EAN-GStreamer Decoder

PN: EAN-GStreamer-Decoder

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Alerts

The following notifications are used throughout the document to help identify important safety and setup information to the user:

⚠ **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

ⓘ **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

📄 *Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.*

Contents

1   Overview

GStreamer is an open source tool that can be used to display video from many sources. This document describes how to:

- configure GStreamer to decode and display the video stream.

- define settings to stream H.264 video data to a host system.

1.1   Associated Documents

EAN-Startup Guide 1500-OEM: Describes steps for connecting, configuring, and testing the 1500-OEM video processing board on the 1500-AB accessory board.

EAN-Startup Guide 3000-OEM: Describes steps for connecting, configuring, and testing the 3000-OEM video processing board on the 3000-IO interface board.

EAN-Network Configuration: Describes how to assign a static IP address to the board, set telemetry destinations and ports, and provide configuration information for both the 3000-OEM and the 1500-OEM video processing boards.

EAN-Encoding Configurations: Outlines options for encoding on both the 1500-OEM and 3000-OEM.

Panel Plus User Guide: Provides descriptions of all the settings in the Panel Plus application. (Located in the Panel Plus application in the *Help* menu.)

1.2   SightLine Software Requirements

GStreamer Software: SLA encoding and outbound streams are supported by both 32-bit and 64-bit versions of this software.

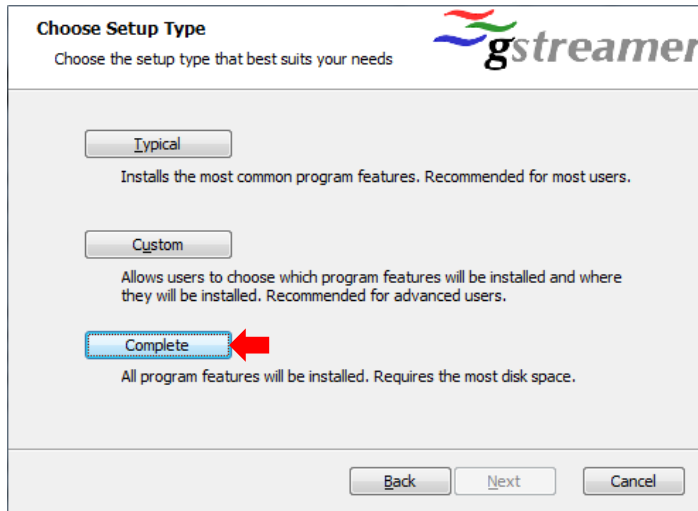ⓘ **IMPORTANT:** The Panel Plus software version should match the firmware version running on the board.

2   Installing GStreamer

To install GStreamer:

1. Download the GStreamer application. Choose the 32-bit version, e.g., gstreamer-1.0-x86-1.12.3.msi.

2. Launch the installer. Choose the complete installation to ensure that all the tools are installed to receive a stream from the 1500-OEM or 3000-OEM board.

3. Confirm that the GStreamer application is installed in C:\gstreamer. It may be helpful to update the system path to add the location of the GStreamer executables, e.g., *c:\gstreamer\1.0\x86\bin*.

4. Validate the GStreamer installation:

    a. Open a command window and navigate to the GStreamer bin directory, e.g., *C:\gstreamer\1.0\x86\bin*.

    b. At the command prompt window, paste in the following GStreamer pipeline command:

```
gst-launch-1.0 videotestsrc pattern=ball ! video/x-
raw,width=640,height=480 ! clockoverlay ! x264enc ! rtph264pay !
udpsink host=127.0.0.1 port=5600
```

3   Configuration

This section describes how to configure and SLA video processing boards to generate an encoded stream. It also outlines how to use the GStreamer decoder from a command prompt to display the SLA video stream.

The GStreamer decoder can display video being streamed from any SLA video processing board.

3.1 1500-OEM and 3000-OEM Configuration

See EAN-Encoding for more information on the H.264-MPEG2TS encoding option for streaming video.

3.2 Multicast

Both SightLine video processing boards can be configured to send out a Multicast stream. The Multicast feature will replace the IP Address with a multicast IP Address (244.10.10.10 or similar). This will allow clients to subscribe to and display the network video stream on multiple workstations.

The Multicast address used is this section is for example purposes only. Any valid Multicast IP address can be defined.

📄 *There are other issues regarding the transmission of Multicast packets that are specific to each network. Please consult your network administrator regarding this and other networking issues.*

3.2.1   Configuring GStreamer - Unicast and Multicast

The following example is for the H.264-MPEG2TS encoding option and assumes GStreamer has been installed and tested.

Environment variables and application paths for the GStreamer application and libraries may need to be updated to be properly accessed and executed.

Refer to the GStreamer website to review features, FAQs and installation support for help getting started.

1. To open a Unicast stream, go to a command prompt and type in the following command:

   ```
   gst-launch-1.0 -v udpsrc port=<UDP-PORT> ! video/mpegts ! tsdemux !
   h264parse ! avdec_h264 ! fpsdisplaysink sync=false
   ```

2. To open a Multicast stream, go to a command prompt and type in the follow command:

   ```
   gst-launch-1.0 -v udpsrc multicast-group=<MULTICAST-ADDRESS> port=<UDP
   PORT> ! video/mpegts ! tsdemux ! h264parse ! avdec_h264 ! fpsdisplaysink
   sync=false
   ```

   📄 *For <UDP PORT> use the UDP port number that was used to connect and configure the video processing board.*

3.2.2   Inspecting GStreamer Plugins

The above strings used to decode the video stream are comprised of plugin elements. As needed review the options that are available for each of these elements.

Example: Inspect operation on the *tsdemux* element:

1.   Open a command prompt and type the following command:

gst-inspect-1.0 tsdemux

2.   The command window will list out details about the plugin. Manually scroll to review the plugins name, author, corresponding DLL (dynamic link library), and other information related to properties and signals.

4   Questions and Additional Support

For questions and additional support, please contact Technical Support. Additional support documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications website.