

# VDS

## Video Distribution for Sentric2 Systems

### Features

- ◆ Integrated with Sentric2 for network distribution of captured or recorded video, audio and metadata
- ◆ Designed to support UDP, RTP and DEFSTAN0082
- ◆ Support for raw video and video compressed using JPEG2000, MPEG4
- ◆ Designed to minimize latency between sender and receiver
- ◆ Auto-discovery of remote Sentric2 configurations

### Applications

- ◆ Local situational awareness systems in avionics and other military platforms
- ◆ Ship-wide video distribution systems
- ◆ Transmission of video from UAV to ground stations
- ◆ Network attached video servers and recorders

A growing number of applications are realizing the benefits of distributing video over standard widely-available networks.



The Curtiss-Wright Controls Embedded Computing VDS modules for Sentric2 systems allow recording, playback and sharing of video, audio and metadata over standard Ethernet networks. VDS enables Sentric2 systems to become sophisticated network resources.

With VDS, a system with a video capture and compression card (like the PMC-281) can serve video to VDS clients elsewhere on the network. The clients play or record the video and can themselves be VDS servers that can share their recorded video store with other clients. Audio and metadata, if present in the video store, is also distributed with the video.

Sentric2 systems can be configured for video distribution with VDS instead of recording, supporting the implementation of diskless clients that serve or play-back network video.

VDS supports the transmission of raw video but more commonly compression is employed. JPEG2000 or MPEG4 compression support allows multiple HD video streams to be distributed over a standard gigabit Ethernet network.

To maximize the efficiency of network resources VDS supports multicast distribution so that the data only needs to be sent once to reach a multitude of clients.

### Learn More

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VDS supports the real-time protocol (RTP) standard, for increased resilience in the case of network errors or congestion. RTP controls the flow of video data detecting if frames have been dropped or data, from a frame is missing.

As part of Sentric2, VDS software provides a web or socket-based interface to allow interactive configuration from a browser or from an application, by sending control messages in XML format.

## Specifications

- ♦ VDS supports any video standard supported by Sentric2 including:
  - CVBS (PAL/NTSC)
  - Analog RGB (including progressive, STANAG 3350, RS-343)
  - DVI-D digital video up to 1920x1200/1920x1080
- ♦ Metadata and audio streams also distributed for reconstruction and synchronization on remote clients
- ♦ Compression
  - JPEG2000 compression
    - 4:4:4 and 4:2:2 video coding supported
    - Configurable compression ratio from visually lossless to highly compressed
  - MPEG4 compression
    - H.264 constrained baseline profile (CBP) up to L4.2 (MPEG4 Part 10/AVC)
    - 4:2:2 YUV video coding (downsampled to 4:2:0)
- ♦ Distribution over Ethernet
  - Multiple video streams up to available bandwidth of network
  - RTP compliant
  - Designed to support DEFSTAN 0082
  - Multicast/unicast transmission using UDP protocol
  - Designed to minimize latency

- ♦ Decompression and display through Sentric2 core software
  - Hardware accelerated decompression or software playback through Sentric2 software replayer
  - Supports full frame rate decompression
  - Standalone software replay tool for network client configurations
- ♦ Control
  - Web-based interface for system configuration
  - Socket-based interface for system configuration
  - Top-level API providing library support for all core functionality
  - Supported by all Sentric2-compatible systems including x86-based Wind River® GPP Linux® and Windows®

Figure 1: The VDS modules of Sentric2 can be used with any of the others in order to support hardware interfaces or software capabilities.

