Digital Surveillance System
DSS Pro Video Management System Server

System Overview
The DHI-DSS7016DR-S2 Video Management System is a powerful, all-in-one video surveillance management system preloaded with Linux-optimized DSS Pro software for system scalability and reliability. The server supports up to 2000 network cameras and extends the distribution of these devices.

The server provides user rights management, device management, alarm management, center storage, TV wall output and, two-way audio. In addition to these VMS features, the server offers advanced features, including POS integration with data sync and the Intelligent System, features not found on many other VMS servers.

Functions
Flexibility and Scalability
The DSS7016DR-S2 VMS Server supports 2000 video channels per server, with support for 1000 connected network cameras. The server supports 15 hard disk drives for video and snapshot storage. The server also supports edge storage and extended storage via iSCSI.

Compatibility
The VMS server is compatible with all Dahua IP-enabled devices: network cameras, NVRs, DVRs, Mobile DVRs, and access control devices plus many more. The server is also compatible with the ONVIF protocol, so it can connect to ONVIF-enabled third-party devices. The server offers and SDK for further support of third-party platforms and mobile operating systems.

Fisheye Camera Support
DSS features full support for Dahua Fisheye cameras. The software supports options for the Fisheye camera installation and eight (8) dewarp modes. Dewarping solves the problem of distortion in the circular panoramic view in both live or playback modes.

Real-time Face Recognition
The DSS7016DR-S2 performs real-time facial recognition on up to 64 channels simultaneously. The server captures and analyzes facial features to determine gender, age, expression, glasses, moustache, and mask, and then can record the faces and store the associated structured data. The server also filters incoming video to display faces that match target features.

Intelligent Business Analysis
The DSS supports people counting and heat map; advanced features that add business intelligence to your security system. Intelligent Analysis tracks and stores daily, weekly, monthly, and yearly people flow through a defined scene and stores the data. DSS retrieves this data and supports searching, displaying, and storing the data.

Video Wall
DSS 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 server 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.

- Embedded Linux Operating System with Pre-installed DSS Pro Software
- Redundant Power Supply and Hot Standby for Stable 24/7 Operation
- Supports 2000 IP Devices and 2000 Video Channels per Server
- 15 Hot-pluggable Hard Drives and Extended Storage via iSCSI
- Live Video Playback
- Configure Video Wall Layout and Scheme
- Configure NVR Recording
- Offers Fisheye Camera Dewarping on Live View and Playback Images
- Intelligent Video System with Face Recognition
- Five-year Warranty*
# System Features

## Business Configuration

### Device Management
- Initialize Dahua devices
- Add devices via auto search, IP, IP Segment, Auto-register (for 3G, 4G, Dynamic IP Address)
- Manage Dahua devices
- Modify Dahua device IP address and password
- Bind cameras for alarm configuration and POS transactions

### 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
- Supports import domain user and assign roles to the user

### Event Management
- Set alarm type: device, video channel, alarm input, IVS alarm, thermal, vehicle blacklist, face arming
- 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 via Wi-Fi
- Allocate disks and cameras to different groups to main disk quotas

### 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

### Face Database
- Manage face libraries
- Add faces one by one or import faces in batches to the library
- Send face library to a facial recognition device and configure similarities

### Vehicle Blacklist
- Manage vehicle blacklists
- Arm and disarm vehicle blacklists
- Import and export vehicle blacklists

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

## 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

### DSS 7016DR-S2
- Delete the slave server
- Enable/Disable the slave server
- Delete the slave server
- Set log, alarm information, POS data, and Heat Map storage time

### Storage
- Backup video from MDVR via Wi-Fi
- Backup video from edge storage devices (EVS, NVR, DVR, etc.) by schedule
- Create recording plan by time template: all day template, weekday template, weekend template, and custom template
- Extend central storage via iSCSI
- Lock users
- Supports import domain user and assign roles to the user

## Controls

### 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
- Electric focus
- Set manual recording (PC or central storage)
- Take Snapshots
- Perform instant playback and digital zoom
- Apply Fish eye dewarping
- Control smart tracking for fish eye, 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 NK81000 keyboard to control cameras in the Live View
- Overlay POS transaction data and set POS overlay style
- Adjust the video image and the display mode (full screen or original)

### 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, dat, flv, mp4, and .asf video output
- Decode to a video wall
- Apply Fish eye dewarping
- Take a snapshot
- Switch to the Live View
- Apply a common layout (1, 4, 6, 8, 9, 13, 16, 20, 25, 36, 64) 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

### 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

### People Counting
- Generate daily, weekly, monthly, and yearly reports
- Generate a Heat Map based on the people counting statistics
- Export people counting and Heat Map data

### Face Recognition
- Automatically captures faces in the camera's field of view
- Extracts face attribute information from captured face
- Real-time face comparison
- Registers face to face library
- Search for a face via face attribute, via uploading a face image, via records comparison
- Generate the track for the specific face
- Generate daily, weekly, monthly attribute report based on gender and age

### Other Functions
- Decode GPU
- Connect NK8 via USB
## 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

### System
- **Main Processor**: Intel® i5-6600, 64-bit 4-Core Processor
- **Operating System**: Embedded Linux
- **Management Software**: DSS Pro, pre-installed
- **Memory**: 8 GB
- **Motherboard**: Embedded
- **Hard Disk**: Hot-swappable and online replacement SAS and SATA compatible, intermixing allowed

### Display
- **Mode**: Live View, PTZ Control, Snapshot, Instant Playback, Customized Layout
- **Video Wall**: Push Real-time, Alarm and Playback Video to Wall
- **Dewarping**: Supported for Fisheye Video on Live View and Playback

### Playback
- **Playback**: 36-channel Synchronized Playback
- **Playback Mode**: Normal, Motion Detection, Alarm, IVS, POS
- **Search Mode**: Smart Search, POS Transaction Data and Video

### Storage
- **HDD Installation**: Built-in 1 TB HDD (2.5-in.) for Operating System Supports 15 HDD (3.5-in.) for video and picture storage
- **HDD Mode**: Single, RAID 0/1/5/6/10
- **Storage**: 8 TB per HDD
- **Total Storage Capacity**: 200 TB, including local, edge and external devices

### Interface
- **USB**: Front Panel: Two (2) USB 2.0 Ports Rear Panel: Two (2) USB 2.0 Ports
- **Display**: Three (3) HDMI Ports One (1) VGA Port

### Network
- **Network Port**: Four (4) RJ-45 Ports (100/1000 Mbps)
- **Interoperability**: ONVIF, DSS SDK for Integration
- **GIS Map**: Supported; Google and RasterMap
- **Email**: Supported; Yahoo, Gmail, HotMail

### Certifications

### Video Management
- **Maximum Devices and Channels, per server**: 2000 IP Devices and 2000 Channels¹
- **Maximum Connected Cameras, per server**: 1000 IP Devices and 2000 Channels
- **Auto Register**: 500 IP Devices and 2000 Channels
- **ONVIF**: 200 IP Devices and 200 Channels

<table>
<thead>
<tr>
<th>Maximum Connections</th>
<th>Face Recognition Cameras</th>
<th>LPC</th>
<th>Object Detect POS Devices</th>
<th>Access Control</th>
<th>VDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>64 Channels</td>
<td>64 Channels</td>
<td>64 Channels²</td>
<td>200 IP and 1024 Doors³</td>
<td>2000 VTH and 200 VTO⁴</td>
</tr>
</tbody>
</table>

- **Clients per System**: 200 Simultaneous Users
- **Number of Users**: 2500
- **Number of Roles**: 100

<table>
<thead>
<tr>
<th>Bandwidth, per Server</th>
<th>Video Input</th>
<th>Video Output</th>
<th>Video Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>700 Mbps</td>
<td>700 Mbps</td>
<td>700 Mbps</td>
</tr>
</tbody>
</table>

### Distribution
- **Connected Cameras**: 6000 IP Devices and 10000 Channels¹
- **Auto-Register**: 1000 IP Devices and 4000 Channels
- **ONVIF**: 1000 IP Devices and 4000 Channels

<table>
<thead>
<tr>
<th>Maximum Connections</th>
<th>Face Recognition Cameras</th>
<th>ANPR</th>
<th>Object Detection</th>
<th>POS</th>
<th>Access Control</th>
<th>VDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200</td>
<td>200</td>
<td>100</td>
<td>100 (20 POS data per second)²</td>
<td>500 IP Devices and 2500 Doors³</td>
<td>5000 VTH, 500 VTO⁴</td>
</tr>
</tbody>
</table>

### Electrical
- **Power Supply**: 100 VAC to 240 VAC, 50/60 Hz
- **Power Consumption**: 315 W, maximum; 210 W stable power

### Environmental
- **Operating Conditions**: 0°C to +40°C (+32°F to +104°F), 10% to 80% RH, non-condensing
- **Storage Conditions**: –20°C to +70°C (–4°F to +158°F), 5% to 90% RH, non-condensing
- **Operating Altitude**: 0 m to 5000.0 m (0 ft to 16404.20 ft)

### Construction
- **Dimensions**: 3U, 444.80 mm x 522.40 mm x 133.20 mm (17.51 in. x 20.57 in. x 5.24 in.)
- **Net Weight**: 19.10 kg (42.11 lbs)
- **Material**: Hot-dipped galvanized sheet steel (1.2 mm), precise aluminum alloy slide, patented pull-out rack design
- **Front Cover**: 7-in. HD LCD Screen (1920 x 1080, 1280 x 1024, 1024 x 768)
- **Installation**: Standard 19-in. Rack Installation

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1. Maximum number when adding only IP video devices.
2. Maximum number when adding only POS devices.
3. Maximum number when adding only access control devices.
4. Maximum number when adding only VDP devices.
DSS | DHI-DSS7016DR-S2

### Ordering Information

<table>
<thead>
<tr>
<th>Type</th>
<th>Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Digital Surveillance</td>
<td>DHI-DSS7016DR-S2</td>
<td>Pro, 15 HDD, 2000 IP Devices and 2000 Video Channels</td>
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</tbody>
</table>

### Dimensions (mm/in.)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width (485.0 mm)</td>
<td>(19.10 in.)</td>
</tr>
<tr>
<td>Height (532.20 mm)</td>
<td>(21.04 in.)</td>
</tr>
<tr>
<td>Height (444.80 mm)</td>
<td>(17.51 in.)</td>
</tr>
<tr>
<td>Depth (522.40 mm)</td>
<td>(20.57 in.)</td>
</tr>
</tbody>
</table>

### Physical Interfaces

<table>
<thead>
<tr>
<th>Interface</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Button</td>
<td>1</td>
</tr>
<tr>
<td>Network Status</td>
<td>4</td>
</tr>
<tr>
<td>HDD Status</td>
<td>2</td>
</tr>
<tr>
<td>USB 2.0 Ports x 2</td>
<td>5</td>
</tr>
<tr>
<td>Alarm Status</td>
<td>3</td>
</tr>
<tr>
<td>Lock</td>
<td>6</td>
</tr>
<tr>
<td>Power Connection</td>
<td>6</td>
</tr>
<tr>
<td>Audio IN and OUT</td>
<td>6</td>
</tr>
<tr>
<td>Alarm I/O</td>
<td>7</td>
</tr>
<tr>
<td>VGA OUT</td>
<td>7</td>
</tr>
<tr>
<td>Gigabit Network Ports, 1 to 4</td>
<td>8</td>
</tr>
<tr>
<td>HDMI 1, HDMI 2, HDMI 3 OUT</td>
<td>8</td>
</tr>
<tr>
<td>SAS HD1 and SAS HD2</td>
<td>9</td>
</tr>
<tr>
<td>Reset Button</td>
<td>9</td>
</tr>
<tr>
<td>eSATA and USB 2.0 Ports x 2</td>
<td>5</td>
</tr>
</tbody>
</table>