Migrating Video Surveillance Systems from Analog to Digital

Capabilities enabling superior network video solutions

This is Axis

- Founded in 1984
- IT company driving the network video market
- Worldwide presence in 18 countries, 570 employees*
- Product areas
  - Network Video Solutions
  - Network Print Servers
- Net sales in 2006: MSEK 1202 (US$163M)
- Global partnerships through distributors, resellers and system integrators
- Listed on OMX Nordic Exchange, Stockholm Large Cap and Information, Technology exchanges

Axis' two main product areas

- Network Video Solutions
  - Worldwide #1 position
  - More than 1,000,000 network cameras installed
- Network Print & Scan
  - Worldwide #2 position in Print
  - Installed base of more than 3,000,000 units

IMS Research*

- All video surveillance equipment: Axis is #6, compared with 8 in the preceding report
- Security cameras category: Axis is #3, compared with 4 in the preceding report
- Axis the global market leader: 33.5% market share for network cameras
- Network cameras: Growth at an annual rate of 35%

* The world market for CCTV & Video Surveillance Equipment, 2008 edition

Network video advantages

The “classic” benefits of IP-Surveillance

> Remote accessibility

> Superior image quality

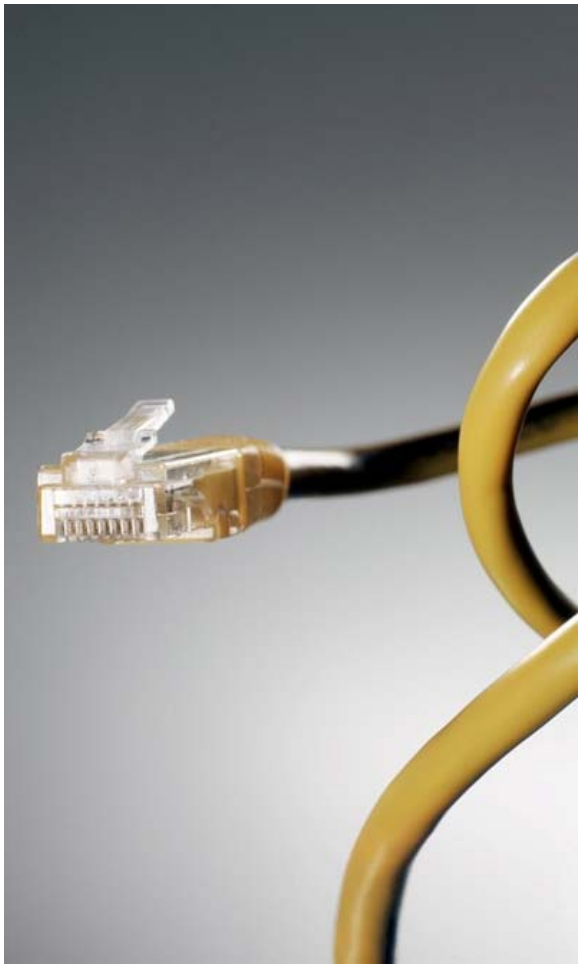
> Easy, future-proof integration

> Scalability and flexibility

> Cost-effectiveness

> Distributed intelligence

> Proven technology



Axis' advantages

a) Axis offers the most complete range of outstanding network video products

b) Axis network video solutions give unlimited possibilities

c) Axis is the world's leading expert in network video

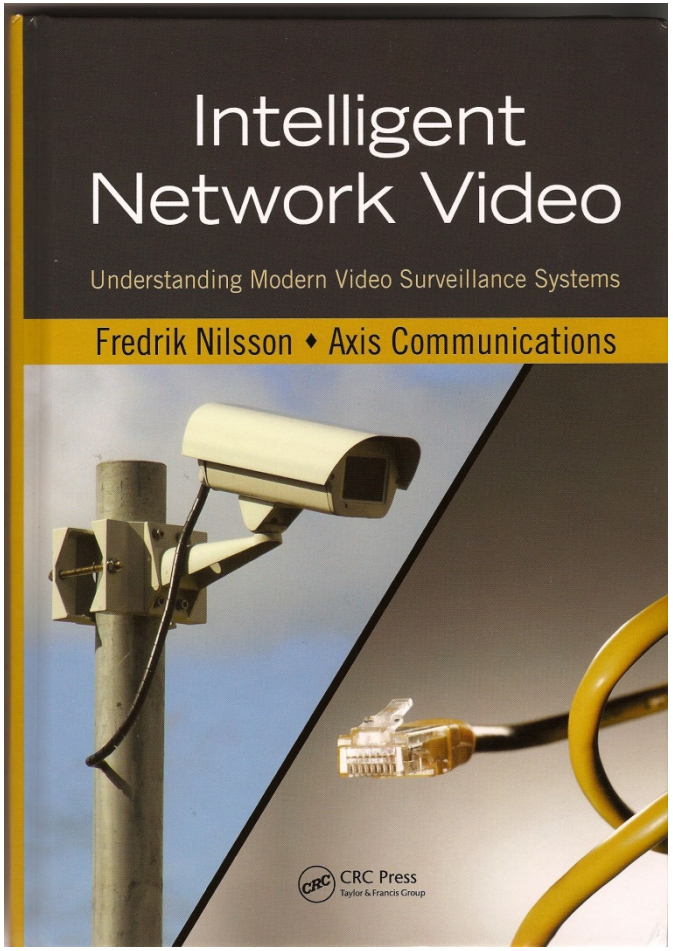
H.264 advantages

- Allowing better image quality
- Simplified management of large-scale video surveillance systems
- Drastic savings on storage and bandwidth
- The first, global video standard shared across all industries
- H.264 – ultimately a common video compression platform that is future-proof

Video Encoder Defined

> “Video Encoders, also commonly called video servers are key pieces of equipment that help analog CCTV systems migrate into an open platform-based network video system.”

> “They will continue to play a significant role in the video surveillance market, as more than 95 percent of the estimated 40 million surveillance cameras installed worldwide are still analog.”



Sales strategy – video encoders

> Who needs Encoders

- Customer with an analog CCTV installation
- Customer with an interest in new technology
- Customer aware of IP as the future trend
- Large analog CCTV installations gain more benefits, bigger deals

Sales strategy – video encoders

> Investigate needs

- What network video benefits are they interested in?
- Can they replace coax cabling or do they want to keep coax?
- Is it stand-alone or rack solutions they need?
- if they are prepared to replace analog CCTV with a network camera solution, it is a better solution

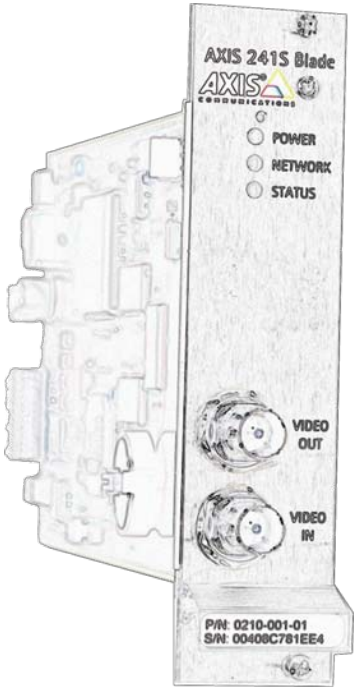
Sales strategy – video encoders

> Axis' advantage
  - Market leader in network video
  - Leading technology
  - Reliable, high-quality products
  - Strong service and support
  - ADP program
  - Key capabilities:
    - High-density racks
    - H.264 compression
    - Full frame rate
    - Full resolution
    - Distributed intelligence (motion detection, tampering alarm, etc)

Choosing the right video encoder

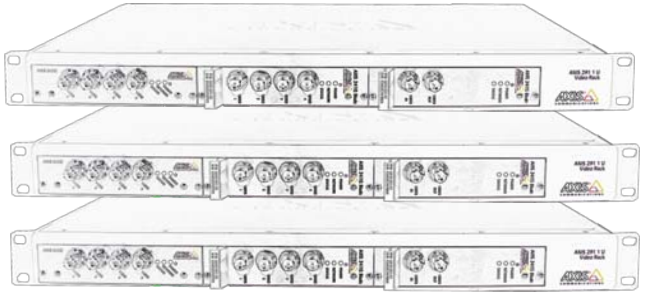
New Deployments

- Definition
  - New construction
  - No previous security system
- Some encoder usage for specialized cameras
  - Infrared, thermo, covert, public view
- Cost benefits
  - Limiting coaxial cabling = better image quality
  - Labor cost for cabling / electrician
  - Shared cable infrastructure
  - Shared IT infrastructure



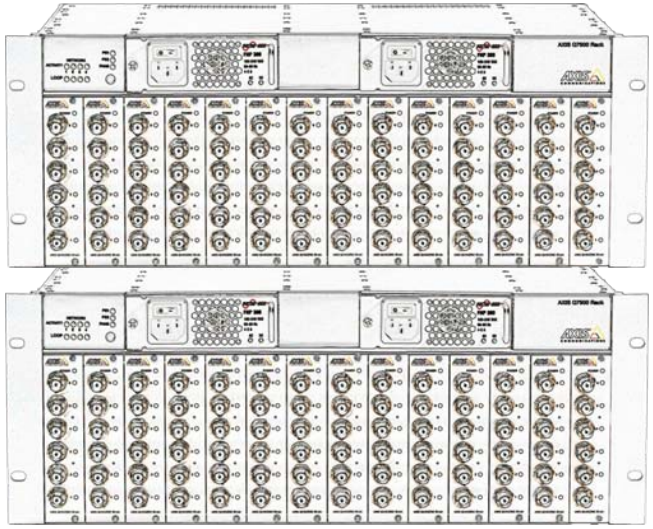
Remodel Deployments

- Definition
  - Construction to existing building
  - Part of the existing surveillance system remains
- Good candidate for encoders
  - Migration of analog cameras into network-based video
- Cost Benefits
  - Extend lifecycle of legacy cabling for existing analog cameras
  - Leverage existing IT infrastructure for new network cameras



Retrofit / Upgrade

- Definition
  - Existing system with service problems
  - Security or IT lead project
- Greatest opportunity for encoder usage
- Cost benefits
  - Use existing cabling
  - Reuse existing enclosures
  - Reuse existing cameras



Resolution

> Will image quality be improved moving to a digital signal?

> Find acceptable balance between image quality and network/storage utilization.

> Calculate pixels per inch within the FoV

> PTZ refresh rate effected by FPS

QCIF	176 X 120
CIF	352 X 240
2CIF	704 X 240

VGA	640 X 480
4CIF	704 X 480
D1	720 X 576

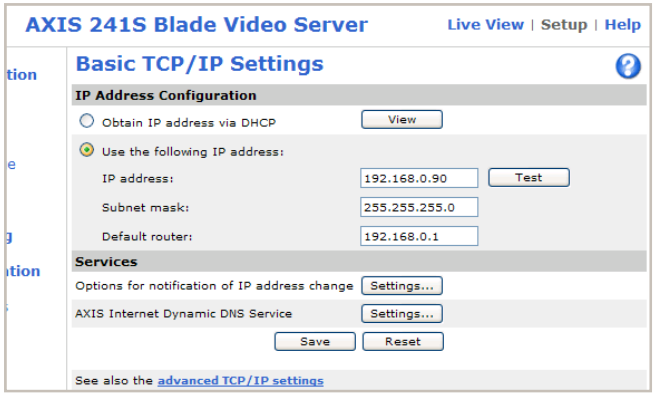
MAXIUM RESOLUTION		
MODEL	MJPEG	MPEG-4
240Q	4CIF 6 fps	NA
241Q	CIF 30 fps	CIF 20 fps
241S	4CIF	2CIF
243	4CIF	4CIF
247S	4CIF	4CIF
Q7401	D1	D1 *H.264*
Q7406	D1	D1 *H.264*

Common Interfaces

- I/O Terminal connector (4 I/O and RS-485)
- RS-232 (9 pin)
- RS-422
- 10BaseT/100BaseTX
- BNC composite video inputs and outputs
- Y/C video inputs
- Audio
- 802.3af

Security & Networking

- Browsers Supported
  - IE, Safari, Firefox
- Multilevel password protection
- IP filtering
- HTTPS Encryption
- IEEE 802.1x – device authentication
- IPv4 and IPv6
- QoS (Quality of Service) / DSCP
- Unicast / Multicast addressing support
- RTP+RTSP
- NTP, SNMP v1-v3



Design Differences

- > Number/Type of Interfaces
- > Codec types
- > Video FPS performance
- > Resolutions supported
- > Number of client connections
- > Analytics support
- > Audio support
- > Form factor
- > Price

240 Q Models

> Lowest price per channel

> Entry level security applications

> Commonly deployed

> Motion detection

	MJPEG	MPEG4	H.264
1 CH	24 @ 4CIF	NA	NA
4 CH	6 @ 4CIF	NA	NA

241 S/Q Models

- > Good value
- > Entry level security applications
- > Commonly deployed
- > Motion detection
- > 241SA/QA supports 2 way audio

	MJPEG	MPEG4	H.264
1 CH	30 @ 4CIF	21 @ 4CIF	NA
4 CH	30 @ 4CIF	20 @ CIF	NA

243 SA/Q Models

> Great performance

> Advanced level security applications

> Commonly deployed

> Motion detection

> Active tampering analytics

> 243SA supports 2 way audio

	MJPEG	MPEG4	H.264
1 CH	30 @ 4CIF	30 @ 4CIF	NA
4 CH	30 @ 4CIF	30 @ 4CIF	NA

247 S Model

> First of it’s kind encoder

> Highly versatile security applications

> Motion detection

> Audio detection

> Supports 1 way audio

	MJPEG	MPEG4	H.264
1 CH	30 @ 4CIF	27 @ 4CIF	NA
4 CH	NA	NA	NA

292 Model

- > Excellent decoder performance
- > Several security applications
- > ARPTEC2 chipset
- > Video sequencing support
- > PAL/NTSC
- > Audio decoding

	MJPEG	MPEG4	H.264
1 CH	30 @ 4CIF	30 @ 4CIF	NA
4 CH	NA	NA	NA

291U Model

- > Best in class 1U performance
- > Outstanding 1U value
- > 18 port maximum density
- > Hot swappable
- > One 10/100/1000 Mbps NIC

SUPPORTED BLADES		
240Q	241Q	241S
243Q	Q7406	

Video Server Model

> Excellent mid tier rack solution
> 48 port maximum density
> Hot swappable cards
> Dedicated 10/100 Mbps NIC per slot
> Dedicated IO per slot
> Dedicated serial port per slot

SUPPORTED BLADES		
240Q	241Q	241S
243Q	Q7406	

New generation video encoders

ARTPEC

- ARTPEC - Axis Real Time Picture Encoder
- Designed by Axis for image compression
- Supports a range of CCD and CMOS sensors
- Built-in functionality for:
  - Image sharpening
  - Backlight compensation
  - Noise reduction
  - White balance
- Support multiple MJPEG, MPEG4 and H.264
- Realtime compression of up to 45 megapixels per second

AXIS Q7401 Video Encoder

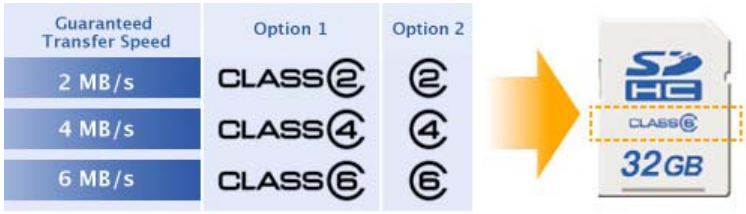
- Small, compact video encoder
- Multiple H.264 and Motion JPEG streams
  - Full frame rate in 3 individually optimized streams in up to D1 (720x480/576) resolution
  - Multiple viewers per stream
- Power over Ethernet
  - With power feed to camera (5 W)

AXIS Q7401 Video Encoder

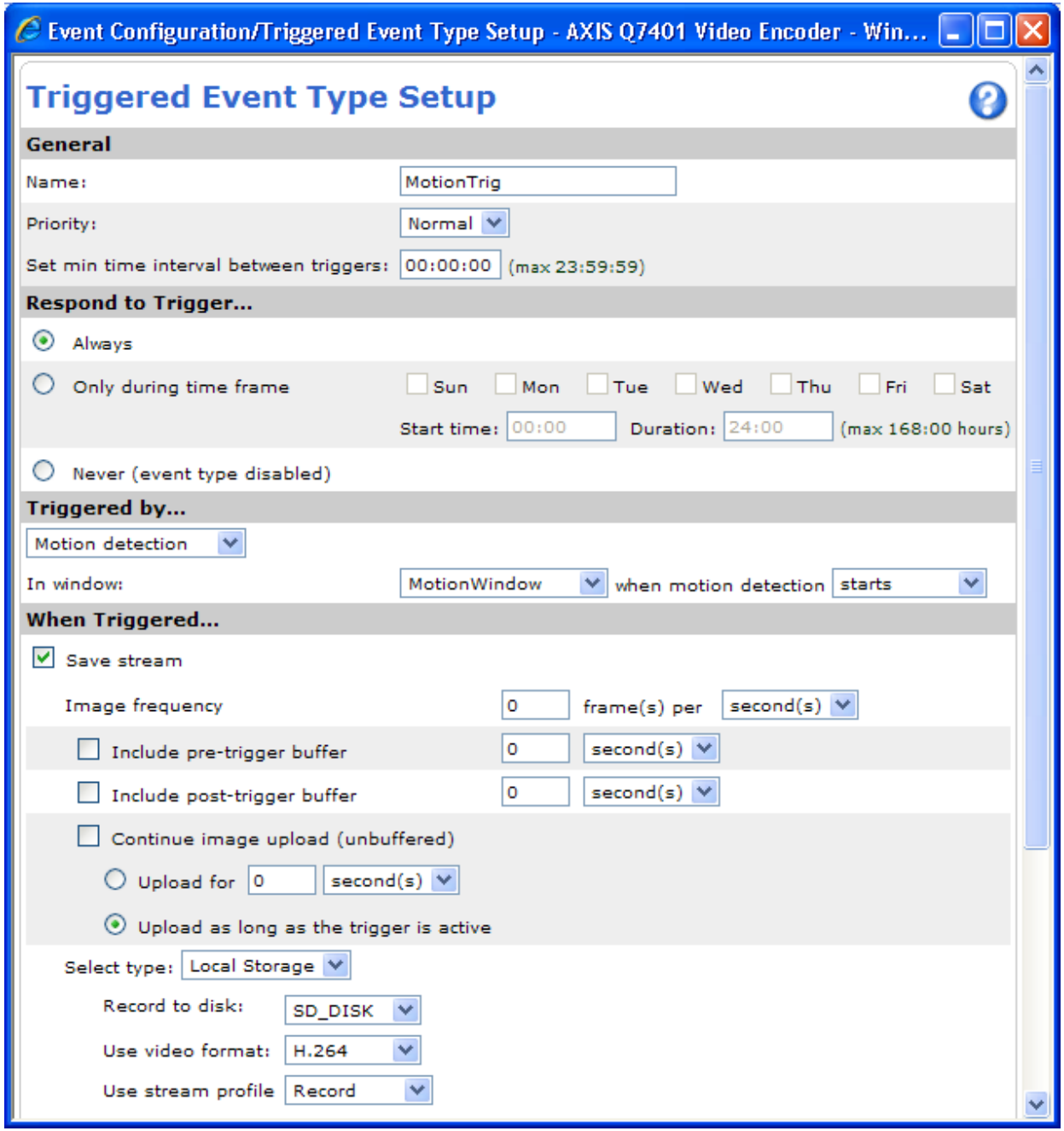
- Two-way, half-duplex audio
  - AAC-LC, 8kHz 32kbit/s, 16kHz 64kbit/s
  - G.726, ADPCM 8kHz, 32 or 24kbit/s
  - G.711, PCM 8kHz, 64kbits/s
- Enhanced PTZ support
  - 2- and 4-wire RS-422 and RS-485
  - PTZ drivers available on support web
- Intelligent video capabilities
- Available now!

Local storage info

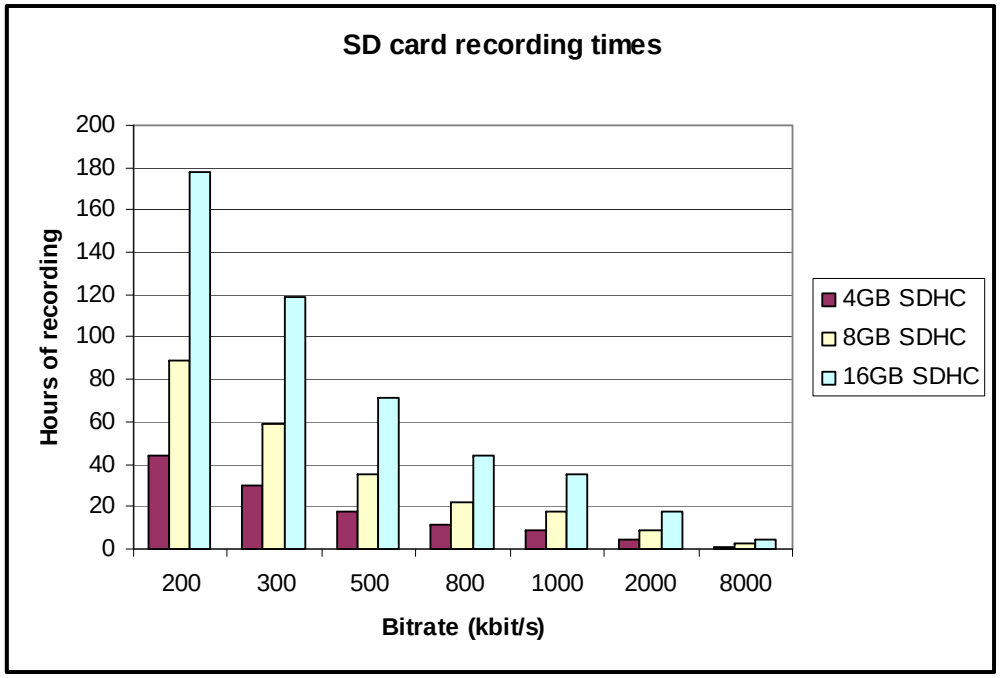
> Local storage with optional SD/SDHC card
  - All sizes and speed classes are supported
  - Playback of Motion JPEG on any computer
  - Playback of H.264 requires WMP Matroska component available on: http://www.axis.com/techsup/software/matroska/index.htm
  - H.264 codec also required
  - No audio recording
  - Murphy says ”Some SD cards will not work!”



> Setting up a recording – next slide


Event Configuration/Triggered Event Type Setup - AXIS Q7401 Video Encoder - Win...
Triggered Event Type Setup
General
Name:
MotionTrig
Priority:
Normal
Set min time interval between triggers:
00:00:00
(max 23:59:59)
Respond to Trigger...
Always
Only during time frame
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Start time:
00:00
Duration:
24:00
(max 168:00 hours)
Never (event type disabled)
Triggered by...
Motion detection
In window:
MotionWindow
when motion detection
starts
When Triggered...
Save stream
Image frequency
0
frame(s) per
second(s)
Include pre-trigger buffer
0
second(s)
Include post-trigger buffer
0
second(s)
Continue image upload (unbuffered)
Upload for
0
second(s)
Upload as long as the trigger is active
Select type:
Local Storage
Record to disk:
SD_DISK
Use video format:
H.264
Use stream profile
Record

Local storage info

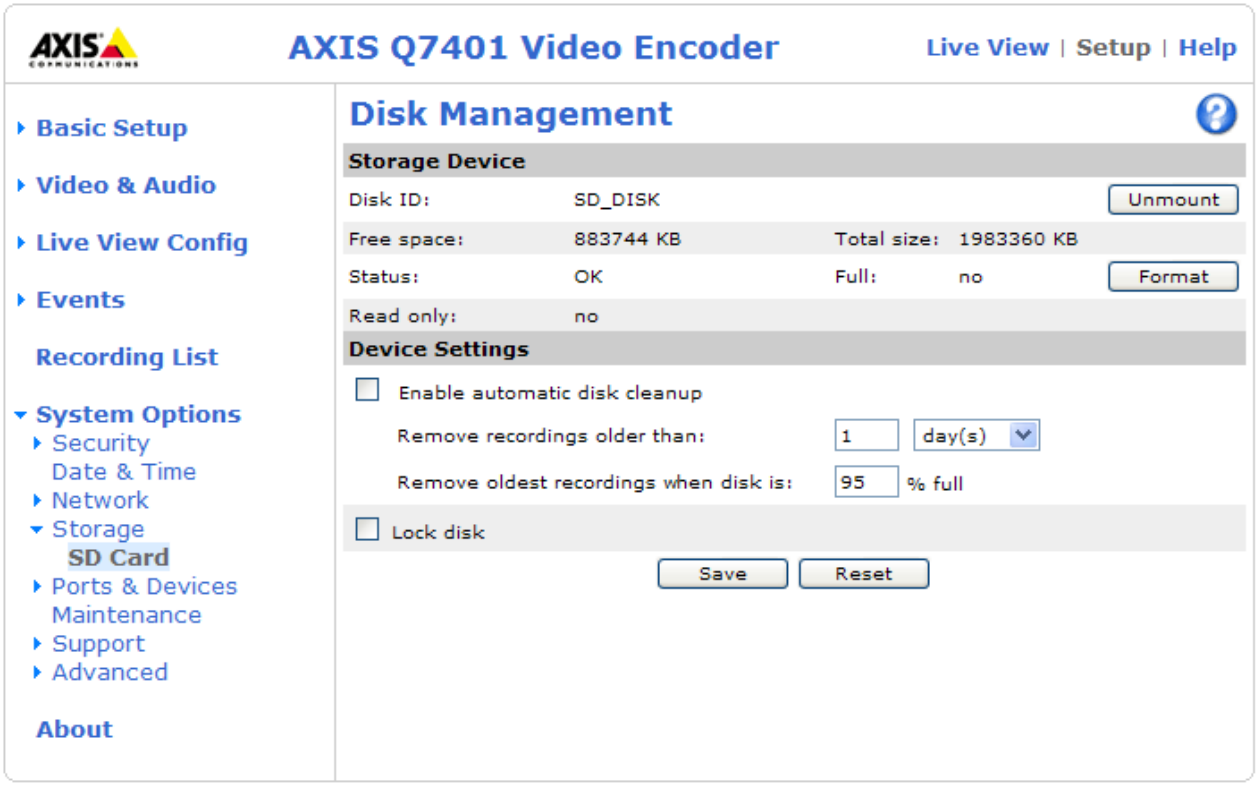


A 16GB SDHC card lasts for 3 days with a 500kbit/s average stream

http://www.axis.com/products/video/design_tool/calculator.htm

Local Storage

- Disk Management
  - Mount/Unmount
  - Format
- Device settings
  - Cleaning
  - Locking the SD card



Local Storage Recording List

- Play
- Properties
- Lock/Unlock the recording
- Remove

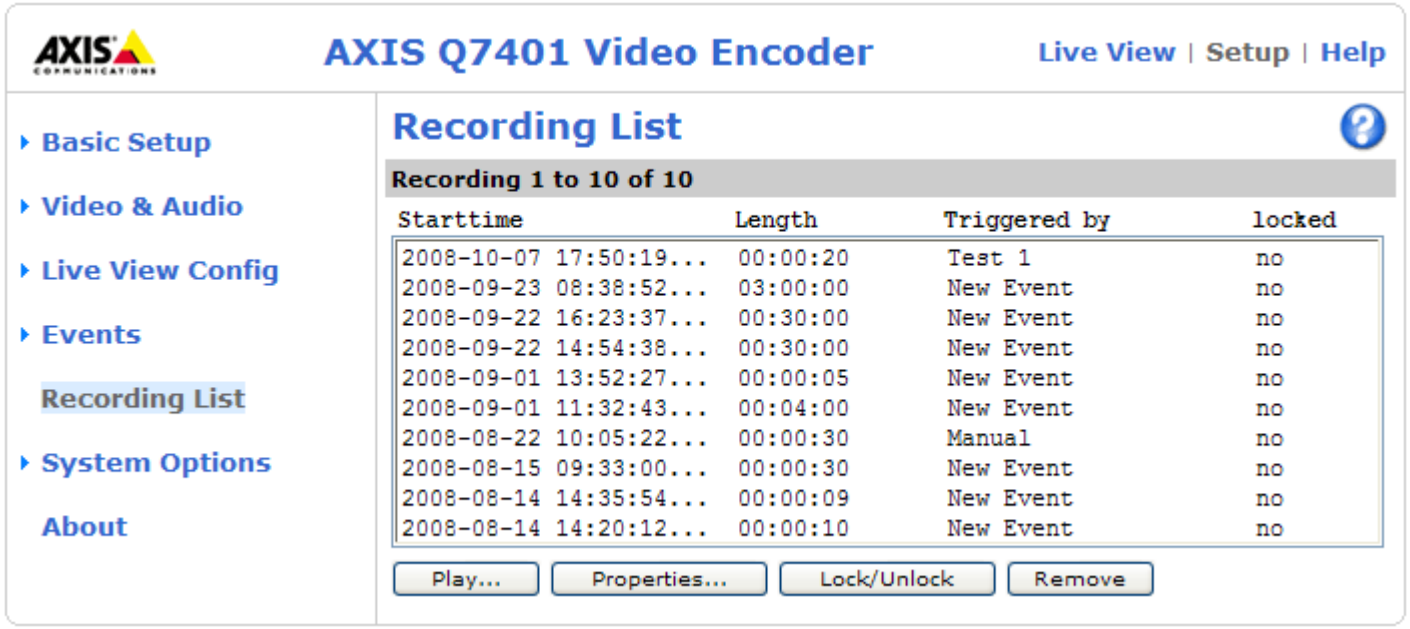
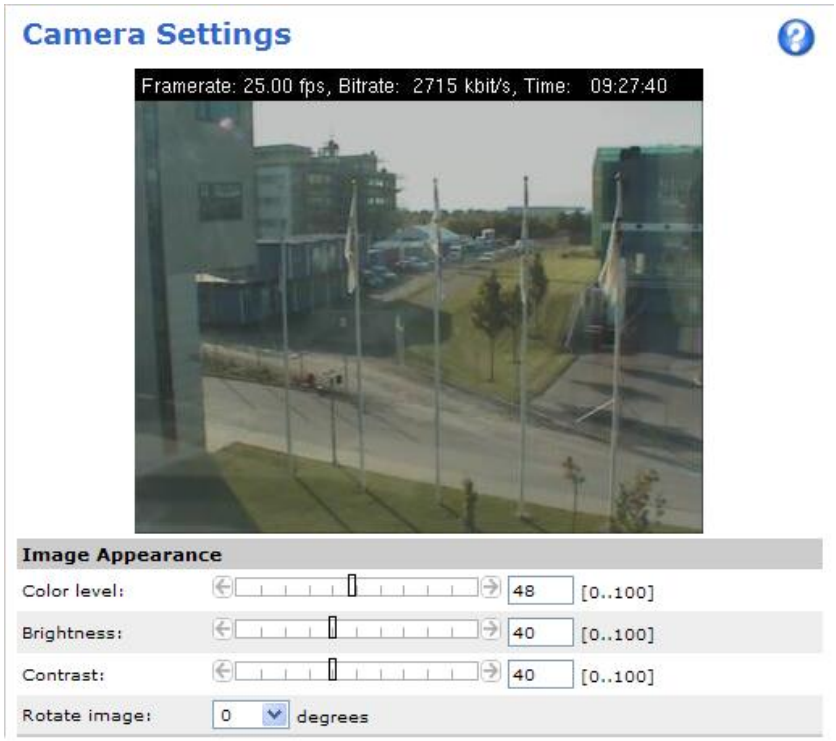
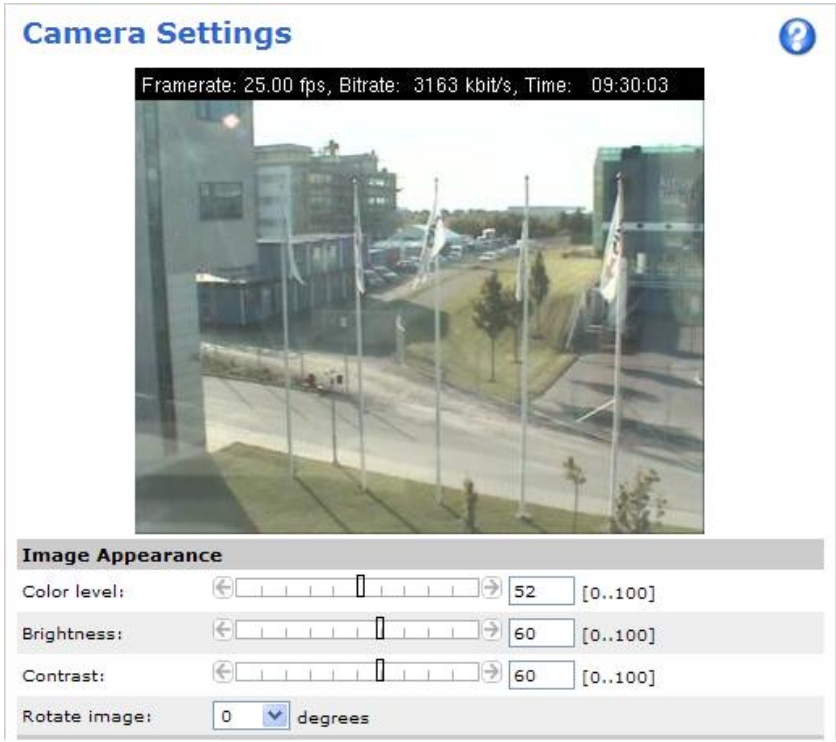


Image adjustment settings

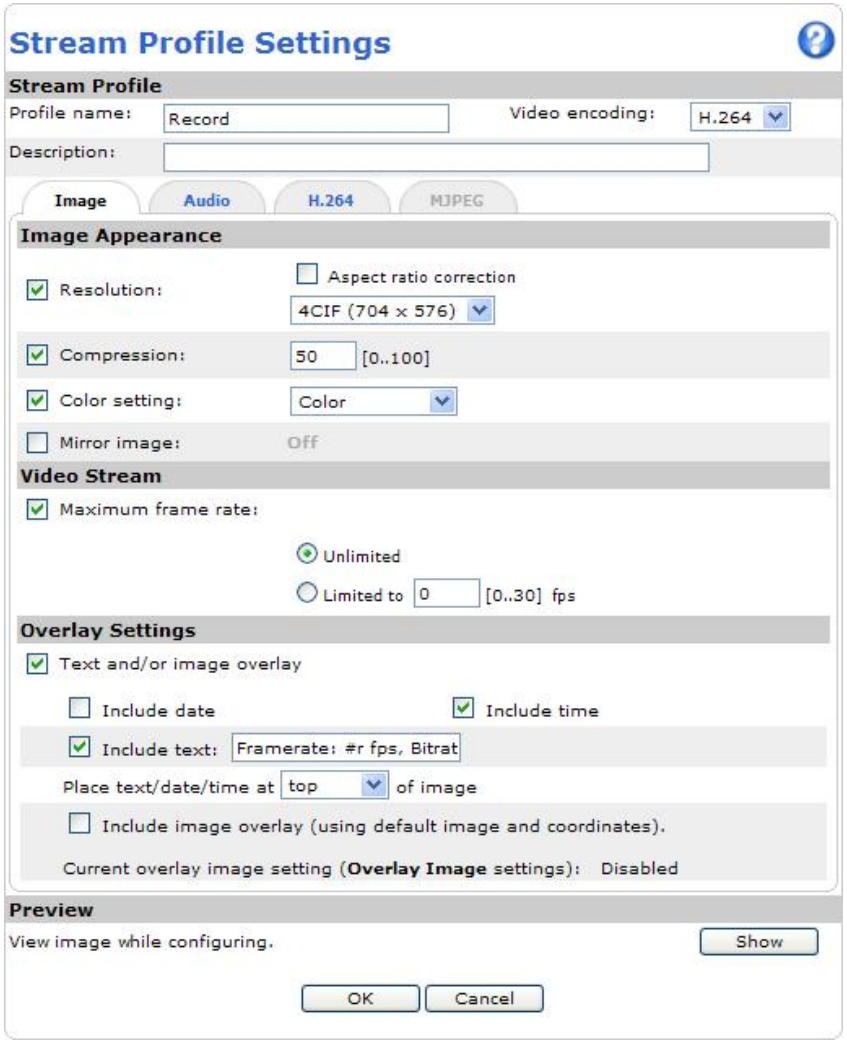
> Image adjustment settings
  - Contrast, brightness and color level





Stream profiles

- Stream Profile Settings
  - Selectable for event recording
  - Quick select in Live View
  - Easy access by API



AXIS Q7406 Video Encoder Blade

- Highest density blade so far from Axis – 6 channels!
- Multiple H.264 and Motion JPEG stream
  - Full frame rate in 3 individually optimized streams in up to D1 (720x480/576) resolution – per channel!
  - Multiple viewers per stream
- Descriptive name showing rack id, slot id and channel id in ACM (with AXIS Q7900)
- Compatible with AXIS 291 1U and AXIS Q7900

AXIS Q7406 Video Encoder Blade

- Intelligent video capabilities
- Image adjustment settings
  - Contrast, brightness and color level

AXIS Q7900 Rack

- Slots for 14 hot-swappable blades
- Two redundant power supplies
- Replaceable fan cassettes
- High density solution
  - Up to 84 channels with 6 channel video server blades
- Four Gigabit Ethernet ports
  - Can be configured to use only 1 port or all 4 ports
- Available now!

Questions & Answers

Thank you!