Spout to NDI

https://spout.zeal.co

Convert between Spout and Newtek NDI sources.

Using the Newtek NDI SDK

Version 2.016

"*Spout to NDI*" is a set of programs that allow Spout senders and receivers to share video, not only with each other but also by way of a network using the NewTek NDI ("Network Device Interface") protocol.

For more information about the NDI protocol see here. This link is also available at any time by selecting Help > About.

1. Installation

Unzip "*SPOUTtoNDI_2016.zip*" in any convenient folder.

Folders

SpoutToNDI\bin – contains the required programs "*Spout to NDI.exe*" and "*NDI to Spout.exe*".

Runtime libraries

Visual Studio

Spout to NDI programs are built using Visual Studio 2022 and runtime dll files are included in the \bin folder. All the programs should run without further installations.

However, if you find that the programs still report missing dll's, you may need to install the Visual Studio runtime manually.

Download from here. Scroll down to find "Other Tools, Frameworks and Redistributables", then "Microsoft Visual C++ Redistributable for Visual Studio 2022". Download and install the x64 version.

Newtek

The programs depend upon the Newtek library functions. This "dll" file is included in the "bin" folder of the distribution and normally you will not need to worry about it.

However, this will be for the version of NDI available at the time of distribution. If the NDI library is subsequently updated and you depend on some new feature, you can install the Newtek runtime and delete the dll file from the distribution "bin" folder. The programs will then load the installed version. If you encounter any problems, restore the distribution dll file.
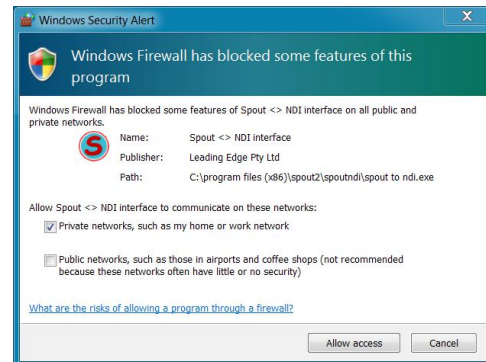
2. Operation

2.1 SPOUT to NDI

Start a Spout sender, such as the demo sender provided with the Spout installation. Then start "*Spout to NDI.exe*", located in the "bin" folder.
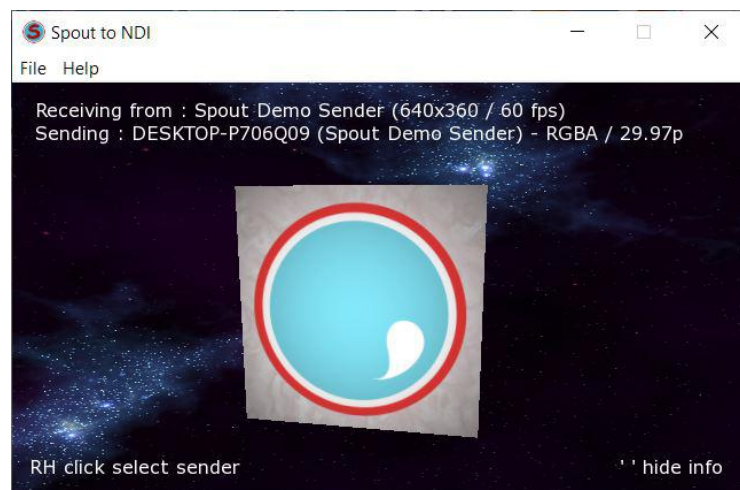
You might receive a warning about Firewall access because it is necessary for data to be transferred across a network.

Allow access as you require.

The demo Spout sender will be immediately selected. Subsequently you can RH click and select other Spout senders.

The sender is now available to any NDI receiver on the network.

To confirm this, start the Newtek Tools "Video Monitor" as as described below.

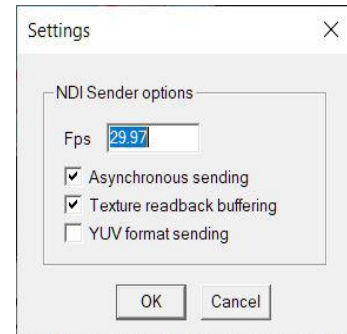You can repeat the test on another computer on the same network.

Notice that the name of the sender is preceded by the name of your computer as it is identified on the network.

Settings

Choose NDI sender options using "File > Settings" from the menu.

Fps

Enter the frames per second you wish to send to NDI, e.g. 29.97, 25 etc. The sender will be received at that rate.

Asynchronous sending

This option activates an asynchronous sending mode where frames are sent without waiting until the previous one has been processed. The NDI system manages the buffering and synchronisation. This is the fastest sending method, and will over-ride the entered fps.

Texture readback buffering

This option activates readback buffering from GPU to CPU by way of OpenGL pixel buffers. Data transfer speed is increased at the expense of memory usage. For any problems, disable this option.

YUV format sending

This option activates conversion of RGBA buffers from Spout to YUV buffers preferred by NDI. The conversion is done using shaders for maximum speed. The speed may exceed that of the NDI system for processing of RGBA images. 4K content can achieve 40-50 fps instead of 20-30 fps. However, the chroma resolution is decreased, so test carefully.

Starting from a command line

"*Spout to NDI.exe*" can be started from a command line in order to specify the Spout sender to receive from.

Change to the "bin" folder containing the executable. Open a command console (cmd.exe). A batch file "aa-dos.bat" in the bin folder will do that. Specify the sender to receive from. For example :

"Spout to NDI.exe" "spout sender to receive from"

Double quotes are removed from the name, although you don't have to use them.

The application will start minimized and wait for the selected sender to open. When it opens, the NDI output will start. There is a slight lag due to the NDI processing. If the sender closes, the program will wait for it to open again. The option is disabled if the user selects another sender.

An example batch file "aa-spout-sender.bat" will receive from "Spout Demo Sender". You can modify this as required.

2.2 NDI to SPOUT

If you have NDI senders running you can receive any one of them and produce a Spout sender which can then be used to share textures between applications on the receiving machine.
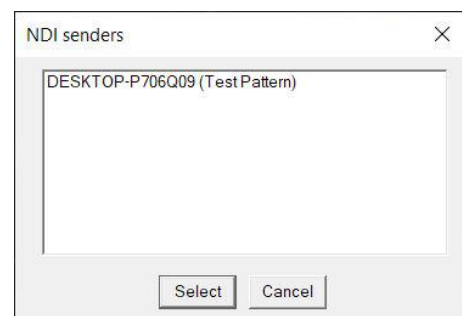
After installation of NDI tools, find the "Test Patterns" application and open it. An NDI sender will then be available on the network. Then start "*NDI to Spout.exe*", located in the "bin" folder. This can be started on any machine on the network but for testing start it on the source machine.

Now the NDI sender test pattern is being received and the output is a Spout sender of the same name preceded by the name of your computer as identified on the network.

Run the Spout demo receiver and you will see it listed. It will also be available in any program that supports Spout input.

Selecting a sender

RH click to bring up a dialog with a list of NDI senders currently available on the network and select the one you want. In this case you can see the test pattern application.

Sometimes the network may be temporarily unavailable and senders might disappear and re-appear in the list. This will not affect the selected sender and when that NDI sender comes back on line, the frames will resume. It may take some seconds for discovery of all the NDI senders on the network.

Starting from a command line

"*NDI to Spout.exe*" can be started from a command line in order to specify the NDI sender to receive from.

Change to the "bin" folder containing the executable. Open a command console (cmd.exe), or use "aa-dos.bat". Specify the sender name to receive from.

For example :

"NDI to Spout.exe" "NDI sender to receive from"

Double quotes are removed from the name, although you don't have to use them.

NDI sender names are combined from two parts :

 The computer e.g. DESKTOP-P706Q09
 The sender in brackets e.g. (Test Pattern)
 To make the format : DESKTOP-P706Q09 (Test Pattern)

"NDI to Spout.exe" "DESKTOP-P706Q09 (Test Pattern)"

The application window will minimize and wait for the selected sender to open. There is a slight delay due to the NDI processing.

When it opens, the Spout output will start. If the selected sender closes, the application will wait for it to open again. This is normal behaviour as explained above. The command line option allows the application to start minimised and wait for the required sender to open instead of connecting to the first in the list.

The example batch file "aa-ndi-sender.bat" will receive from the NDI Tools application "Test Patterns", which sends with the application name "Test Pattern". The computer name is unique for the particular computer, in this case "DESKTOP-P706Q09". The complete name is :

"DESKTOP-P706Q09 (Test Pattern)"

The batch file must be modified for the name of the computer you wish to receive from. Note that "Studio Monitor" precedes the name with a prefix "NDI - ". Do not include this prefix.

2.3 Magic

"Magic*NDIsender.dll*" and "Magic*NDIreceiver.dll*" are plugins for Magic Music Visuals for sending to and receiving from NDI applications.

They can be found on the GitHub repository and downloaded from the releases page. Both 64bit and 32bit versions are available.

Magic does not have NDI support at the time of writing but may in the future, so these plugins could be useful in the meantime.

The modules are compatible with the Magic Version 2.2 and higher. Refer to the documentation in the repository.

2.4 NDISyphon

"NDI*Syphon*" is the equivalent of "*Spout to NDI*" but for OSX using Syphon and has been developed as a free utility by VidVox.

OSX machines using "NDI*Syphon*" can receive textures from any application with *Syphon* support and share video over a network. Requirements are OSX 10.8+.

On a Mac, start any application with *Syphon* output. Then start "*NDISyphon*" and select the *Syphon* source. The *Syphon* texture will then be transmitted over the network using the Newtek NDI protocol and any machine on that network can access the video.

An OSX receiving machine can then use "*NDISyphon*" to select an NDI source and broadcast this as a *Syphon* texture to any applications on that machine with *Syphon* input.

A Windows receiving machine can use "*NDI to Spout*" to select an NDI source and broadcast this as a *Spout* texture to any applications on that machine with *Spout* input.

Download from here.

2.5 NDI tools

Here is a download link for useful tools. After entering your details, you will receive an email with a link to download them.

These include a "Test Pattern" sender, a "Video Monitor" to receive from NDI senders and a "Scan Converter" screen capture application.

3. Licencing

3.1 Spout to NDI

"Spout to NDI" is released under the Simplified BSD licence.

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3.2 Newtek NDI

Newtek NDI ("Network Device Interface") is copyright NewTek, Inc. (https://www.ndi.tv/).