**Dahua** TECHNOLOGY

# Digital Surveillance System Express
## DSS Express V8 Video Management System

- Integrates All Management Functions into One Client
- Allows Device Initialization and Management
- Live Video Playback from Edge Device
- Supports Access Control and Video Intercom Integration
- Configure Video Wall Layout and Scheme
- Offers Fisheye Camera Dewarping on Live View

## System Overview

DSS Express is a flexible Dahua VMS for scalable, reliable and powerful central management. DSS Express provides central management, information sharing, convenient connections, and multi-service cooperation. The software supports up to 256 cameras with a license. DSS Express integrates with access control devices, video intercom terminals and offers analytic functions such as object detection.

## Functions

### Compatibility

DSS Express V8 is compatible with all Dahua IP-enabled devices: network cameras, NVRs, DVRs, video intercom devices, and access control devices.

### Fisheye Camera Support

The software features full support for Dahua Fisheye cameras. The software supports options for the Fisheye camera installation and offers dewarp modes. Dewarping solves the problem of distortion in the circular panoramic view in both live or playback modes.

### Access Control and Video Intercom

DSS Express V8 offers full support and integration for access control and video intercom products to support a complete security and surveillance system. The server monitors door status and events, manages access rights, and support advanced rules management. In addition to access controls, the server supports two-way communication between intercom and control center.

### Video Wall

Offers settings to configure all aspects of a video wall application. The application supports video wall layout, live preview, scheme configuration, and tour setup. In addition, the application supports video wall splicing and roaming.

### Management Operations

The software manages the devices and the user accounts for an entire organization. Operators can assign different camera ranges, active use periods, and business roles for each user. The server also supports different schemes for various events, including IVS, to record and view all event history information.

## System Features

### Business Configuration

**Device Management**
- Bind cameras for alarm configuration
- Initialize Dahua devices
- Add devices via auto search, IP, IP Segment, Domain, Auto-register (for 3G, 4G, DHCP)
- Manage Dahua devices
- Add third-party devices via ONVIF
- Modify Dahua device IP address and password
- Import Intercom Devices

**Role and User Management***
- Manage user permissions and roles for devices and control
- Assign user to defined roles
- Assign appropriate permissions to specific users
- Restrict user access by MAC and expiration dates
- Set user PTZ permissions
- Lock users
- Import domain user and assign roles to the user

**Event Management**
- Set alarm type: device, video channel, alarm input, IVS alarm, thermal, vehicle block list
- Set alarm scheme: all day, weekday, weekend, or custom template
- Set alarm priority: Low, Medium, High
- Link recordings, snapshots, live video, alarm output, PTZ actions, or e-mail

**Storage**
- Set edge storage and central storage
- Extend central storage via iSCSI
- Create recording plan by time template: all day template, weekday template, weekend template, and custom template
- Backup video from edge storage devices (EVS, NVR, DVR, etc.) by schedule
- Backup video from MDVR, NVR, EVS, DVR via Wi-Fi
- Allocate disks and cameras to different groups to main disk quotas

**NOTE: Video and image recordings cannot be on the same physical hard drive. Separate physical drives are required for video and image storage. System hard drives are only for DSS software installation.**

**Map**
- Use Google online or offline maps, or raster maps
- Supports 8-level sub-map
- Configure camera, alarm input, and intelligent channel, and sub-map hot spots.

**Video Wall**
- Display/Hide the screen ID
- Supports screen combinations
- Bind the decode channel with the corresponding screen

**Vehicle Block List**
- Manage vehicle block lists
- Arm and disarm vehicle block lists
- Import and export vehicle block lists

**Video Intercom**
- Manage communication between intercom devices via SIP protocol or command center.
- Release text information to VTH, release address book to VTO
- View, delete, and freeze DSS Mobile users

### System Maintenance

**Backup and Restore**
- Automatically backup system database (daily, weekly monthly)
- Manually backup system database
- Restore system database from a server or a local file

**System Dashboard**
- View overview and detailed system information
- Check CPU, storage, and bandwidth running status
- View device health report for service, device, and user online information
- View event information statistics: total and processed events
- View video and alarm channel source information

**Logs**
- View system, administrator, and client logs
- Search and export logs

**Other Functions**
- Supports HTTPS
- Set device time calibration
- Set log, alarm information

**Service Management**
- Delete the sub server
- Enable/Disable the sub server
- Balance server load

### Control Client

**Live View**
- Display device tree; show/hide offline devices.
- Display device IP address or device name on the device tree
- View real-time video
- Apply a common layout (1, 4,6, 8, 9, 13, 16, 20, 25, 36, 64 ) or a customized layout
- Control PTZ cameras
- Set manual recording (PC or central storage)
- Take Snapshots
- Perform instant playback and digital zoom
- Apply Fisheye dewarping
- Control smart tracking for fisheye, speed dome, and panoramic cameras
- Audio talk
- Decode to a video wall
- Turn on/off the audio in live view
- Set Region of Interest: divide one window into 4 or 6 parts, one shows whole image and others show details
- Display map in Live View and save current split as a view
- Switch to Playback mode
- Supports NKB1000 keyboard to control cameras in the Live View
- Adjust the video image and the display mode (full screen or original)
- Electronic focus

**Playback**
- Playback recording from front-end devices or from central storage
- Apply video filters: normal, motion, alarm, video loss,video tampering
- Sync play
- Reverse playback
- Supports up to 64x fast play and 1/64x slow play
- Playback frame-by-frame
- Lock or mark important recording segments for central storage
- Supports .avi, .dav, .flv, .mp4, and .asf video output
- Decode to a video wall
- Apply Fisheye dewarping
- Take a snapshot
- Switch to the Live View
- Apply a common layout (1, 4,6, 8, 9, 13, 16, 20, 25, 36) or a customized layout
- Adjust the video image and the display mode (full screen or original)

**Event**
- View real-time and historical alarm information
- View detailed alarm information (live video, record and pictures from related camera, alarm source location on the map)
- Acknowledge alarms
- Arm control for alarm source
- Forward alarms to relevant users
- Manually send alarm email to a relevant user
- Search by alarm source, alarm time, status, handle user, and priority
- Search alarm events and export the alarm list

**Video Wall**
- Manually/Automatically decode real-time video to a video wall
- Manage video wall split
- Change the video channel stream type
- Add box, turn screen on/off, and deliver video stream to control client
- Tour the video channel in one screen
- Set running task on the timeline for schedule plan
- Loop different tasks and set duration time for tour plan
- Supports NKB1000 keyboard to control the video wall.

**Map**
- View live video or playback video on the map
- Calculate area or length of a GIS map
- Supports visible range and initial angle (for PTZ cameras only)
- Displays visible alarm trigger on the map

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\* A remote client login to a DSS server is supported only via an IP address. DSS does not support remote login via DDNS.

## Other Functions
- Decode GPU
- Connect NKB via USB

## Personnel Management
- Add, edit, and delete personnel and departments
- Program card or fingerprint via USB or other readers
- Authorize access by door or by door group
- Set private passwords and face authentication
- Manage guest, VIP, and employee access

## Access Control
- Monitor door status and events
- Set door groups and door levels
- Manage access rights
- Use one key to lock/unlock doors
- Link to fire control system
- Set advanced door rules (passback, first card unlock, for example)

## Video Intercom
- Manage communication between intercom devices via SIP protocol or command center.
- Release text information to VTH, release address book to VTO

## Object Detection
- Take real-time snapshots and record information about human, motorized, and non-motorized vehicles.
- Extract attributes from snapshots
- Search targets in database by criteria searching
- Generate daily, weekly, or monthly attribute reports

## Thermal
- Supports monocular and binocular thermal imaging devices
- Reads temperature values from video frame

## Vehicle Entry
- Edit parking lot information, including total and available spaces and parking lot name
- Manage vehicles, owners, and cards
- Bind LED screen with ITC or spot detector device
- Open barriers via VTO with card or remotely
- Force vehicles to leave parking lot
- Search historical pass records and export data
- Generate daily, weekly, monthly, and annual vehicle entry statistics

## Traffic
- Search violations by time, license plate number, violation type.
- Supports daily, weekly, monthly, and annual traffic flow statistics
- Query data for vehicle data based on location, time period, license plate number, color, average speed.

## System Features

### Mobile Client

#### History Record
- Show recently viewed channels, open live video or playback via history recordings
- Saves up to 20 history recordings before replacing the oldest recording

#### Live View
- Open more than one channel at the same time, up to 16 channels
- Supports high-definition (HD), standard-definition (SD), and Fluency (FL)stream types
- Supports PTZ control
- Supports horizontal screen play
- One-key switch to playback
- Take snapshots, record locally, and talk

#### Playback
- Replay device recordings and center recordings (up to 8x and as slow as 1/8x)
- Marks the calendar to indicate whether there is a video on a particular day
- Supports snapshot
- Manually record to local device
- Supports 1x, 2x, 3x, 4x, 1/2x, 1/4x, and 1/8x playback speeds

#### Alarm Center
- Subscribe to an alarm
- Process alarms
- View alarm video and picture
- Search alarms

#### Map
- Supports Google Maps
- Displays the video channel on the map
- View video and perform playback

#### Other Functions
- View video from a channel and add channel as a favorite
- View picture and video via a local file.

## Technical Specification

### Hardware – Server

| | | |
|---|---|---|
| Operating System | | Windows 7 (32-bit<br>Windows 7 (64-bit)<br>Windows 10 20H2 (64-bit)<br>Windows 10 20H2 (32-bit) |
| CPU | Recommended | Intel® Core™ I7-9700K CPU@3.60 GHZ |
| | Minimum | Intel® Core™ I5-9400 CPU@2.90 GHZ |
| Memory | | 8 GB |
| System Disk | Recommended | 7200 RPM Enterprise Class HDD 1 TB<br>500 GB free for DSS |
| | Minimum | 7200 RPM Enterprise Class HDD 1 TB<br>200 GB free for DSS |
| Storage Disk | | 7200 RPM Enterprise Class HDD |
| Network Connection | | One (1) 1000 Mbps Ethernet Port |

### Hardware – PC Client

| | | |
|---|---|---|
| Operating System | Windows | Windows 7 (32-bit)<br>Windows 7 (64-bit)<br>Windows 10 1809 (64-bit)<br>Windows 10 20H2 (32-bit)<br>Windows 10 20H2 (64-bit)<br>Windows Server 2008 (64-bit)<br>Windows Server 2012 (64-bit)<br>Windows Server 2016 (64-bit)<br>Windows Server 2019 (64-bit) |
| CPU | Recommended | I5-6500@3.20 GHz |
| | Minimum | I3-2120@3.20 GHz |
| Memory | Recommended | 8 GB |
| | Minimum | 4 GB |
| Graphics Card | Recommended | Intel® HD Graphics 530 |
| | Minimum | Intel® HD Sandbridge Desktop Graphics |
| Storage | Recommended | 100 GB free space |
| | Minimum | 50 GB free space |
| Network Connection | | One (1) 1000 Mbps Ethernet Port |

### Hardware – DSS Mobile Client

| | |
|---|---|
| iPhone | iPhone 5S or later |
| Android | Resolution: 1280 x 720 or higher<br>RAM: 5 GB or more |

### Virtual Machine

| | |
|---|---|
| Operating System | Windows 10 H2 64-bit |
| | VMware ESXi 6.7 |

## Total System Management Functions

| | | |
|---|---|---|
| Organization, User, Roles* | Organization | 10 Levels,<br>999 Total Organizations |
| | Roles | 20 Users Permissions |
| | Users | 10 Online Users<br>50 Total Users |
| | Video Intercom Mobile App | 50 Online Users<br>500 Total Users |
| Record and Event Plan | Central Recording | Up to 256 video channels |
| | Event Rules | Up to 256 event sources |
| Map | Hierarchies | Eight (8) |
| | Raster Maps | Up to 32 |
| | Submaps per Map | Up to 32 |
| | Raster Map Size | 15 MB |
| | Raster Map Resolution | 8100 x 8100 |
| | Resources per Raster Map | Up to 300 |
| Personnel Management | People | 5,000 |
| | Cards | 10,000 |
| | Fingerprints | 10,000 |
| | Vehicles | 5,000 |
| Vehicle Watch List | | 8 |
| Access Control | Total People | 5,000 |
| | Access Permission Groups | 50 |
| Entrance/Exit Management | Vehicles | 5,000 |
| | Vehicle Groups | 8 |
| | Parking Lots | 1 |
| | Entrance/Exit Points | 4 |
| | Total Entrances | 2 |
| | Total Exits | 2 |
| Data Records | Alarms | 2,000,000 |
| | Number Plates | 2,000,000 |
| | Access Control | 2,000,000 |
| | Video Intercom | 2,000,000 |
| | Visitors | 2,000,000 |
| | Entrances | 2,000,000 |
| | Exits | 2,000,000 |
| | Forced Exits | 2,000,000 |
| | Operator Logs | 2,000,000 |
| | Service Logs | 2,000,000 |

## Single Server

### Management Functions

| Total Devices[1] | | 512 |
|---|---|---|
| Devices | Video[2] | 256 Devices<br>256 Channels |
| | P2P | 32 Devices |
| | ANPR | 8 Channels (4 for entrance) |
| Access Control | | 64 Doors |
| Video Intercom | | 256 Devices |
| Media Transmission Server | Total Incoming Bandwidth per Server | 200 Mbps |
| | Incoming Video per Server | 200 Mbps |
| | Incoming Picture per Server | 50 Mbps |
| | Total Outgoing Bandwidth per Server | 200 Mbps |
| | Outgoing Video per Server | 200 Mbps |
| | Outgoing Picture per Server | 50 Mbps |
| | Total Storage Bandwidth per Server | 100 Mbps |
| | Video Storage per Server | 100 Mbps |
| | Picture Storage per Server | 50 Mbps |
| Playback, Storage, Download Capacity | | 200 GB |
| Events[3] | Total Events[4] | 60/s |
| | Events without Pictures | 60/s |
| | Access Control Events | 60/s |
| | Total Events with Pictures[5] | 60/s (50 Mbps) |
| | ANPR Events | 12/s<br>(4 per 3 sec for entrance and exit)<br>(500 KB per picture) |
| | Events with Pictures | 12/s (500 KB per picture) |
| | Face Capture | 12/s (500 KB per picture) |
| | Object Detection | 6/s (1024 KB per picture) |

### Thermal Temperature Monitoring Solution Functions

| Thermal Cameras | Per Server | 400 |
|---|---|---|
| | In Total | 2000 |
| Images | Per Server | 150 pictures per second |
| | In Total | 350 pictures per second |
| Supported Functions | | • Online License Activation<br>• Picture Storage/Snapshot<br>• Record/Playback |

## Ordering Information

| License Name | Description |
|---|---|
| DSS8EXV | One (1) Video Channel License.<br>Use for a network camera, NVR, or ANPR channel. |
| DSS8EXD | One (1) Door Channel License.<br>Note: An access control device with video requires one (1) door channel license and one (1) video channel license. |
| DSS8EXVDP | One (1) Video Intercom Device License.<br>Use for one (1) VTO or one (1) VTH device. |
| DSS8EXVEM | Vehicle Entrance Management Module License.<br>This license also requires a video license. |

| Optional Mobile Applications<br><br>(available via the Apple App Store and the Google Play Store) | DSS Agile 8 | | The mobile client app supports DSS version 8 and offers monitoring center, event center, intelligent search and access management. |
|---|---|---|---|
| | DSS Agile VDP | | The mobile app is designed for residential video intercom installations. The app allows resident to respond to video calls, unlock a door, call the management center, and review messages. |

1. The total number of devices must not exceed the total number of video devices, access control devices, video intercom devices, and other devices.
2. The total number of video devices and channels must not exceed the total number of network cameras, NVRs, ITCs, and other video devices and channels.
3. Event concurrency is peak concurrency: 20 minutes of peak concurrency test, 3 times a day, and 30% peak concurrency for the remaining time of the day. 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.
4. Total event concurrency: The ability to write all events to system records concurrently.
5. 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.