

DSS Professional

Highly Available Security Software for Enterprise



Introduction

DSS Professional is a centralized management system designed for large-scale and industrial applications. It enhances hardware performance and provides centralized video monitoring, access control, video intercom, alarm controller, POS, radar and AI features such as face recognition, automatic number plate recognition (ANPR), and video metadata.

DSS Professional is used for real-time security monitoring and access control in a variety of industries, such as parks, chain stores, banks, oil & gas, and logistics.

Running Environments

Operating System

- OS for Server:
 - Windows Server 2012 (64-bit)
 - Windows Server 2016 (64-bit)
 - Windows Server 2019 (64-bit)
 - Win10 20H2-64bit
- PC Client:
 - Windows 7 (32-bit)
 - Windows 7 (64-bit)
 - Windows 10 20H2 (32-bit)
 - Windows 10 20H2 (64-bit)
 - Windows Server 2008 (64-bit)
 - Windows Server 2012 (64-bit)
 - Windows Server 2016 (64-bit)
 - Windows Server 2019 (64-bit)
- OS for DSS Mobile Client:
 - iOS: iOS 10.0 or later
 - Android: Android 5.0 or later

Languages

- Arabic, Bulgarian, Czech, Danish, English (United States), Finnish, French, German, Hungarian, Italian, Japanese, Korean, Macedonian, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Thai, Traditional Chinese, Turkish, Ukrainian, Vietnamese.

Hardware

- Hardware for Server

Recommended

CPU	Intel Xeon Silver 4114@ 2.2GHz 10 Core Processor
Memory	16 GB
System Disk	7200 RPM Enterprise Class HDD 1TB, 500 GB free for DSS
Storage Disk	7200 RPM Enterprise Class HDD
Ethernet Port	4 Ports@1000 Mbps

Minimum

CPU	Intel Xeon E-2224 3.4GHz, 8M cache
Memory	8 GB
System Disk	7200 RPM Enterprise Class HDD 1TB, 500G free space for DSS
Storage Disk	7200 RPM Enterprise Class HDD
Ethernet Port	2 Ports@1000 Mbps

- Hardware for PC Client

Recommended

CPU	Intel Core i7, 64 bits 4 Core Processor
Memory	16 GB
Graphics Card	GeForce GTX 1060 3GB (Discrete Graphics Card)
Hard Drive Capacity	200 GB free space for Client
Ethernet Port	1,000 Mbps

Minimum

CPU	Intel Core i3, 64 bits 4 Core Processor
Memory	4 GB
Graphics Card	Intel (R) HD Graphics 530 (Integrated Graphics)
Hard Drive Capacity	100 GB free space for DSS Client
Ethernet Port	1,000 Mbps

- Hardware for DSS Mobile Client

iPhone	iPhone 5S or later
Android	Resolution: 1280 × 720 or higher RAM: 2 GB and above

Features

Scalable

- It can be easily expanded up to 20,000 channels and 2 PB storage capacity through the distributed system.
- DSS Professional can be used as an upper-level platform to cascade and manage all DSS series products.

High Availability

- Supports hot standby and N + M redundancy that enable the failover servers to serve as backup to primary recording and event servers.

DeepXplore

- It is an AI-based search feature enabling intelligent retrieval of humans and vehicles in time and space.
- The archive can uniformly manage case-related events, pictures, videos, and documents, and realize cross-event tracking.

Customizable

- Allows integration of other systems and devices via API/SDK/ONVIF/Bridge.
- Meets customer's personalized needs, and assists them to formulate their market competitive advantages.

Main Functions

System

- Supports hot standby for main server.
- Supports distributed deployment.
- Supports N + M redundancy.
- Supports cascading deployment.
- Supports LAN and WAN deployment.
- Supports independent database deployment.

1. PC Client

1.1 System Configuration

• License

- Online and offline activation.
- Online and offline update.
- Online and offline deactivation.

• System Parameters

- Configure the data storage duration of logs, alarms, POS, face recognition and vehicle records, etc.
- Time synchronization: Timed synchronization and device

connection synchronization.

- Email server configuration.
- Active directory configuration.
- Supports importing HTTPS certificate.
- Set POS end sign.
- Set device login mode.
- Record remote logs.
- Supports independent database deployment.

• Backup and Restore

- Automatically back up system database by day, week, or month.
- Manually back up system database.
- Restore system database from server or local files.

• Synthesis

- Event synchronization: Bridge acts as a middleware to connect to and receive events from third-party systems, and to configure event schemes on the platform to trigger event linkages.
- Data synchronization: Connect to the database of a third-party system and synchronize the attendance and access control records to the database of the third-party system.

1.2 Basic Configuration

• Device Management

- Device initialization: Initialize Dahua devices.
- Add devices by auto search, IP, Domain, IP segment, auto registration (for 3G, 4G and DHCP devices), or P2P.
- Manage Dahua devices such as network camera, network PTZ camera, NVR, DVR, access controller, video intercom, alarm controller, and decoder.
- Add third-party devices via ONVIF protocol.
- Import devices in batches by template.
- Bind associated cameras: Link cameras for alarm video display.
- Configure encoder parameters including image, video, snapshot, OSD and audio.
- Restart access controllers.
- Configure intelligence settings for intelligent channels such as IVS, face detection, people counting, and heatmap.
- Configure door parameters, such as reader direction, door status, unlock length, and method.

• Role and User

- Three types of roles: Super administrator, administrator, common role.
- Manage the user's permissions by role (device

- permissions, control permissions, and menu permissions).
- User can be assigned with roles to obtain corresponding permissions.
- Supports importing domain user and assigning roles to the user.
- Log in to different clients with the same account at the same time.
- Set PTZ permissions, password expiry date, password validity and e-mail for user.
- Forced password change at first login.
- User can be restricted by the MAC and expiry information.
- User can be locked.

• **Storage Management**

- Supports edge storage and central storage.
- Central storage: Extend storage via iSCSI.
- Disk quota: Group disks, and cameras can be allocated to different disk groups.

1.3 Application Configuration and Functions

• **Record Plan**

- Configure recording plans for channels
- Configure storage destination: Center, device (device recording supports only main stream).
- Configure recording stream type.
- Create recording plan by time template: All-day template, weekday template, weekend template and custom template.
- Configure center recording storage duration.
- Back up recorded videos from devices to the center and retrieve MPT files.

• **Personnel and Vehicle Information**

Personnel List

- Add, edit and delete the personnel and the personnel list.
- Import personnel information (ID, card, fingerprint, face) from devices.
- Import personnel information by template.
- Issue the card, fingerprint via USB reader or devices.
- Card, password, fingerprint and face authentications.
- Add vehicle information.
- Grant door access by door group; arm persons by face comparison group; grant entrance and exit access by entrance and exit vehicle group.

Vehicle List

- Manage owners and vehicles.
- Add, edit, and delete vehicle information.
- Arm vehicles by vehicle arming group; grant entrance and

exit access by entrance and exit vehicle group.

• **Watch List**

Face Watch List

- Face watch list management.
- Add faces one by one.
- Import faces from personnel list in batches.
- Send face watch list to face recognition devices, and configure similarity.

Vehicle Watch List

- Vehicle watch list management.
- Set start time and end time for vehicles.

• **Monitoring Center**

Live View

- View real-time video.
- Common layout (1, 4, 6, 8, 9, 13, 16, 20, 25, 36, 64) and customized layout.
- PTZ control.
- Electric focus.
- Operate barrier remotely.
- Operate door channel: Open, close and recover.
- Call video intercom devices.
- Manual recording (store on PC or central storage).
- Digital zoom.
- Fisheye dewarping.
- Fisheye VR mode.
- Fisheye-PTZ smart track.
- Smart track for panoramic camera.
- Bullet-PTZ smart track.
- Audio talk.
- Supports selecting audio input: audio1, audio 2 and audio mix.
- Set alarm window.
- Turn on/off the IVS display in live view.
- Restore face image from face privacy masking.
- Region of interest: Divides one window into 4 or 6 parts, one for whole image, others for the details.
- Displays map in live view.
- Save the current monitoring image as a view.
- Up to 4 live view tabs.
- Video tour by device, organization, favorites, and view.
- Supports NKB1000 to control camera in live view.
- POS transaction overlay.
- Set POS overlay style.
- Adjust the video image.
- Live video quick positioning on map.

- Resource tree: Video channel, face recognition channel, metadata channel, ANPR channel, entrance device channel, access control channel, POS channel and map.
- Displays event snapshots over live video.
- Real-time monitoring of face recognition events, metadata events, ANPR events, entrance snapshot events, and access control events.
- Pause refresh, and clear event list.

Playback

- Play back video recordings from devices or central storage.
- Video filter: Normal, motion, alarm.
- Synchronous play.
- Reverse playback of central and device video.
- Digital zoom.
- Slow and fast forward (up to 64X and 1/64X).
- Play back video recordings frame by frame.
- Lock or mark important recordings for central storage.
- Download the video in avi, dav, mp4 and asf formats.
- Turn on/off the IVS display in playback.
- Decode the video to video wall.
- Fisheye dewarping.
- Fisheye VR mode
- Adjust the video image.
- Common layout (1/4/6/8/9/13/16/20/25/36/64) and custom layout.
- Supports smart search.
- Supports thumbnail search.

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.
- Turn on/off screen and get the video stream to PC 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.
- Supports NKB1000 to control video wall.

Map

- Google online map, Google offline map and raster map.

- Up to 8-level sub map.
- Configure hot spots (camera, alarm input, access control channel) and sub maps on the map.
- View the live or recorded video on the map.
- Area or distance measurement on GIS map.
- Supports visible range and initial angle on GIS map (only available for some PTZ models).
- Alarm source turns red and flickers on the map when alarm occurs.
- Remote door opening and closing.

• **Event Management**

- Event type: Device, video channel, alarm input channel, access control channel, soft trigger event, and more.
- Event scheme: All-day template, weekday template, weekend template and custom template.
- Event Priority: Low, medium, high.
- Linkage: Recording, snapshot, live video, alarm output, audio and light, PTZ, video wall, HTTP URL command, E-mail, door and user.
- Alarm protocol
- Real-time and history event information.
- Acknowledge the event.
- Arming control for event sources.
- Forward the event to relevant user.
- Event statistics by day, week and month.
- Event information statistics: Total, processing and processed events.
- Count events according to priorities: High, medium and low.
- Event trend report.
- Analyze event resources and types of the top occurrence frequency.

• **DeepXplore**

- Quickly retrieve historical records and locate targets.
- Search for face and human body by feature or image.
- Search for person and vehicle archives.
- Generate tracks based on person, vehicle and access control records.

• **Case Bank**

- Quickly create a case database, through which case-related events, pictures, videos and documents can be centrally managed.
- Generates reports quickly.
- Archive and manage cases.
- Customize case report logo.

- Record case update records, Modification history info including user, time and details.
- Upload videos and pictures to cases.
- Case analysis: Total number, open number, and close number.
- **Maintenance Center**
 - Overview and system information details.
 - Server running status: CPU, RAM, disk, network and service.
 - Device online status: Encoder, ITC, access control, video intercom, alarm controller, emergency, radar, video control and LED.
 - Source information: Video channel and alarm channel.
 - Storage information: Video, face/alarm picture, ANPR picture and incident file.
 - Exception search.
 - Export report.
 - Send daily, weekly and monthly reports as scheduled.
 - Upgrade Dahua IPCs and access control devices in batches.

- **Access Management**

- Access Control**

- Add, edit, and delete door groups, Grant door access by associating access permission groups with door groups.
- Supports setting public passwords for access control devices.
- Advanced door rules, such as anti-passback, first card unlock, inter-door lock, multiple card unlock, remote verification.
- Door status and door events monitoring.
- View related videos.
- Lock or unlock the doors with one key.
- Global operation of opening or closing doors.
- Log information and extract records from devices.

- Video Intercom**

- Call management: Configuration of device group, management group and group relation.
- 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 Agile VDP.
- Video intercom between VDP based on SIP protocol.
- Video intercom between VDP with command center.
- Release text information to VTH.
- Search for and export video intercom records.

- Attendance**

- Set access control devices to attendance stations. Attendance time period and holiday management.
- Attendance shift management and arrangement.
- Attendance report management, including attendance record report, anomaly report and card-swiping report.
- Export attendance reports.
- Synchronize offline attendance records

- Visitor**

- Visit registration and appointment registration.
- Supports issuing access permissions by card or face recognition.
- Enable auto visit and auto leave.
- Supports card-swiping records.
- Supports visitor records.
- Supports default visitor permissions configuration
- Supports Email template configuration.
- Supports visitor pass remarks configuration.

- **Entrance**

- Edit parking-lot, includes total and available spaces, parking name, and more.
- Supports configuration of barrier control rules.
- Bind parking space available display screen and information display screen.
- Overview of entrance and exit information: Number of parking spaces, parking spaces available, and more.
- View real-time license plate recognition.
- Open the barriers via VTO with cards or remotely.
- Force existing vehicles to leave.
- Supports searching for vehicle records, on-site vehicles, and ANPR details.
- Search for and export the vehicle records.

- **Intelligent Analysis**

- View real-time count.
- View historical count: provide daily, weekly, monthly and yearly reports.
- Heat maps
- Supports exporting in area people counting analysis report.
- Search for and export video intercom records.

- **Alarm Controller**

- Supports arming devices, subsystems and partitions. If arming fails, you can force arm. It also supports disarming the device and subsystems.
- For zones, you can bypass, isolate and cancel bypass.

2. DSS Agile

• History Records

- Show recently viewed channels. You can open live video or playback via history records.
- Displays up to 20 latest history records.

• Live View

- Open more than one channel at the same time. Up to 16 channels are supported.
- Three stream types: HD (high definition), SD (standard definition) and FL (fluency).
- Supports PTZ control.
- Supports horizontal screen play.
- One-key switch to playback.
- Snapshot, local records, and audio talk.
- Supports fisheye dewarp.

• Playback

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

• Map

- Supports Google map and raster map.
- Displays the video channels on the map.
- View live and recorded videos.

• Access Control

- Displays access control information: Device name, organization, and online/offline status.
- Open or close doors remotely.
- Always open and always closed.
- Recover to always open/closed.

• Face Recognition

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

• Video Metadata

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

• Video Intercom

- Displays video intercom information: Device name, type, and number.
- Call VTS, VTH, and 2nd VTO.
- Offline call.
- Displays call history: Incoming call, outgoing call,

answered, not answered, time and number.

• Alarm Center

- Alarm subscription.
- Offline notification push.
- Search for alarm messages by category.
- Claim and handle alarm messages.
- Search for history alarm message.

• Favorite

- Search for history alarm message.
- Quickly view video of channels added to favorites.

• Files Management

- View picture and video via local file.
- Export videos and pictures saved locally to mobile phone albums.
- Delete pictures and videos.

3. DSS Agile VDP

• Call Records

- View the incoming and outgoing call records.

• Visitor

- Supports visitor registration and generating visitor pass.
- Supports searching for visitor records.

• Monitor

- View live video of VTO.
- Supports remotely unlocking the door.
- Call management center.
- Receives and answers calls from intercoms (such as VTO) and the management center.

• Messages

- View the unlocking records and alarm messages.

• Setting

- View account information.
- Enable event subscription.
- Enable stream encryption.
- Set gesture password.

Performance Specification

Intel Xeon Silver 4114@ 2.2GHz 10 Core Processor 16G

Organization, User and Role

Organizations	10 levels; up to 999 organizations in total
Roles (User Permissions)	100
Users	200 online users and 2,500 total users
Users for VDP Mobile APP	500 online users and 5,000 total users

Recording Plan and Event Plan

Central Recording	Up to 3,000 video channels
Event Rules	Up to 3,000 event sources

Map

Hierarchies	8 hierarchies
Size of Offline GIS Map Package	500 MB
Number of Raster Maps	Up to 256
Number of Submaps per Map	Up to 32
Maximum Size of Raster Map	15 MB
Raster Map Resolution	8100 × 8100
Number of resources on GIS Map	Up to 300
Number of resources per Raster Map	Up to 300

Personnel and Vehicle Management

Persons	300,000
Cards	600,000
Faces	300,000
Fingerprints	600,000
Vehicles	50,000

Face and Vehicle Watch Lists

Face Watch Lists	50
Total Faces ^①	300,000
Faces per Face Watch List	50,000
Vehicle Watch Lists	32

Access Control

Total Persons	30,000
Access Permission Groups	50

Entrance and Exit

Vehicles	50,000
Vehicle Groups	32
Parking Lots	16
Entrance and Exit Points	60
Number of Entrances	30
Number of Exits	30

Attendance Data

Attendance Terminals	64
Attendance Periods	64
Attendance Shifts	100

Intelligent Analysis

People Counting Groups	30
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People Counting Rules	20
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Data Info

Event Records	20,000,000
Face Recognition Records	20,000,000
Number Plate Recognition Records	5,000,000
Access Control Records	5,000,000
Attendance Records	5,000,000
Video Intercom Records	5,000,000
Visitor Records	5,000,000
Entrance Records	5,000,000
Exit Records	5,000,000
Forced Exit Records	5,000,000
Historical Counting Records	5,000,000
In Area Statistical Records	5,000,000
Heat Map Records	5,000,000
Video Metadata Records	5,000,000
Operator Logs	5,000,000
Service Logs	5,000,000

Independent database deployment

Event Records	30,000,000
Face Recognition Records	30,000,000
Number Plate Recognition Records	30,000,000
Video Metadata Records	30,000,000

Synthesis

Bridges	5
Incoming Trigger Events	100
Incoming Event Sources	500

Single Server

Devices and Channels

Total Devices

Devices ^②	2,000
Auto-Registered Devices	1,000

Video Devices and Channels

Video Devices and Channels ^③	1,000 devices; 2,000 channels
P2P Devices	32
ANPR Channels	500 channels (60 channels for entrance)
Face Recognition Devices and Channels	100 devices; 500 channels

Video Metadata Channels	500
People Counting Channels	100
Heat Map Channels	100
POS Channels	100
MPT Devices	100 devices
EEC Devices	64 devices
ACS Devices	
Access Control	500 devices; 1,000 doors
VDP	2,000
Alarm Devices	
Alarm Controller	100 devices
Security Screening Devices	
Security Screening Machine	20
Walk-through Metal Detector	60
Media Transmission Server	
Incoming Bandwidth	
Total Incoming Bandwidth per Server	600 Mbps
Incoming Video per Server	600 Mbps
Incoming Picture per Server	200 Mbps
Outgoing Bandwidth	
Total Outgoing Bandwidth per Server	600 Mbps
Outgoing Video per Server	600 Mbps
Outgoing Picture per Server	200 Mbps
Storage Bandwidth	
Total Storage Bandwidth per Server	600 Mbps
Video Storage per Server	600 Mbps
Picture Storage per Server	200 Mbps
Playback, Storage and Download	
Maximum Capacity per Storage Server	200 TB
Events^④	
Total Events ^⑤	300 per second
Events without Pictures	
Events without Pictures	300 per second
Access Control Events	300 per second
Events with Pictures^⑥	
Total Events with Pictures	300 per second (200 Mbps)

ANPR Events	50 per second (50 per 3 seconds for entrance and exit) (500 KB per picture)
Events with Pictures	50 per second (500 KB per picture)
Face Capture Events	50 per second (500 KB per picture)
Video Metadata Events	25 per second (1000 KB per picture)

Multiple Servers

Number of Sub Servers

Sub Servers	Up to 10
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Devices and Channels

Total Devices	
Total Devices	20,000
Auto-Registered Devices	10,000

Video Devices and Channels	
Devices and Channels ^③	10,000 devices; 20,000 channels
P2P Devices	32
ANPR channels	5,000 channels (60 channels for entrance)
Face Recognition Devices and Channels	1,000 devices; 5,000 channels
Video Metadata Channels	5,000
People Counting Channels	300
Heat Map Channels	300
POS Channels	300
MPT Devices	300 devices; 300 channels
EEC Devices	64 devices

ACS Devices	
Access Control	1500 devices; 3,000 doors
VDP	2,000 devices

Alarm Devices	
Alarm Controller	500 devices

Security Screening Devices	
Security Screening Machine	200
Walk-through Metal Detector	600

Events^④	
Total Events ^⑤	600 per second

Events without Pictures	
Events without Pictures	600 per second
Access Control Events	600 per second

Events with Pictures^⑥	
Total Events with Pictures	600 per second (2000 Mbps)

ANPR Events	500 per second (50 per 3 seconds for entrance and exit) (500 KB per picture)
Events with Pictures	500 per second (500 KB per picture)
Face Capture Events	500 per second (500 KB per picture)
Video Metadata Events	250 per second (1024 KB per picture)

- ① Number of face watch lists and devices: Number of faces × number of devices < 10 million. For example, a face watch lists of 200 thousand faces can be sent to 50 face recognition devices including IVSS, NVR and face recognition cameras.
- ② Total number of devices indicates that the total number of video, access control, and video intercom devices that connected to the platform, which cannot exceed the parameter.
- ③ Total number of video devices and channels indicates that the number of video devices and channels connected to the platform, such as IPC, NVR, and ITC, cannot exceed the parameter.
- ④ Event concurrency is peak concurrency: 20 minutes of peak concurrency test, 3 times a day, and 30% peak concurrency for 8 hours per day.
- ④ Event concurrency: Event concurrency is in accordance with database concurrent writes. Concurrency of event with pictures must take picture write capacity of the disk into account.
- ⑤ Total event concurrency: The ability to write all events to system records concurrently.
- ⑥ For concurrency of events with pictures, picture write concurrency should also be taken into consideration. The picture write concurrency of an individual server is up to 200 Mbps, so the concurrency of events with pictures is limited by picture write capacity.