

VMS made simple.

# WISENET WAVE



## Video Management System

### Intuitive and Easy to Use

- An intuitive 'drag & drop' tool makes it extremely easy for operators to set up a display of live and recorded images on a single screen or video wall, with customizable layouts and sizes.
- Zoom windows which, with just simple clicks of a mouse, enables operators to zoom in to see close up detail of any suspicious activity.
- Motion detection and video analytics support can be configured to generate alerts when user defined incidents occur.
- A wide range of smart, keyword, calendar and preview search options facilitate rapid retrieval of recorded video.

Wisenet WAVE targets the needs of projects in the mid-market with an emphasis on simplified user experience.

### SUNAPI 2.0 INTEGRATION

Wisenet WAVE is integrated with the latest SUNAPI 2.0 for seamless interaction with Wisenet cameras and recorders.

Full SUNAPI 2.0 driver has been rigorously tested with Wisenet P, X, and Q series and supports:

- Video/audio streaming
- PTZ
- Event - advanced analytics, MD, alarm
- Device configurations

#### Hanwha Techwin specific features

##### Deep camera integrations and NVR monitoring, search & playback:

- H.265
- WiseStream
- All triggering events including sound classification and loitering
- Simple Focus / Initialize Focus / Lens Control settings
- Multi-directional camera support
- Hallway view
- Camera profile/image configuration
- PTZ preset Sync



### Simple. Reliable. Customizable.

Wisenet WAVE VMS features a very unique adaptive scaling technology which dynamically switches between the high resolution and low resolution images depending on the CPU usage of the client PC. It is an endlessly customizable IP Video Management platform that gives users the ability to create tailored networked video solutions for any type of project, for use by anyone, on any device.



## An Operating System to Suit Your Needs

Wisenet WAVE has applications for all major operating systems so our users are not limited by what device or operating system they choose to use on their desktops, mobile devices, rack mount servers, or even low-powered embedded devices. (For embedded devices, please contact Hanwha Techwin Support)



### WAVE Sync

A cloud-based service that enables simple, centralized remote access and insight into any Wisenet WAVE system.



### Desktop

A rich media player designed to view and manage a single Wisenet WAVE system from a desktop or laptop PC.



### Mobile

A mobile app designed for viewing Wisenet WAVE system video and archives while on-the-go.



### Server

A media server responsible for discovering, connecting to, and managing system devices and data.

| Supported Browsers                                                                                     | Desktop OS Support                                                                                    | Mobile OS Support                                                                                  | Server OS Support                                                                                       |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  Google Chrome      |  Microsoft Windows |  Google Android |  Microsoft Windows |
|  Mozilla Firefox    |  Ubuntu Linux      |  Apple iOS      |  Ubuntu Linux      |
|  Opera / Opera Neon |  Apple macOS       |                                                                                                    |                                                                                                         |
|  Microsoft Edge     |                                                                                                       |                                                                                                    |                                                                                                         |
|  Apple Safari       |                                                                                                       |                                                                                                    |                                                                                                         |

## Cloud

### Wisenet WAVE Sync Simplifies Everything

A cloud-based service which can be remotely accessed by an unlimited number of authorized users from anywhere in the world.

### Setup in Seconds



- Step 1: Create Wisenet WAVE Sync Account
- Step 2: Link your System to Wisenet WAVE Sync
- Step 3: Connect, View and Manage from anywhere

### Connect. View. Manage. Scale.

Wisenet WAVE Sync is a public cloud application hosted on Amazon AWS that enables simple remote connectivity, streaming and management of one or an unlimited number of Wisenet WAVE Systems.

#### Supported Operating Systems:



Google Chrome



Mozilla Firefox



Opera/Opera Neon



Microsoft Edge



Apple Safari

| View                      | Manage              | Scalability / Integration |
|---------------------------|---------------------|---------------------------|
| Live Video (adaptive)     | System Settings     | Unlimited # of Systems    |
| Recorded Video (adaptive) | User Permissions    | Unlimited # of Users      |
| Camera Details            | Cloud Connections   | Unlimited # of Devices    |
| Keyword Search            | Email Notifications | Cloud API                 |
| Calendar Search           | Cloud System Merge  |                           |
| Flex Timeline             |                     |                           |

## Wisenet WAVE Sync Browser & Devices Interface



### Cloud Systems

|                 |                                                                                                                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cloud Connect   | Connect any Wisenet WAVE System for simple remote connectivity from anywhere using NAT Traversal and Cloud Data Proxy technology.                                                                                                                                                               |
| User Management | <p>Add an unlimited number of users to a single Wisenet WAVE Sync System.</p> <p>Share access to your Wisenet WAVE system in seconds using only email addresses.</p> <p>Create Custom Roles to quickly assign access to multiple Wisenet WAVE Sync connected systems.</p>                       |
| How it works    | Wisenet WAVE applications (Server, Desktop, Mobile) connect via an active internet connection to the Wisenet WAVE Sync (Cloud) and are automatically connected together using a combination of NAT Traversal (direct connection) and data proxy technologies (connected via Wisenet WAVE Sync). |

| Wisenet WAVE Sync Features |                                                                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connectivity               | Nat Traversal: Connect directly to proxied Wisenet WAVE servers<br>Cloud Data Proxy: Connect via AWS cloud proxy service                                                             |
| Interface Tabs             | Systems: View connected system tiles<br>Settings: View users / rename system / merge system / disconnect system<br>View: Use Wisenet WAVE sync client to view live or recorded video |
| <b>Security</b>            |                                                                                                                                                                                      |
| Secure Password Recovery:  | Via email                                                                                                                                                                            |
| HTTPS:                     | Open SSL encrypted server/client/cloud connections                                                                                                                                   |
| Email:                     | TLS (Transport Layer Security)                                                                                                                                                       |
| Passwords:                 | Complex multi-level hash                                                                                                                                                             |
| <b>Developer Tools</b>     |                                                                                                                                                                                      |
| Cloud API                  | Available upon request                                                                                                                                                               |
| <b>Scalability</b>         |                                                                                                                                                                                      |
| # of Connected Systems     | Unlimited                                                                                                                                                                            |
| # of Users                 | Unlimited                                                                                                                                                                            |

# Desktop

## The Ultimate Flexibility

Wisenet WAVE offers a wide range of options to allow users to choose how and where to manage their video surveillance systems with minimal hardware requirements.

Wisenet WAVE is offered as software which can be installed onto a user’s desktop running Windows, Linux or Apple devices.



## One App, Many Features

Wisenet WAVE Desktop combines performance, ease-of-use, and a robust reliability into a single cross-platform lightweight app capable of running on everything from Atom based tablets to Xeon based servers.

Supported Operating Systems:



Microsoft Windows



Ubuntu Linux



Apple MacOS

| Usability                  | Media                        | Configuration         | Search              |
|----------------------------|------------------------------|-----------------------|---------------------|
| Drag & Drop Everything     | IP Cameras / Encoders / DVRs | Events & Rules Engine | Smart Motion Search |
| Consolidated Notifications | RTSP/HTTP Streams            | User Management       | Keyword Search      |
| Flex Timeline              | I/O Devices                  | IP Cameras / Encoders | Calendar Search     |
| Customizable Layouts       | Web Pages                    | Server Management     | Time-Slice Search   |
| Digital Maps               | Videos                       | I/O Device Management | Bookmarks           |
| Adaptive Scaling           | Images                       | Storage Management    | Audit Trail         |

## Desktop Application



### Supported Operating Systems



Windows 7  
Windows 8  
Windows 8.1  
Windows 10  
Windows Server 2008  
Windows Server 2008 R2  
Windows Server 2012  
Windows Server 2012 R2  
Windows Server 2016 (Long-term Service Channel) 1607  
Windows 10 Enterprise



Ubuntu Linux 14.04 LTS  
Ubuntu Linux 16.04 LTS  
Ubuntu Linux 18.04 LTS



OS X El Capitan 10.11  
macOS Sierra 10.12  
macOS High Sierra 10.13  
macOS Mojave 10.14

### Supported Media Playback On Grid

|                   |                                                       |
|-------------------|-------------------------------------------------------|
| Live Streams      | Codecs: H.265 H.264 MJPEG                             |
| Offline Media     | Videos: AVI MKV MP4 MOV TS M2TS MPEG MPG FLV WMV 3GP  |
|                   | Images: JPG PNG GIF BMP TIFF                          |
| Connected Devices | I/O Devices: Status and Triggers                      |
|                   | Servers: Server Health Monitoring                     |
| Browser           | Web Pages: Responsive Websites / Progressive Web Apps |

### Viewing Modes

|              |                                                         |
|--------------|---------------------------------------------------------|
| Media Player | View, edit, and export offline videos and images        |
| Connected    | View, configure, and manage any Wisenet WAVE system     |
| Videowall    | Put Desktop into VideoWall mode to control remotely     |
| Showreel     | Fully customizable timed viewing tour of any GRID media |

### Maximum # Of Grid Items

|           |                                 |
|-----------|---------------------------------|
| 64 Bit OS | 64 Items (e.g. 64 live streams) |
|-----------|---------------------------------|

### Hardware Requirements

|                         |                                                                                                                                                                        |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum Supported Specs | Hard Drive: HDD/SSD/mSATA<br>RAM: 2GB<br>CPU: Quad Core Intel Celeron CPU or higher<br>Graphics: Intel HD Graphics 3000<br>w/ OpenGL2.1 support<br>Networking: 1GB NIC |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                   |                                                                                                                                                                      |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Performance Specs | Hard Drive: Performance SSD<br>RAM: 16 GB RAM<br>CPU: Intel Core i5<br>Graphics: NVIDIA GeForce GTX 1050<br>(OpenGL2.1 support is required)<br>Networking: 10 GB NIC |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

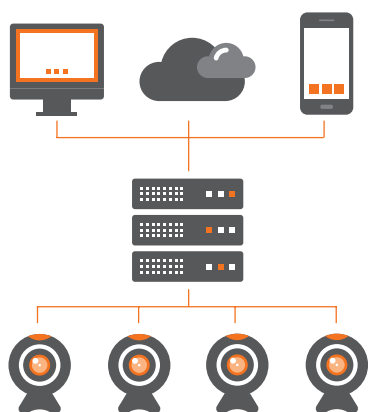
## Server

### Lightweight. Powerful. Server Hive.

The Wisenet WAVE server application is the foundation of the entire platform - with the ability to operate alone or as one part of a hive.

Wisenet WAVE is available as a downloadable software application from the Hanwha Techwin website which enables the installers to easily and effortlessly install and configure.

The supporting web-based application enables each Wisenet WAVE platform to be managed as a stand alone system or as part of a larger, scalable video management solution. The application also provides an audit trail, real-time health monitoring and camera failover support, as well as reports on server health and storage status.



### Server Hive

Connect to any Server w/ any Client

- Instant synchronization
- No single point of failure
- Automatic failover
- One-click upgrades

### Discover. Manage. View. Integrate.

The Wisenet WAVE server application is a lightweight, powerful media server responsible for discovering, connecting to and managing Wisenet WAVE system devices and data.

Supported Operating Systems:



Microsoft Windows



Ubuntu Linux

| Discover                   | Manage                          | View                      | Integrate                 |
|----------------------------|---------------------------------|---------------------------|---------------------------|
| IP Cameras (ONVIF, Custom) | IP Cameras / NVRs / DVRs        | Live Video (adaptive)     | HTTP Generic Events       |
| RTSP/HTTP Streams          | Advanced Routing                | Recorded Video (adaptive) | HTTP Request-as-an-Action |
| I/O Devices                | Storage (HDD/NAS/DAS)           | Server Health             | Server API                |
| Servers / Systems          | Events & Rules Engine           | Log Files                 | Storage SDK               |
| SAMBA NAS                  | Failover                        | Audit Trail               | Video Source SDK          |
|                            | Transcoding                     | Storage Status            | Any Device or System      |
|                            | HTTPS & Encrypted video traffic |                           | Metadata SDK & Plugins    |

## Server Application



### Supported Operating Systems



Windows 7  
Windows 8  
Windows 8.1  
Windows 10  
Windows Server 2008  
Windows Server 2008 R2  
Windows Server 2012  
Windows Server 2012 R2  
Windows Server 2016 (Long-term Service Channel) 1607  
Windows 10 Enterprise



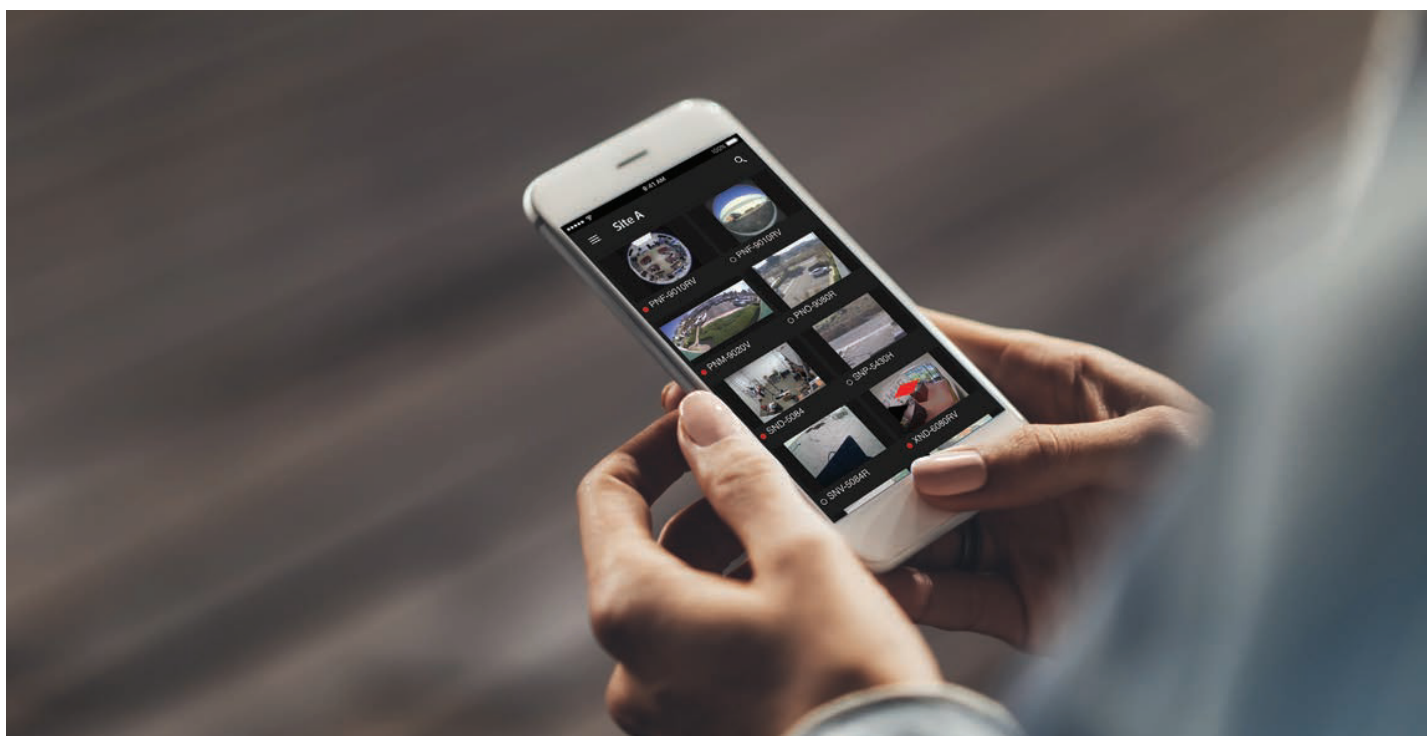
Ubuntu Linux 14.04 LTS  
Ubuntu Linux 16.04 LTS  
Ubuntu Linux 18.04 LTS

| Supported Media Streaming                                 |  |                                                                    |  |  |  |
|-----------------------------------------------------------|--|--------------------------------------------------------------------|--|--|--|
| Live Streams                                              |  | Video: H.265 H.264 MJPEG                                           |  |  |  |
|                                                           |  | Audio: AAC PCM (Mu-Law, A-law) g726 MP3                            |  |  |  |
| Live Streams (Available to pull from Server to 3rd Party) |  | Video: H.265 H.264 MJPEG WebM                                      |  |  |  |
|                                                           |  | Audio: AAC PCM (Mu-Law, A-law) g726 MP3                            |  |  |  |
|                                                           |  | Protocols: RTSP MJPEG WebM HLS                                     |  |  |  |
| Other                                                     |  |                                                                    |  |  |  |
| Automatic Camera Failover                                 |  | ~1 Min. Configurable.                                              |  |  |  |
| Transcoding                                               |  | Supported (For Web Client, Mobile, Api)                            |  |  |  |
| Database                                                  |  | SQLITE + Proprietary Archive Index                                 |  |  |  |
| Single Sign On                                            |  | LDAP / Active Directory                                            |  |  |  |
| Security                                                  |  | Open SSL Salted MD5 Hash TLS/SSL HTTPS                             |  |  |  |
| Dev tools                                                 |  | Server API (HTTP) / Video source SDK / Storage SDK / Metadata SDK  |  |  |  |
| NAS                                                       |  | SAMBA (Authenticated, Unauthenticated)                             |  |  |  |
| Scalability                                               |  |                                                                    |  |  |  |
| # Of Clients Per Server:                                  |  | 50                                                                 |  |  |  |
| # Of Clients Per System:                                  |  | Unlimited                                                          |  |  |  |
| # Of Streams Per Server:                                  |  | 128                                                                |  |  |  |
| # Of Servers In a Server Hive                             |  | 100 (100 is a recommended maximum. Contact support for more info). |  |  |  |
| Hardware Recommendations                                  |  |                                                                    |  |  |  |
| Recommended based on # of streams                         |  |                                                                    |  |  |  |
|                                                           |  | StreamsRAMNICCPU*                                                  |  |  |  |
|                                                           |  | Up to 162 GB1 GBDual Core Atom                                     |  |  |  |
|                                                           |  | Up to 324 GB1 GBDual Core Atom                                     |  |  |  |
|                                                           |  | Up to 648 GB1 GBCore i3                                            |  |  |  |
|                                                           |  | Up to 12816 GB1 GBCore i3                                          |  |  |  |
|                                                           |  | *CPUs data correct at time of print.                               |  |  |  |

## Mobile

### Smart Phone. Smart Video.

A mobile app provides the opportunity to remotely access the key functions of Wisenet WAVE from a smart device to enable 'on-the-road' users to view and respond to any incidents captured by Wisenet cameras.



### Connect. View. Search. Control.

Wisenet WAVE Mobile, with a custom developed media player, is a low-latency, user-friendly mobile application for iOS and Android devices that allows users to connect to, view, search and control IP cameras over Wi-Fi or data networks.

Supported Operating Systems:



Google Android



Apple iOS

| Connect     | View                      | Search              | Control                     |
|-------------|---------------------------|---------------------|-----------------------------|
| Wifi        | Live Video (adaptive)     | Keyword             | Advanced PTZ / Standard PTZ |
| Data 4G/LTE | Recorded Video (adaptive) | Calendar            | Fisheye Dewarping           |
|             | Layouts                   | Flex Timeline       | 2 Way Audio                 |
|             | Available Systems         | Smart Motion Search |                             |

## Mobile



### Supported Operating Systems



|             |             |
|-------------|-------------|
| Lollipop    | 5.0 - 5.1.1 |
| Marshmallow | 6.0 - 6.0.1 |
| Nougat      | 7.0 - 7.1.2 |
| Oreo        | 8.0         |
| Pie         | 9.0         |



|        |             |
|--------|-------------|
| iOS 11 | 11.0 - 11.4 |
| iOS 12 | 12.0 - 12.3 |



| Supported Media Playback |                                                                 |
|--------------------------|-----------------------------------------------------------------|
| Streams                  | Codecs: H.265 H.264 HLS                                         |
| Features                 |                                                                 |
| Remote Connect           | Login using local or Wisenet WAVE Sync credentials              |
| Live Thumbnails          | Thumbnails refresh in real time                                 |
| Keyword Search           | Search for cameras or layouts by name                           |
| Calendar Search          | Search by date and time                                         |
| Smart Motion Search      | Search motion events within the entire video or specific region |
| Advanced PTZ             | Point pan, zoom, tilt controls, PTZ presets                     |
| Fisheye Dewarping        | Dewarp fisheye images                                           |
| Adaptive Scaling         | Hi / low resolution switching transcoding                       |
| Layouts                  | View thumbnails of System Layouts                               |
| Quick System Switch      | Quickly switch between multiple Wisenet WAVE systems            |

