Edge Recording
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Agenda

- Introduction
- Why use edge recording & scenarios
- Recording Options
- Setup Steps (reference)
- Live Setup Demo
- Q&A

Notes:

- This webinar is being recorded and will be available for replaying. The presentation materials will also be available in PDF format.
- Please visit https://www.hanwhasecurity.com/trainings/webinars/ to view webinars & sign up for future webinars.
- We will take Q&A time permitting. In case there is not time to get to all of the questions, we will reply to you individually afterwards. Please use the Chat or Q&A section.
- All participants have been put in to listen only mode.

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Edge Recording

- Allows you to record on the camera without needing high-bandwidth continuous network transmission and without the need for centralized network video recorders.

- No need to worry about theft or tampering with NVRs.

- Edge storage can record in the event of network failure.

- Edge storage is also useful in situations where network bandwidth is intermittent or limited.

- Useful for distributed/remote environments such as utility substations, buses.

- You select the **recording profile**, schedule, and recording type.

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Edge Recording

- All camera models have an SD card slot.

- Most Wisenet X models have 2x Micro SDXC memory card slots.

- PNM-908xVQ has 4x slots.

Why Use Edge Recording?

- No Camera license fees or reoccurring fees.

- No NVR needed, especially useful in sites with low camera count.

- Perfect for low bandwidth applications.

Example 1: Power sub station

- No network infrastructure, but they want to record high resolution images of any contractor entering the facility. Connect the alarm input of the camera to the card reader so the camera pre- & post- records to SD card when the door is opened. If an incident happens, utility company comes on site, and uses a secure wireless network to review/download video using SmartViewer or web browser.

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Example 2: Retail store with small camera count, but doesn't need an elaborate NVR.

1. Cash Register
2. Fisheye Camera for the aisles
3. Front Door
4. Front Parking Lot
5. Rear

Look at playback when needed.

Banking

- The new XNB-6001 discrete camera allows for SD card to be secured at a location not where the camera is, in case of theft.

- 8m cable allows the body with SD card to be secured in case of ATM smash & grab.

Low Bandwidth Applications

- Send VGA resolution, low frame rate video for monitoring, such as 3G/4G connection.

- Recording on SD card at megapixel, high frame rate.

Profile1
VGA 5fps

Profile2
3MP 30fps

Profile3
VGA 5fps

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Edge Recording Architecture

Telecomm Rooms
Network Switches with PoE

Features:
-No bandwidth used for recording
-No reliance on NVR
-Recording failure does not affect other camera's recording
-Recording can survive destruction or downtime of command center or data center.

Command Center

TR

MCC

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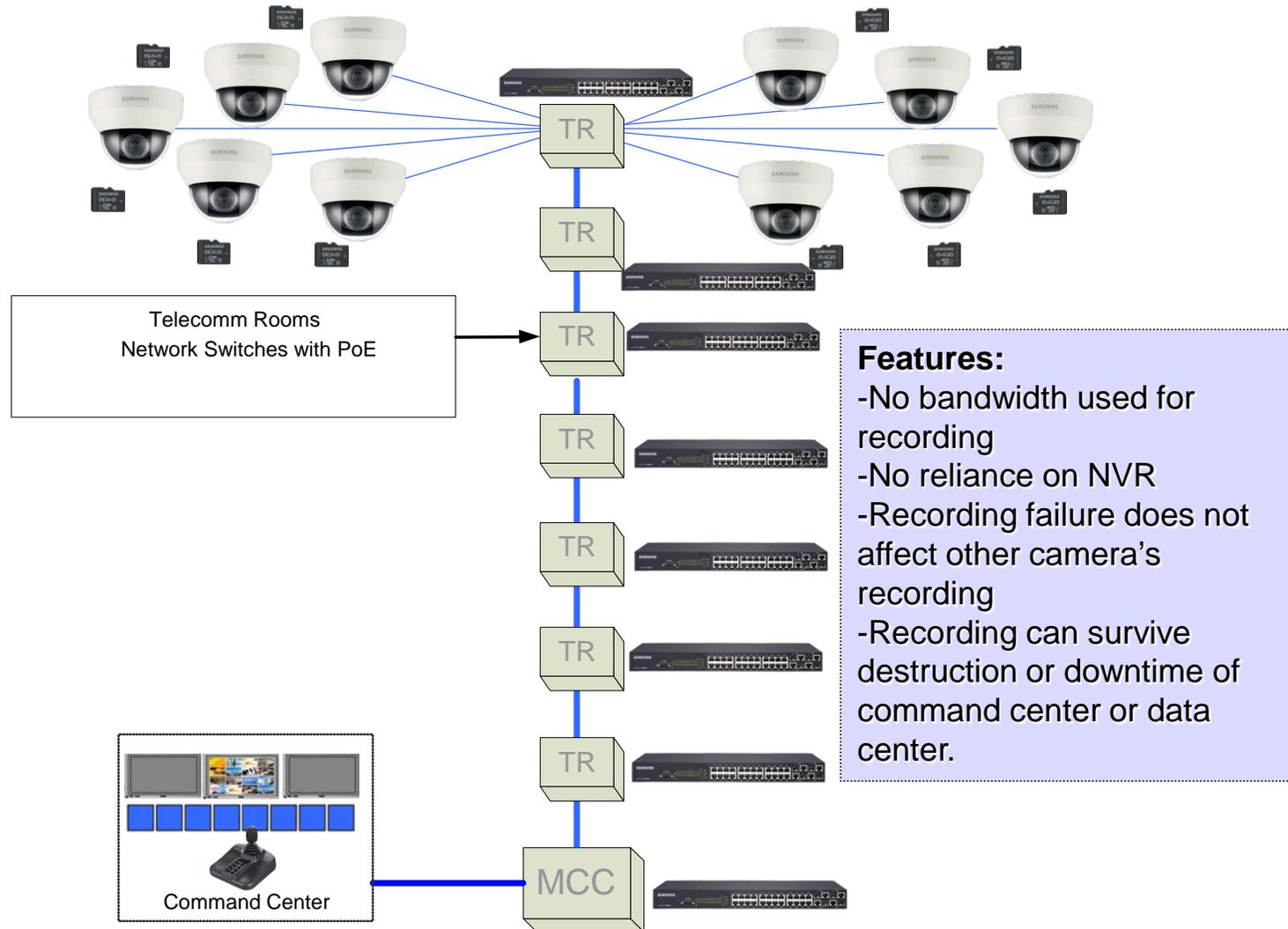
Components

- Camera

- Micro SDXC Memory Card (Some PTZs take full size cards)

- Network Switch (usually PoE)

- Free SmartViewer/Wisenet Mobile to monitor cameras, search/playback & archive video.

SD Card Capacity Formats

SDXC memory card
more than **32GB**, up to **2TB**

SDHC memory card
more than **2GB**, up to **32GB**

SD memory card
2GB and less

There are 3 SD card capacity formats.

SDXC Capacities are ever increasing. Full size cards are usually available in a larger capacity than Micro formats.

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SD Card Physical Formats

- SD Cards are available in 3 physical formats.

- Samsung cameras use full size SD or MicroSD depending on camera model.

- MicroSD cards can be used in cameras requiring full size SD cards with an adapter, often included with the MicroSD card.
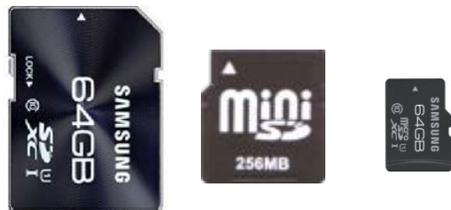
SD   MiniSD   MicroSD
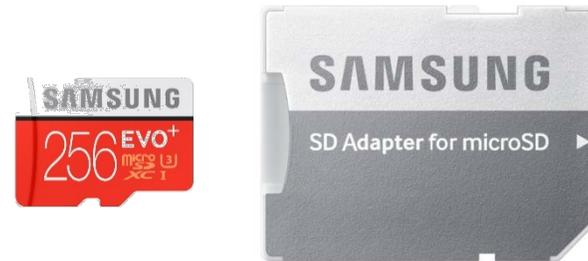
MicroSD card and adapter

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SD Card Write Protect Switch

- Full size SD cards and adapters have a write protect switch.
- Make sure it does not accidentally become engaged, preventing recording.
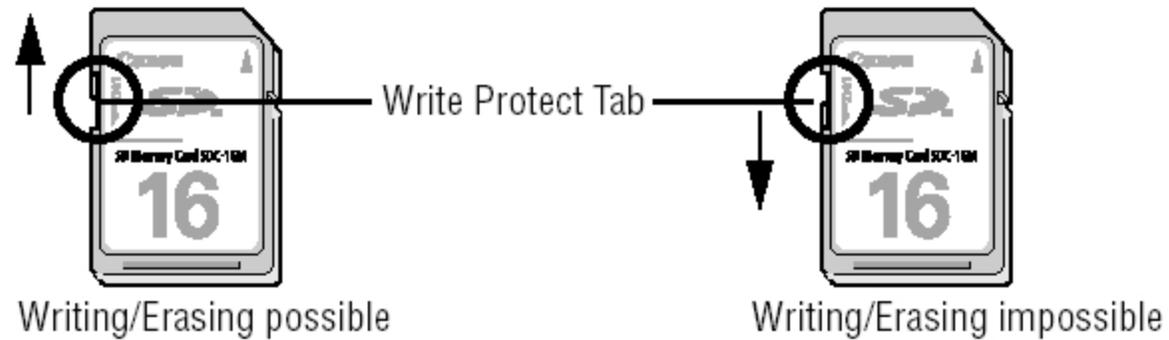
SD Card Speeds

Recommend High Durability MLC type cards, such as Samsung Pro, SanDisk HIGH ENDURANCE Products, Transcend High Endurance.
UHS-1 is recommended.
UHS-3, 32Gb+ is recommended for 4K recording

Minimum Sequential Write Speed	Speed Class			Corresponding Video Format
	Speed Class	UHS Speed Class	Video Speed Class (NEW)	
Card Image				The necessary speed varies by each recording / playback device condition, even in the same format.
90MB/sec			V90	8K Video
60MB/sec			V60	
30MB/sec		U3	V30	4K Video
10MB/sec	10	U1	V10	Full HD / HD Video
6MB/sec	6		V6	Standard Video
4MB/sec	4			
2MB/sec	2			

"Speed Class" Mark

"UHS Speed Class" Mark

32 GB

UHS Speed Class 1
Indicates Speed Class 1 on UHS-I Interface (minimum transfer speed over 10 MB/sec).

Indicates UHS-I interface compatibility.

64 GB

Indicates maximum transfer speed is 60 MB/sec reading and 35 MB/sec writing for a device that supports UHS-I speed mode SDR104.

R60·W35 MB/s

Indicates SD Speed Class when used with a device that does not support UHS interface.
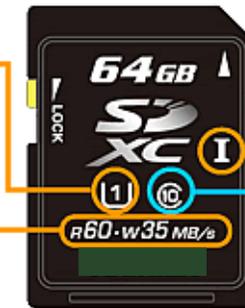
NAS Guidelines

- It is recommended to use a NAS with 200Gb or more available space.

- It is recommended to use 1 NAS for a maximum of 16 cameras.

- Create a separate folder for each camera on the NAS.

- It is recommended to use a NAS dedicated for video recording, otherwise performance may degrade.

- NAS manufactured by Synology and QNAP are recommended.

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Overview

- Edge recording can be configured for one or more of the following:
    - Continuous recording
    - Schedule recording
    - Event only recording
    - Network disconnection
    - Manual recording

- Each event can be individually scheduled.

- Edge recording can record I-frames during non-event, and record full frame rate on event.

- The recording profile is freely selectable and does not impact other profiles/functions.

- Video can be recorded in AVI format or STW format.

- Video can be played, searched, and downloaded via web browser, SmartViewer, & SSM.

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Action Based Recording
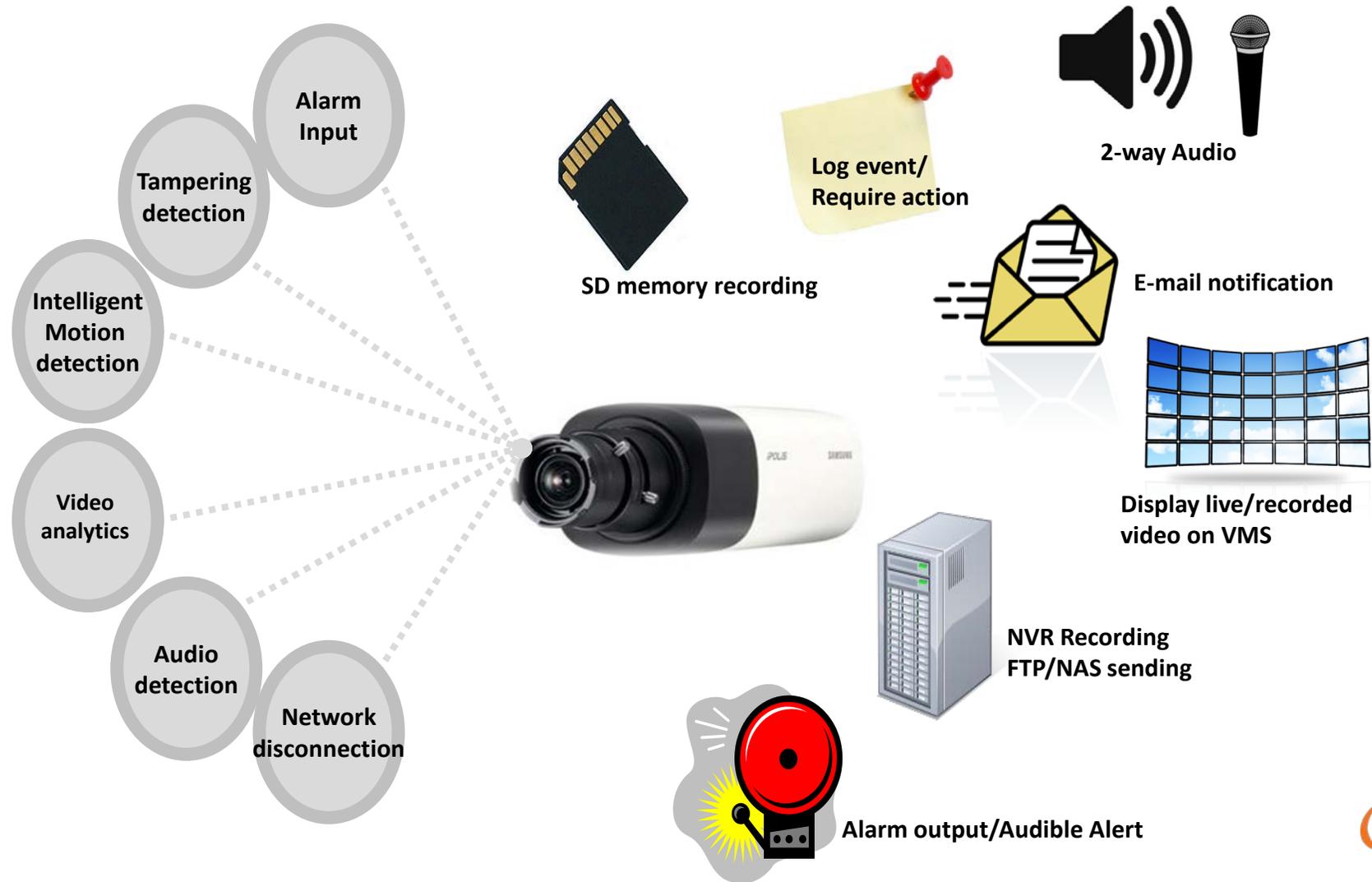
- Automatic Recovery Backup is a feature that many Hanwha recorders provide where recorded video from an SD card can be trickled back to the NVR in case of a network interruption. The camera is set to record to the SD card as a redundant recording mechanism.

- Supported by the XRN, QRN, PRN NVRs, SSM Recording Server, & WAVE.

- Many cloud partners can also trickle back redundant SD card video in case of network failure or periods of network congestion.

Configuration Reference Slides

Insert SD Card(s)

- Insert SD card with camera power off, or with SD function turned off.
- Make sure to not drop the MicroSD card. You may want to install the card before mounting the camera.

Select Recording Profile

- Select profile to record from Basic > Video Profile.

- Check the **Record**.

- The default profile is MJPEG, but can be changed to another profile or a new one created.

- (Some profile options are unavailable when set to a Record profile, so you may want to use a profile specifically for this function if the camera has other uses)

In the camera menus, "Record" refers to Edge/NAS recording

Event > Storage setup

- Select the SD storage device, set **enable** to on, and click apply.

- Ensure the total size is shown correctly.

- A brand new SD card will auto-format.

- It is recommended to format the memory card in the camera, especially if it was previously used in another device or a different codec.

- Formatting can take a minute or two. Reload the page to check the status.

- The status will show **Recording**.

Basic 〈
PTZ 〈
Video & Audio 〈
Network 〈
Event 〈
  Event setup
  Hand over
  FTP/E-mail
  Storage
  Alarm output
  Alarm input
  Time schedule
  Network disconnection
  App event
Analytics 〈
System 〈
Open Platform 〈

Storage

Storage action setup

	Device	Record	Free size	Total size	Status	
◉	SD Card	On	29.79 GB	29.79 GB	Recording	Format
○	NAS	Off	0 MB	0 MB	None	Format

Overwrite ☑ Enable
☐ Auto delete   180   days (1 ~ 180)

SD File System **Type** VFAT

Record setup
Record profile SDRec
Normal recording None
Event recording Full frame
Pre event duration 5 seconds
Post event duration 30 seconds
Record file type STW

Normal record schedule ◉ Always ○ Only scheduled time

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Event > Storage Setup

- **Normal** – Select None to record on event only.
  - Select I-Frame to record only the I-Frame from the GOV length of the profile   on the set schedule
  - Select Full Frame to record the full stream

- **Event** – Select I-Frame to record only the I-Frame for events configured to record
  - Select Full frame to record the full stream for events configured to record

- **Pre event duration** – Select the time to record before an event occurs

- **Post event duration** – Select the time to record after event occurs

- **Record file type** – Select .AVI or Samsung Techwin .DAT file format (Changing type will   format the card)

- **Overwrite** & **Auto Delete**

SD File System	Type	VFAT
Record setup	Record profile	SDRec
	Normal recording	None
	Event recording	Full frame
	Pre event duration	5 seconds
	Post event duration	30 seconds
	Record file type	STW
Normal record schedule	◉ Always	○ Only scheduled time

Event > Storage Setup

- ## NAS connection setup

- Next, enter the NAS IP address, username, password, and folder share name.

- Click the test button to verify a proper connection.

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Event > Storage Setup

- **Schedule Options for Normal Recording**

- Select **always** for continuous recording.

- To record continuously during specific times, select **Only Scheduled Time**, and select the time period to record.

- Light blue indicates the entire hour. Click on a cell to enter a specific time period.

- The cell will change to dark blue.
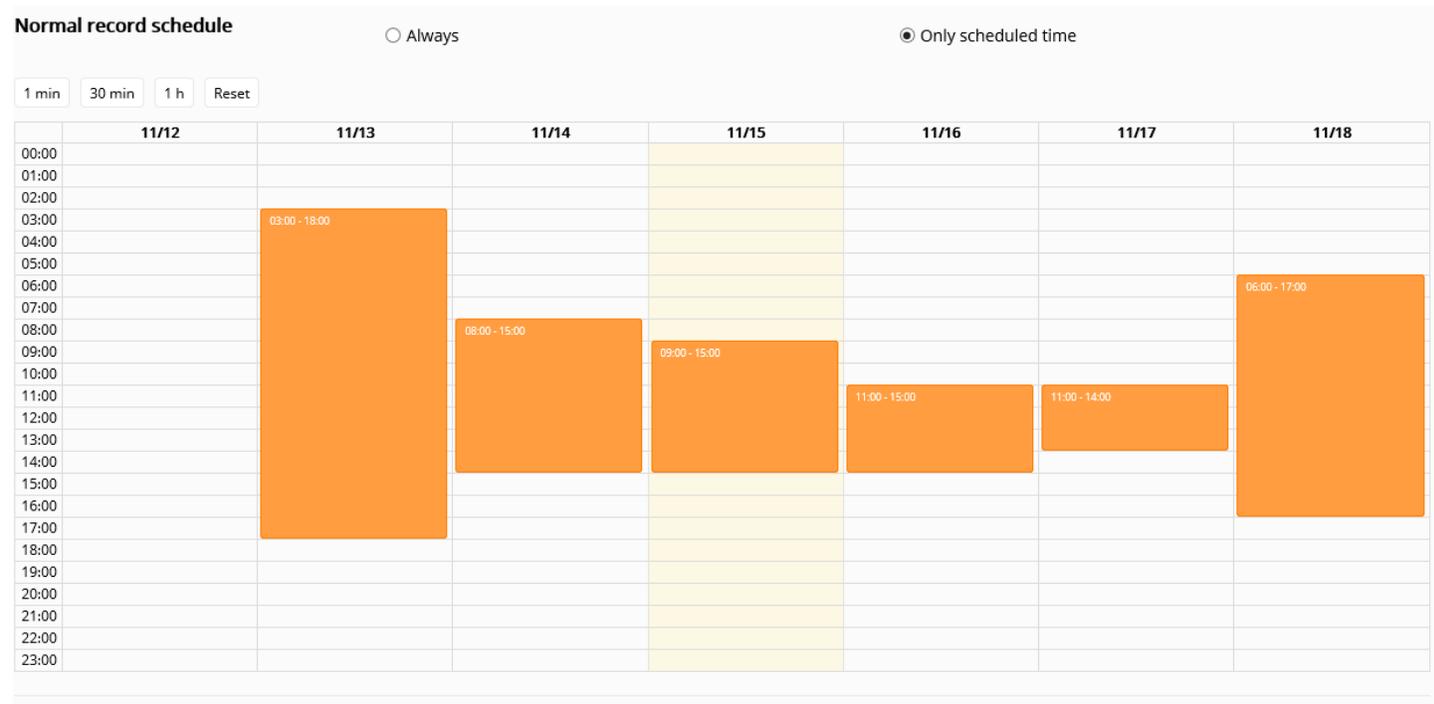
Event Action

- For each event to record on, make sure to check the **Record** option under Event Action setup.

- Also make sure the **Activation Time** is configured correctly for the event to occur.

Event action settings	FTP	☐ Enable	
	E-mail	☐ Enable	
	Record	☐ Enable	
	Alarm output 1	Off ▾	
Event activation time		● Always	○ Only scheduled time

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Basic > Event Setup

- The **Event List** shows the basic configuration of all events.

- ***NO NEED TO REMOVE SD CARD FROM CAMERA!!***

1. Select date from calendar

2. Select event type

3. Click on timeline to jump to that time. Click & drag to move timeline. Use mouse zoom wheel to zoom in/out the timeline.

- SmartViewer can also be used for easy search & playback.

Playback Controls

Snapshot

Previous/Next Record

Stretch/1:1

Rewind/Fast Forward 1/2/4/8x

Full Screen

Play/Pause

Audio Enable   Volume Control

Event/Overlap Selection

Time Display/Entry

Backup to AVI format

Calendar/Next/Previous Day

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Backup

- Click the Export icon to download video to your PC in AVI format.

- Events will populate the start and end time periods.

- Time search backup will allow entry of the start & end period.

- A maximum of 5 minutes can be downloaded from the web viewer.

- Use SmartViewer or SSM to download longer time periods or to keep the file in the STW watermarked format.
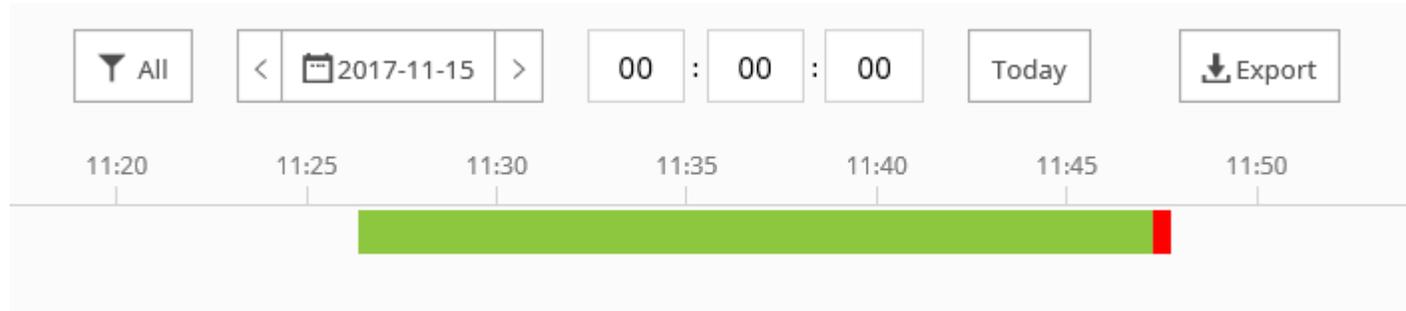
AVI file format notes

- When playing an AVI file, note that Windows Media Player supports a maximum resolution of 2 Megapixels. Please use another media player such as VLC Player for higher resolution AVI files.

- An SMI captions file is included with AVI files containing camera metadata.

- A maximum of 5 minutes will be recorded per AVI file on an SD card or 30 minutes on a NAS.

- File path: "\ch00\img\YYYY_mm_DD\AVI

- or   "\ch00\img\YYYY_mm_DD\STW

- File naming: 001_YYYYMMDD_HHMMSS.avi or 001_YYYYMMDD_HHMMSS.dat

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STW SD Card Player

- You can use the SD Card Player to playback, search, and convert STW video files.

- Drop and drag files to the Play List.

- STW files are saved with a .DAT file extension.
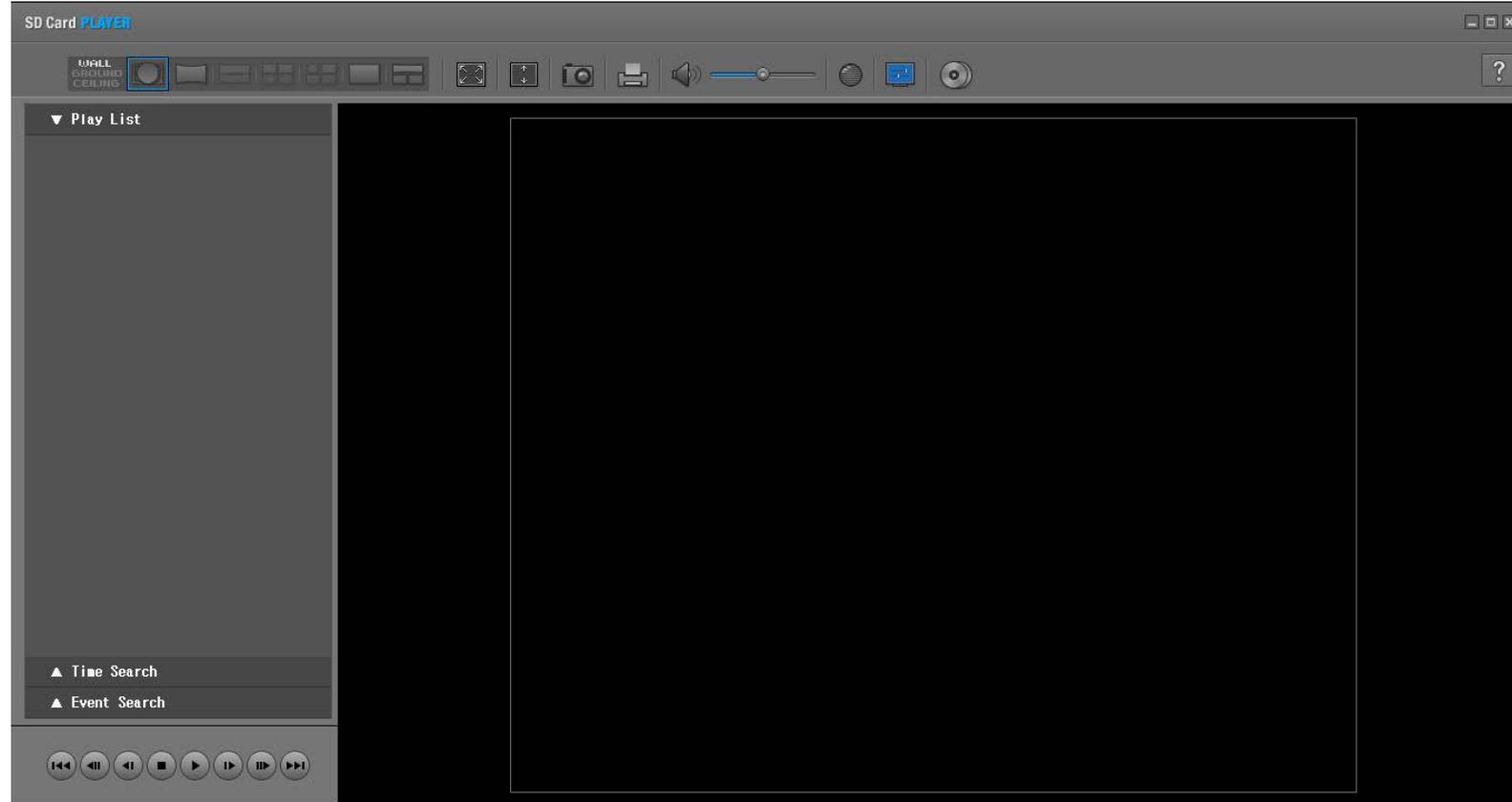
Troubleshooting

- Check recording settings

- Verify recording mode – event, normal, schedule, etc.

- Check SD card performance

- Some cameras have indicator lights. Light should be on. If off or flashing continue troubleshooting.

- Format SD card, or try another card, or brand

- Use name brand high performance SD cards

- Check the camera log in System > Log

- Make sure the Time & Date is correct in Basic > Time & Date

- For a NAS, try to connect to the file share from a Windows PC with the command "//IPADDRESS/share".

- Verify NAS user name & password, and write permissions on the folder.

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- Live demonstration of SD card settings,
- SmartViewer Playback function, quick setup.

- Web viewer search/playback.

Thank You!

Questions?