sequences once at a time, advanced flow for working with bookmarks from the timeline and an option to navigate to a specific date and time via updated time picker. Auto-hide the timeline in full screen mode after 5 seconds of inactivity to maximize display area.
- Direct streaming supported, meaning that the Web client can receive H.264 directly from the recording server without transcoding, which is more efficient and provides smoother experience
- Adaptive streaming enables a lower resolution stream from the recording server to the Vision Client, Vision Wall, Mobile Client or Web client when a high resolution is not required, i.e. when displaying video where the view items do not require high resolution streams
- Camera search function promptly finds cameras, types of cameras and camera views in the system
- Search for a camera by entering keywords from the camera description defined in Velocity Vision Management Client to easily find a device when monitoring views in live or playback mode.
- Easy single/multi camera video playback including fast/slow playback, single frame step for bookmarks and jump to date/time with frame preview while adjusting time
- Investigation function with ability to save exports for later usage or download
- Users can quickly get an overview and act if needed via the list of alarms
- Control PTZ cameras remotely with PTZ mouse gestures, including preset positions
- Two-way audio support for playing and exporting live or recorded audio from device or camera-connected microphones. Use the camera's speaker to talk with a person in front of the camera, and at a later stage play back recorded audio
- Broadcast audio support for mass communication to multiple camera-connected speakers at once.
- Dynamic bandwidth optimization when streaming from server to client gives better use of bandwidth
- Create AVI, MKV media exports
- Export in Velocity Vision format; excluding the standalone Velocity Vision client Player
- Re-export of exports in Velocity Vision format is always prevented
- Encryption and password protection of exported video material
- Secure video evidence handling with a digital signature of exported video material that enables users to verify the video has not been modified or tampered with when viewing the export in the Velocity Vision client – Player. Always enabled.
- Export on the server to avoid moving large video files back and forth. Only download needed files or save them for downloading when on a faster connection
- Preview exports on the server without downloading them
- Trigger outputs and events with live view of related camera
- System log-in using Velocity Vision username and password. Possible to change basic user password via a link from the login dialogue box.
- System log-in using Microsoft Active Directory user
- Secure connection through HTTPS
- Use organization's own Identity and Access Management system that supports OAuth 2.0 and OpenID Connect (OIDC) to enable Single sign-on (SSO)
- The guided tour gives an overview of the new features and information on how to use them.

Bookmarking

- Manually define quick or detailed bookmarks with the bookmark function
- Create bookmarks based on rules
- Search and apply filters to bookmarks (searching by camera and keywords, and adding time frame)

Velocity Vision Mobile Clients

Items described below are available for both Android and iOS devices:

- Available for Android and iOS devices. Supported version listed on Hirsch's system requirements page
- Add log-in credentials for multiple servers in Velocity Vision Mobile to easily switch between sites or different connection addresses
- Direct streaming supported meaning that the Mobile client can receive H.264 and H.265 directly from the recording server without transcoding in the Mobile Server, which is more efficient and provides smoother experience
- Adaptive streaming enables a lower resolution stream from the recording server to the Vision Client, Vision Wall, Mobile Client or Web client when a high resolution is not required, i.e. when displaying video where the view items do not require high resolution streams
- Views are inherited from the connected Velocity Vision VMS system. The client automatically obtains the user's private and shared views from the system to be used as camera lists in Velocity Vision Mobile
- A view with all cameras is automatically generated, allowing Velocity Vision Mobile to be used when no views are set up. It also provides a quick way of searching through cameras
- Camera search function promptly finds cameras, types of cameras and camera views in the system
- Cameras can be viewed on a full screen to take better advantage of the device's screen. It is also possible to search through cameras in a view while in full screen by swiping left or right
- Digital pinch-to-zoom enables users to zoom in on a part of the image for closer review and conduct detailed investigation of video when using megapixel or high-definition cameras
- Play back recordings from the database, navigate recorded video using a flexible timeline control or

select a specific time or recorded sequence to start playback, step through recordings and select a playback speed.
- Picture-in-picture in playback mode allows users to view recordings from the database while keeping an eye on the live video. The client displays a live picture-in-picture frame of the same camera when in playback mode.
- Control PTZ cameras with Velocity Vision Mobile either manually or by selecting predefined presets for quick navigation
- Video Push allows users to use their mobile devices' cameras as cameras in the Velocity Vision VMS. Easy to use and requires no setup in the mobile device
- Option to include location metadata in Video Push
- Option to record audio during Video Push
- Two-way audio to play live or recorded audio from device or camera-connected microphones. Use the camera's speaker to talk with a person in front of the camera simply using the Push-To-Talk button. Push-to-talk communication is recorded and can be played back
- View access control events and grant/deny access to the premises if an access control system is integrated via the Velocity Vision Access add-on product
- Trigger outputs and events:
  Mobile devices can trigger outputs connected to the Velocity Vision VMS, or user-defined events to have greater control while on the go
- Connect securely to the Velocity Vision Mobile server using trusted CA certificates for HTTPS encryption. The Velocity Vision Mobile client does not support self-signed certificates. Unencrypted HTTP connection is supported by Velocity Vision Mobile Client.
- Export on the server to avoid moving large video files back and forth. Only download needed files or save them for downloading when on a faster connection
- Take screenshots when using the mobile application
- Receive alarm notifications using Push Notifications, notifications include access to video, alarm information and instructions [7]
- Users can check their SSA coverage directly in Velocity Vision Mobile.
- Users can receive push notifications with SSA expiration reminders [7]
- Emergency Alert enables receiving alarm notifications of the highest severity level when a potential threat is detected, view alarm details, and immediately act.
- A notification badge in the alarm tab gives the user an indication to check alarms and act accordingly.
- Investigation function to access investigations done in the Web client
- System log-in using Velocity Vision username and password. Possible to change basic user password via a link from the login dialogue box.
- System log-in using Microsoft Active Directory user
- Support of biometric authentication for log-in for Android and iOS devices
- MDM (Mobile Device Management) support
- Use organization's own Identity and Access Management system that supports OAuth 2.0 and OpenID Connect (OIDC) to enable Single sign-on (SSO)
- Share a link to a camera's live video stream with another Mobile Client user
- Navigation icons placed in the bottom of the screen, and closer to the thumb, allow users to react quickly.
- A user side panel provides the user with easy access to user information.
- Users can personalize their start screen by marking any view or the 'All Cameras' tab as default. The selected default view will open automatically when opening the app and connecting to the server.

Bookmarking
- Manually define quick or detailed bookmarks with the bookmark function
- Create bookmarks based on rules
- Search and apply filters to bookmarks (searching by camera and keywords, and adding time frame)
- Sharing bookmark links between mobile devices by generating and accessing links.

Features available for Android users
- Background Picture in Picture leaves the live feed of a camera on screen, when the app is minimized, allowing users to navigate to another app, while continuing viewing live video.

[7] Use of Push Notifications requires Hirsch SSA

Miscellaneous

FIPS 140-2 compliant mode

Velocity Vision can be used in a FIPS 140-2 compliant mode.

For more information, please refer to: Velocity Vision Support Center

Minimum system requirements

The following are minimum requirements for the computers used, please refer to: Velocity Vision Support Center

Licensing structure

Server base license

- Velocity Vision server base license is mandatory for installing the product.
- The base server license permits the following deployments within the legal entity purchasing the base server license:
- Unrestricted number of Management Servers
- Unrestricted number of Recording Servers
- Unrestricted number of Velocity Vision clients, Velocity Vision Web Clients and Velocity Vision Mobile applications

IP device license

- To connect cameras, video encoders, NVR/DVR, video services or other types of video devices to Velocity Vision, one device license is required per enabled video channel. For non-video devices, one license is required per IP device. License per enabled video channel rule does not apply for the multichannel cameras and encoders (up to 16 Channels) that are on the Supported Devices List and will require only one license per IP device. Hirsch Supported Device List governs and provides information on the number of required device licenses for IP devices connected to and enabled in Velocity Vision. Always refer to the Hirsch Supported Device List to see how many device licenses you shall purchase for your use of Velocity Vision with IP devices.

- In total, for all copies of the product installed under this license, the product may only be used with IP devices as you have purchased IP device licenses for. To extend an installation with additional IP device licenses, the base server license number (SLC) is required when ordering.

Licensing of Interconnect

- One Interconnect device license is required per device (camera) in an interconnected site that is enabled in the central Velocity Vision Enterprise system

Licensing of Video Processing Service Driver (included in the MIP SDK)

- The Video Processing Service Driver, when receiving modified video from any connected video processing system or any directly or indirectly connected device, requires one device license per enabled video channel.