Experiment HP-11: Experiment Builder using Macros

Equipment Required

PC or Mac Computer

IXTA, USB cable, power supply

1 – EM-220 Event marker

1 – PPG-320 Pulse sensor

Sensor Setup

1. Locate the EM-220 Event marker and the PPG-320 Pulse sensor. Plug the connector of the EM-220 into the EM-1 port on the back of the IX-TA. Connect the PPG-320 to the PT port.

Figure HP-11-S3: The IX-TA shown with the EM-220 plugged into the EM-1 port. The PPG-320 will plug into the PT port.

2. Place the pulse sensor on the volar surface (where the fingerprints are located) of the distal segment of the subject's middle finger or thumb, and wrap the Velcro strap around the end of the finger to attach the unit firmly in place.
3. Make sure the sensor is not too tight or it will occlude the blood flow. If it is too loose, it will not pick up the pulse. It should just be tight enough to barely feel the pulse in the finger tip.

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General Directions:

- The goal for this lab is to learn how to design your own experiments using the Experiment Builder Macros in LabScribe
- To start building your macro, click the arrow next to MACROS on the toolbar.

Figure HP-11-L1: Macros builder

- In the new window that opens, import your media by clicking the Manage Media button and then Import Files. This will import your media files into LabScribe. You can import images, sounds, videos, and other types of files.

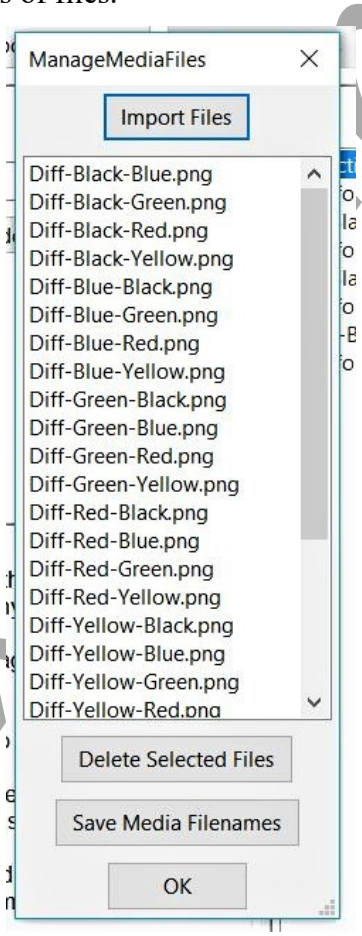

Figure HP-11-L2: Import media

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- Click New to create and new macro and name it.
- Follow the specific directions for each Exercise to learn how to design your own.

NOTE: ***You will be recording pulse using the PT-104 pulse sensor. Click AutoScale to maximize the pulse wave in the pulse channel. This recording is just so you can collect data as you are running the Macros.***

Exercise 1: Macro 1

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M1 is selected as the current Macro so you can see the directions.
3. In this macro, instructions will be displayed at the beginning for 5 sec. Followed by 3 images 200msec apart.

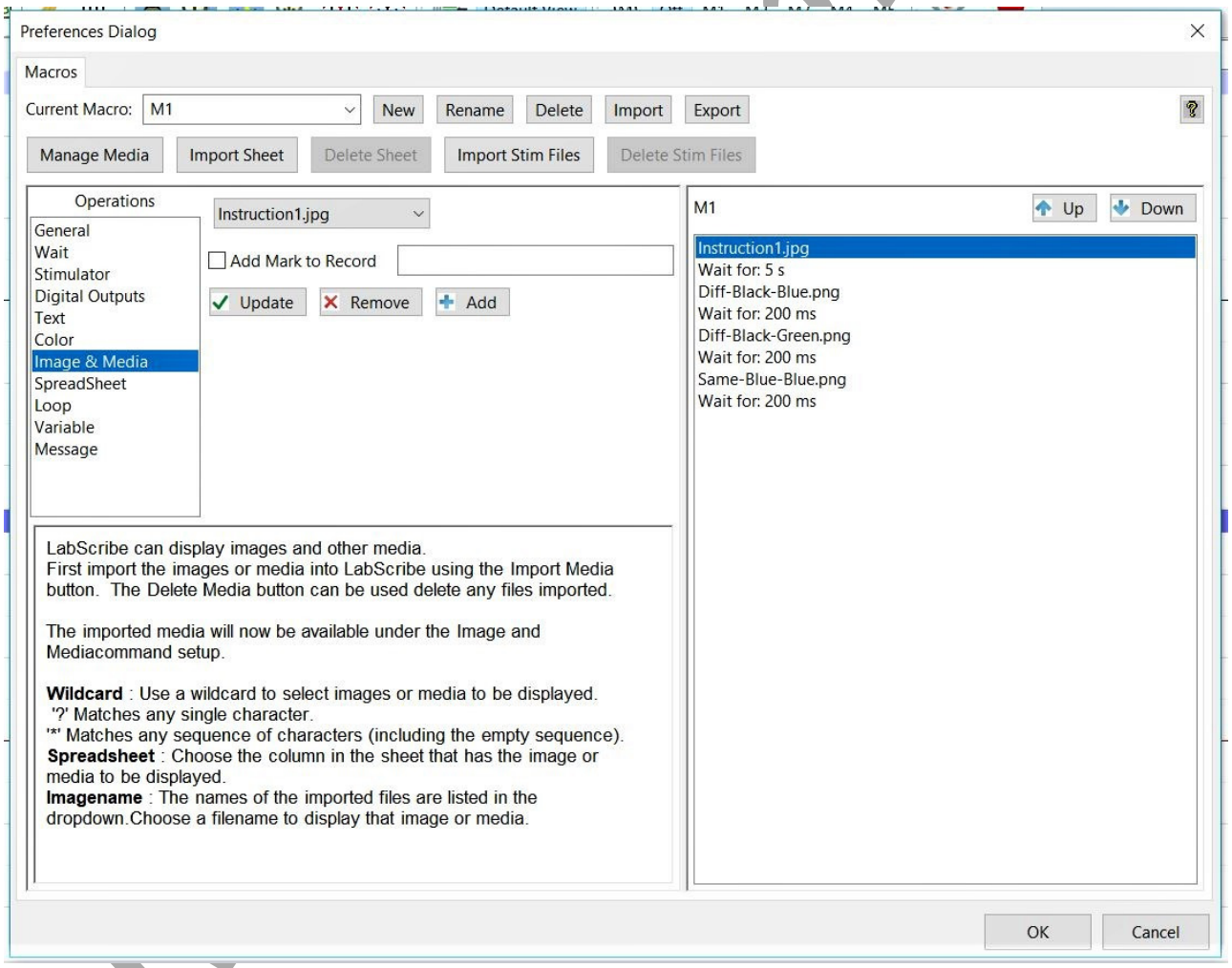

Figure HP-11-L3: Macro 1

4. The macro was built by:
    - Clicking Image and Media – this will bring up the list of images imported
    - Highlight Instructions and then click Add
    - Click Wait and change the time to 5 seconds and Add
    - Click Image and Media
    - Highlight the image you want to add and then click Add
    - Click Wait, adjust the wait time and Add
    - Repeat until completed
    - Click OK
5. Click M1 on the Macro toolbar to run the example macro.

Exercise 2: Macro 2

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M2 is selected as the current Macro so you can see the directions.
3. In this macro, we will display instructions at the beginning for 5 sec. Followed by 4 images Each image is displayed for 300ms, followed by a black screen for 500msec.
4. The macro was built by:
    - Clicking Image and Media – this will bring up the list of images imported
    - Highlight Instructions and then click Add
    - Click Wait and change the time to 5 seconds and Add
    - Click Image and Media
    - Highlight the image you want to add and then click Add
    - Click Wait, adjust the wait time and Add
    - Click Color, Black, Add
    - Click Wait, adjust the wait time and Add
    - Repeat until completed
    - Click OK
5. Click M2 on the Macro toolbar to run the example macro.

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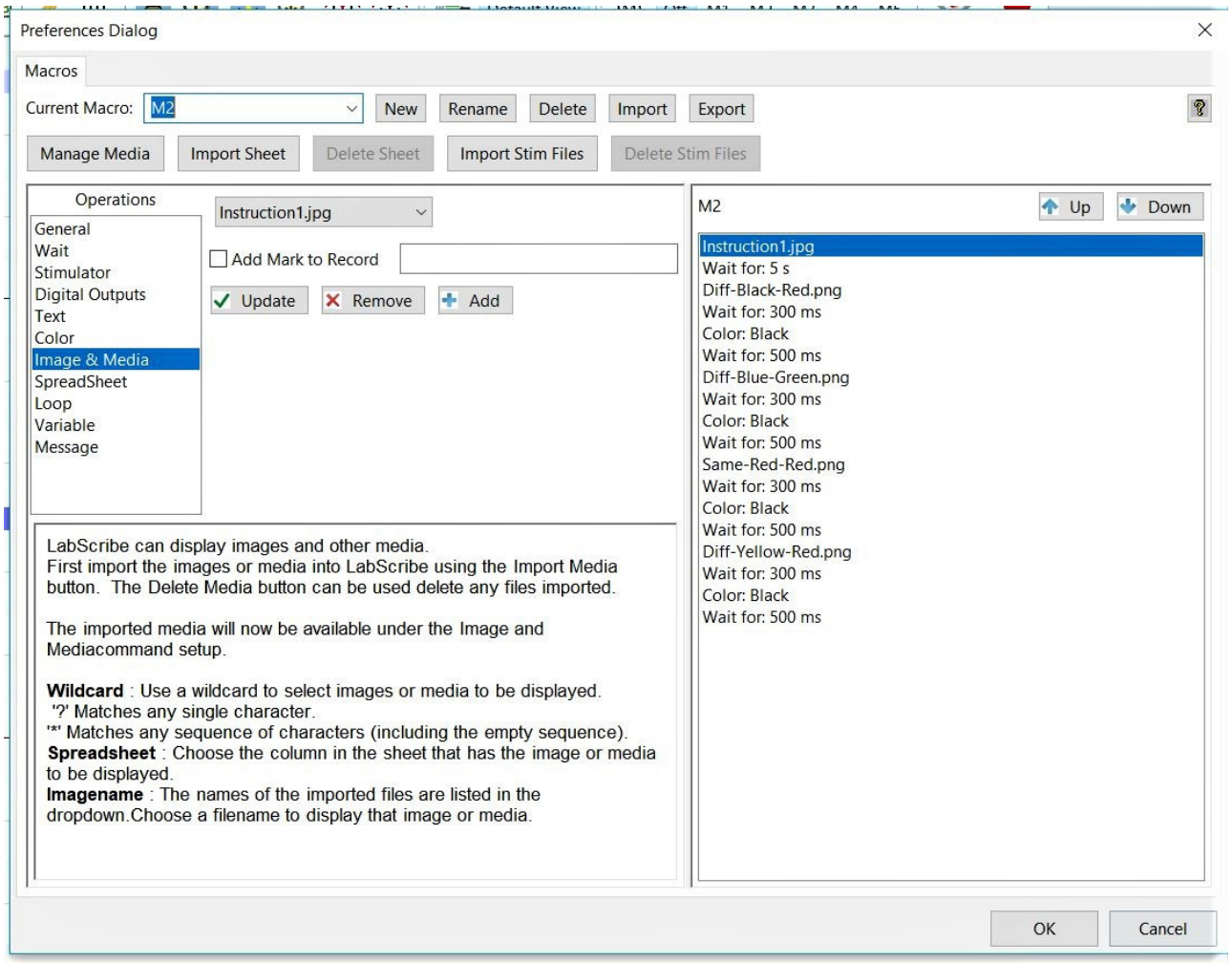

Figure HP-11-L4: Macro 2

Exercise 3: Macro 3

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M3 is selected as the current Macro so you can see the directions.
3. In this macro, we will display instructions at the beginning for 5 sec. Followed by 4 images Each image is displayed for 300ms, followed by a black screen for between 300msec and 1 second.
4. The macro was built by:
    - Clicking Image and Media – this will bring up the list of images imported
    - Highlight Instructions and then click Add
    - Click Wait and change the time to 5 seconds and Add
    - Click Image and Media

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- Highlight the image you want to add and then click Add
- Click Wait, adjust the wait time and Add
- Click Color, Black, Add
- Click Wait, change Wait For to Wait between, adjust the wait time and Add
- Repeat until completed
- Click OK

5. Click M3 on the Macro toolbar to run the example macro.

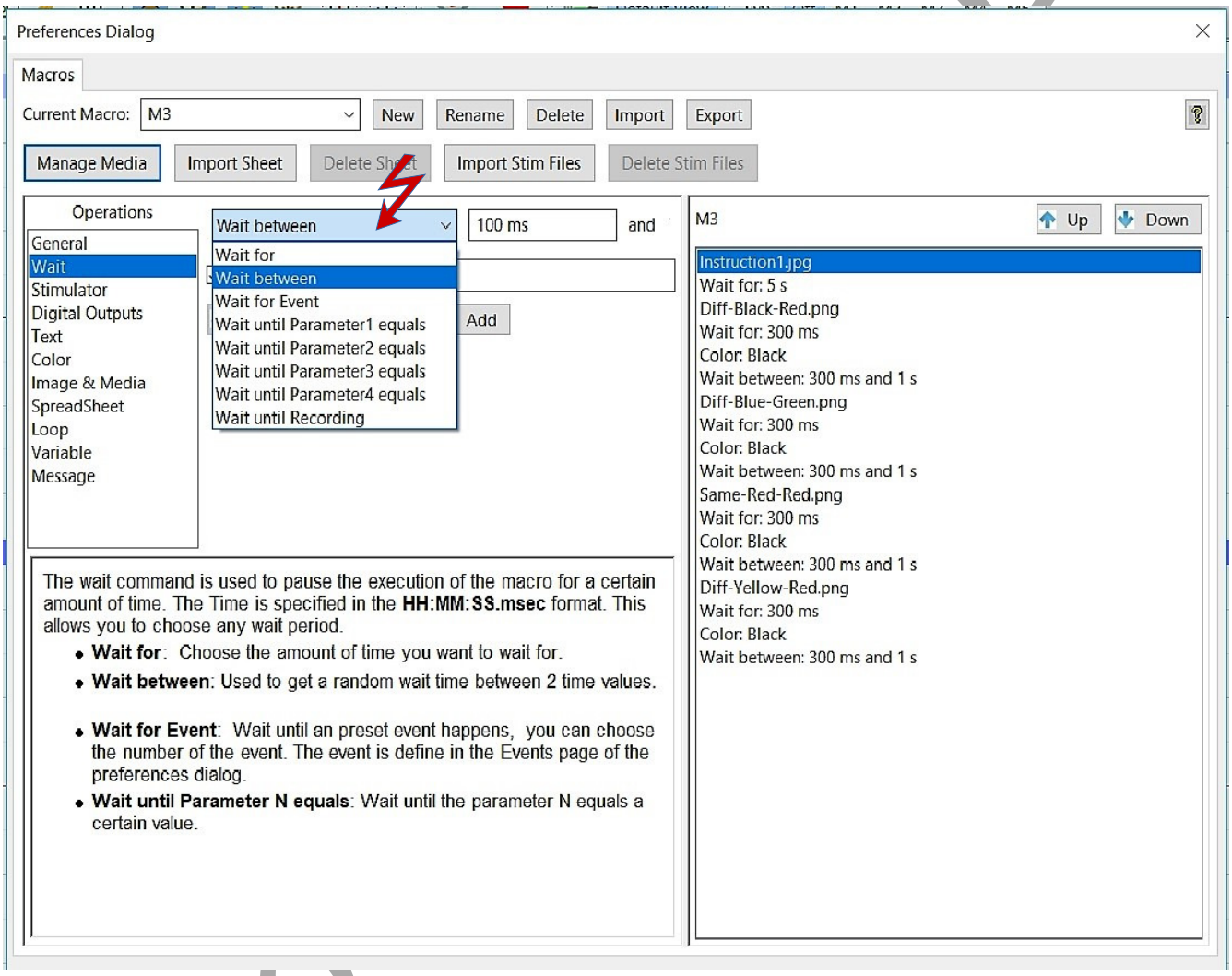

Figure HP-11-L5: Macro 3

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Exercise 4: Macro 4

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M4 is selected as the current Macro so you can see the directions.
3. In this macro, we will display instructions at the beginning for 5 sec. Then in a Loop that is repeated 10 times, a random image is displayed. The wildcard "*.png" selects all png images to be displayed. the image is displayed for 200msec, then a White color is displayed between 400ms to 1 sec.
4. The macro was built by:
    - Clicking Image and Media – this will bring up the list of images imported
    - Highlight Instructions and then click Add
    - Click Wait and change the time to 5 seconds and Add
    - Begin Loop and change "0" to the number of times you would like the macro repeated.
        - You will Begin Loop and End Loop
    - Click Image and Media, choose Wildcard, click Add
    - Click Wait, adjust the wait time and Add
    - Click Color, White, Add
    - Click Wait, adjust the wait time and Add
    - Move End Loop to the end of the Macro
    - Click OK
5. Click M4 on the Macro toolbar to run the example macro.

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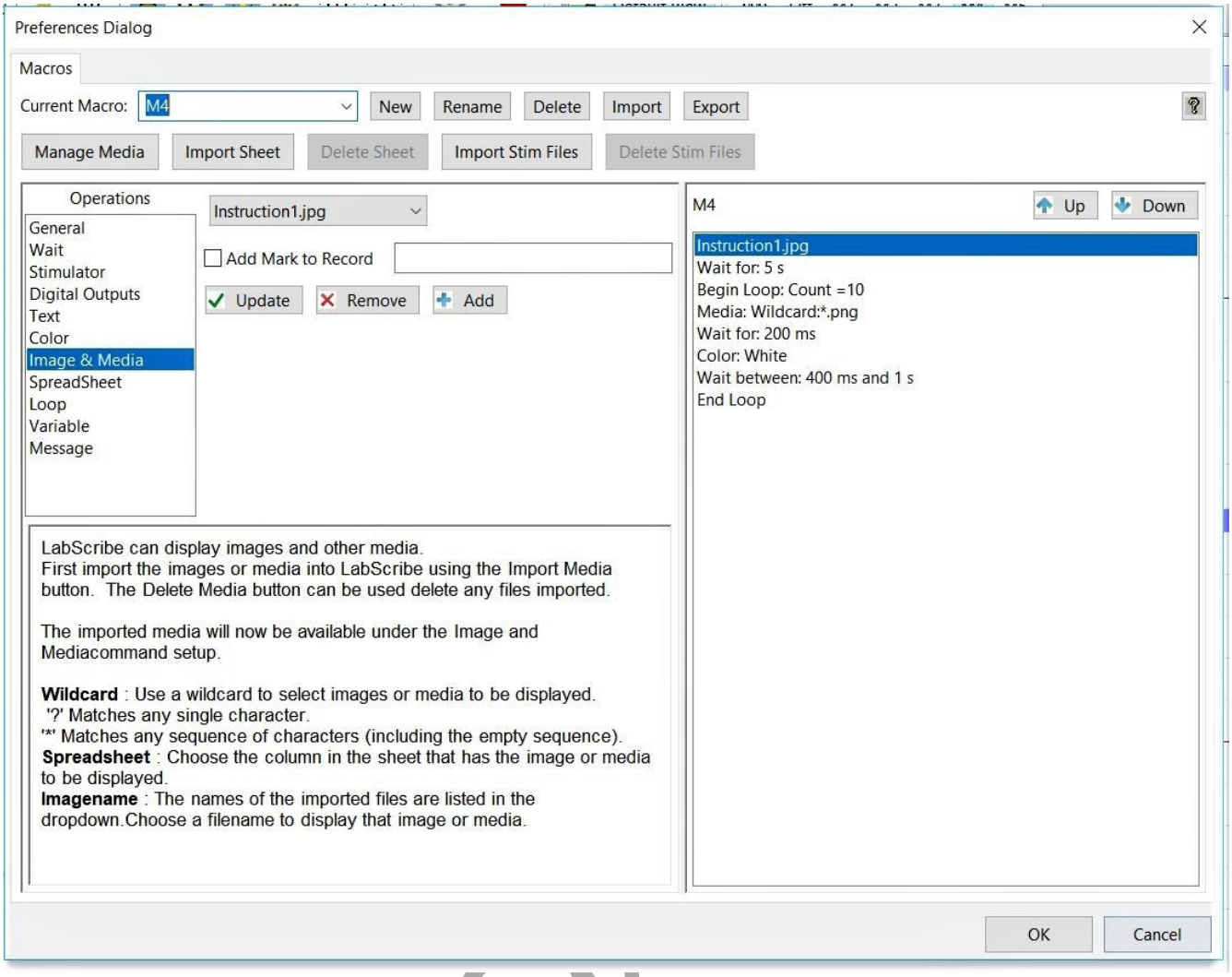

Figure HP-11-L6: Macro 4

Exercise 5: Macro 5

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M5 is selected as the current Macro so you can see the directions.
3. In this macro, we will wait for an event to occur before showing the next image. We need to setup an event first.
    - Go to Edit → Preferences → Channels (LabScribe → Preferences on a Mac)
    - Enable the EM1 channel. We will be looking for the subject to press the Event marker.
    - In the Events Tab:
    - Create a new Event called Event1

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- Set the Channel to EM1
- Set the Threshold to 0.5

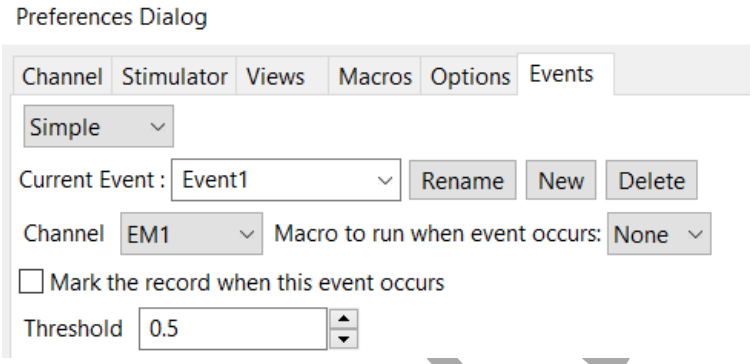

Figure HP-11-L7: Preferences Dialog - Events

4. We will display instructions at the beginning for 5 sec. Then a Loop that is repeated 10 times, a random image is displayed. The wildcard "*.png" selects all png images to be displayed. The image is displayed until the subject presses the Event Marker plugged into the EM1 channel or 1 second, which ever happens first. Then a White color is displayed between 400ms to 1 sec.
5. Click M5 on the Macro toolbar to run the example macro.

Exercise 6: Macro 6

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M6 is selected as the current Macro so you can see the directions.
3. We will use a spreadsheet to choose the images displayed. The macro-example.csv file was created and then imported using the Import Sheet button.
4. In this macro, we will select the sheet to be used, and set the row number to 1. We will display instructions at the beginning for 5 sec. Then in a Loop that is repeated 10 times, display an image, whose name is in column 1 of the spreadsheet, go to the next row of the spreadsheet display the image for 200msec. Then a White color is displayed between 400ms to 1 sec.
5. Click M6 on the Macro toolbar to run the example macro.

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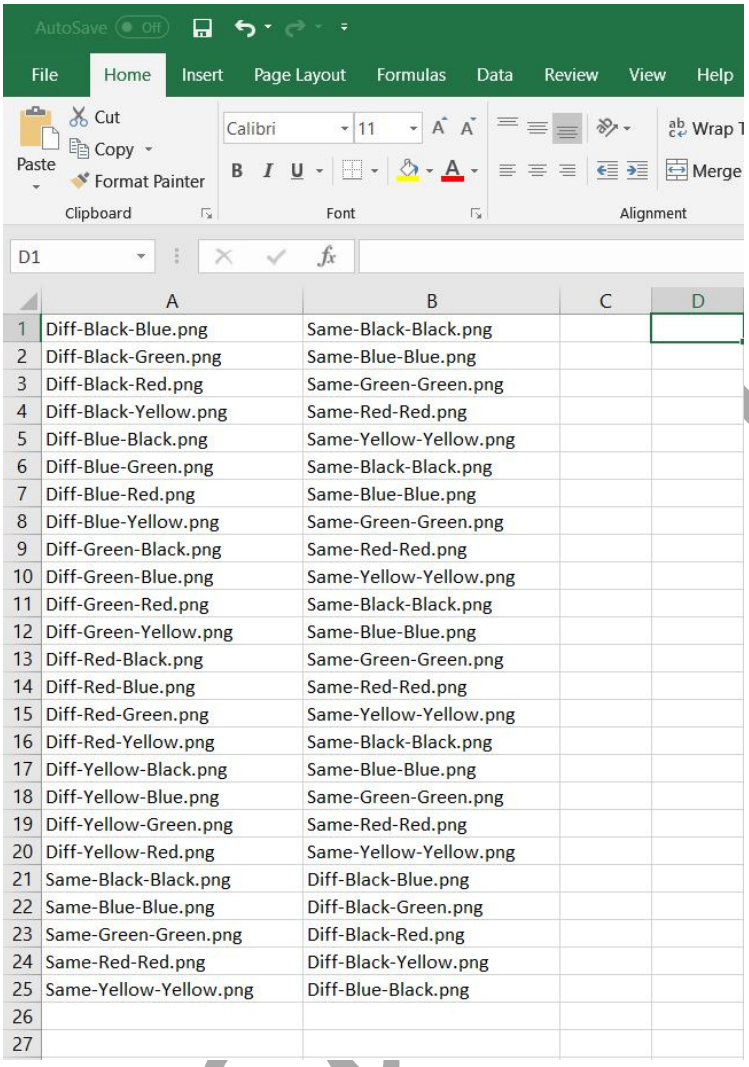

	A	B	C	D
1	Diff-Black-Blue.png	Same-Black-Black.png		
2	Diff-Black-Green.png	Same-Blue-Blue.png		
3	Diff-Black-Red.png	Same-Green-Green.png		
4	Diff-Black-Yellow.png	Same-Red-Red.png		
5	Diff-Blue-Black.png	Same-Yellow-Yellow.png		
6	Diff-Blue-Green.png	Same-Black-Black.png		
7	Diff-Blue-Red.png	Same-Blue-Blue.png		
8	Diff-Blue-Yellow.png	Same-Green-Green.png		
9	Diff-Green-Black.png	Same-Red-Red.png		
10	Diff-Green-Blue.png	Same-Yellow-Yellow.png		
11	Diff-Green-Red.png	Same-Black-Black.png		
12	Diff-Green-Yellow.png	Same-Blue-Blue.png		
13	Diff-Red-Black.png	Same-Green-Green.png		
14	Diff-Red-Blue.png	Same-Red-Red.png		
15	Diff-Red-Green.png	Same-Yellow-Yellow.png		
16	Diff-Red-Yellow.png	Same-Black-Black.png		
17	Diff-Yellow-Black.png	Same-Blue-Blue.png		
18	Diff-Yellow-Blue.png	Same-Green-Green.png		
19	Diff-Yellow-Green.png	Same-Red-Red.png		
20	Diff-Yellow-Red.png	Same-Yellow-Yellow.png		
21	Same-Black-Black.png	Diff-Black-Blue.png		
22	Same-Blue-Blue.png	Diff-Black-Green.png		
23	Same-Green-Green.png	Diff-Black-Red.png		
24	Same-Red-Red.png	Diff-Black-Yellow.png		
25	Same-Yellow-Yellow.png	Diff-Blue-Black.png		
26				
27				

Figure HP-11-L8: Example spreadsheet for use with Macros

Exercise 7: Macro 7

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M7 is selected as the current Macro so you can see the directions.
3. We will use a spreadsheet to choose the images displayed. The macro-example.csv file was created and then imported using the Import Sheet button.

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4. In this macro, we will select the sheet to be used, and set the row number to 1. We will display instructions at the beginning for 5 sec. Then in a Loop that is repeated 10 times, Display an image, whose name is in column 1 of the spreadsheet. Go to the next random row of the spreadsheet, without repeating a previously selected row. The image is displayed for 200msec, then a White color is displayed between 400ms to 1 sec.
5. Click M7 on the Macro toolbar to run the example macro.

Exercise 8: Macro 8

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M8 is selected as the current Macro so you can see the directions.
3. We will use a spreadsheet to choose the images displayed. The macro-example.csv file was created and then imported using the Import Sheet button.
4. In this macro, we will select the sheet to be used, and set the row number to 1. We will display instructions at the beginning for 5 sec. Then in a Loop that is repeated 10 times, display an image, whose name is in column 1 of the spreadsheet. Go to the next random row of the spreadsheet, without repeating a previously selected row. The image is displayed for 200msec. Display an image, whose name is in column 2 of the spreadsheet, the image is displayed for 300msec, then a White color is displayed between 400ms to 1 sec.
5. Click M8 on the Macro toolbar to run the example macro.

Exercise 9: Macro 9

Procedure:

1. Click the down arrow to the right of the word MACRO.
2. Make sure M9 is selected as the current Macro so you can see the directions.
3. We will use a spreadsheet to choose the images displayed. The macro-example.csv file was created and then imported using the Import Sheet button. We will use the Html Message and Text Operations
4. In this macro, we will display an HTML message that is shown until the subject clicks on the Next button. We will display the word Black in bold, red color for 500msec. Then we will display the word "Blue" in color RGB (0,128,64) at an angle of 45 deg for 500msec. This will be followed by an image for 200msec. We will end with the color white.
5. Click M9 on the Macro toolbar to run the example macro.

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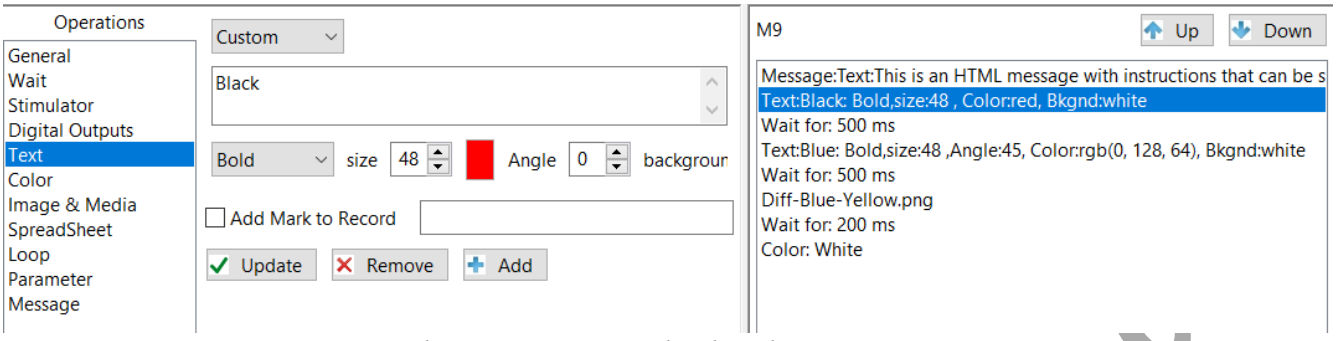

Figure HP-11-L9: Macro example using HTML and colored images.

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