# EZ TV Intelligence, Surveillance and Reconnaissance (ISR) IPTV System

View, Archive, Share & Manage ISR Video

**EZ TV ISR is a rapidly-deployed, end-to-end Full Motion Video (FMV) solution for processing, archiving, indexing, managing and sharing tactical ISR video and metadata content. It enables government and military entities to quickly process live and recorded video assets to create actionable, real-time intelligence.**

## Actionable, Reliable and Flexible Solution for ISR applications

Information gathering is essential, and frequently commanders are faced with making critical decisions in a multi-domain battlefield.

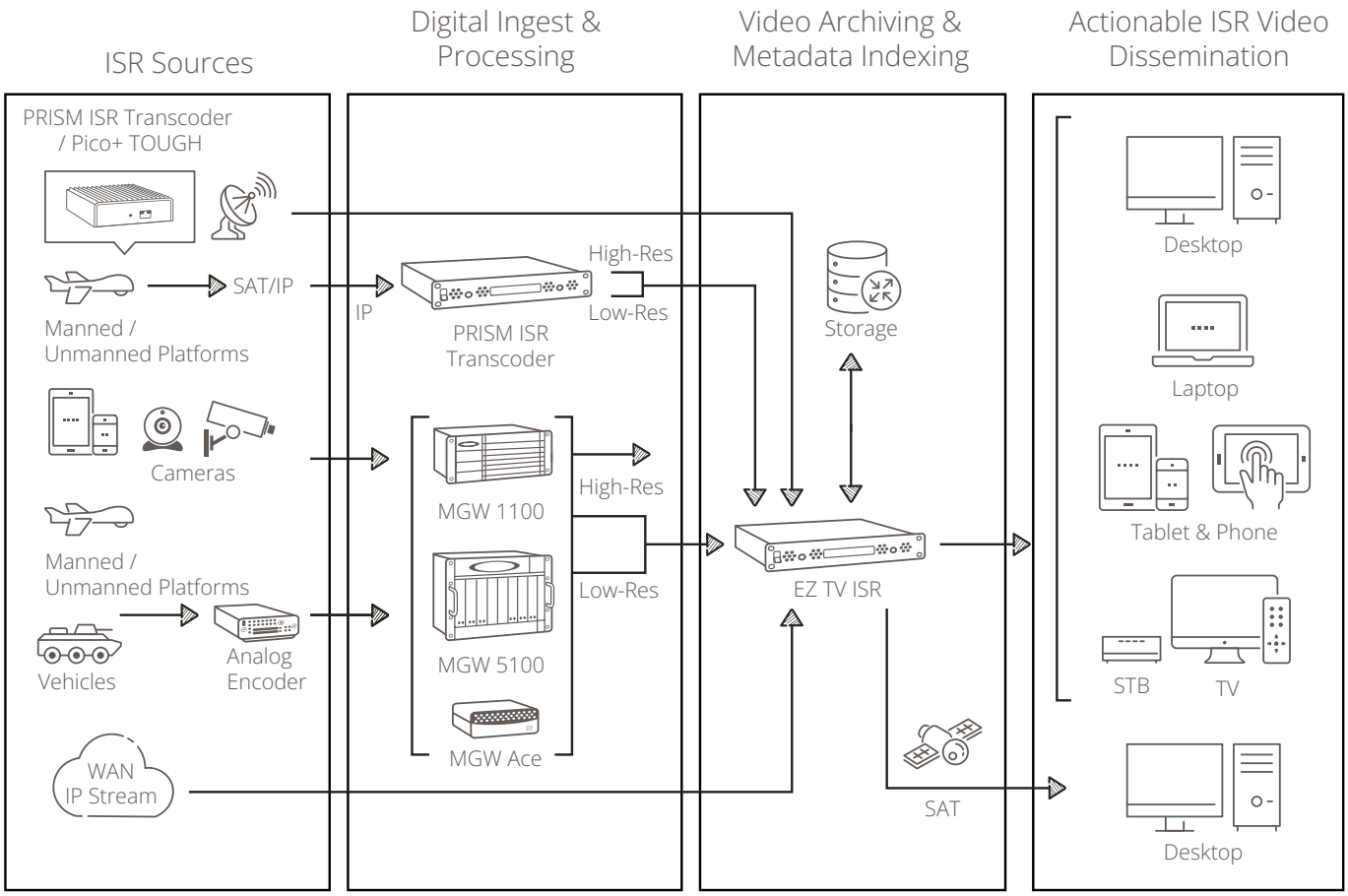
EZ TV ISR is an innovative, end-to-end integrated FMV IPTV solution for the operations centre that addresses these complex challenges by effectively capturing, storing and managing video and metadata from remote sources, and distributing them across multiple network configurations. The flexible, centralised EZ TV ISR solution provides efficient playback, sorting and retrieval of vital video assets, substantially reducing the time and resources necessary to process, annotate and share tactical video imagery.

### Applications

- Integrated solution for viewing, recording and managing ISR content and KLV metadata
- On-board video playback and recording system for manned aircrafts
- Tactical Full-Motion-Video software suite for military laptops or Virtual Machines
- Support for multiple encoding formats including AVC H.264 and HEVC H.265 live streams and files
- Cloud-based ISR video portal for rapid access to FMV content in a multi-site environment

### Features & Benefits

- Enhance processing, indexing, searching and dissemination of motion imagery
- Rapid, easy integration with deployed FMV and IT equipment featuring a powerful, HTML5 interface with KLV/ STANAG metadata support
- Secure, reliable and scalable architecture to meet Information Assurance and Cyber-Security requirements
- Support for multiple encoding formats including AVC H.264 and HEVC H.265 live streams and files
- Browser and OS agnostic technology with powerful capabilities such as metadata support, synchronised mapping and advanced search queries
- Synchronisation with the enterprise domain controller enables operator to manage user access rights dynamically, from a web-based application




## System Components

- **EZ TV ISR Admin** - Secure, powerful web-based administration interface with full control over all aspects of the EZ TV ISR system.
- **EZ TV ISR VOD-ML Module** - archiving, indexing of video and metadata, analytics and streaming on-demand server.
- **EZ TV ISR NDVR Module** - Integrated recording and archiving engine records IP streams to local or remote storage (integrates with modern network-based storage solutions).
- **EZ TV ISR Player** - HTML5 IPTV / ISR player packs powerful features in an intuitive user interface; time shifting, mosaic views, KLV metadata playback (synchronised with video), annotations and live mapping using embedded coordinates.
- **EZ TV ISR TV Middleware for IPTV End-Points (set-top boxes)** - Extends the use of EZ TV ISR for viewing of FMV and ISR video to IP-based end-points. End-points are embedded, cost effective appliances that connect to TVs, flat screens and monitor walls. The module integrates with Microsoft Active Directory that allows for secure and regulated access to critical content.
- **EZ TV ISR Multi-Screen Streaming Server** – Share live streams IPTV / ISR and recorded assets to the system's mobile apps for Android or iOS devices. Create security and content access rules to streamline delivery to mobile users, and share ISR video streams to mobile devices and WAN users. MSSS comes with iOS And Android IPTV apps that are integrated with EZ TV ISR, inherit security settings and offer a user-intuitive interface for watching video on mobile devices.

### Security and Authority to Operate (ATOs)

To ensure full compatibility with civilian and federal secure environments, EZ TV ISR has been designed to conform to the most stringent network and information assurance security standards. Specific accreditations can be provided by VITEC upon request.

### Powerful management and decision-making tool

The EZ TV ISR central computing architecture enables users with limited bandwidth, or users running on thin-client workstations, to perform powerful tasks such as visual asset searching, video editing, transcoding and exporting of video files for decision making by commanders or for AAR presentations.

The HTML5-based administration and operator interfaces ensure compatibility with any major operating system or browser, including the ability to GPU-accelerate complex video manipulation tasks in VDU environments.

### Modern architecture for distributed user base and thin-client environments

EZ TV ISR integrates seamlessly with existing and new network storage devices for archiving video files, still images, critical metadata and users' notes in a central repository (on-premise or in a private cloud). The system retains video files in their original format, as well as in HTML5 proxy versions, which are more bandwidth-effective for dissemination in today's broadly distributed IT environment requiring quick and easy access to content anywhere, anytime.

Archives can be maintained for specified time periods, and video clips spliced to create compilations encompassing full mission areas and time-lapse views of targets of interest. Based on VITEC's EZ TV IPTV and Digital Signage Platform, the EZ TV ISR Player supports user-selected mosaic views of 1, 4 or 9 concurrent video feeds. Selected metadata can be displayed on-screen, without in any way altering the original video.

## Technical Specification

### EZ TV ISR Portal Server

- Up to 5,000 concurrent IPTV Browser Players, Mobile Device Players, IPTV Set-top boxes for TVs from a single server instance
- Digital Rights Management (DRM) - management of AES 128-bit keys based on user access rules
- Clustering capability to support HQ server with multiple edge servers serving remote users

#### Footprint

EZ TV ISR is available as a software package that is installed on a physical server machine or as a virtual machine (VM).

#### Physical server specifications:

- HP DL20/DL20+, Quad-Core 3.0GHz CPU {1-RU)
- 32GB RAM
- 2 x 1Gbps network interfaces
- 2 x Power supplies 500W AC 110-240V 50-60 Hz
- Windows 2019 Server 64-bit
- Dimensions: 1.70" (4.32cm) Height x 17.11" (43.46cm) width x 15.05" (38.22cm) Depth
- Weight: 17.371b (7.88kg)

#### Minimum requirements for installation on third-party servers or as a virtual machine:

- 1 x Quad Core 3.0GHz CPU
- 32GB RAM
- 2 x 1Gbps network interfaces
- 1TB Disk Space (OS only)
- Windows 2016/2019 with IIS and all OS service packs installed
- Server 64-bit

### EZ TV ISR VOD / NDVR / Media Library / Render Server

- Supports streaming to desktops, laptops, TVs and mobile devices
- Support recording and streaming of AES-128-bit encrypted streams
- Streaming / Recording Capacity - 400Mbps input + 400Mbps Output
- Built-in storage 2TB (Raid-5) + support for network attached storage (NAS)

#### Footprint

EZ TV ISR VOD / NDVR / Media Library is available as a virtual machine (VM). Rendering server is available as a physical server or virtual machine (VM).

## IPTV / ISR live Stream and File Format Support

**Video:** MPEG-1, MPEG-2, MPEG-4 part 10 H.264, HEVC H.265 - ITUT H.265 / ISO IEC 23008-2 (MISP-compliant UDP TS)

**Audio:** MPEG 2 AAC-LC, MPEG 2 AAC-HE, MPEG 4 AAC-LC, MPEG 4 AAC-HE, Dolby AC-3, MPEG-1 Layer 2 (ISO/IEC 11172-3)

## Physical server specifications:

- HP DL360, 2x Octa-Core 2.4GHz CPUs (1-RU)
- 32GB RAM
- 4 x 1Gbps network interfaces + 2 x 10Gbps fibre network interfaces
- 2 x Power supplies 500W AC 100/240V 50/60 Hz
- 2TB built-in video storage RAID 5 configuration
- Red Hat Enterprise Linux Server release 8
- Dimensions: 1.70" (4.32cm) Height x 17.11" (43.46cm) Width x 27.5" (69.85cm) Depth
- Weight 33.3 lb. (15.31 kg)

## Minimum requirements for installation on third-party servers or as a virtual machine:

- 2 x Octa-Core 2.4GHz CPUs
- 32GB RAM
- 1 x 1Gbps network interfaces (1 x 10Gbps network interfaces if recording more than 20 IPTV streams)
- 200GB Disk Space (OS only)
- External NAS/SAN storage for video content

## EZ TV ISR Desktop Live and Media Library Players

Operating systems:

- Microsoft Windows 10, 11
- Mac OS X 12

Internet browsers:

- Microsoft Edge®
- Apple Safari®
- Google Chrome™
- Mozilla Firefox®

## Supported streaming protocols:

- UDP, RTP/RTSP, MPEG-2 Transport Stream, HTTP progressive download, HLS, Multicast / Unicast, VITEC TurboVideo™

## Supported video formats:

- MPEG-1, MPEG-2, MPEG-4 part 2, MPEG-4 part 10 H.264, HEVC (High Efficiency Video Coding) H.265 - ITUT H.265 / ISO IEC 23008-2,
- Quick Time, HTTP live streaming HLS

## Supported audio formats:

- MPEG 2 AAC-LC, MPEG 2 AAC-HE, MPEG 4 AAC-LC, MPEG 4 AAC-HE, Dolby AC-3, MPEG-1 Layer 2 (ISO/IEC 11172-3)

## Metadata:

- Line 21: SCTE-20/21 Closed captioning, CEA-608/708 (user configurable enable/disable + captions position)
- MISB KLV/STANAG input over UDP
- NGA Motion Imagery Standard Profile (MISP) Compliant; EG 0104.5, EG 0601.6, MISB STD 0604.2, MISB EG 0904, MISB STD 0601.6, STANAG 4609 (Edition 3), SMPTE 336M/335M

## FMV / IPTV Formats

MPEG-1, MPEG-2 (SD/HD), MPEG-4 ISO, MPEG-4 Part-10 H.264 (SD/HD), Third-party and legacy IP streams*

## Protocols

TCP, UDP, RTP, RTSP, HTTP, Unicast and Multicast

## Metadata Standards

SCTE-20, SCTE-21, NGA Motion Imagery Standard Profile (MISP) Compliant; EG 0104.5, EG 0601.3, MISB STD 604/605, MISB EG 0904, MISB STD 0601, STANAG 4609, SMPTE 336M/335M

## System Throughput (Per EZ TV ISR Instance)

- Real-Time Recording and Archiving of up 40 simultaneous IPTV streams
- Unprecedented throughput of up to 400Mbps of video, audio and KLV metadata from a single system instance (physical or virtual)
- KLV-to-KML conversion and streaming to Google Earth clients of up to 20 aircrafts simultaneously (Google Earth display with updating assets in under 1 second latency from real-time actual flight path)

## Footprint

Supported platforms include standalone servers, tactical ruggedised notebooks and virtual machines

* Media Library Player only