RTMP Network Renderer & Writer

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Purpose

Writing RTMP compatible video/audio streams over a network connection

DirectShow filter for streaming to Wowza and Flash Media Servers

- Supported Architectures: Microsoft DirectShow, Windows XP, Vista, 7, Server
- Supported Formats: H.264 + AAC

Module / Version

nanocosmos RTMP Network Writer
nRtmpRenderer.ax Version 2.5.0.3

DirectShow Connectivity

The RTMP Writer is implemented as a "Renderer Filter", which means it only has 2 input pins for compressed video and audio and no output pin.
The input is accepting connections matching the following media types:

Pin 1 Media Types:
        MEDIATYPE_Video

Pin 1 Media Subtypes:
        FourCCs: H264, h264
Pin 1 Formats:
        FORMAT_MPEG2_VIDEO,
        FORMAT_NONE

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Pin 2 Major Media Types:

        MEDIATYPE_Audio

Pin 2 Media Subtypes:

        MEDIASUBTYPE_AAC, FourCC: 0x000000FF

Pin 2 Formats:

        FORMAT_WaveFormatEx,

        FORMAT_NONE

Configuration

The configuration may be set by using either the property page or the COM-Interface IRTMPOptions as declared in header file IRTMPSettings.h .

```
// Filter Guids
// {B4FB59C5-983B-4d96-9204-F8B0E46704EE}
DEFINE_GUID(CLSID_RTMPSink,
0xb4fb59c5, 0x983b, 0x4d96, 0x92, 0x4, 0xf8, 0xb0, 0xe4, 0x67, 0x4, 0xee);


// Property Page GUID
// {EFC673DE-E20E-4699-8331-9522C5DF7A6D}
DEFINE_GUID(CLSID_RTMPSinkPropPages,
0xefc673de, 0xe20e, 0x4699, 0x83, 0x31, 0x95, 0x22, 0xc5, 0xdf, 0x7a, 0x6d);


// Configuration Interface GUID
// IID_IRTMPOptions interface
// {B8AF4593-BE31-449c-8485-3E6D65CBC1FE}
DEFINE_GUID(IID_IRTMPOptions,
0xb8af4593, 0xbe31, 0x449c, 0x84, 0x85, 0x3e, 0x6d, 0x65, 0xcb, 0xc1, 0xfe)
```

The streaming url can be set by using standard DirectShow interface IFileSinkFilter .

Configuration with DirectShow filter property page

The filter's property page offers a subset of encoding parameters, containing the most important options.

URL formatting:
rtmp:// [hostname / IP address]/[application]+[stream name]

for example:
rtmp://127.0.0.1/live+myStream

with:
IP address: 127.0.0.1
Application name: live,   Stream name: myStream

Connection Test

Connect/Disconnect buttons. Allows to connect before starting the graph and disconnect during the streaming (this stops the running graph).

RTMP Authentication

RTMP Authentication expects a user name and a password for unlocking access to the Media Server. This has been verified with Flash Media Server (3.x and 4) and Wowza Media Server (2.x).
CDNs are supported on a case-by-case basis.
Special tuning as been made for some CDN access (e.g. Limelight).

Automatic Reconnection:

Attempts to restore network connection after n seconds to the server in case of network interrupts. During the reconnect attempts the graph still playing. 0 means no attempts to reconnect to server.
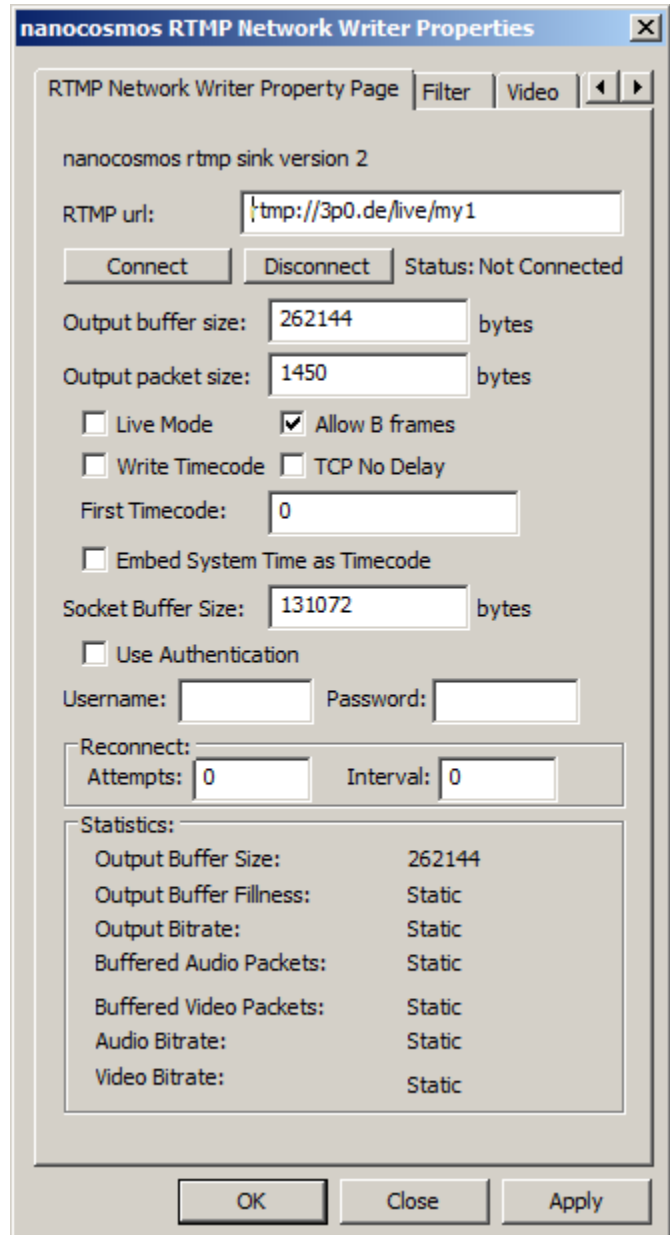
Advanced Configuration Options

The advanced options should be handled carefully.
They can severely affect network and streaming performance. Contact support if you want to fine tune any settings.

Buffering:

Data Flow: RTMP multiplexed data -> application buffer -> socket buffer -> network.

There are 2 buffer types:
- socket buffer
size of the network socket buffer, much dependent on the underlying network architecture

- application level buffer (Output Buffer Size, Output packet size), 0=no buffer
Affects bandwidth utilization, prevents bitrate changes and puts the sending process to a separate thread.

Currently unsupported:

Live Mode: Turns on/off blocking of input pins. (should be off by default)
TCP No Delay: activates the TCP_NODELAY option for TCP transmission ("Nagle Algorithm")
Allow B Frames: should be on
Reduces the buffer/delay in H.264 Main Profile without B Frames. No effect in Baseline Mode.
Timecode Options: sends Time Code in RTMP Meta Data

Log / Debug Configuration Registry Settings

Key: HKEY_CURRENT_USER\Software\DebugNano\ nRtmpRenderer.ax

File name

Sets the output file name. The folder must exist.
Value name: LogToFile
Value type: REG_SZ / String
Valid values: a valid output file name to enable file logging or an empty string

Logging level

A higher value increases the amount of logging messages sent, and messages get more detailed.
Value name: TRACE
Value type: REG_DWORD
Valid values:

  0 – minimal logging

  …

  9 – maximal logging

About nanocosmos

nanocosmos informationstechnologien gmbh is active in several areas of digital media business. Our focus is on high technology software products for video communication, such as TV / video broadcast and streaming software solutions over intra- and internetworks.

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