Gstreamer Install / Testing

Saturday, March 20, 2021 11:20 AM

Install:
https://gstreamer.freedesktop.org/documentation/installing/on-windows.html?gi-language=c#download-and-install-gstreamer-binaries

1. Make sure to install both run time and dev environments (just click to download and follow installer). I used MSVC on my Windows 10 machine
2. Some PATH variables:
    a. Search bar "path" and then open up, click on environment variables
    b. At bottom in "system variables" open up "PATH" and add the two following:
        C:\gstreamer\1.0\msvc_x86_64\bin
        C:\gstreamer\1.0\msvc_x86_64\lib\gstreamer-1.0
    c. In system variables again create a new one call GST_PLUGIN_SYSTEM_PATH and set to C:\gstreamer\1.0\msvc_x86_64\lib\gstreamer-1.0
        i. This allows us to run plugins easily

Testing installation:

1. In powershell/command prompt
    a. gst-launch-1.0 videotestsrc ! videoconvert ! Autovideosink
    b. gst-launch-1.0 -v videotestsrc pattern=ball ! video/x-raw,width=320,height=240 ! videoconvert ! tee ! autovideosink device=0
2. If webcam, run Gst-device-monitor-1.0 command. It will print out the command you need to run to access the web cam. So scroll through text to find. Ex.
    a. gst-launch-1.0 mfvideosrc device-path="\\\\\?\\usb\#vid_05a3\&pid_9331\&mi_00\#8\&7c239da\&0\&0000\#\{e5323777-f976-4f5b-9b55-b94699c46e44\}\\global" ! video/x-raw,width=640,height=480 ! autovideosink

Visual Studio Setup:
https://stackoverflow.com/questions/49294685/how-do-i-configure-visual-studio-2017-to-run-gstreamer-tutorials

USEFUL YOUTUBE Channel
https://www.youtube.com/c/ComputerVisionDeepLearning/videos

NOTE: NEED to open port 80 in firewall!!!!

Launch GSTREAMER / create HLS data. Store data in location that this command is run
$gst-launch-1.0 mfvideosrc device-path="\\\\\?\\usb\#vid_05a3\&pid_9331\&mi_00\#8\&7c239da\&0\&0000\#\{e5323777-f976-4f5b-9b55-b94699c46e44\}\\global" ! videoconvert ! clockoverlay ! x264enc ! mpegtsmux ! hlssink max-files=5

Launch simple python server
$py -m http.server 8080

At this point, should be able to use VLC to watch network stream
http://192.168.0.117:8080/playlist.m3u8
It's that address because the HTTP server runs locally on the machine, which has OP 192.168.0.117.

Can use that command in VLC on mobile phones, can use that exact line in browsers like safari as well. Can also access http://192.168.0.117:8080/index.html as well at this point as long as the index.html is in the same directory that the http.server is launched in.

NOTE2: Early command was this. It ended up not quite working in VLC for somes reason. Can't recall if it also didn't work in mobile browser (safari). More testing needed as to why setting the playlist-root to the IP/port didn't work.
gst-launch-1.0 mfvideosrc device-path="\\\\\?\\usb\#vid_05a3\&pid_9331\&mi_00\#8\&7c239da\&0\&0000\#\{e5323777-f976-4f5b-9b55-b94699c46e44\}\\global" ! videoconvert ! clockoverlay ! x264enc ! mpegtsmux ! hlssink playlist-root=http://192.168.0.117:8080 location=C:\\Users\\jplei\\Workspace\\gstreamerPlugins\\scratch\\segment_%05d.ts playlist-location=C:\\Users\\jplei\\Workspace\\gstreamerPlugins\\scratch\\playlist.m3u8 max-files=5

H264 ENCODING!!!

gst-launch-1.0 -v mfvideosrc device-path="\\\\\?\\usb\#vid_05a3\&pid_9331\&mi_00\#8\&7c239da\&0\&0000\#\{e5323777-f976-4f5b-9b55-b94699c46e44\}\\global" ! queue ! videoconvert ! x264enc ! h264parse ! queue ! matroskamux ! queue leaky=2 ! tcpserversink port=7001 host=0.0.0.0 recover-policy=keyframe sync-method=latest-keyframe

From <http://gstreamer-devel.966125.n4.nabble.com/Streaming-h264-with-tcpserversink-and-tcpclientsrc-td4677854.html>

gst-launch-1.0 -v tcpclientsrc host=192.168.0.117 port=7001 ! decodebin ! autovideosink

From <http://gstreamer-devel.966125.n4.nabble.com/Streaming-h264-with-tcpserversink-and-tcpclientsrc-td4677854.html>

NO ENCODING!!!

gst-launch-1.0 -v videotestsrc ! video/x-raw,width=320,height=240,format=I420,framerate=25/1 ! videoconvert ! queue ! tcpserversink port=7001 host=0.0.0.0 recover-policy=keyframe sync-method=latest-keyframe

gst-launch-1.0 -v tcpclientsrc host=192.168.0.117 port=7001 ! rawvideoparse ! autovideosink