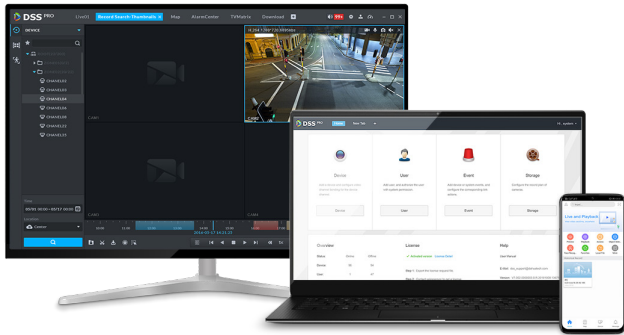


# DSS Pro

Comprehensive and Expandable Dahua VMS



## Introduction

DSS Pro, comprehensive and expandable Dahua VMS, is a flexible, scalable, reliable and powerful central management system. With client-server architecture, DSS Pro provides central management, information sharing, convenient connection, and multi-service cooperation. It can provide basic functions such as user permission management, device management, alarm management, central storage, video wall and map, access control features such as personnel management, video intercom, attendance, and access control and AI functions such as face recognition, ANPR, people counting and object detection. It also integrates add-ons such as business intelligence and traffic. DSS Pro can be applied to many security surveillance solutions.

## Key Components

### Service

- Central Management Service (CMS)
- Device Management Service(DMS)
- Storage Service (SS)
- Media Transmission Service (MTS)
- Auto Register Service (ARS)
- Alarm Dispatch Service(ADS)
- Picture Transfer Service (PTS)
- Object Storage Service (OSS)

### Client

- Windows and Mac PC Client
- DSS Mobile Client
- DSS Mobile client for VDP

## Running Environments

### Operating System

- OS for Server:
  - Win10-64bit/Windows Server 2008/Windows Server 2012/Windows Server 2016/Windows Server 2019.
- OS for Windows Control Client:
  - Win7-32bit/Win7-64bit/Win10-64bit/Windows server 2008/Windows Server 2012/Windows Server 2016/Windows Server 2019.
- OS for Mac Control Client:
  - Mac OS 10.13.4 and above.
- OS for DSS Mobile Client:
  - IOS: IOS9.0 and above.
  - Android: Android 4.4 and above.

### Languages

- English, Italian, Russian, French, German, Polish, Hungarian, Finnish, Danish, Czech, Bulgarian, Spanish, Korean, Krainian, Turkish, Thai, Vietnamese, Japanese, Portuguese, Macedonian, Traditional Chinese, Simplified Chinese.

### Hardware

- Hardware for Server

#### Recommended

CPU	Intel Xeon Silver 4114@ 2.2GHz 10 Core Processor
Memory	16 GB
System Disk	1 TB, 500 GB free for DSS
Ethernet Port	4 Ports@1000 Mbps

#### Minimum

CPU	E3-1220 v5@3.00GHz 3.00GHz 4core
Memory	8 GB
System Disk	1 TB, 500 GB free for DSS
Ethernet Port	2 Ports@1000 Mbps

- Hardware for Control Client

#### Recommended

CPU	Intel Core i5, 64 bits 4 Core Processor
Memory	8 GB
Graphics Card	NVIDIA® GeForce®GT 730

Hard Drive Capacity	200 GB free for DSS Control Client
Ethernet Port	1,000 Mbps

### Minimum

CPU	Intel Core i3, 64 bits 4 Core Processor
Memory	4 GB
Graphics Card	Intel® HD Graphics 4400
Hard Drive Capacity	100 GB free for DSS Control Client
Ethernet Port	1,000 Mbps

### • Hardware for Mobile Client

iPhone	iPhone5S and above
Android	Resolution: 1280X720 and above RAM: 3 GB and above

### Browser Version

- Internet Explorer: 11.
- Chrome: 67 and above.
- Firefox: 56 and above.

### Virtual Machine

- VMware ESXi 6.0 (Windows Server 2012/Windows 10 64bit).

### Features

#### Easy Expansion

- Easy performance upgrade via distributed hardware extension.
- Easy multi-site management through cascading.
- Easy function upgrade via add-ons.

#### High Reliability

- Back up and restore database.
- Support hot standby for master server.
- Support N + M redundancy .

#### High Compatibility

- Dahua's devices: Network camera, network speed dome, decoder, NVR, DVR, ANPR, access control device, VDP, alarm controller, etc.
- Connect third-party devices via standard ONVIF protocol.
- DSS Pro SDK for third-party platform or mobile development.

### Main Functions

#### System

- Support hot standby for master server.
- Support N + M redundancy.

- Support distributed deployment.
- Support LAN and WAN deployment.

## 1. DSS Pro Web Manager

### •Business Configuration

#### Organization Management

- Achieve device group management via organization.

#### License Activation

- Online and offline activation.

#### Device Management

- Device initialization: Initialize Dahua's device.
- Add devices via auto search, IP, Domain, IP segment, auto register (for 3G, 4G, DHCP device).
- Manage Dahua's devices such as network camera, network speed dome, NVR, DVR, access control, video intercom, alarm controller, decoder, etc.
- Add third-party devices via ONVIF protocol.
- Modify Dahua device's IP address.
- Modify the added Dahua devices' password.
- Import intercom devices.
- Bind the associated camera: Link cameras for alarm video display; bind POS channels and cameras for POS transaction monitoring.

#### Role and User Management

- Manage the user's permissions by role (Operator, System Administrator).
- User can be assigned with the roles to obtain the corresponding permissions.
- User can be restricted by the MAC and expiry information.
- Set PTZ permission for user.
- User can be locked.
- Support importing domain user and assigning roles to the user.

#### Event Management

- Alarm type: Device, video channel, audio detection, alarm input, IVS alarm, thermal, vehicle restricted list, traffic violation, access control, face arming, emergency, entrance alarm, radar detection, and number of people stay alarm.
- Alarm Scheme: All day template, weekday template, weekend template and custom template.
- Alarm Priority: Low, medium, high.
- Linkage: Record, snapshot, live video, alarm output, PTZ, video wall, e-mail, door, user.

#### Storage

- Support edge storage and central storage.

- Central storage: Extend storage via iSCSI.
- Add network disk by user mode.
- Server disk configuration for picture storage involving face detection and recognition, alarms, and object detection.
- Create record plan by time template: All day template, weekday template, weekend template and custom template.
- Back up the video by schedule from the edge storage, like EVS, NVR, DVR, etc.
- Back up the video from MDVR through Wi-Fi.
- Disk quota: Group the disks, and cameras can be allocated to different disk groups.

### Map

- Google online map, Google offline map, raster map.
- Up to 8 levels of submaps.
- Configure the hot spots (camera, alarm input, access control channel) and submaps on the map.

### Video Wall

- Display or hide the screen ID.
- Support screens combination.
- Bind the decoding channel to the corresponding screen.

### Face Database

- Face database management.
- Add faces one by one.
- Import faces in batches.
- Set person type.
- Send face database to face recognition devices, and configure similarity.

### Vehicle Restricted List

- Vehicle restricted list management.
- Set start time and end time for vehicle restricted list.
- Arm and disarm vehicle restricted list.
- Import and export vehicle restricted list.

### Average Speed

- Location configuration.
- Region configuration (start location, end location, length, minimum speed, max speed).

### Store Management

- Import store layout picture; support multi-floor layout configuration.
- Configure people counting camera and people counting zone.
- Configure the store location to get weather information.

### Video Intercom

- Residence configuration: Set whether to enable Building

No. and Unit No.

- Issue VTH contact list to VTO.
- Set VTH private password for unlocking VTO.
- View, delete and freeze users of DSS Mobile for VDP.

### •System Maintenance

#### Backup and Restore

- Automatically back up system database (daily, week, month).
- Manually back up system database.
- Restore system database from server or local file.

#### System Dashboard

- Overview and detail system information.
- Running status: CPU, storage, bandwidth.
- Service, device and user online information, device health report.
- Event information statistics: Total events and processed.
- Source information: Video channel, alarm channel.

#### Log

- System, admin, client log.
- Search and export log.

#### System Configuration

- Configure the data retention duration of logs, alarms, POS, heatmap, face recognition, vehicle records, and people counting data.
- Time synchronization: Timed synchronization and device connection synchronization.
- Email server configuration.
- Active directory configuration.
- Support importing HTTPS certificate.
- Set POS end sign.
- Set device login mode.
- Record remote logs.
- Set App certificate.

#### Service Management

- Delete the slave server.
- Enable and disable slave server.
- Manually or automatically assign devices to different servers to balance the server load.

#### Cascading Management

- Add subordinate site for cascading.
- Superior level can view the live video and video record of subordinate site.

## 2. DSS Pro Control Client

### • **Basic Video Management Features**

#### **Live View**

- Display device tree; show or hide offline device.
- Display the device IP address or device name on the device tree.
- View real-time video.
- Common layout (1,4,6,8,9,13,16,20,25,36,64 ) and customized layout.
- PTZ control.
- Electronic focus.
- Manual recording (store on PC or central storage).
- Snapshot.
- Instant playback.
- Digital zoom.
- Fisheye dewarp.
- Fisheye-PTZ smart track.
- Smart track for panorama camera.
- Bullet-PTZ smart track.
- Audio talk.
- Dual audio input.
- Set alarm window.
- Turn on/off the audio in live view.
- Turn on/off the IVS display in live view.
- Restore face image from face privacy mask.
- Region of interest: Divide one window into 4 or 6 parts, one for whole image, others for the details.
- Display map in Live View.
- Save the current live view as a view.
- Up to 4 Live View tabs.
- Support adding channel to favorites.
- Video tour by device, org, favorites, view.
- Quickly switch to playback.
- Support NKB1000 to control camera on Live View.
- POS transaction overlay.
- Set POS overlay style.
- Adjust the video image.
- Adjust the display mode (full screen and original).
- Live video quick positioning on Map.
- Basic setting: Camera properties, video, audio.

#### **Playback**

- Play video from the devices or central storage.
- Video filter: Normal, motion, alarm.
- Sync play and Continuously playback

- Reverse playback of central and device video.
- Show Record area, Alarm and Lock Videos on time schedule bar
- Digital zoom and making PAN in digital zoom.
- Slow and fast forward (up to 64X and 1/64X).
- Playback frame by frame.
- Lock or mark the important record for central storage.
- Download the video, supports avi, dav, mp4, asf.
- Turn on/off the IVS display in playback.
- Decode the video to video wall.
- Fisheye dewarp.
- Adjust the video image.
- Snapshot.
- Quickly switch to live view.
- Adjust the display mode (full screen and original).
- Common layout (1/4/6/8/9/13/16/20/25/36) and custom layout.
- Support thumbnail search.
- Support search record of POS data.

#### **Download Center**

- Download record from central storage or device, supporting avi, dav, mp4, asf.
- Download record by timeline, files or tags.
- Support multi-task download.

#### **Event**

- Real-time and history alarm info.
- Alarm details: Live video, record and pictures from related camera, alarm source location on the map.
- Acknowledge the alarm.
- Arming control for alarm source.
- Forward the alarm to relevant user.
- Manually send alarm email to relevant person.
- Handle alarms and fill out the handling comments.
- Search alarm by alarm source, alarm time, status, handle user, priority.
- Search alarm and export the alarm list.

#### **Video Wall**

- Create different video wall tasks .
- View the real-time video.
- Decode the real-time video to wall.
- Manually/automatically decode to wall.
- Manage the video wall split.
- Change the stream type of video channel.
- Turn on/off audio.

- Add box, turn on/off screen and get the video stream to control client.
- Tour the video channels in one screen.
- Schedule plan: Set the running task on timeline.
- Tour plan: Different tasks loop display, and each task has a duration time.
- Support NKB1000 to control video wall.

### **Map**

- View the live or recorded video on the map.
- Support area or distance measurement on map.
- Support visible range and initial angle (only available for PTZ).
- Alarm source turns red and flickers on the map when alarm occurs.
- Remote door opening and closing.

### **• Access Control Features**

#### **Personnel Management**

- Add, edit and delete the person and department.
- Upload face pictures by selecting files or taking pictures.
- Import personnel information in batches.
- Issue the card, fingerprint via USB reader or devices.
- Authorize by door group.
- Authorize video intercom devices.
- Card, password, fingerprint and face authentications.
- Guest, VIP, Normal and restricted personnel management.
- Extract person info (ID, card, fingerprint, IR face) from device.
- Support setting super passwords for access control devices.
- Support holiday management.

#### **Access Control**

- Door status and door events monitoring.
- View related videos.
- One-key to lock or unlock the doors.
- Global operation of opening or closing doors.
- Support access control channel configuration.
- Advanced door rules, such as anti-passback, first card unlock, inter-door lock, multiple card unlock, remote verification.
- Log info and extract record from device.
- Support searching device log.

#### **Video Intercom**

- Video intercom between VDP based on SIP protocol.
- Video intercom between VDP with command center.

- Release text information to VTH.
- Video intercom log.
- Call management: Support configuring device groups, management groups, and relationship groups to enable specific groups to call each other.

### **Attendance**

- Set access control devices as attendance stations.
- Attendance time period and holiday management.
- Attendance shift management and arrangement.
- Attendance report management, including attendance record report, abnormality report, card-swiping report.
- Support exporting attendance reports.

### **Visitor Management**

- Support visit registration and appointment registration.
- Support issuing access permission by card or face recognition.
- Configure visitor default settings, such as auto visit, auto leave and default permissions.
- Support card-swiping record queries.
- Support visitor record queries.

### **Vehicle Entrance**

- Overview of entrance and exit information: Number of parking spaces and remaining parking spaces, traffic statistics, parking turnover, parking utilization rates.
- Support dual-camera capture for higher recognition rate.
- View real-time license plate recognition.
- Edit parking-lot, includes total and available spaces, parking name etc.
- Support configuration of barrier control rules, and support configuration of barrier control rules for zero-space-left cases.
- Support searching for vehicle records, on-site vehicles, and ANPR details.
- Manage owners, vehicles and cards.
- Bind LED screen with ITC or spot detector device.
- Open the barriers via VTO with cards or remotely.
- Force to exit: Automatically clear false on-site vehicle data.
- Search and export the vehicle records.
- Support daily, weekly, monthly, and annual statistics of vehicle entrance.

### **• Add-ons**

#### **Face Recognition**

- Automatically capture faces in the camera field of view.
- Extract face attribute information from captured face.

- Real-time face comparison.
- Quickly register face to face database.
- Search for face via face attribute.
- Search for face via uploading a face image.
- Search for comparison records.
- Generate the track for the specific face.
- Generate daily, weekly, monthly attribute report based on the gender and age.

### Object Detection

- Real-time snapshots captured by the cameras, including information about human, motor vehicles, and non-motor vehicles.
- Extract attribute information from snapshots.
- Search for the objects in the snapshot database quickly by setting up criteria, search for human body by image.
- Generate daily, weekly, monthly attribute report based on human, motor vehicles, and non-motor vehicles.

### Flow Analysis

- People counting: Provide daily, weekly, monthly, yearly reports.
- Search for people number by rule.
- Heatmap.
- Export the people counting and heatmap data.
- Dwell time reports.

### Business Intelligence

- Provide daily, weekly and monthly report.
- Entrance analysis: Total customer flow, entrance customer flow, flow by temperature cluster, flow by weather cluster.
- Customer demographic: Flow by age, customer gender by weather, customer flow by attributes, customer radar chart, customer expression, customer sankey.

### Thermal

- Support monocular thermal imaging devices and binocular thermal imaging devices.
- Support taking temperature values from video frame points.
- Support acquiring timed heatmap.
- Support pane selection, circle selection, and linear analysis on heatmap.
- Support temperature curve analysis on heatmap.
- Support saving, importing, and re-analyzing heatmap.
- Support defining automatic opening and closing function
- Support defining manual opening and closing function

- Audible and visually warn while camera is automatically opening and closing process. it can be canceled.
- Show Laser distance Measurement data on thermal and visible image.
- Information about the maintenance time of the thermal image cooling unit

### • Client Features

- All PTZ functions.
- Operator can write name, call,delete, start-stop and change parameters Preset,Patrol and Pattern functions.
- Creating and deleting Park Mode.
- Setting the Home Position,updating.
- Take Panoramic picture and manage over this photo.
- Guiding the camera perspective with the map.
- Show Coordinate information on map
- Zoom in - out on map
- Changing Polarity
- Open / Close Image Stabilization
- Support NUC
- Support Lock and Unlock Video Files,
- Exporting, Export forecast size information, Export completion level information and To be able to continue from the point of export
- Setting the resolution
- Give Button Information

### Control Client Information

- Show status of network, CPU, and memory usage.
- User information.
- Support auto-discovery of online DSS services.
- Support modifying passwords.
- Support client lockout.

### Control Client Configuration

- Basic settings: Language, theme, resolution, time synchronization, automatic login, auto-start on power on, whether to restore the last live view, adaptive intercom parameters, and device nodes display.
- Video settings: Default window split, split number threshold for switching to sub stream, playback modes, custom video buffer time, instant playback duration, GPU decoding, closing video after a specified time of silence, and switching to main stream on full screen.
- Video playback: Default window split, device recording

- stream type, and extracting-frame HD playback.
- Snapshot settings: Snapshot format, saving path, naming rules, continuous snapshot interval, and number of continuous snapshots.
- Recording: Saving path, naming rules, and recording file size
- Alarm: Alarm sound, loop play, map flash warning, playing associated video.
- Video wall: Stream type, tour interval, split number threshold for switching to sub stream, and switching to main stream on full screen.
- View shortcuts of PC keyboard and NKB.

### 3. DSS Pro Mobile Client

#### History Record

- Show recently viewed channels; you can open live video or playback via history records.
- Display up to 20 latest history records.

#### Live View

- Open more than one channel at the same time, up to 16 channels.
- Three stream types: HD (high definition), SD (standard definition), FL (Fluency).
- Support PTZ control.
- Support horizontal screen play.
- One-key switch to playback.
- Snapshot, local record, audio talk.
- Support fisheye dewarp.

#### Playback

- Play back device record and center record (at up to 8X and 1/8X).
- The calendar shows whether there is a video on that day.
- Support snapshot.
- Manually start recording for local storage.
- Support 1X, 2X, 3X, 4X, 1/2X, 1/4X, 1/8X playback.

#### Face Recognition

- Support searching the face database or snapshot records for target faces by uploading a face picture.
- Support face database management.

#### Object Detection

- Search for objects classified by people, vehicle and non-motor vehicle.

#### Alarm Center

- Alarm subscription.
- Offline notification push.
- Query for alarm messages by category.

- Claim and handle alarm messages.
- History alarm message query.

#### Map

- Support Google map and raster map.
- Display the video channel on the map.
- View live and recorded videos.

#### Favorite

- Quickly view video of channel added to the favorite.

#### Files Management

- View local pictures and videos.

#### Performance Specification

	Intel Xeon Silver 4114-2.2Ghz 10Core Memory 16 GB
<b>Org, User and Role</b>	
Organization	10 Hierarchies; 999 Organizations Per Hierarchy
Role (User Permission)	100 Users
User	200 Online Users and 2500 Total Users
User for VDP Mobile APP	500 Online Users and 5,000 Total Users
<b>Total Device</b>	
Total Devices	2,000 Devices
<b>Video Device and Channel</b>	
Video Device and Channel	1,000 Devices; 2,000 Channels
Auto-Register	500 Devices; 2,000 Channels
ONVIF	200 Devices; 800 Channels
ANPR Device	64 Channels (6 Pairs For Entrance and Exit)
Face Recognition Channel	100 Channels
Object Detection Channel	20 Channels
Heatmap Channel	64 Channels
People Counting Channel	100 Channels
Thermal Channel	20 Channels
POS Channel	100 POS Channels (20 POS Data per Second)
<b>ACS Device</b>	
Access Control	200 Devices; 1000 Doors
VDP	1000 Devices (Including no more than 64 Unit VTO devices)
<b>Alarm Device</b>	
Alarm Controller	50 Devices; 500 Channels
<b>Media Transmission Server</b>	
Video Input per Server	600 Mbps
Video Output per Server	600 Mbps

**Playback, Storage and Download**

Playback Bandwidth per Server	100 Mbps
Maximum Capacity per Storage Server	200 TB
Download Task	5
Maximum Record Plan	100

**Alarm**

Alarm Rules	200
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**Map**

Hierarchy	8 Hierarchies
Submap	32 per Hierarchy
Map Size of Raster Map	14.7 MB
Spots per Map (Camera Alarm Input and etc. )	300 (GIS and Raster)

**Face Recognition**

Face Database	50 face databases with 300,000 face images in total
Import Face Image per Time	10,000

**ANPR**

Vehicle Restricted List	100
Number of Sections	100

**Data Info**

Alarm Records	5,000,000 <sup>1</sup>
Captured Face Pictures Record	5,000,000 <sup>1</sup>
License Plate Recognition Record	5,000,000 <sup>1</sup>
Violation Record	5,000,000 <sup>1</sup>
Average Speed Record	5,000,000 <sup>1</sup>
People Counting Records	5,000,000 <sup>1</sup>
Heatmap Records	5,000,000 <sup>1</sup>
Attendance Records	5,000,000 <sup>1</sup>
Video Intercom Records	5,000,000 <sup>1</sup>
Log	5,000,000 <sup>1</sup>

**Personnel Management**

Person	50,000
Card	50,000
Face	50,000
Fingerprint	80,000

**Event**

Total Event	300 per Second <sup>2</sup>
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**Event without Pic**

Alarm without Pic	300 per Second <sup>2</sup>
Alarm Controller Event	50 per Second <sup>2</sup>
Access Control Event	20 per Second <sup>2</sup>

**Event with Pic (for ANPR)**

ANPR	15 per Second (12 per 3 s for Entrance and Exit) <sup>2</sup>
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**Event with Pic (for others)**

Alarm with Pic	50 per Second <sup>2</sup>
Face Capture	150 per Second <sup>2</sup>
Object Detection	50 per Second <sup>2</sup>

**Distributed System**

**Server Number**

Number of Slave Server	20
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**Device and Channel**

**Total Device**

Total Device	5,000 Devices
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**Video Device and Channel**

Video Device and Channel	5,000 Devices; 20,000 Channels
Auto-Register	1,000 Devices; 4,000 Channels
ONVIF	500 Devices; 2,000Channels
ANPR Device	320 Channels
Face Recognition Channel	500 Channels
Object Detection Channel	100 Channels
Heatmap Channel	320 Channels
People Counting Channel	500 Channels
Thermal Channel	100 Channels
POS Channel	500 Channel (100 POS Data per Second)

**ACS Device**

Access Control	600 Devices; 3000 Doors
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**Event**

Total Event	600 per Second <sup>2</sup>
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**Event without Pic**

Alarm without Pic	600 per Second <sup>2</sup>
Access Control Event	120 per Second <sup>2</sup>

**Event with Pic (for ANPR)**

ANPR	150 per Second (12 per 3 s for entrance and exit ) <sup>2</sup>
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## Event with Pic (for others)

Alarm with Pic	150 per Second <sup>2</sup>
Face Capture	350 per Second <sup>2</sup>
Object Detection	100 per Second <sup>2</sup>

## Cascade System

### Cascade Number

Number of Cascade Level	3
Number of Cascade Server	20

### Device and Channel

Total Devices and Video Channel for Cascading	5,000 Devices; 20,000 Channels
Auto-Register	1,000 Devices; 4,000 Channels
ONVIF	500 Devices; 2,000 Channels

1: The record number depends on the disk capacity, and the maximum record quantity is 5,000,000.

2: The sum of event of each type cannot exceed the total number of events. One piece of access controller event is equivalent to three general alarms without pictures; one piece of alarm controller event is equivalent to a general alarm without picture; one piece of alarm with picture or one object detection is equivalent to three face detection events.