dahua
TECHNOLOGY

Digital Surveillance System
DSS Video Management System Server

- Embedded Linux Operating System with Pre-installed DSS Software
- Redundant Power Supply and Hot Standby for Stable 24/7 Operation
- 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 Overview

The DHI-DSS7016DR-S2 Video Management System is a powerful, all-in-one video surveillance management system pre-loaded with Linux-optimized DSS software for system scalability and reliability. The server supports 15 hard disk drives for video and snapshot storage. The server also supports edge storage and extended storage via iSCSI.

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 intelligent business analysis and face recognition, features not found on many other VMS servers.

Functions

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 simultaneously on several channels. 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.

ONVIF

DSS | DHI-DSS7016DR-S2

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

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, 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
- Supports HTTPS
- Set device time calibration
- Set log, alarm information and Heat Map storage time

Service Management
- Delete the slave server
- Enable/Disable the slaver server

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
- Electric focus
- 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)

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, 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

Video Wall
- Manually/Automatically decode real-time video to a video wall (decoder hardware is required to setup 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

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 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

Flow Analysis
- Generate daily, weekly, monthly, and yearly people counting reports
- Generate heatmaps
- Export people counting and heatmap data
- Generate dwell time reports

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

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

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
Memory	8 GB
Motherboard	Embedded
Hard Disk Compatibility	Hot-swappable and online replacement SAS and SATA compatible

Hardware – Control Client

Operating System		Windows 7 (32-/64-bit) Windows 10 (64-bit)
CPU	Recommended	Intel® Core™ i5 64-bit, 4-core Processor
	Minimum	Intel® Core™ i3 64-bit, 4-core Processor
Memory	Recommended	8 GB
	Minimum	4 GB
Graphics Card	Recommended	NVIDIA® GeForce® GT 730
	Minimum	Intel® HD Graphics 4400
Storage	Recommended	200 GB free space
	Minimum	100 GB free space
Network Connection		One (1) 1000 Mbps Ethernet Port

Hardware – Mobile Client

iPhone	iPhone 5S and Later
Android	Resolution: 1280 × 720 and above RAM: 3 GB and above

Interface

Network Ports	Four (4) RJ-45 Ports (100/1000 Mbps)
RS232	Reserved
RS485	Reserved
USB	Front Panel: Two (2) USB 3.0 Ports Rear Panel: Two (2) USB 3.0 Ports
VGA	Output: One (1) Port

Storage

HDD Installation	Supports 15 HDD (3.5-in.) for video and picture storage
Storage	8 TB per HDD up to 200 TB per server
HDD Mode	Single RAID 0/1/5/6/10
Video Storage Bandwidth, per Server	600 Mbps

Performance Specification

Organization, Users, Roles

Organization	10 Hierarchies 999 Organizations per Hierarchy
Roles	100
Users	150 Online Users, 200 Total Users
Users, for VDP Mobile Application	500 Online Users, 5000 Total Users

Video Devices

Total Devices	2000
Total Video Devices	500 Devices, 1000 Channels
Auto Register	500 Devices, 1000 Channels
ONVIF	200 Devices, 400 Channels
Face Recognition	100 Channels
License Plate Capture/Recognition	64 Channels (6 pairs for entrance and exit)
Object Detection	20 Channels
Heatmap	64 Channels
People Counting	100 Channels

Access Control and Intercom

Access Control	200 IP Devices, 512 Doors
VDP	2000 IP Devices (up to 64 VTO units)

Alarms

Alarm Controller	10 IP Devices, 100 Channels
Rules	200

Media Transmission Server

Video Input Server	600 Mbps
Video Output Server	600 Mbps

Playback and Download

Playback Bandwidth per Server	100 Mbps
Download Tasks	5
Maximum Record Plan	100

Media Transmission Server

Video Input Server	600 Mbps
Video Output Server	600 Mbps

Map

Hierarchies	Eight (8)
Submaps	32 per Hierarchy
Raster Map Size	14.7 MB
Spots per Map	up to 300 (GIS and Raster)

Face Recognition

Face Library	50
Total Persons for Face Library	5000
Face Images (imported each time)	1000

License Plate Recognition

Vehicle Blocklist	100
Total Persons for Face Library	5000

Data Information[1]

Alarm Records	5,000,000
Face Snapshot Records	5,000,000
Number Plate Recognition Records	5,000,000
Violation Records	5,000,000
Average Speed Records	5,000,000
People Counting Records	5,000,000
Heatmap Records	5,000,000
Video Intercom Records	5,000,000
Log	5,000,000

Personnel Management

People	5000
Cards	5000
Faces	5000
Fingerprints	5000

Events[2]

Total Events		240 per second
Event without Picture	Alarm	240 per second
	Alarm Controller	40 per second
	Access Control	16 per second
Event with Picture	LPC/LPR	12 per second
	Alarm	40 per second
	Face Capture	120 per second
	Object Detection	40 per second

Distributed System

Sub Server	up to Five (5)

Devices and Channels

Total Devices	5000
Total Video Devices	2500 Devices, 5000 Channels
Auto Register	2500 Devices, 5000 Channels
ONVIF	400 Devices, 800 Channels
Face Recognition	500 Channels
License Plate Capture/Recognition	320 Channels
Object Detection	100 Channels
Heatmap	320 Channels
People Counting	500 Channels

Access Control and Intercom

Access Control	500 IP Devices, 2500 Doors

Events[2]

Total Events		480 per second
Event without Picture	Alarm	480 per second
	Access Control	96 per second
Event with Picture	LPC/LPR	120 per second
	Alarm	120 per second
	Face Capture	280 per second
	Object Detection	80 per second

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)
Front Cover	7-in. HD LCD Screen (1920 x 1080, 1280 x 1024, 1024 x 768)
Installation	Standard 19-in. Rack Installation

## Certifications

Safety	EN 60950-1:2006+A11:2009+A1:2010+A12: 2011+ A2:2013
Electromagnetic Compatibility (EMC)	FCC 47 CFR Part 15 Subpart B EN 55032:2015, EN 55024:2010+A1:2015 EN 50130-4:2011+A1:2014, EN 61000-3-2:2014 EN 61000-3-3:2013

1. The record number depends on the disk capacity. The maximum record quantity is 5,000,000.
2. The sum of event of each type cannot exceed the total number of events. One access controller event is equivalent to three general alarms without pictures; one alarm controller event is equivalent to a general alarm without picture; one alarm with picture or one object detection is equivalent to three face detection events.
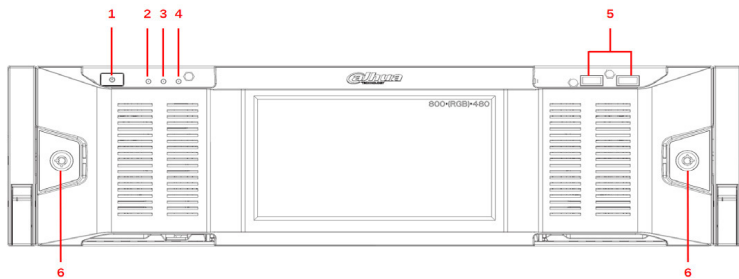
Ordering Information

Type	Part Number	Description
Digital Surveillance System	DHI-DSS7016DR-S2	VMS Server, 15 HDD Bays

Dimensions (mm/in.)

485.0 mm
(19.10 in.)

133.20
(5.24 in.)

444.80
(17.51 in.)

539.40
(21.24 in.)

522.40
(20.57 in.)
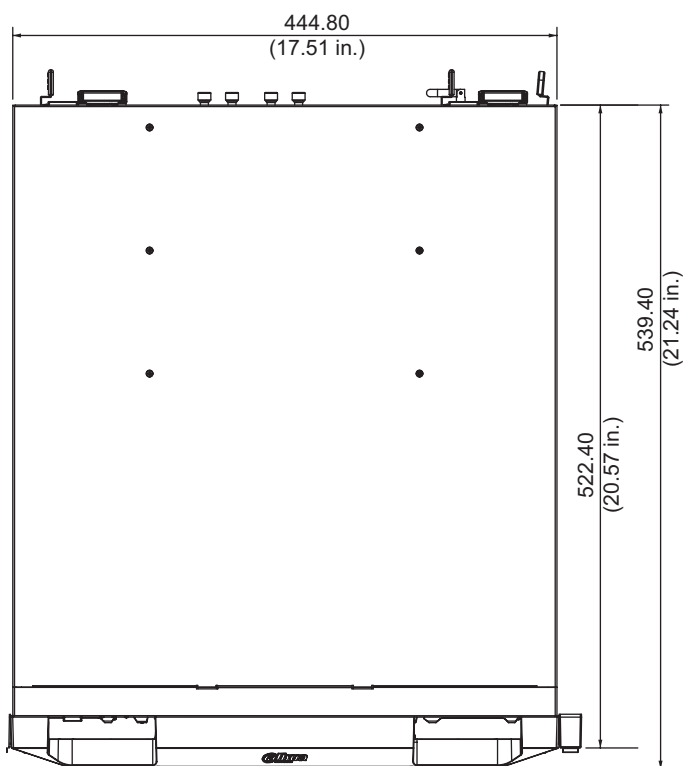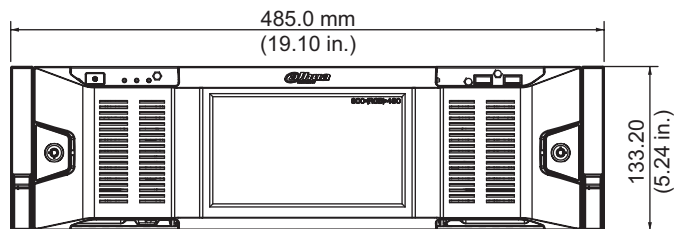
Physical Interfaces

1	Power Button	4	Network Status
2	HDD Status	5	USB 2.0 Ports x 2
3	Alarm Status	6	Lock
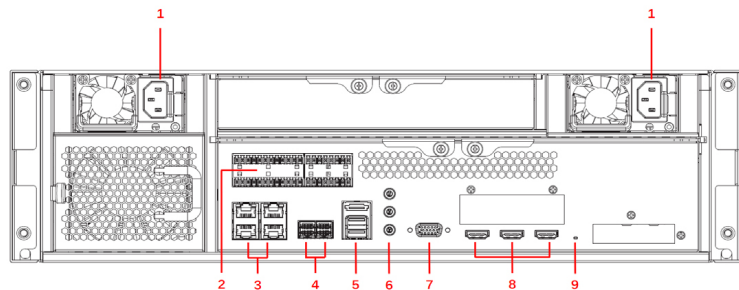
1	Power Connection	6	N/A
2	N/A	7	VGA Out
3	Gigabit Network Ports, 1 to 4	8	N/A
4	SAS HD1 and SAS HD2	9	Reset Button
5	N/A		