

# UltraGrid

## Spout/Syphon

### Sending Spout from Windows to Telematic Server

```
"C:\Program Files\UltraGrid\1.5\uv" -t spout:name=SpoutTX0:fps=25 -c libavcodec:codec=MJPEG telematic.zhdk.ch -P 10300
```

**-t spout:name=SpoutTX0:fps=25** is capturing the spout stream with the name 'SpoutTX0'.

**-c libavcodec:codec=MJPEG** is compressing the stream with MJPEG (an alternativ could be 'h.264')

**telematic.zhdk.ch -P 10300** sets the address and the port to send to.

### Sending Syphon from OSX to Telematic Server

```
./uv -t syphon:name=Jitter:app=Max:override_fps=60 -c libavcodec:codec=MJPEG telematic.zhdk.ch -P 10300 -4
```

**-t syphon:name=Jitter:app=Max:override\_fps=25** is capturing a specific (server=jitter, app=max) syphon stream.

**-c libavcodec:codec=MJPEG** is compressing the stream with MJPEG (an alternativ could be 'h.264')

**telematic.zhdk.ch -P 10300** sets the address and the port to send to.

**-4** forces ultragrid to use IP4

### Receiving Spout on Windows from Telematic Server

```
"C:\Program Files\UltraGrid\1.5\uv" -d gl:spout=SpoutRX0 -t testcard:10:10:1:uyvy telematic.zhdk.ch -P 10300
```

**-d gl:spout=SpoutRX0** will pass the received texture to a OpenGL window and send it out as a Spout-Stream with the name 'SpoutRX0'

**- t testcard:10:10:1:uyvy** will send a testcard image of the size 10×10 pixel with 1fps and encoded in the colorspace uyvy to the server. this is not intended for the sender, but to keep the UDP-

connection open from the telematic server.

**telematic.zhdk.ch -P 10300** sets the address and the port to listen to.

## Receiving Syphon on OSX from Telematic Server

```
./uv -d gl:syphon=SyphonRX0 -t testcard:10:10:1:uyvy telematic.zhdk.ch -P 10300 -4
```

**-d gl:syphon=SyphonRX0** will pass the received texture to a OpenGL window and send it out as a Syphon-Stream with the name 'SyphonRX0'

**-t testcard:10:10:1:uyvy** will send a testcard image of the size 10×10 pixel with 1fps and encoded in the colorspace uyvy to the server. this is not intended for the sender, but to keep the UDP-connection open from the telematic server.

**telematic.zhdk.ch -P 10300** sets the address and the port to listen to.

**-4** forces ultragrid to use IP4

## Blackmagic Decklink

### Sending SDI Input Video (1080i50) from Decklink with embedded Audio (2 channels) to Telematic Server

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -t decklink:0:Hi50:UYVY:connection=SDI -c libavcodec:codec=MJPEG:bitrate=15MB -f A:mult:3 -f V:rs:200:250 -s embedded -audio-codec OPUS:bitrate=64000 -audio-capture-format channels=2 telematic.zhdk.ch -P 10500:10500:10501:10501
```

**-t decklink:0:Hi50:UYVY:connection=SDI** captures from the first (id 0) attached decklink device (i.e. BlackMagic UltraStudio Express) and the SDI input with 50 Interlaced in UYUV colorspace

**-c libavcodec:codec=MJPEG:bitrate=15MB** is compressing the stream with MJPEG limited to a bitrate of 15Mbps

**-f A:mult:3** adds audio redundancy

**-f V:rs:200:250** adds video redundancy

**-s embedded -audio-codec OPUS=64000 -audio-capture-format channels=2** captures the sound (stereo 2 channels) from the embedded audio input of the decklink with the audio-code OPUS at a bitrate of 64Kbps

**telematic.zhdk.ch -P 10500:10500:10501:10501** is sending it to the telematic server, set the

video RX:TX to ports to 10500 and the audio RX:TX ports to 10501.

## Sending HDMI Input Video (1080i50) from Decklink to Telematic Server

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -t decklink:1:Hi50:UYVY:connection=HDMI -c libavcodec:codec=MJPEG:bitrate=15MB -f V:rs:200:250 telematic.zhdk.ch -P 10510
```

**-t decklink:1:Hi50:UYVY:connection=HDMI** captures from the second (id 1) attached decklink device (i.e. BlackMagic UltraStudio Express) and the HDMI input with 50 Interlaced in UYUV colorspace

**-c libavcodec:codec=MJPEG:bitrate=15MB** is compressing the stream with MJPEG limited to a bitrate of 15Mbps

**-f V:rs:200:250** adds video redundancy

**telematic.zhdk.ch -P 10510** is sending it to the telematic server to port 10510

## Receiving Video & Audio from Telematic Server and output it on Decklink with embedded Audio

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -d decklink:0:Use1080pNotPsF=false -r embedded -t testcard:10:10:1:uyvy -s testcard -audio-codec OPUS:bitrate=1024 telematic.zhdk.ch -P 10505:10505:10506:10506
```

**-d decklink:0:Use1080pNotPsF=false** passes the received video stream to the decklink device (i.e. Blackmagic Ultrastudio Express) and output 25p as 25PsF (Progressive Segmented Frames)

**-r embedded** includes the received audio stream in the video signal on decklink

**-t testcard:10:10:1:uyvy** will send a testcard image of the size 10×10 pixel with 1fps and encoded in the colorspace uyvy to the server. this is not intended for the sender, but to keep the UDP-connection open from the telematic server.

**-s testcard -audio-codec OPUS:bitrate=1024** will send a testtone the server at a very low bitrate (1024bps). this is not intended for the sender, but to keep the UDP-connection open from the telematic server.

**telematic.zhdk.ch -P 10505:10505:10506:10506** is receiving from the telematic server, the video RX:TX to port 10505 (notice: this is a UDP multi proxy stream, the receiver listens to a different port than the sender is sending), the audio RX:TX to port 10506.

## Receiving Video from Telematic Server and output it on Decklink

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -d decklink:2:Use1080pNotPsF=false -t testcard:10:10:1:uyvy telematic.zhdk.ch -P 10555
```

**-d decklink:2:Use1080pNotPsF=false** passes the received video stream to the third (id 2) decklink device (i.e. Blackmagic Ultrastudio Express) and output 25p as 25PsF (Progressive Segmented Frames)

**-t testcard:10:10:1:uyvy** will send a testcard image of the size 10x10 pixel with 1fps and encoded in the colorspace uyvy to the server. this is not intended for the sender, but to keep the UDP-connection open from the telematic server.

**telematic.zhdk.ch -P 10555** is receiving from the telematic servers port

## Testsignals

### Sending Testsignal Video (1080i50) & Audio (2 channels) to Telematic Server

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -t testcard:1920:1080:50i:UYVY -c libavcodec:codec=MJPEG :bitrate=15MB -f A:mult:3 -f V:rs:200:250 -s testcard -audio-codec OPUS:bitrate=64000 -audio-capture-format channels=2 telematic.zhdk.ch -P 10500:10500:10501:10501
```

**-t testcard:1920:1080:50i:UYVY** sends testcard as 1080i50 (interlaced 50 fps) signal in UYUV colorspace

**-c libavcodec:codec=MJPEG:bitrate=15MB** is compressing the stream with MJPEG limited to a bitrate of 15Mbps

**-f A:mult:3** adds audio redundancy

**-f V:rs:200:250** adds video redundancy

**-s embedded -audio-codec OPUS=64000 -audio-capture-format channels=2** captures the sound (stereo 2 channels) from the embedded audio input of the decklink with the audio-code OPUS at a bitrate of 64Kbps

**telematic.zhdk.ch -P 10500:10500:10501:10501** is sending it to the telematic server, set the video RX:TX to ports to 10500 and the audio RX:TX ports to 10501.

### Sending Testsignal Video to Telematic Server

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -t testcard:1920:1080:25p:UYVY -c libavcodec:codec=MJPEG:bitrate=15MB -f V:rs:200:250 telematic.zhdk.ch -P 10520
```

**-t testcard:1920:1080:25p:UYVY** sends testcard as 1080p25 (progressive 25fps) signal in UYUV colorspace

**-c libavcodec:codec=MJPEG:bitrate=15MB** is compressing the stream with MJPEG limited to a bitrate of 15Mbps

**-f V:rs:200:250** adds video redundancy

**telematic.zhdk.ch -P 10520** is sending it to the telematic server port 10520

## Preview

### Preview Video from Telematic Server on Screen

```
/Applications/UltraGrid\ GUI.app/Contents/MacOS/uv -d gl -t testcard:10:10:1:uyvy  
telematic.zhdk.ch -P 10515
```

**-d gl** passes the received video to display

**-t testcard:10:10:1:uyvy** will send a testcard image of the size 10x10 pixel with 1fps and encoded in the colorspace uyvy to the server. this is not intended for the sender, but to keep the UDP-connection open from the telematic server.

**telematic.zhdk.ch -P 10515** is receiving from the telematic servers port

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