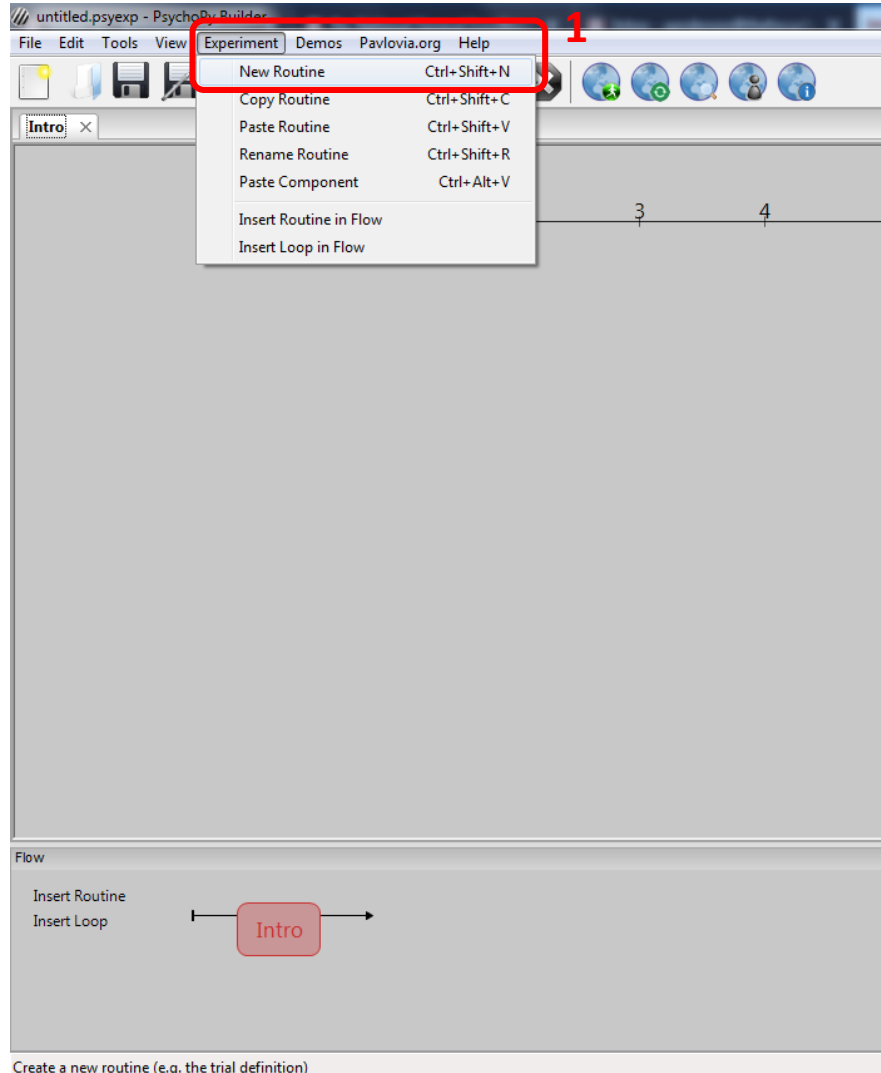


# Setting up PsychoPy to Send LSL signal to NIRx Device

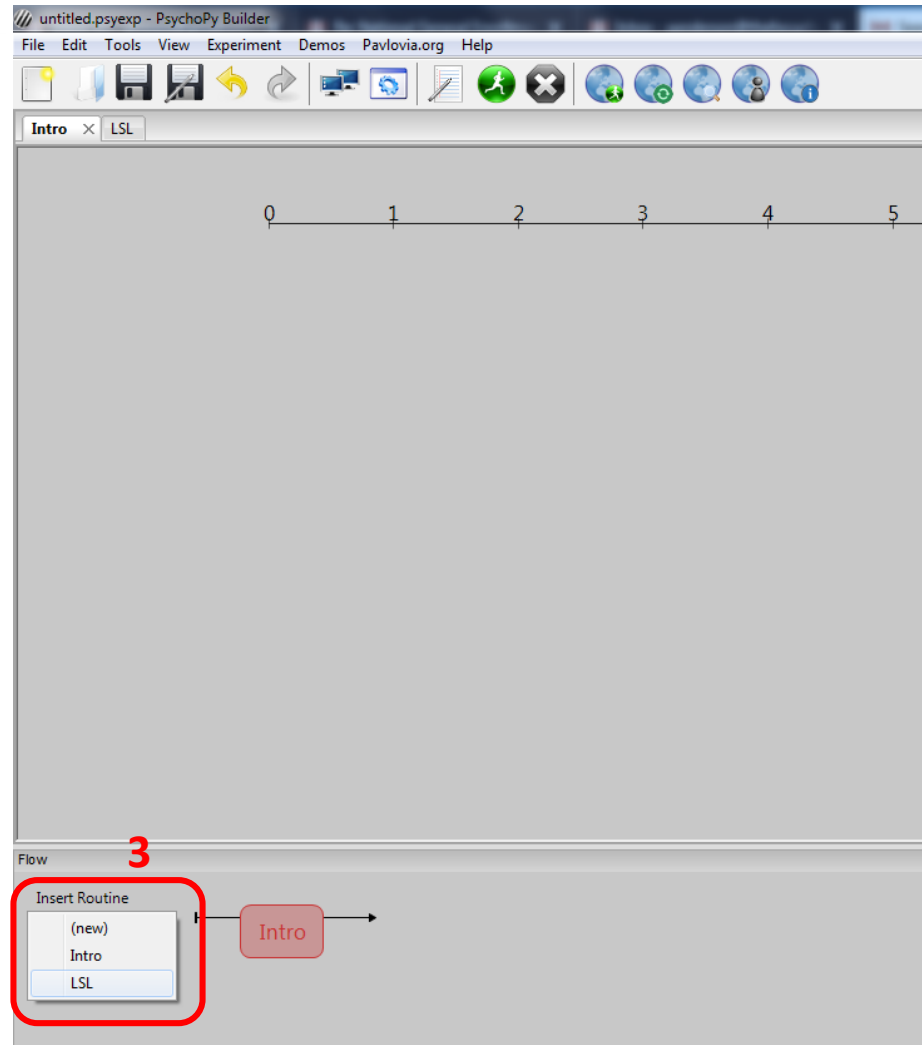
# Setting up Psychopy to send LSL signal to NIRx Device



## Open the PsychoPy software

- 1) Create a new routine by clicking on experiment tab
- 2) Name the routine (in this example it is called “LSL”)

# Setting up Psychopy to send LSL signal to NIRx Device



**3) Click on Insert routine (bottom left) and click on “LSL”**

**This will insert the routine that was just created in the experiment design**

# Setting up Psychopy to send LSL signal to NIRx Device



untitled.psyexp - PsychoPy Builder

File Edit Tools View Experiment Demos Pavlovia.org Help

Intro x LSL

code

```
y=sin(x)
x=random()
f='tst.jpg'
```

0 1 2 3 4 5 6 7 8 9 10 (sec)

code Properties

Name code\_2 Code Type Py

6 **Begin Experiment** Begin Routine Each Frame End Routine End Experiment

7

```
from pylsl import StreamInfo, StreamOutlet # import required classes
info = StreamInfo(name='Trigger', type='Markers', channel_count=1,
channel_format='int32', source_id='Example') # sets variables for object info
outlet = StreamOutlet(info) # initialize stream.
```

5

4) Click on the "LSL" routine

5) The double click on the custom "code" insert

6) The screen will pop up: Click on the "Begin Experiment" tab

7) Insert the follow code in the text box:

```
from pylsl import StreamInfo, StreamOutlet # import required classes
info = StreamInfo(name='Trigger', type='Markers', channel_count=1,
channel_format='int32', source_id='Example') # sets variables for object info
outlet = StreamOutlet(info) # initialize stream.
```

8) Press OK

4

Insert Routine

Insert Loop

LSL Intro

Components

Favorites

Stimuli

Responses

Custom

I/O

8

# Setting up Psychopy to send LSL signal to NIRx Device



- **Please ensure that the name “Trigger” is the same as the LSL trigger name in Aurora**

```
from pylsl import StreamInfo, StreamOutlet # import required classes
```

```
info = StreamInfo(name='Trigger', type='Markers', channel_count=1, channel_format='int32',  
source_id='Example') # sets variables for object info
```

```
outlet = StreamOutlet(info) # initialize stream.
```

- **The previous code initializes the LSL connection**
- **Ensure that the LSL routine is located before the start of your actual experiment**

# Setting up Psychopy to send LSL signal to NIRx Device



9) Create a routine called task, this is where your specific stimuli will be

10) Click on the your task routine

11) Double click on the “Code” insert

12) Click on the “Begin Routine”

13) Inset the following code in the text box:

```
outlet.push_sample(x=[marker])
```

14) Click OK

# Setting up Psychopy to send LSL signal to NIRx Device



The name “marker” in the code line should match with the name of the parameter that you define in the excel sheet

```
outlet.push_sample(x=[marker])
```

In this example, we have inserted the loop (called “trials”), where it reads the parameter and conditions from the excel file. The excel file can be located using the browse button in loop properties. Loop properties can be opened by clicking on the loop.

The parameter name in the excel file is defined as “marker”. The code will use the numbers that are defined in the marker column (4, 1, 3...)

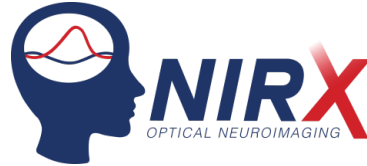
The screenshot displays the PsychoPy Builder interface. The 'trials Properties' dialog box is open, showing the following settings:

- Name: trials
- loopType: random
- Is trials: ☒
- nReps: 5
- Selected rows: (empty)
- random seed: (empty)
- Conditions: trialtestv.xlsx
- 8 conditions with 7 parameters [cond, dur, txt, marker, img, CA, opa]

The Excel spreadsheet 'trialtestv.xlsx' is open, showing the following data:

	A	B	C	D	E	F	G	H
1	cond	dur	txt	marker	img	CA	opa	
2	Readylist		3		4 ready.png			0
3	attention		1.5		1 Dinosaur.png	space		0
4	attention		1.5		3 Cow.png			0
5	attention		1.5		3 Chicken.png			0
6	attention		1.5		3 Lion.png			0
7	attention		1.5		3 Dinosaur.png	space		0
8	attention		1.5		3 Horse.png			0
9	Rest		10 +		5			1

The PsychoPy Builder flowchart shows the following components: LSL, Intro, task (1.00s), and trials. The trials component is connected to the task component.



NIRX is a world-leader in providing integrated solutions for fNIRS neuro-imaging. In 1988 we introduced the concept of tomographic imaging (i.e., multi-distance measurements) in dense scattering media based on diffusely scattered light. This approach has since been widely adapted and has served to launch the modern-day field of fNIRS tomography.

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