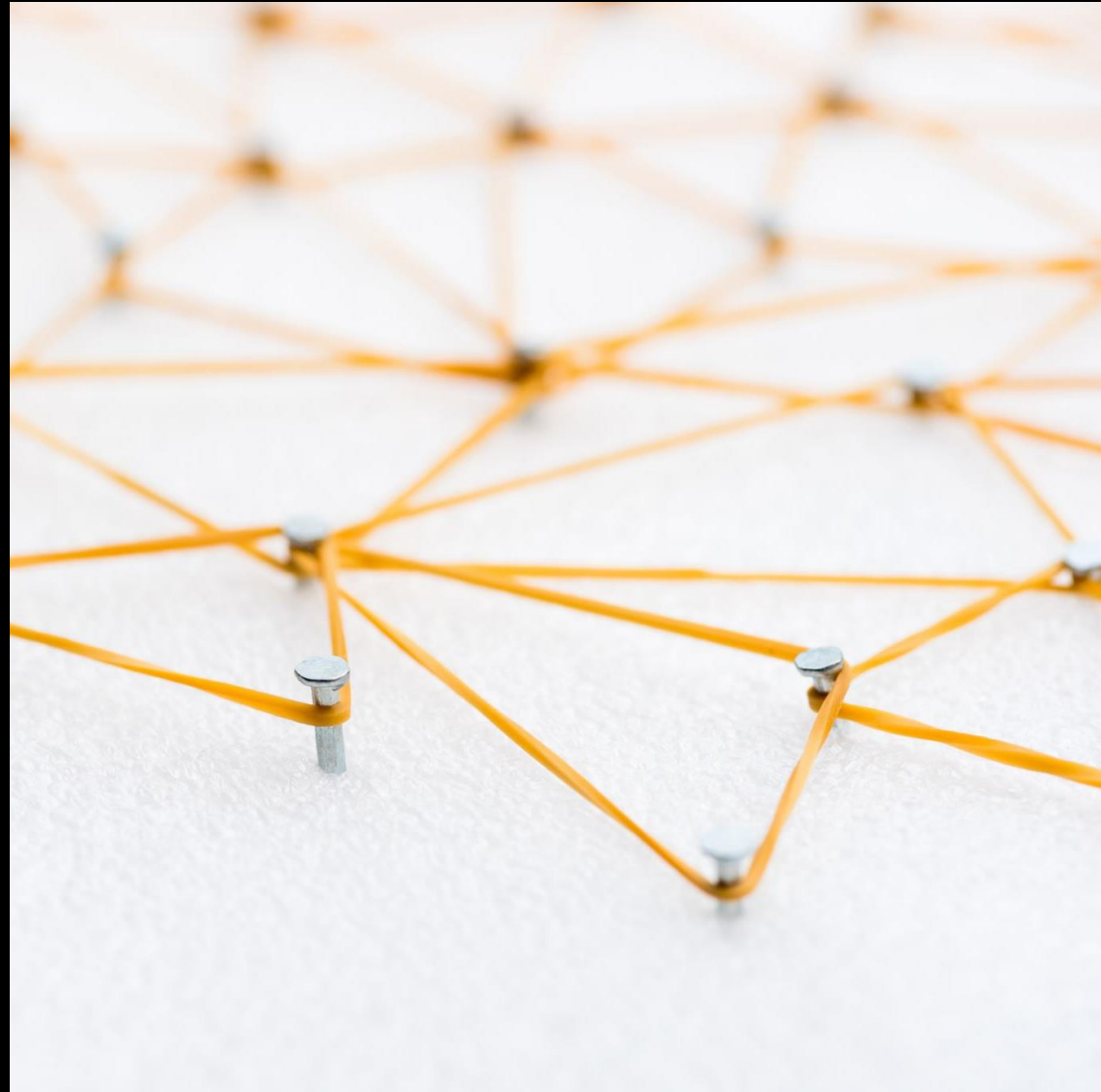
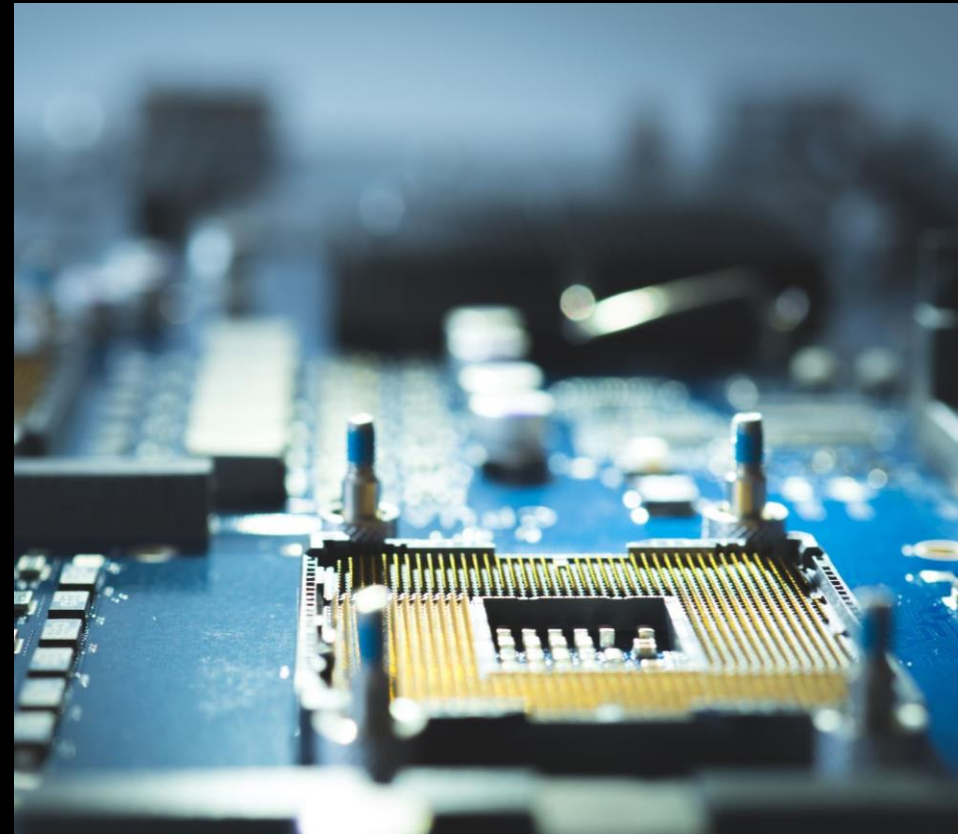


NETWORKING



- Often it is desirable to build a network of computers to use within Touchdesigner. You might want to do this to share CPU/GPU load, access certain operators that only work on Windows but the main machine is MAC or you want to build a videowall through client computers or media players that can receive media through network.



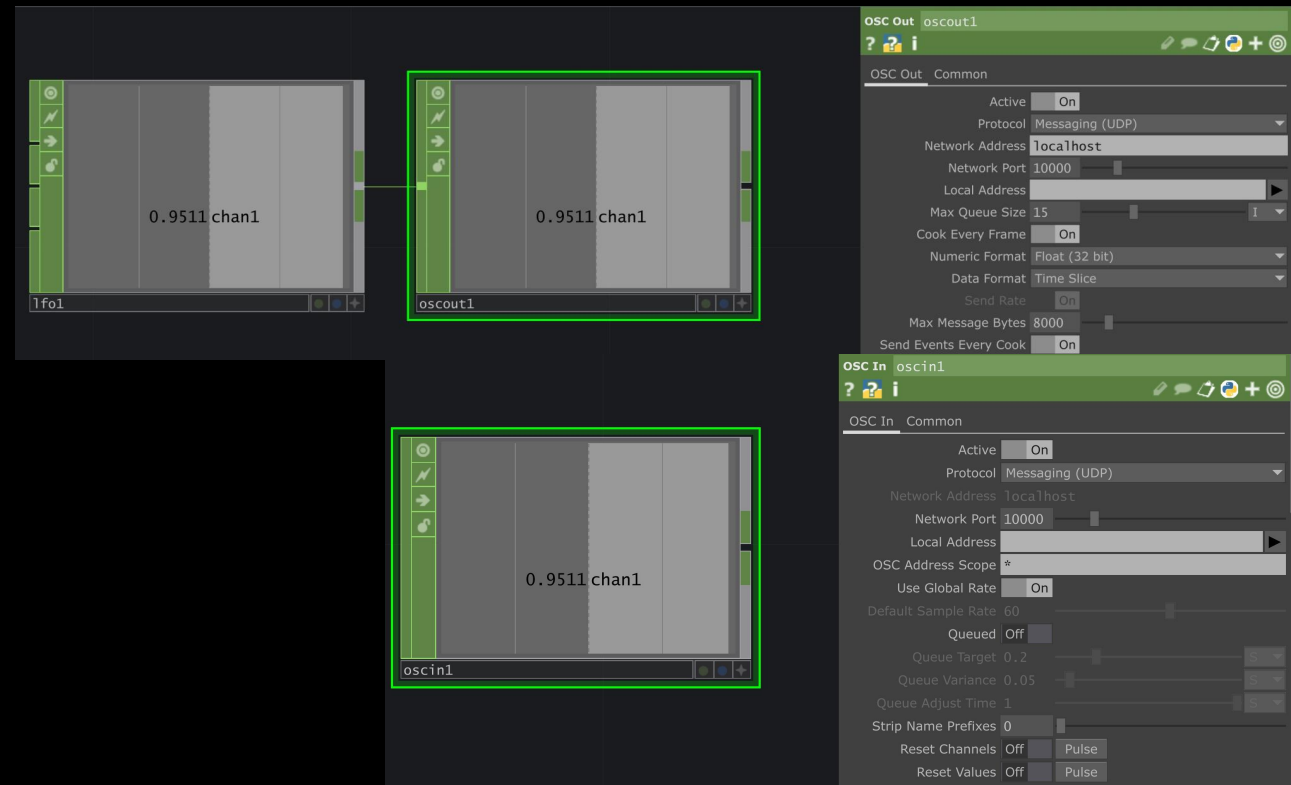
THERE ARE MAINLY TWO DISTINCTIONS

- Data over network
- We do this today with the **OSC** chop
- **OSC** stands for Open Sound Control and is initially developed for sharing data between musical instruments, computers and gesture controllers. It allows for more precise control for various purposes than for example MIDI, which is only musical annotation.
- Video over network
- We use this today with **NDI TOP**
- **NDI** stands for Network Device Interface and is developed specifically to share video over network. Longer lengths of HDMI or other video cables will lose their signal strength, UTP or network cables do not. It can be used for sending video to projectors over long distances or to share video between different devices.

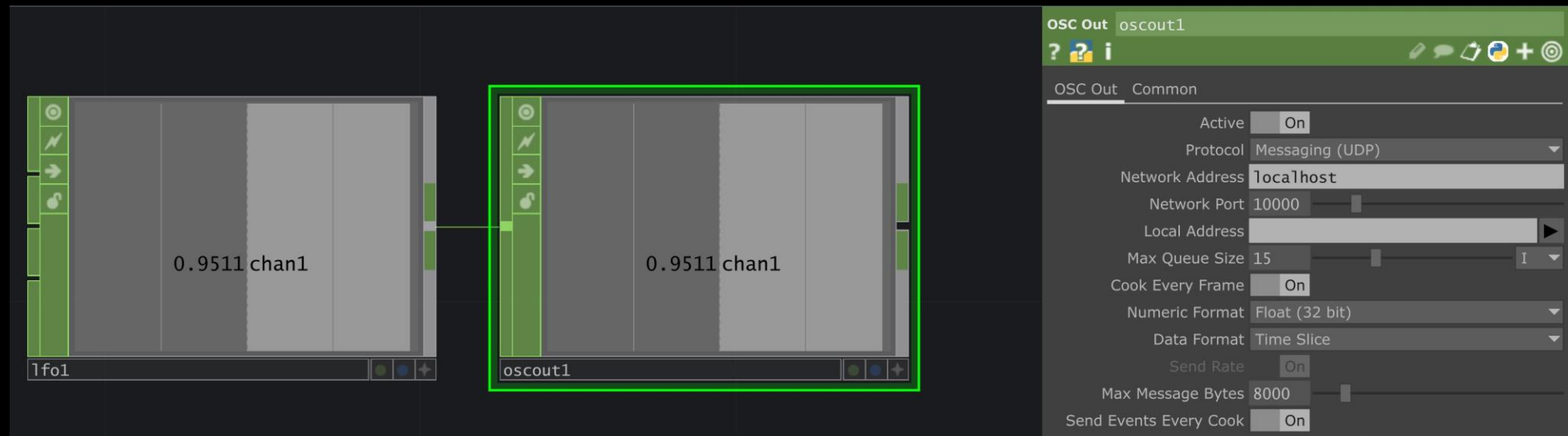
OSC – OPEN SOUND CONTROL

OSC connection has to be established through two operators.
OSC OUT chop to send:

OSC IN chop to receive:



OSC OUT TO SEND DATA



A couple of important things:

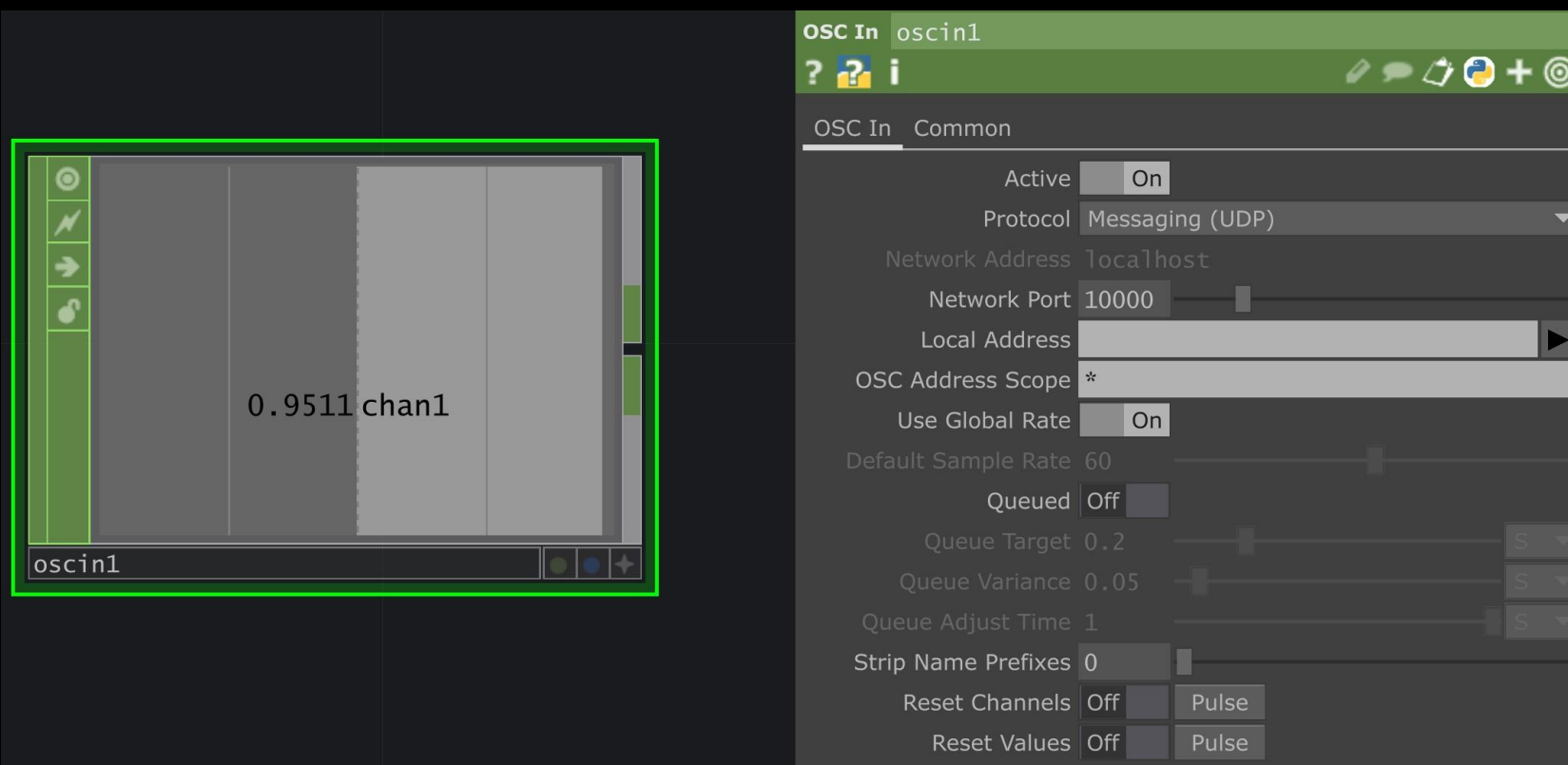
Network address: references the ip-port of the computer you want to send data to on the shared network. 'Localhost' means your own computer.

The network port: it can be any arbitrary number, but higher the number least likely the chance is that is already occupied by something else.

The image shows a software patch titled "OSC Out oscout1". The interface has a green header bar with the title and several icons (help, info, edit, chat, clipboard, python, plus, target). Below the header, there are two tabs: "OSC Out" (selected) and "Common". The "OSC Out" tab contains the following settings:

- Active: ☒ On
- Protocol: Messaging (UDP) (dropdown menu)
- Network Address: localhost (text field)
- Network Port: 10000 (slider control)
- Local Address: (empty text field with a play button icon)
- Max Queue Size: 15 (slider control with a dropdown menu showing 'I')
- Cook Every Frame: ☒ On
- Numeric Format: Float (32 bit) (dropdown menu)
- Data Format: Time Slice (dropdown menu)
- Send Rate: ☒ On
- Max Message Bytes: 8000 (slider control)
- Send Events Every Cook: ☒ On

OSC IN TO RECEIVE DATA



On OSC IN you only need to select the right port so it matches to the OSC OUT chop and values should start coming in automatically.

OSC In

oscin1

?

?

i

+

OSC In

Common

Active

On

Protocol

Messaging (UDP)

Network Address

localhost

Network Port

10000

Local Address

OSC Address Scope

*

Use Global Rate

On

Default Sample Rate

60

Queued

Off

Queue Target

0.2

Queue Variance

0.05

Queue Adjust Time

1

Strip Name Prefixes

0

Reset Channels

Off

Pulse

Reset Values

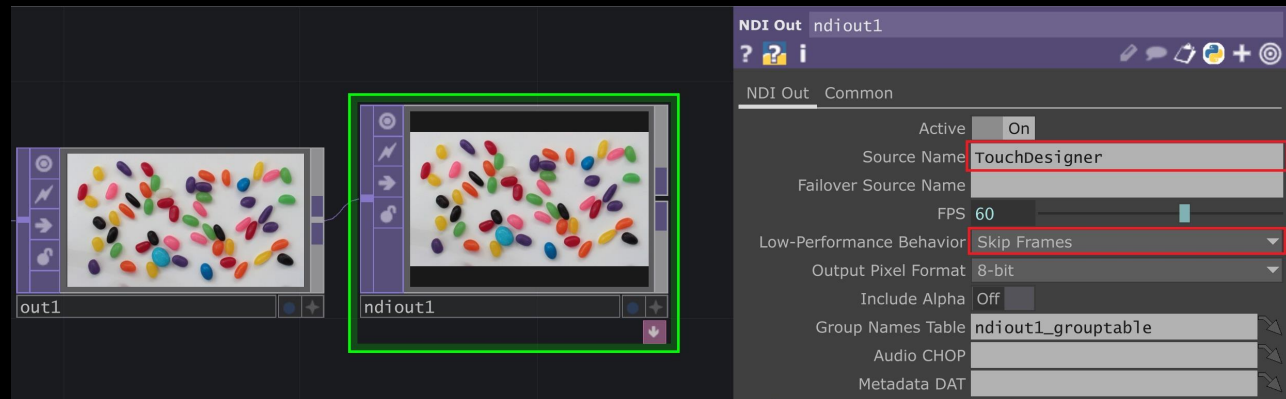
Off

Pulse

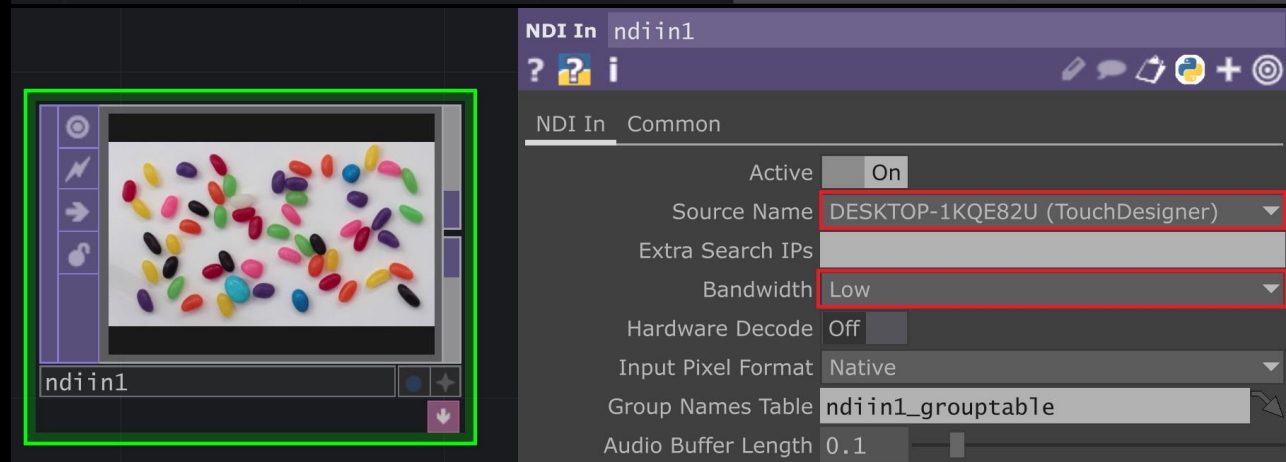
NDI – NETWORKED DEVICE INTERFACE

NDI connection has to be established through two operators.

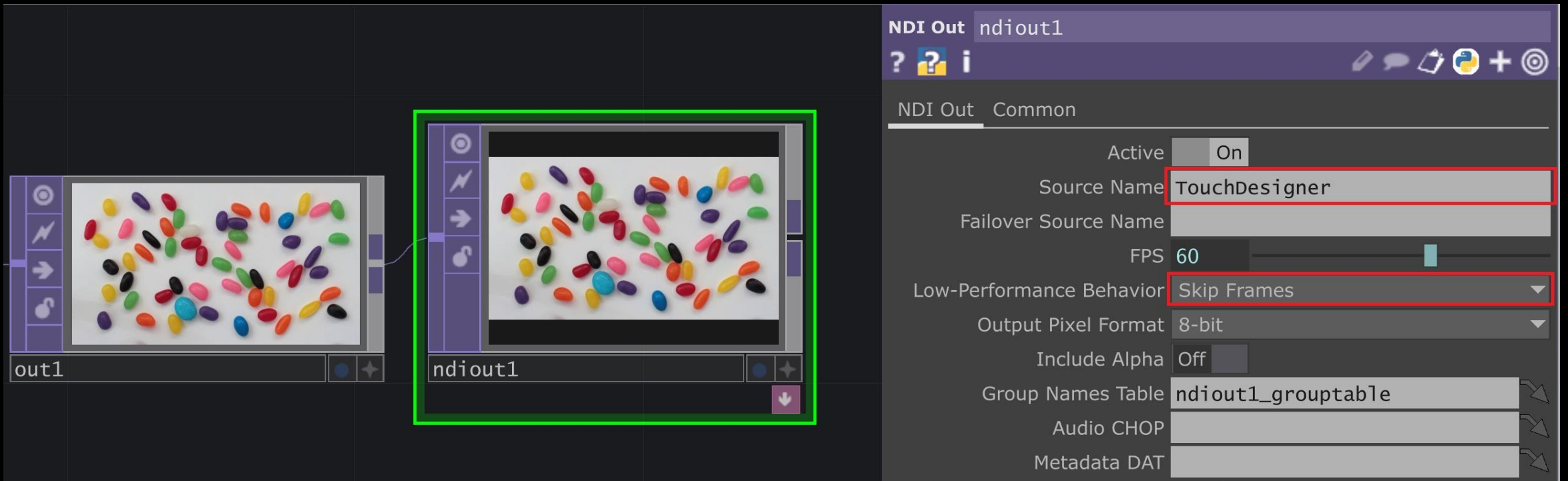
NDI OUT top to send:



NDI IN top to receive:



NDI OUT TO SEND VIDEO



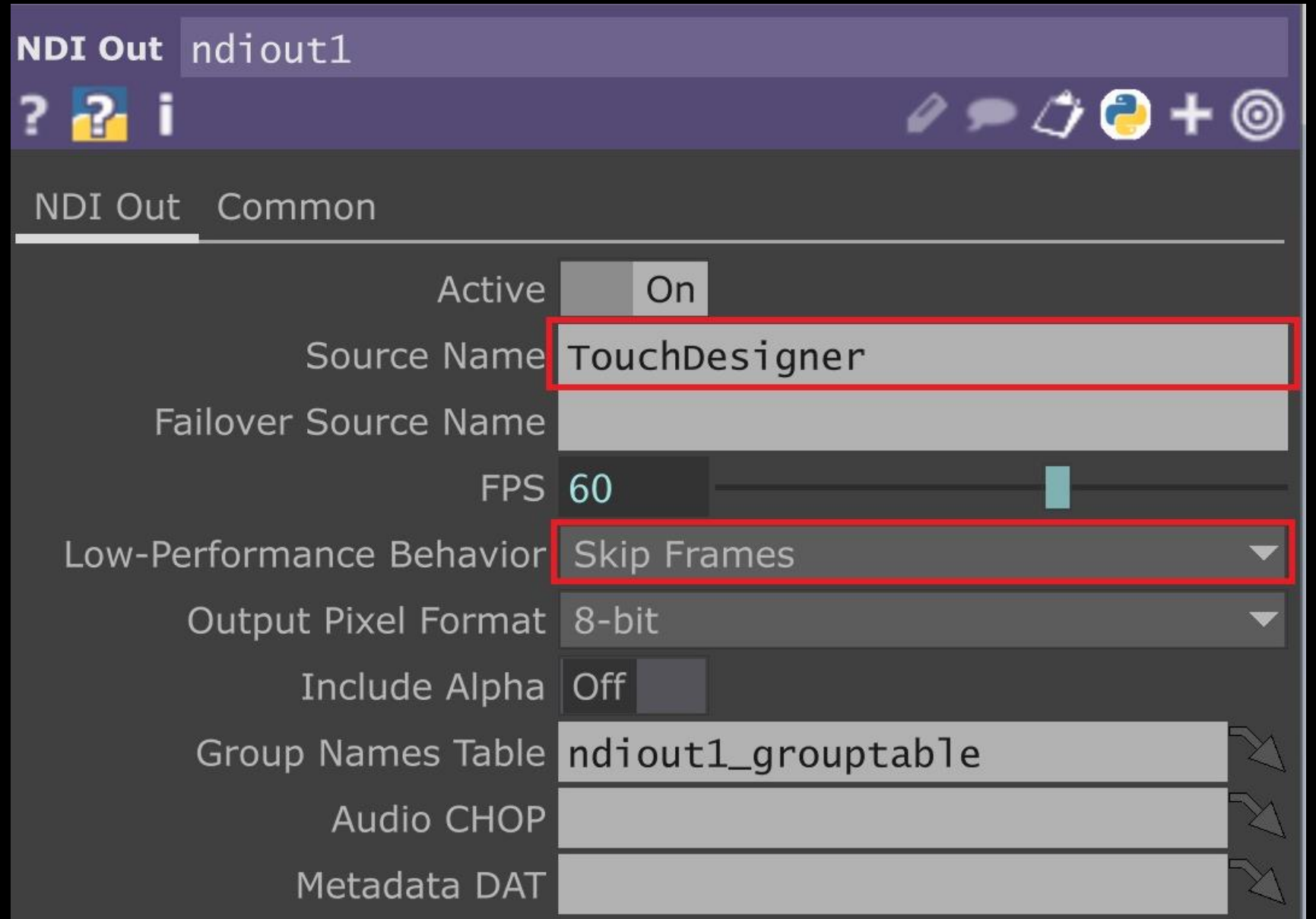
The screenshot displays the TouchDesigner interface with two video outputs and an NDI Out component. The first output, labeled 'out1', shows a scene of colorful jelly beans. The second output, labeled 'ndiout1', is highlighted with a green border and also shows the same jelly bean scene. To the right, the 'NDI Out' component's 'Common' tab is open, showing the following settings:

Property	Value
Active	On
Source Name	TouchDesigner
Failover Source Name	
FPS	60
Low-Performance Behavior	Skip Frames
Output Pixel Format	8-bit
Include Alpha	Off
Group Names Table	ndiout1_grouptable
Audio CHOP	
Metadata DAT	

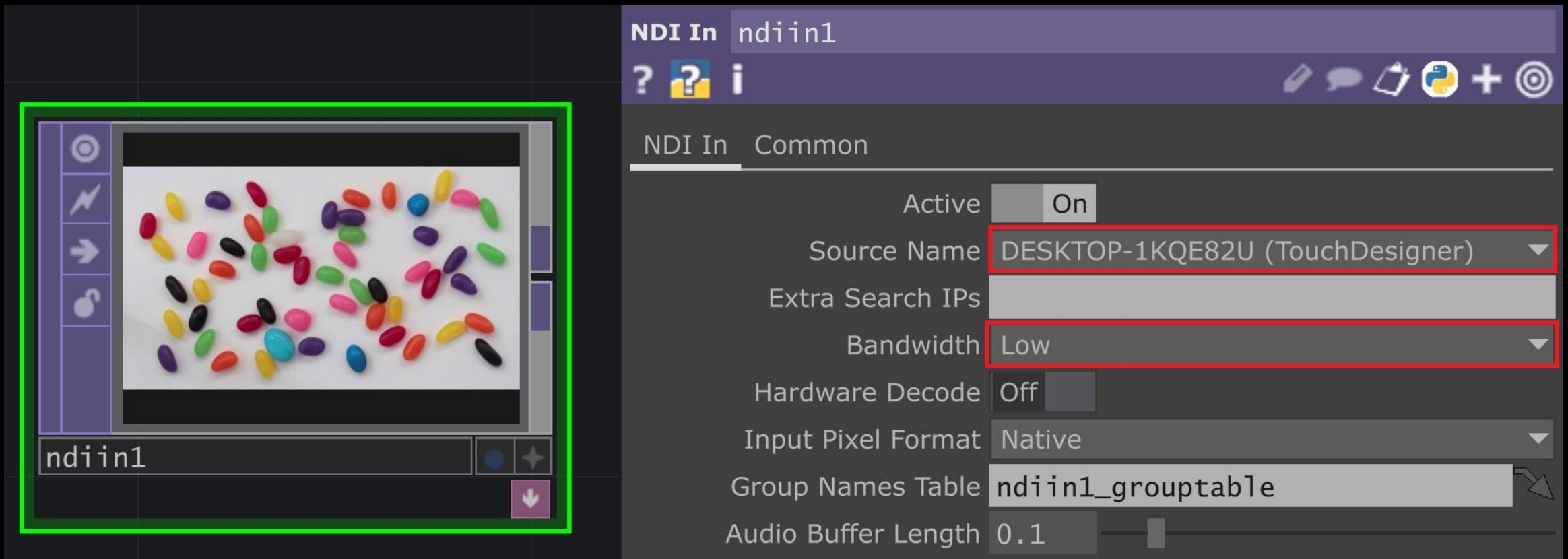
A couple of important things:

Source Name: can be any name, but it will keep things clear when sending multiple NDI streams

What to do on low-performance. I would pick to skip frames, so the feeding of video is always constant.



NDI IN TO RECEIVE VIDEO ON NETWORK



The screenshot displays the TouchDesigner interface. On the left, a network view shows a component named 'ndiin1' highlighted with a green border. The main area on the right shows the 'NDI In' component's settings. The 'Common' tab is selected, showing the following configuration:

- Active: ☒ On
- Source Name: DESKTOP-1KQE82U (TouchDesigner)
- Extra Search IPs: (empty field)
- Bandwidth: Low
- Hardware Decode: ☐ Off
- Input Pixel Format: Native
- Group Names Table: ndiin1_grouptable
- Audio Buffer Length: 0.1

The 'Source Name' and 'Bandwidth' fields are highlighted with red borders in the original image.

NDI IN you can pick the name of the stream from the Source Name dropdown menu.

Depending on the connection you can choose the bandwidth, in case of class we will pick a LOW due to the network switch that we use.

The screenshot shows the 'NDI In' configuration window in TouchDesigner. The window has a title bar with 'NDI In' and 'ndiin1'. Below the title bar is a toolbar with icons for help, a question mark, information, edit, chat, clipboard, Python, add, and target. The main area has two tabs: 'NDI In' (selected) and 'Common'. The 'NDI In' tab contains the following settings:

- Active:** A toggle switch set to 'On'.
- Source Name:** A dropdown menu showing 'DESKTOP-1KQE82U (TouchDesigner)'. This field is highlighted with a red border.
- Extra Search IPs:** An empty text input field.
- Bandwidth:** A dropdown menu showing 'Low'. This field is highlighted with a red border.
- Hardware Decode:** A toggle switch set to 'Off'.
- Input Pixel Format:** A dropdown menu showing 'Native'.
- Group Names Table:** A text input field containing 'ndiin1_grouptable'.
- Audio Buffer Length:** A slider control set to '0.1'.