



IMV1 SDK for Linux PC Description

The SDK allows you to integrate ImmerVision's standard shared library (SL) in order to visualize without distortion real-time panoramic videos captured by cameras equipped with ImmerVision's IMV1 panomorph lenses.

This will provide users with a total immersive experience where they can navigate inside the video panorama using PTZ (Pan, Tilt and Zoom) functionality or display the 360° area around the camera in one or two 180° strips (perimeter view) or a quad (four independent views).

The SL works with applications running on Linux PC.

SDK Content

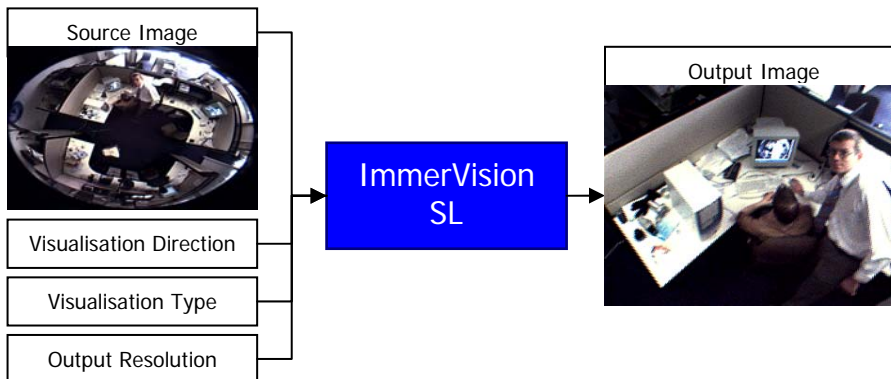
Development environment: C and C++ on Linux PC with glibc 2.3.6. KDevelop and QT are necessary to compile the samples.

Kit:

- SL to be included with the executable of the host application (library: .so).
- API to integrate the library in your projects (header: .h)
- Samples (code and documentation – use KDevelop & QT)
- API reference documentation

Integration

SL parameters



Source image: decompressed image obtained from the panoramic video source.

- Supported formats: RGB (16, 24 or 32 bits) and YUV (UYVY, YUYV, YVYU, YUY2, YV12, IYUV, I420 or YV12) .
- Minimal required resolution: 640x480.

Visualization direction: Pan, Tilt and Zoom command.

Visualization type: Output Result. The library allows you to remove the distortion and provides 3 types of views: PTZ, quad (4 PTZ views) and one⁽¹⁾ or two 180° perimeter views.

Output resolution: Width and height of the image calculated by the SL.

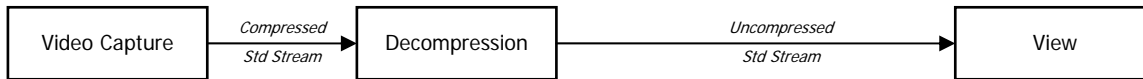
Output image: image calculated by the SL to be displayed by the host application. The output format corresponds to the same input format (RGB or YUV).

(1) One 180° perimeter view for wall mount systems.

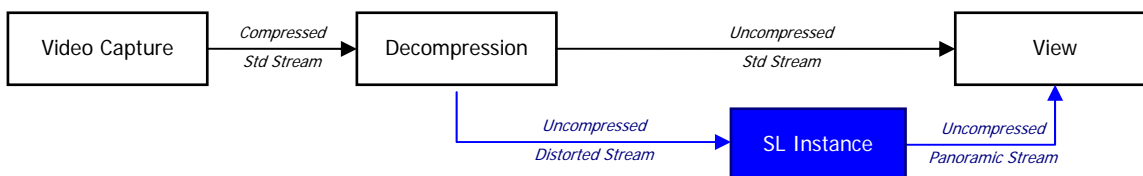


Integration Diagram

When the application displays a video it retains each uncompressed RGB or YUV image in memory and displays it on-screen at the desired position and dimension.



To view a panoramic video without distortion you need to run the uncompressed image through the library which calculates the undistorted output image according to the input parameters. The undistorted image in memory is then displayed by the application.



The library automatically determines if the input is a panoramic video or a standard video. The host application is therefore able to determine with each visualization request of a new camera if the processing from the library is required or not.

How to use the SDK

1. Create a SL instance

A new SL instance must be created for each panoramic video.

2. Verify if the video is panoramic

The SL instance will verify if the uncompressed stream (needs dimensions and image format (RGB or YUV)) is panoramic. If not, just delete the instance

3. Initialise the video instance

If the signal is panoramic, initialise the corresponding SL instance with the input and output parameters (needs image buffers input and output dimensions and image format (RGB or YUV)).

4. Update output image

Every time one of the following events occurs a new output image needs to be calculated:

- A new source frame is ready to be processed;
- The Visualisation Direction changes;
- The Visualisation Type changes.

To calculate the new image the "Update" function needs to be called and the output image buffer will be filled with the new processed image.

5. To stop visualization

Simply delete the corresponding SL instance.

Technical Contact

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