

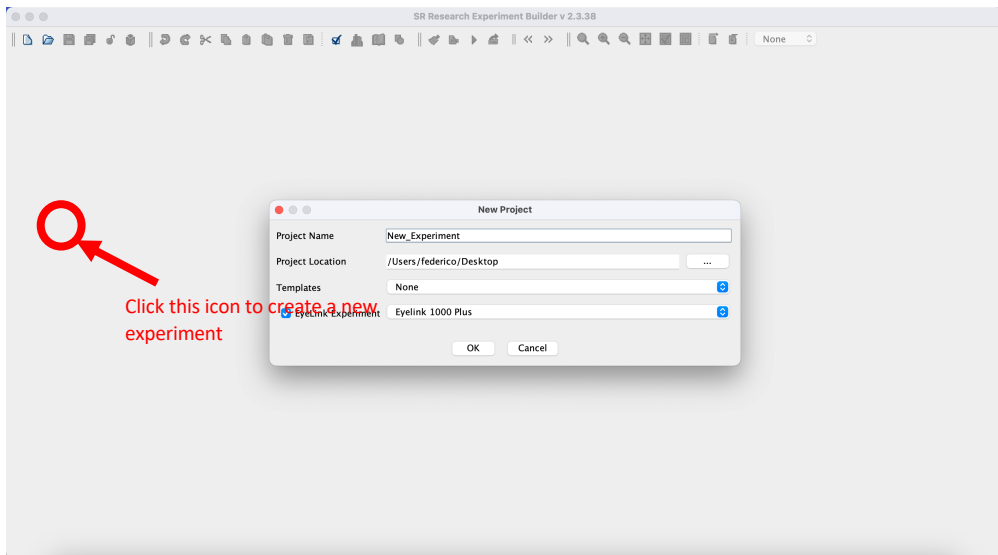
# Introduction to Creating an Experiment with ExperimentBuilder



# Step 1: Plan

- Before even touching a computer, you need to know:
  - Structure: What the participant will be doing, step by step, from the start of the experiment, to the end of the experiment
  - Conditions: How the structure can vary depending on which conditions you set for some participants
- How to do that:
  - Draw it out on a whiteboard
  - This can be done in whatever way works best for you
- Purpose:
  - To get you to think about the logical flow of the experiment. It makes it much easier when you're actually programming it

# Step 2: Create the Experiment

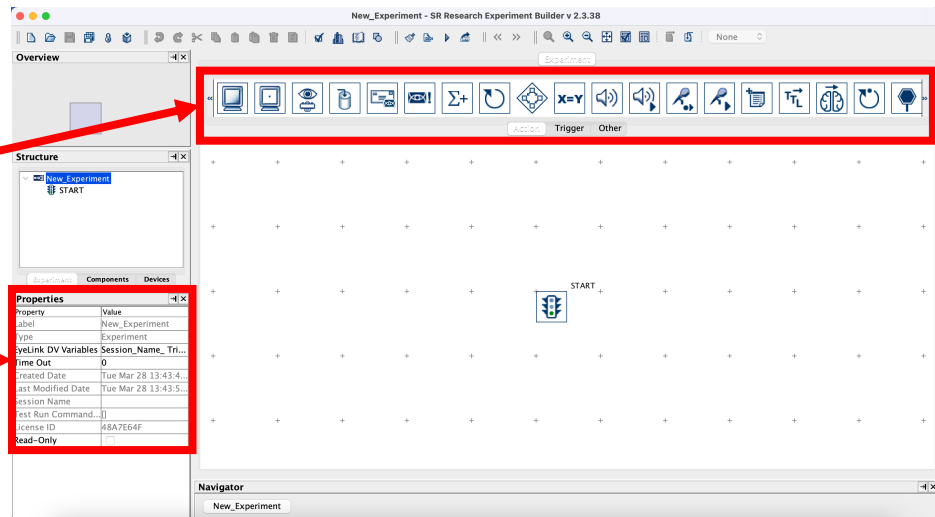


# Step 3: Knowing ExperimentBuilder

This is what the building screen looks like.

These are nodes. Nodes are the building blocks of the experiment.

These are the node properties. Changing the properties lets you modify how a node works.



# Action Nodes



Action nodes are used when you want the experiment to do something, to perform some action.



**Display Screen:** When you want to show something on the screen during the experiment



**Driftcorrect:** When you want to quickly recalibrate the participant's eyes between trials



**Camera Setup:** When you want to do the initial eyetracking camera calibration at the beginning of the experiment



**Sequence:** When you want to have a group of actions happen over and over again, depending on how many trials you have. Once you create one, click into it and start putting in other nodes. The other nodes that you put within this sequence will repeat as many times as you want.



**Update Attribute:** When you want the experiment to set a value for a variable of your choosing



**Add to Results File:** When you want to add values to a results file



**Null Action:** This kind of acts as a neutral node, doesn't do anything, but allows you to connect nodes in ways that would otherwise be impossible



**Prepare Sequence:** This node allows you to pre-load any of the images that you want to show later in the sequence. Basically gets everything ready beforehand so that the trial runs smoother

# Trigger Nodes



Trigger nodes are used when you want the experiment to know when to do something, or what it should wait for



**Timer:** When you want something to happen after a specified amount of time



**Conditional:** When you want something to happen if it meets certain criteria that you specify (basically an “If... Then...” statement)



**Keypress:** When you want something to happen if a certain key is pressed



**Mouse:** When you want something to happen if the mouse is clicked



**Fixation:** When you want something to happen if a fixation is made within a specified area

# Other Nodes



**Variable:** When you want to create a variable that you want the experiment to keep track of, either for experiment-building purposes or for results-logging purposes

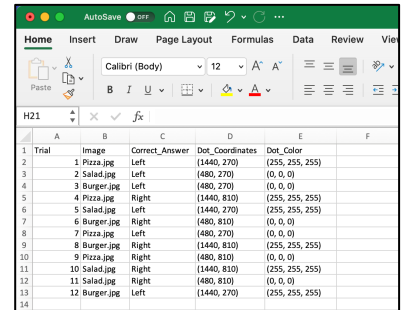


**Results File:** If you want to keep track of variables and values during the experiment, this lets you create a file that is output when the experiment is over

# Datasource

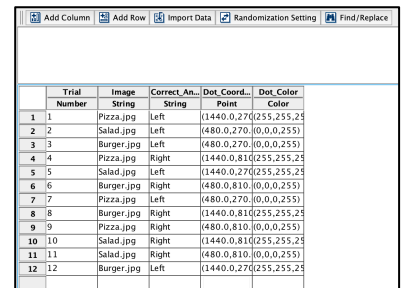
The datasource is used to specify information you want the experiment to know or use for each trial. For example, as you can see in the screenshotted examples of a datasource here, I am telling the experiment that for:

- Trial 1:
  - The image I want to show is “Pizza.jpg”
  - The correct answer for that trial is “Left”
  - The location I want the dot to be on the screen is (1440, 270)
  - The color code I want the dot to be is (255, 255, 255) which means white
- Trial 2:
  - The image I want to show is “Salad.jpg”
  - The correct answer for that trial is “Left”
  - The location I want the dot to be on the screen is (480, 270)
  - The color code I want the dot to be is (0, 0, 0) which means black



	A	B	C	D	E	F
1	Trial	Image	Correct_Answer	Dot_Coordinates	Dot_Color	
2	1	Pizza.jpg	Left	(1440, 270)	(255, 255, 255)	
3	2	Salad.jpg	Left	(480, 270)	(0, 0, 0)	
4	3	Burger.jpg	Left	(480, 270)	(0, 0, 0)	
5	4	Pizza.jpg	Right	(1440, 810)	(255, 255, 255)	
6	5	Salad.jpg	Left	(1440, 270)	(255, 255, 255)	
7	6	Burger.jpg	Right	(480, 810)	(0, 0, 0)	
8	7	Pizza.jpg	Left	(480, 270)	(0, 0, 0)	
9	8	Burger.jpg	Right	(1440, 810)	(255, 255, 255)	
10	9	Pizza.jpg	Right	(480, 810)	(0, 0, 0)	
11	10	Salad.jpg	Right	(1440, 810)	(255, 255, 255)	
12	11	Salad.jpg	Right	(480, 810)	(0, 0, 0)	
13	12	Burger.jpg	Left	(1440, 270)	(255, 255, 255)	

Prepare it in Excel



	Trial	Image	Correct_An...	Dot_Coord...	Dot_Color
	Number	String	String	Point	Color
1	1	Pizza.jpg	Left	(1440,0,270)	(255,255,255)
2	2	Salad.jpg	Left	(480,0,270)	(0,0,0,255)
3	3	Burger.jpg	Left	(480,0,270)	(0,0,0,255)
4	4	Pizza.jpg	Right	(1440,0,810)	(255,255,255)
5	5	Salad.jpg	Left	(1440,0,270)	(255,255,255)
6	6	Burger.jpg	Right	(480,0,810)	(0,0,0,255)
7	7	Pizza.jpg	Left	(480,0,270)	(0,0,0,255)
8	8	Burger.jpg	Right	(1440,0,810)	(255,255,255)
9	9	Pizza.jpg	Right	(480,0,810)	(0,0,0,255)
10	10	Salad.jpg	Right	(1440,0,810)	(255,255,255)
11	11	Salad.jpg	Right	(480,0,810)	(0,0,0,255)
12	12	Burger.jpg	Left	(1440,0,270)	(255,255,255)

Import it into ExperimentBuilder

# Step 4: Putting it all Together

- You now have a basic understanding of ExperimentBuilder, the building blocks of your experiment and what they do, and how you can use a datasource to specify trial-by-trial information
- Once you know which nodes you want in the experiment, you have to **connect** the nodes so that the experiment can progress from one node to another
- The order and structure with which you connect the nodes defines the way the experiment flows. The only tool necessary for this is **logic**.

