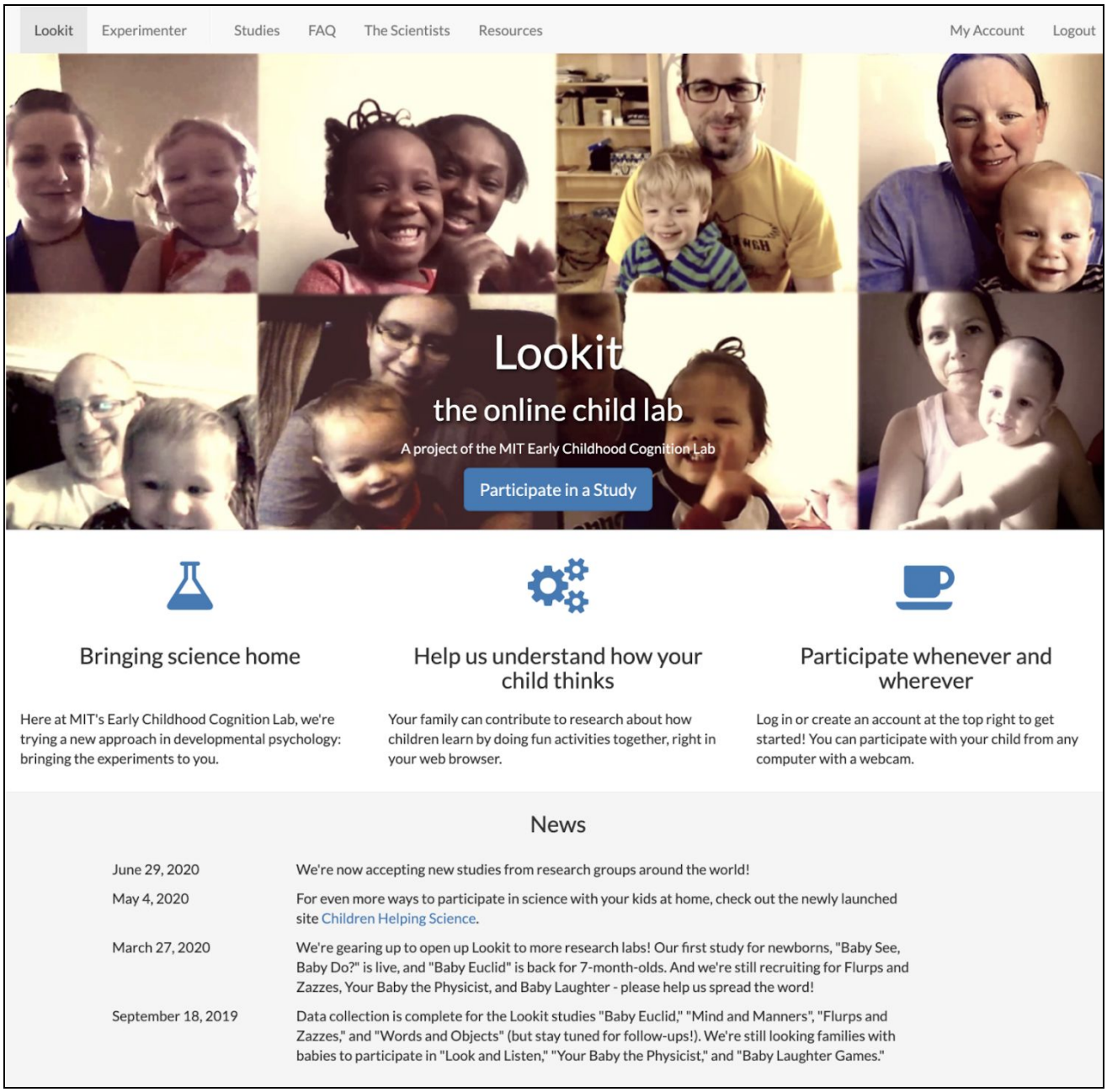
Introduction to Lookit



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How to Use This Document

This document is intended to introduce the reader to Lookit by giving a quick 20 minute overview of how Lookit works. In addition to giving an overview, this document also links to various resources that will be beneficial to researchers who chose to use Lookit. If researchers are interested in implementing a Lookit study after finishing this document, they should see the Lookit tutorial and Lookit documentation available here.

Sections

What is Lookit?

Infants and young children possess unique, and sometimes fleeting, strategies for making sense of the world around them. These strategies provide developmental scientists an important window into the underpinnings of human cognition; however, developmental research is often constrained by the unique needs of young children and their families. Some parents may find it difficult to schedule a lab visit and emails are often lost in the flurry of day-to-day caregiving. Young children and babies frequently have their own internal schedule that does not necessarily align with their caregiver's or the researcher's. These hurdles constrict the set of questions developmental scientists can ask and result in suboptimal data collection. Lookit is a collaborative platform designed to fix these problems.

Lookit lets developmental science researchers conduct asynchronous recorded experiments online. Families interested in participating in online experiments sign up for an account on the Lookit interface. Once a family has an account, they can view all the published experiments currently in the data collection phase. Families can also opt-in for email notifications when a new study in their child's eligibility range is published or if their child ages into the eligibility requirement for a new study.

Researchers design experiments either on the experimenter interface using pre-formatted templates for common developmental science paradigms (ie: VOE, preferential looking, etc) or by developing their own Javascript/JSON code. Researchers submit their studies to peer review and their own IRBs for review. Once a research group has received IRB and peer review approval, they can publish to the "Studies" page to start data collection.

Participants are in control of when and where they want to complete experiments. At the end of each experiment, participants also get the decision to withdraw their data. If participants choose to submit their data, the data is sent to the research group who designed the study and the Lookit admin team.

Security, Privacy, and Data Collection on the Internet

Collecting personal and private data from children on the internet should be taken seriously. There are a few best practices to keep in mind while using Lookit or any other online experiment software:

1. **Do not share your username and password with another person, including other researchers in your lab.**
   Please don't do this. It might seem like not a big deal if you both have access to the same data but it's not a good idea. Everyone who wants to access the data should use their own personal account that way if there is a data breach, it is easier to track where the breach occurred and whose accounts were compromised.
2. **Enable Dual-Authentication for any user accounts with access to personal data.**
   Dual-authentication is an extra layer of protection against security breaches. For example, if your password was compromised somehow then dual-authentication would prevent another person from using your password to log into your account. You can enable dual-authentication on your email and on Lookit. In fact, you are required to use dual-authentication on Lookit. Google has a good dual authenticator app called "Google Authenticator."
3. **Password protect your computer.**
   Your computer needs to be password protected with a strong password containing capital letters, lowercase letters, numbers and symbols.
4. **Set your computer to screen lock after a period of time.**
   It's easy to walk away from your computer and forget that your computer is still unlocked. You can prevent that by setting your computer to lock after a certain amount of inactivity. Ideally you'll set it to lock after 30 minutes of inactivity or less.
5. **Use full-disk encryption on your computer.**
   Full-disk encryption makes it nearly impossible for someone to access data on your locked computer by encrypting every bit. Enabling full-disk encryption means that even if someone stole your hard-drive, it would be nearly impossible to decipher the data. MacOS users can turn on FileVault. Windows users can turn on BitLocker.
6. **Always use your university's VPN when downloading personal information off of Lookit.**
   There's always a small chance that personal information can be intercepted when it's sent on the internet. Using a VPN reduces this risk. If you are sending or receiving sensitive personal data, it's best practice to turn your VPN on.
7. **Don't send sensitive personal information about participants over email.**

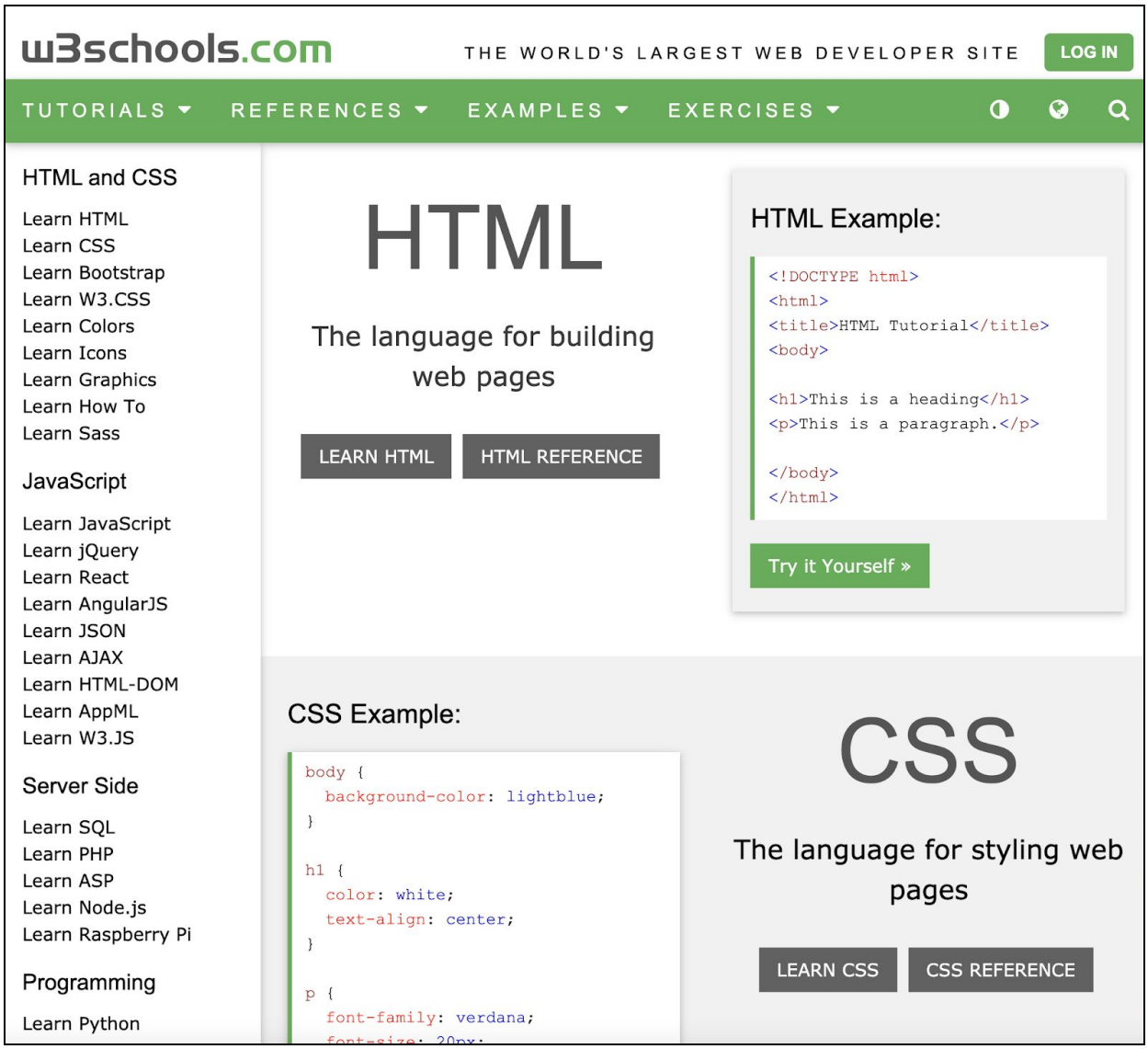
Standard email messaging is not encrypted and therefore can be intercepted. Also, unless you regularly delete your emails, the sensitive personal information you send will end up being stored on your email. Private personal information about participants shouldn't be stored anywhere except on a fully encrypted computer or firewall protected server.

8. **Store data securely.**
   It's best to consult with your university's technology department on how to store your experimental data. Most universities can provide you access to an encrypted server to store your data. If you collect data on Lookit, leaving the data on Lookit is also a storage option!
9. **Only collect/download/store what you need!**
   If you don't need to know your participant's name, don't download it! If you don't need to know your participant's address, don't ask for it! Only ask for what you need. The best way to protect data is to not collect it.

Javascript, JSON, HTML, and CSS

Lookit requires that experimenter's specify their study protocols in either JSON (for the protocol configuration) or in Javascript (for the protocol generator). Also some frames can be supplemented by CSS and HTML code. While knowledge of Javascript, CSS, and HTML is helpful, JSON is the only programming language that you need to understand in order to understand how Lookit works.

W3Schools has excellent tutorials on Javascript, JSON, HTML, and CSS. If you are new to coding, or have never done web development before, then you might find it beneficial to spend some time on these tutorials. Tutorials on Javascript, JSON, HTML, and CSS can all be found at w3schools.com.



Experiment Runner

The experiment runner is software that interprets your study protocol into an interactive web app. It takes the `"sequence"` and `"frames"` from either your protocol configuration or protocol generator to make your experiment. In other words, you can think about the experiment runner as the thing that builds your study. You tell the runner how to build your study by giving it a list of materials (i.e.: `"frames"`) and an order (i.e.: `"sequence"`).

The experiment runner periodically undergoes updates, similar to how your computer undergoes a software update. See an excerpt below from the Lookit docs on experiment runner updates.

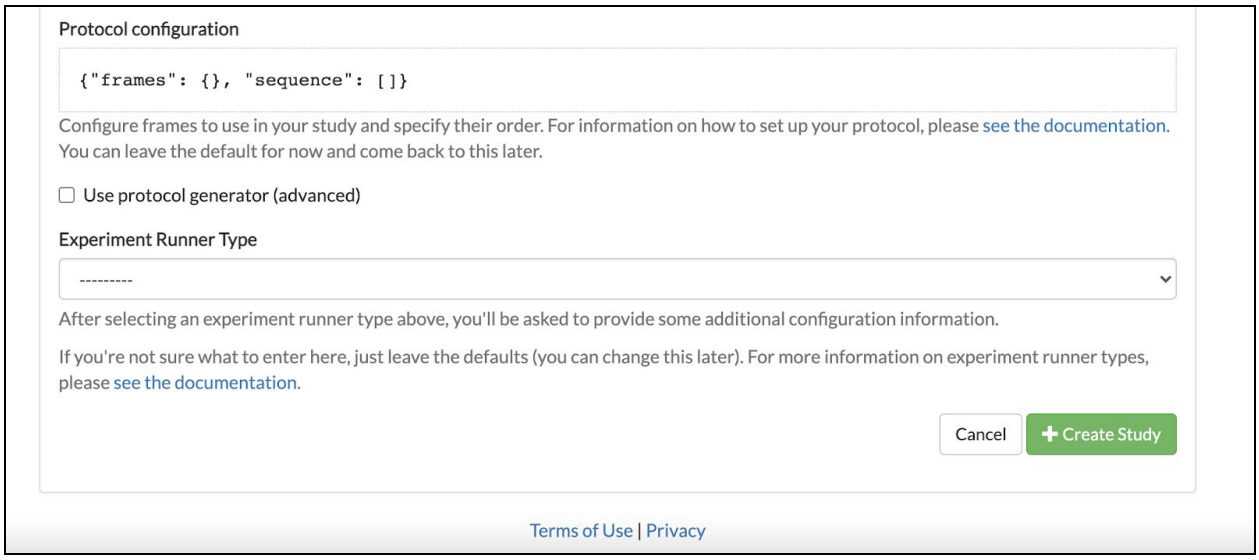
> ## Updating the experiment runner
>
> In the future, there may be changes in the Lookit experiment runner that you want your study to use - for instance, a bug fix for an issue your participants are encountering or a new frame you want to use. (By default, your study keeps chugging along using exactly the same code, so that updates can't change how your study works without your knowledge.)
>
> ### Checking what's changed
>
> The most straightforward way to view changes to the Lookit code is to review the list of releases. If you're planning to update to the latest version, you should read through the release notes for each version between the one you're using and the new one.
>
> The releases are numbered v<MAJOR>.<MINOR>.<PATCH> – e.g. v1.5.2. We adhere to semantic versioning, so the MAJOR version changes when there are backwards-incompatible changes - e.g., you need to change the name of a frame you're using for it to keep working. The MINOR version changes when features are added but are backwards-compatible. The PATCH version changes when there are backwards-compatible bug fixes.

These updates are optional but recommended. Since the experiment runner is dynamic, you must build a copy of the experiment runner software to run your study protocol on. This ensures that your protocol will be unaffected by an incompatible software update.

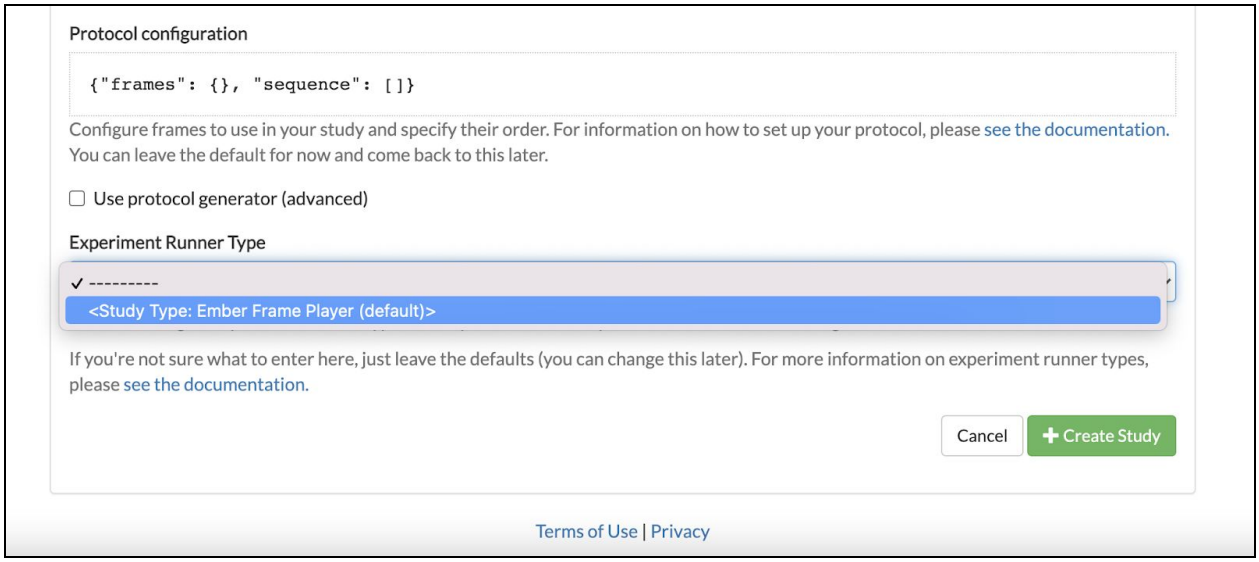
Building Your Experiment Runner for the First Time

First you need to create a new experiment! Go to "Manage Studies" on your Lookit account and click + Create Study:

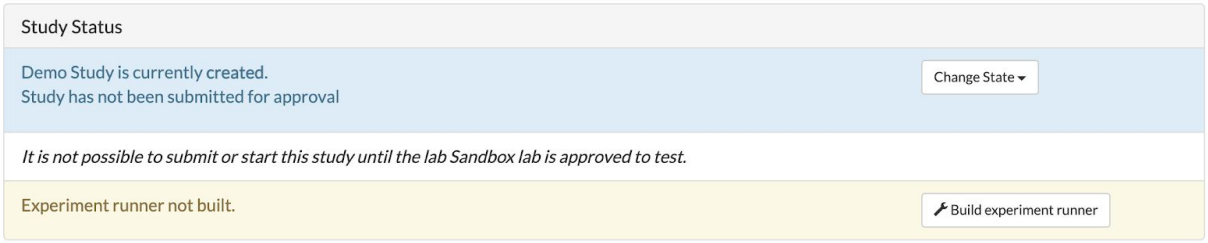
After you click + Create Study you will need to fill out some information about your study in order to create it. This information can be changed later so if you don't have a good response for any of the prompted fields then you can enter some placeholder like, "FILL ME IN LATER." If you leave a field empty Lookit won't let you create a new study. At the bottom of the form you will see the following:



Click the dropdown "Experiment Runner Type" and select "Ember Frame Player":



Once you've filled out all the other fields, click "+ Create Study." This will take you to your study page. Here you will see a highlighted orange box. Inside the highlighted orange box you'll want to click on "Build experimenter runner":



You will receive an email notification once the experiment runner is built.

Updating the Experiment Runner

It's good to keep your experiment runner up to date. Software updates are released for good reason; it could be a minor bug patch, like fixing a glitch where the display is shifted in fullscreen mode, or it could be a major update, like adding a pause button to studies. The Lookit docs does an excellent job of explaining how to update the experiment runner. Click here for a link to instructions on updating the experiment runner.

Web Repositories

At some point you will need to incorporate your stimuli into your program. Your stimuli might be audio, image, or video files. Lookit is designed to retrieve stimuli files from secure static web repositories, or web addresses that start with "https://". You can host your stimuli on a third-party data storage website like GitHub or you can use the secure static web hosts made available by the college. While there is nothing wrong with using a third-party data storage site like GitHub, using your college's is preferred because you will never have to pay for the storage.

Once you've gotten a secure web address setup, you will need to structure it so that the experiment runner can parse your stimuli files. Your base directory should branch into five folders named: img, mp4, webm, mp3, and oog. These folders refer to the five file types compatible with the Experiment Runner. Audio files should be provided with both mp3 and oog file extensions and stored in the mp3 and oog folders. Video files should be provided with mp4 and webm file extensions and stored in the mp4 and webm folders. Finally, image files can either have a png or jpg file extension and should be stored in the img folder.

There isn't one correct way to upload your files and folders to your web repository. If you use a repository hosted at your college then you will need to download some SSH/SFTP file transfer software. When setting up your web host you can ask your college's technology department what file transfer software they would prefer you use.

You can check whether you've set up your directory properly and put stimuli in the correct folders by typing in the full address of your stimuli into a web browser.

For example, if your web address was: https://www.science.smith.edu/~jmargarites

You could check whether your OverShoulder.jpg image was uploaded correctly by typing this into a web browser: https://www.science.smith.edu/~jmargarites/img/OverShoulder.jpg

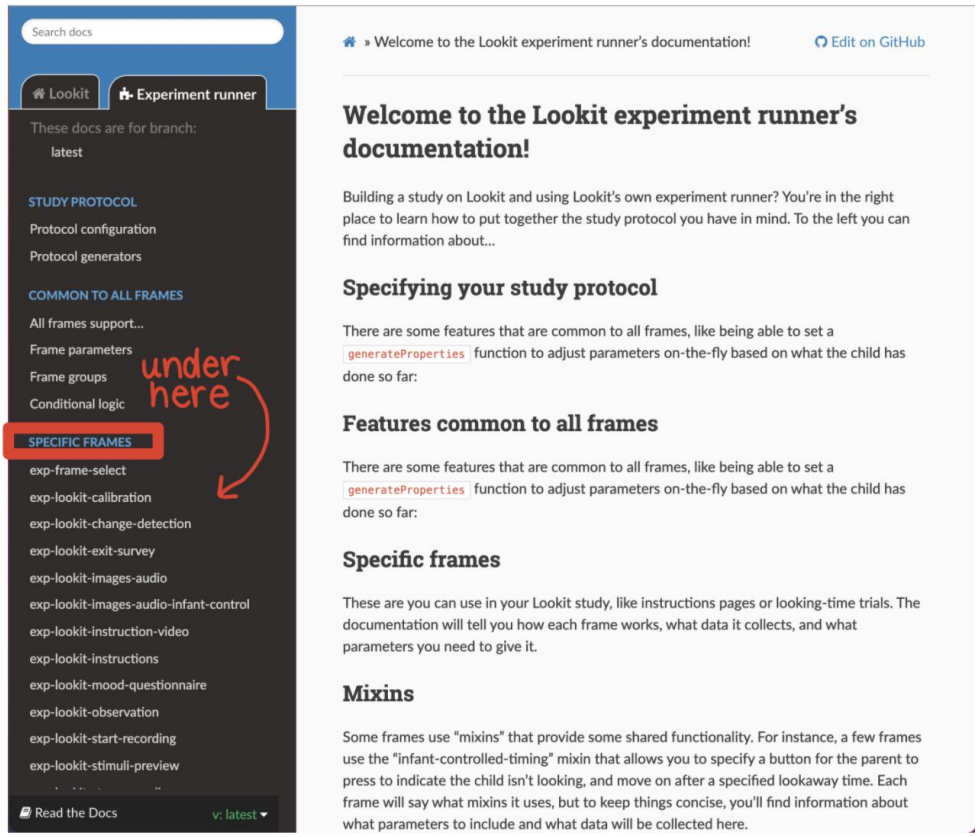
Experiment Frames

Experiment frames are designed to help you create your experiment's protocol with minimal coding. If the experiment runner is the builder, then the experiment frames are the materials. Each frame represents a different building block that you can use to create your study.

Frames are written in JSON and contain in-built behaviors like turning on/off the participant's webcam or recording a button click. Each frame also has parameters specific to the frame's functionality. For example, some frames have a `baseDir` parameter which tells the Experiment Runner where to look for your media files (ie: images, audio, videos).

Most of the common developmental science paradigms have a corresponding frame or set of frames that can be implemented. For example, if you wanted to conduct a preferential looking study you could use the `exp-lookit-calibration` and `exp-lookit-images-audio` frames. The `exp-lookit-calibration` frame would allow you to record the child looking at different parts of the screen while the `exp-lookit-images-audio` frame would allow you to record the child looking at your stimuli.

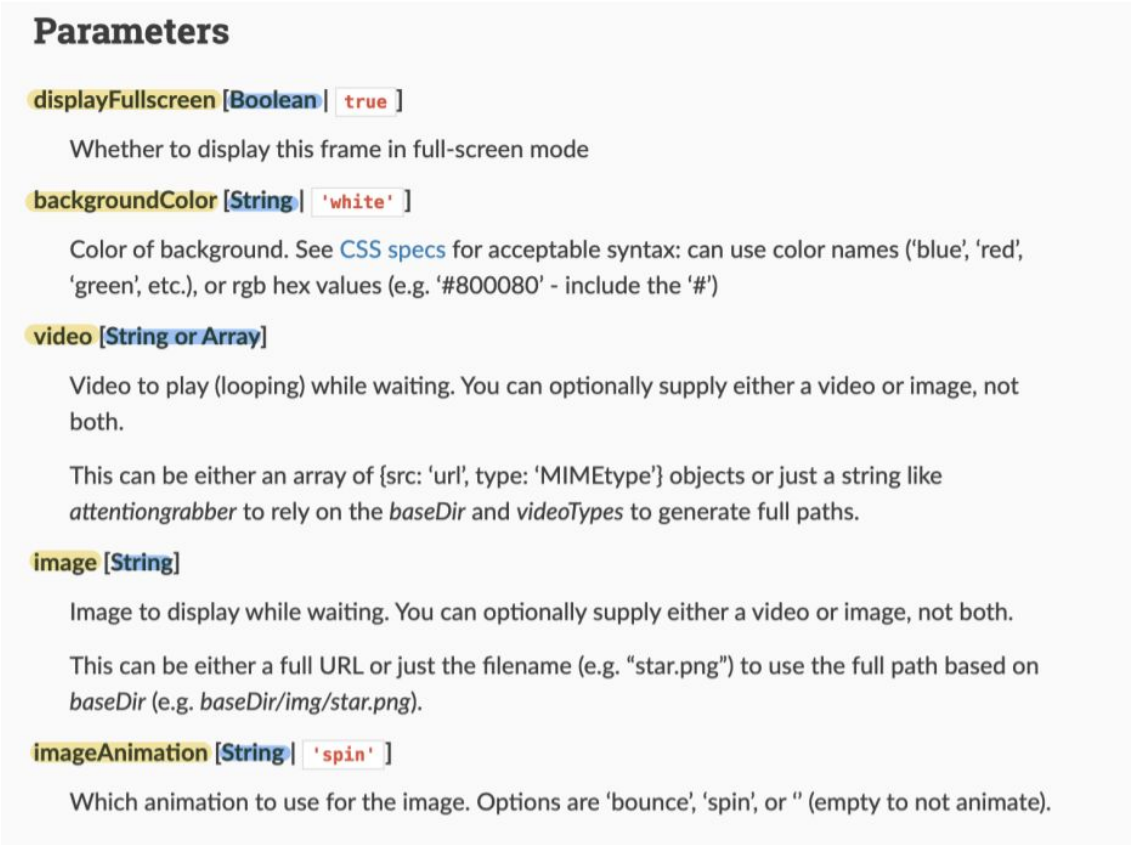
All the experiment frames can be found in the Lookit documentation under "Specific Frames":



Frame Parameters

Frame parameters are optional behaviors or attributes a frame can have. Frame parameters can be found when you click on a specific frame and scroll down to the "Parameters" section. Each frame parameter has a corresponding set of values it can be set to. For example, most frames have a `doRecording` parameter. The `doRecording` parameter can be set to the values `true` or `false`. If you want a frame to record the participant then you would set `doRecording` to `true`, otherwise you would set `doRecording` to `false`. Values can be text, numbers, true/false, media files, and objects (like arrays, templates, and lists). If you want to include a parameter you should add it to your experiment frame with whatever value will implement your desired behavior or attribute.

Some frame parameters have default value settings. This means the parameter is automatically set to some value regardless of whether you include the parameter in your protocol configuration. If you want to disable the default setting for a particular parameter, you must include the parameter in your protocol configuration with a different value. Let's look at the `exp-lookit-start-recording` parameters. You can find the `exp-lookit-start-recording` parameters in the Lookit docs by clicking on the `exp-lookit-start-recording` frame and scrolling down to the "Parameters" section:



Parameters

displayFullscreen [**Boolean** | `true`]

Whether to display this frame in full-screen mode

backgroundColor [**String** | `'white'`]

Color of background. See CSS specs for acceptable syntax: can use color names ('blue', 'red', 'green', etc.), or rgb hex values (e.g. '#800080' - include the '#')

video [**String or Array**]

Video to play (looping) while waiting. You can optionally supply either a video or image, not both.

This can be either an array of {src: 'url', type: 'MIMEtype'} objects or just a string like *attentiongrabber* to rely on the *baseDir* and *videoTypes* to generate full paths.

image [**String**]

Image to display while waiting. You can optionally supply either a video or image, not both.

This can be either a full URL or just the filename (e.g. "star.png") to use the full path based on *baseDir* (e.g. *baseDir/img/star.png*).

imageAnimation [**String** | `'spin'`]

Which animation to use for the image. Options are 'bounce', 'spin', or '' (empty to not animate).

The frame parameters are highlighted in yellow and the value types are highlighted in blue. The default values for the parameters are in white boxes with red text. Underneath each of the parameters is a short description of what the parameter is intended to implement.

The value types let you know what kind of values would be acceptable. For example, look at the `displayFullscreen` parameter. The `displayFullscreen` parameter has a Boolean value type which means it can be set to the values `true` or `false`. Now let's look at the `video` parameter. The `video` parameter has a String or Array value type. That means the `video` parameter can take either value types. By reading the description underneath the `video` parameter we know that:

- If we assign a String value to the `video` parameter then the Experiment Runner expects that String to either be the video name or the video URL.
- If we assign an Array value to the `video` parameter then the Experiment Runner expect that Array to be in the format:

  ```
  {src: "INSERT_FULL_URL",
   type: ".mp4"
   }
  ```

  where `src` refers to the video URL and `type` refers to the file extension.

Data Collected and Events Recorded

If you click on a specific frame, you will find the "Data Collected" and "Events Recorded" sections after the "Parameters" section. These sections are extremely important because we want to make sure we collect the right data for our experiment. Data collected refers to the data that is collected on this particular frame (ex: the name of the image selected, the name of the audio file played). Events recorded refers to the different page interactions that occurred on the frame as well as their time stamp (ex: audio started playing, participant clicked "X").

All frames collect the following data:

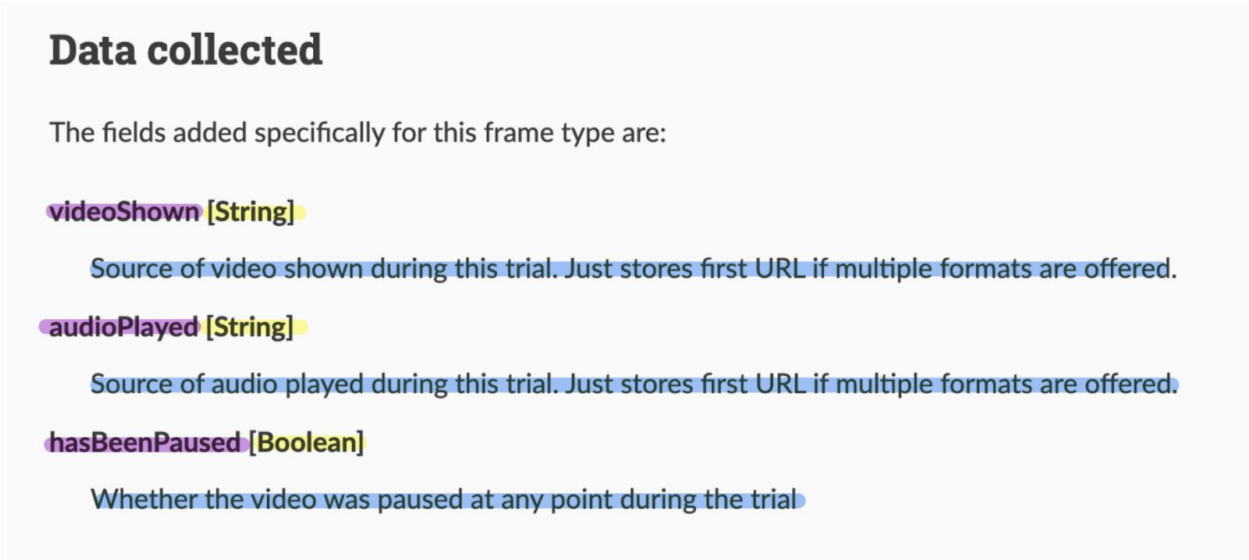
- `generatedProperties`: Any properties generated via a custom generateProperties function provided to this frame (e.g., a score you computed to decide on feedback). In general will be null.
- `frameDuration`: Duration between frame being inserted and call to next frame
- `frameType`: Type of frame
- `eventTimings`: Ordered list of events captured during this frame (oldest to newest).

and all frames record the following events:

- `nextFrame`: When moving to next frame
- `previousFrame`: When moving to previous frame

Some frames might not record any additional data or events other than those listed above.

Let's look at the data collected by `exp-lookit-video` frame. You can find the data collected by `exp-lookit-video` frame in the Lookit docs by clicking on the `exp-lookit-video` frame and scrolling down to the "Data collected" section:



Data collected

The fields added specifically for this frame type are:

videoShown [String]

Source of video shown during this trial. Just stores first URL if multiple formats are offered.

audioPlayed [String]

Source of audio played during this trial. Just stores first URL if multiple formats are offered.

hasBeenPaused [Boolean]

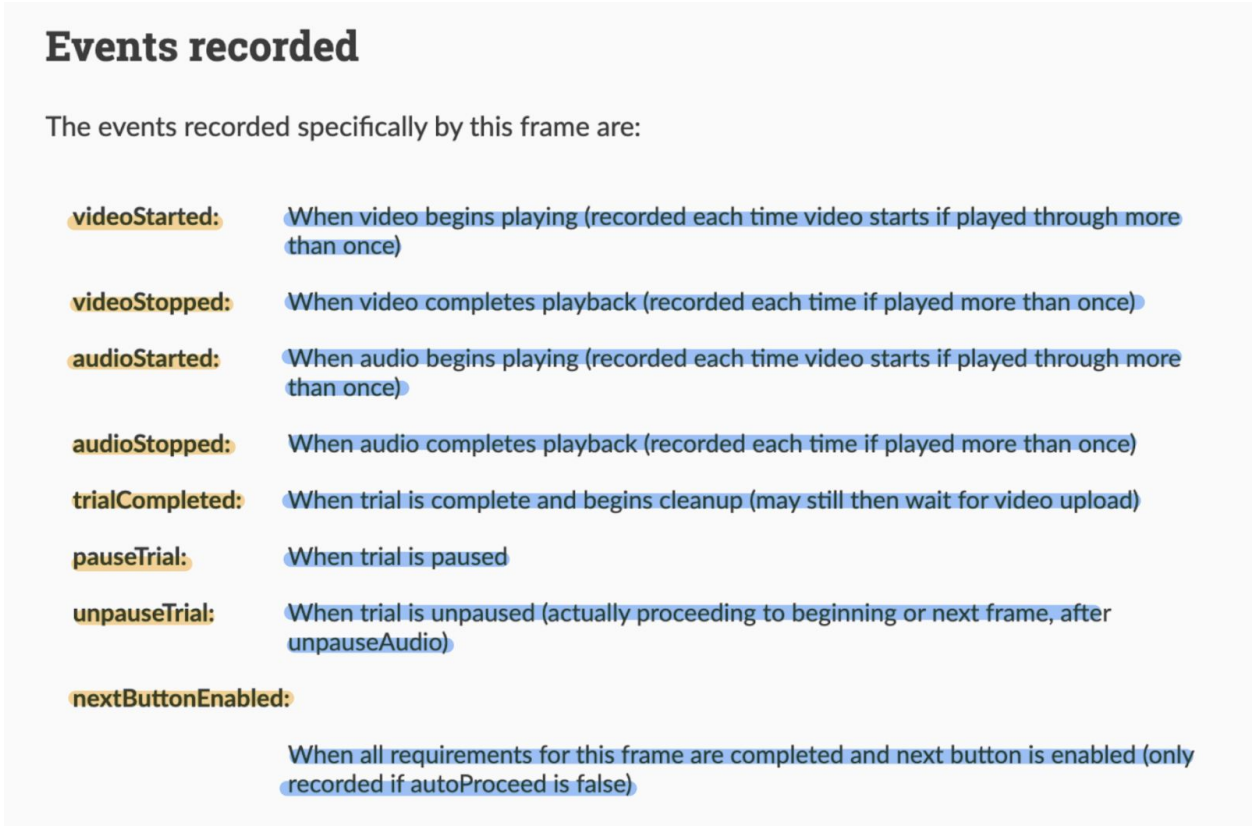
Whether the video was paused at any point during the trial

The fields, or names of the data collected, are highlighted in purple. The type of value recorded for the field is highlighted in yellow and the description of the data collected is highlighted in blue.

If you download a .csv of the data you collect for your experiment, you will see that the frame specific fields appear under "key" and that the values recorded for that key appear next to the field under "value":

response_uuid	child_hashed_id	frame_id	event_number	key	value
[redacted]	[redacted]	20-test		videoShown	https://www.science.smith.edu/~jmargarites/webm/attentiongrabber.webm
[redacted]	[redacted]	20-test		audioPlayed	https://www.science.smith.edu/~jmargarites/ogg/chimes.ogg
[redacted]	[redacted]	20-test	0	eventType	exp-lookit-video:videoStarted
[redacted]	[redacted]	20-test	0	timestamp	2020-11-13T19:30:19.744Z
[redacted]	[redacted]	20-test	0	streamTime	
[redacted]	[redacted]	20-test	1	eventType	exp-lookit-video:audioStarted
[redacted]	[redacted]	20-test	1	timestamp	2020-11-13T19:30:19.746Z
[redacted]	[redacted]	20-test	1	streamTime	
[redacted]	[redacted]	20-test	2	eventType	exp-lookit-video:audioStopped
[redacted]	[redacted]	20-test	2	timestamp	2020-11-13T19:30:21.634Z
[redacted]	[redacted]	20-test	2	streamTime	
[redacted]	[redacted]	20-test	3	eventType	exp-lookit-video:trialCompleted
[redacted]	[redacted]	20-test	3	timestamp	2020-11-13T19:30:24.744Z
[redacted]	[redacted]	20-test	3	streamTime	
[redacted]	[redacted]	20-test	4	eventType	exp-lookit-video:nextFrame
[redacted]	[redacted]	20-test	4	timestamp	2020-11-13T19:30:24.745Z
[redacted]	[redacted]	20-test	4	streamTime	
[redacted]	[redacted]	20-test		frameDuration	5.356

Now let's scroll down and look at the "Events recorded" section for the `exp-lookit-video` frame:



The names of the events recorded are highlighted in orange and the description of the events recorded is highlighted in blue.

If you download a .csv of the data you collect for your experiment, you will see names of the event appear under the "value" column when "key" has the value of "eventType". Underneath the name of the event recorded is the timestamp for that particular event. The event recordings are a little more complicated than the data recorded but see an example below where the event name is highlighted in orange and the timestamps are highlighted in blue:

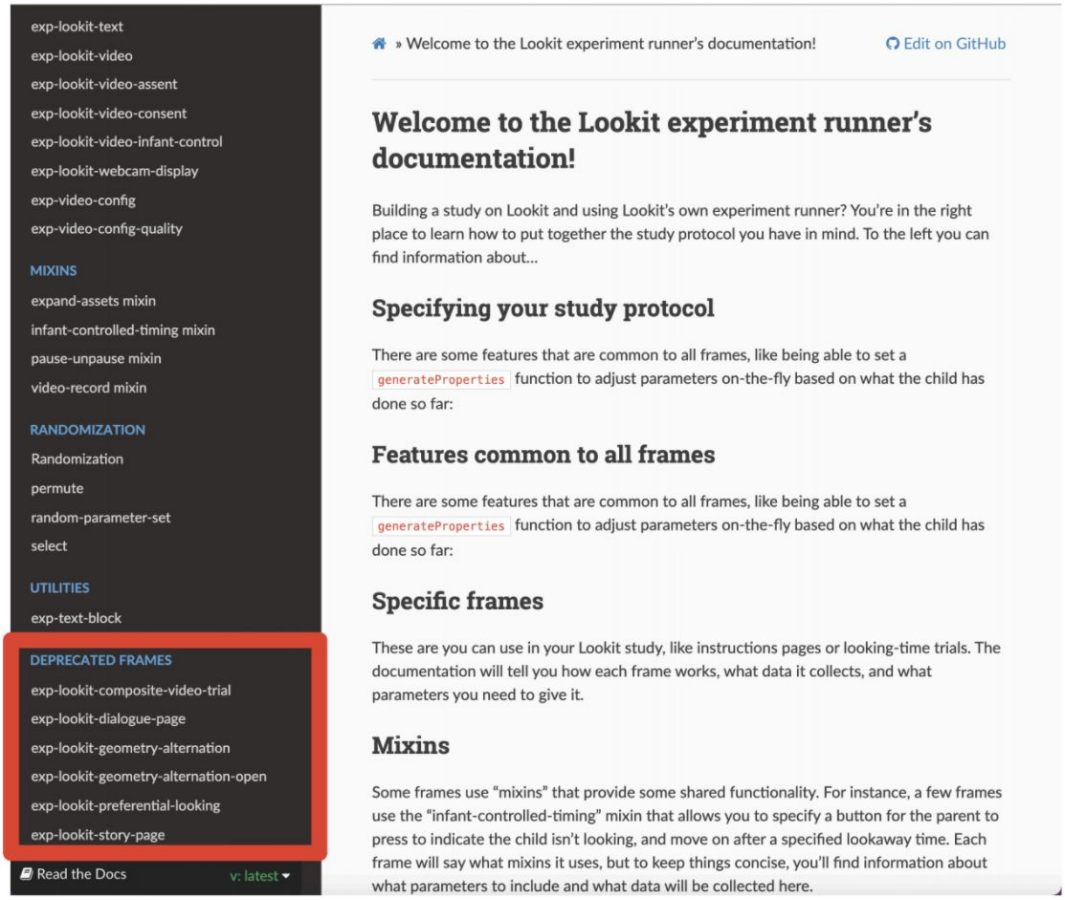
response_uuid	child_hashed_id	frame_id	event_number	key	value
[redacted]	[redacted]	20-test		videoShown	https://www.science.smith.edu/~jmargarites/webm/attentiongrabber.webm
[redacted]	[redacted]	20-test		audioPlayed	https://www.science.smith.edu/~jmargarites/ogg/chimes.ogg
[redacted]	[redacted]	20-test	0	eventType	exp-lookit-video:videoStarted
[redacted]	[redacted]	20-test	0	timestamp	2020-11-13T19:30:19.744Z
[redacted]	[redacted]	20-test	0	streamTime	
[redacted]	[redacted]	20-test	1	eventType	exp-lookit-video:audioStarted
[redacted]	[redacted]	20-test	1	timestamp	2020-11-13T19:30:19.746Z
[redacted]	[redacted]	20-test	1	streamTime	
[redacted]	[redacted]	20-test	2	eventType	exp-lookit-video:audioStopped
[redacted]	[redacted]	20-test	2	timestamp	2020-11-13T19:30:21.634Z
[redacted]	[redacted]	20-test	2	streamTime	
[redacted]	[redacted]	20-test	3	eventType	exp-lookit-video:trialCompleted
[redacted]	[redacted]	20-test	3	timestamp	2020-11-13T19:30:24.744Z
[redacted]	[redacted]	20-test	3	streamTime	
[redacted]	[redacted]	20-test	4	eventType	exp-lookit-video:nextFrame
[redacted]	[redacted]	20-test	4	timestamp	2020-11-13T19:30:24.745Z
[redacted]	[redacted]	20-test	4	streamTime	
[redacted]	[redacted]	20-test		frameDuration	5.356

Deprecated Frames

Experiment frames periodically undergo updates and sometimes frames are deprecated during an update. When a frame is deprecated you can still use it in your experiment protocol. This is not recommended because typically there is a good reason for retiring a frame; however if you've already written a functioning protocol with the deprecated frame, you might not want to write a new one.

When you use a deprecated frame in your protocol, it is important that your experiment runner version supports the deprecated frame. This means doing nothing if you've already built your runner with the deprecated frame. More specifically, this means do not update your experimenter runner or rebuild it with a newer version. If you want to use a deprecated frame but haven't built an experiment runner, don't do that--frames are deprecated for a reason and you don't want to find out the reason the hard way!

All deprecated frames can be found be in the docs by scrolling to the bottom of the docs page listings and looking under "Deprecated Frames"



Protocol Configuration

The protocol configuration is where you specify to the experiment runner what your `"sequence"` and `"frames"` are. The protocol configuration is written in JSON. Using the protocol configuration is pretty straightforward. You enter a list of frames under `"frames"` and then put those frames into a particular sequence under `"sequence"`. That means all protocol configurations look something like this:

```
{
"frames": {}
,
"sequence": []
}
```

Now let's fill in the `"frames"` and `"sequence"`. Pretend you want to create a study where you are interested in how long babies will look at a cartoon picture of a baby. With that goal in mind, we need to look through the frame list in the Lookit docs and find a frame that can display an image and record the participant's webcam. The `exp-lookit-images-audio` frame can do both those things so let's add that one to our `"frames"` and call it `"test-trial"`:

```
{
"frames": {
    "test-trial": {
        "kind": "exp-lookit-images-audio",
        "images": [
        {
            "id": "Baby",
            "src": "OverShoulder",
            "position": "fill"
        }
        ],
        "baseDir": "https://www.science.smith.edu/~jmargarites"
        }
}
,
"sequence": []
}
```

Since all studies at Lookit need to start with a configuration frame and consent frame and end with an exit survey frame, we'll need to include the `exp-lookit-config` frame, the `exp-lookit-video-consent` frame, and `exp-lookit-video-consent` frame in our protocol configuration as well. Let's add those too:

```
{
"frames": {
    "test-trial": {
        "kind": "exp-lookit-images-audio",
        "images": [
        {
            "id": "Baby",
            "src": "OverShoulder",
            "position": "fill"
        }
        ],
        "baseDir": "https://www.science.smith.edu/~jmargarites"
        },
    "consent": {
        "kind": "exp-lookit-video-consent",
        "template": "consent_004"
    },
    "config": {
        "kind": "exp-video-config"
    },
    "exit-survey":{
        "kind": "exp-lookit-exit-survey"
    }
}
,
"sequence": []
}
```

Now that we added the frames we need, we need to tell the experimenter runner what sequence it should display them in:

```
{
"frames": {
    "test-trial": {
        "kind": "exp-lookit-images-audio",
        "images": [
        {
            "id": "Baby",
            "src": "OverShoulder",
            "position": "fill"
        }
        ],
        "baseDir": "https://www.science.smith.edu/~jmargarites"
        },
    "consent": {
        "kind": "exp-lookit-video-consent",
        "template": "consent_004"
    },
    "config": {
        "kind": "exp-video-config"
    },
    "exit-survey":{
        "kind": "exp-lookit-exit-survey"
    }
}
,
"sequence": ["config","consent","test-trial","exit-survey"]
}
```

And that's it! The hardest part about using the protocol configuration is figuring out what frames to use and which parameters to include for each frame. For more details on how frames work see the **Experiment Frames** section.

Protocol Generator

The protocol generator provides another way to specify your study protocol; however, the protocol generator requires the experimenter to code in Javascript. More precisely, the protocol generator is defined by the researcher such that it returns a list of frames and a sequence in the same format as the protocol configuration. Here's the template protocol generator function provided by Lookit:

```
function generateProtocol(child, pastSessions) {
    /*
     * Generate the protocol for this study.
     *
     * @param {Object} child
     *    The child currently participating in this study. Includes fields:
     *      givenName (string)
     *      birthday (Date)
     *      gender (string, 'm' / 'f' / 'o')
     *      ageAtBirth (string, e.g. '25 weeks'. One of '40 or more weeks',
     *          '39 weeks' through '24 weeks', 'Under 24 weeks', or
     *          'Not sure or prefer not to answer')
     *      additionalInformation (string)
     *      languageList (string) space-separated list of languages child is
     *          exposed to (2-letter codes)
     *      conditionList (string) space-separated list of conditions/characteristics
     *          of child from registration form, as used in criteria expression
     *          - e.g. "autism_spectrum_disorder deaf multiple_birth"
     *
     *      Use child.get to access these fields: e.g., child.get('givenName') returns
     *      the child's given name.
     *
     * @param {!Array<Object>} pastSessions
     *     List of past sessions for this child and this study, in reverse time order:
     *     pastSessions[0] is THIS session, pastSessions[1] the previous session,
     *     back to pastSessions[pastSessions.length - 1] which has the very first
     *     session.
     *
     *     Each session has the following fields, corresponding to values available
     *     in Lookit:
     *
     *     createdOn (Date)
     *     conditions
     *     expData
     *     sequence
     *     completed
     *     globalEventTimings
     *     completedConsentFrame (note - this list will include even "responses")
     *          where the user did not complete the consent form!
     *     demographicSnapshot
     *     isPreview
     *
     * @return {Object} Protocol specification for Lookit study; object with 'frames'
     *    and 'sequence' keys.
     */
        var protocol = {
            frames: {},
            sequence: []
        };
        return protocol;
    }
```

Working in the generator provides the experimenter with more freedom to randomize and counterbalance stimuli. The protocol generator can access information about the child such as the child's name, age, and gender as well as information about past sessions. This information can be used inside the protocol generator function. It should also be noted that anything that runs in the protocol configuration can also run in the protocol generator.

Study Approval Process: Peer, IRB, and Lookit Approval

The study approval process consists of 5 steps:

*** These steps only need to be completed the first time a P.I. posts a study.**

1. Institutional Agreement*

The Institutional Agreement is an agreement between the P.I., host institution, and MIT that absolves MIT of any liability for your experiment. It must be signed by you (or the P.I. of the study) and an authorized representative on behalf of Smith College. In the past, the Associate Provost has served as an authorized representative. Once the Institutional Agreement is signed it should be sent to lookit@mit.edu.

2. Terms of Use*

Researchers should review the Lookit Terms of Use (see them here). After reviewing the Terms of Use, interested researchers need to complete a short quiz to demonstrate their comprehension. The quiz is available here.

3. Self Review

Once you've finished coded your study it's time to do some self review! The self-review checklist can be found here. You should go through each point on the checklist, paying particular attention to the "Purpose" and "General things to think about" sections.

4. Peer Review

Once you've finished self review it's time to submit for peer review. Researchers must join the Lookit Slack channel to access peer review if they haven't done so already. Under the "Researchers" section, you should submit your preview link and the standardized peer review Google form to receive feedback. The standardized peer review form can be found under the "Researchers" section of the Lookit Slack channel. Once you've submitted your study for peer review, you are expected to review at least 2-3 other researcher's studies.

Peer review is finished once you receive feedback from 1-3 researchers outside your lab group. Typically peer review takes ~1 week. Sometimes receiving peer review takes longer than anticipated. Once you've received feedback from at least one researcher outside your lab group, you should try to make as many of the suggested edits as

possible. When you submit for Lookit approval you will need to detail what edits you made based on peer review.

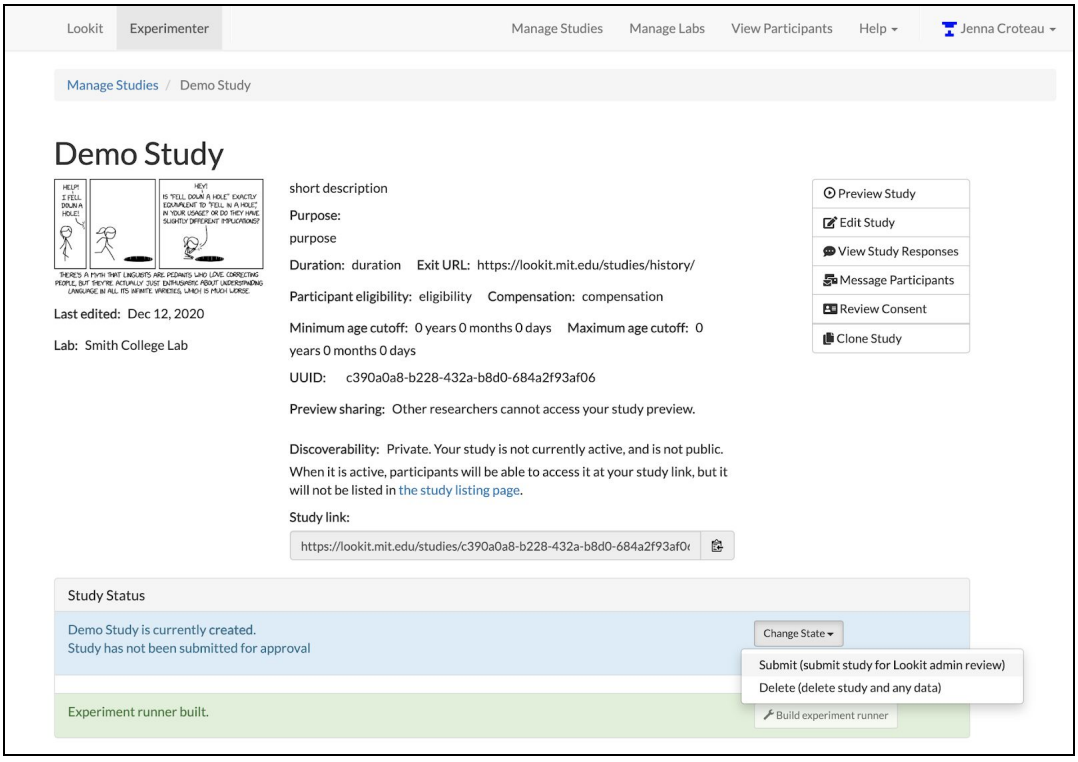
5. IRB

Just like any other experiment, a Lookit experiment needs to receive IRB approval before data collection can begin. The IRB will want to see your consent frame (and assent frame if applicable) as well as a few sample frames from your experiment design. You should get as much of the coding as possible done before submitting to the IRB.

In addition to consent/assent and a few sample frames, you should also provide the IRB with the security protocols your lab will be using to ensure participant data is kept confidential. See **Security, Privacy, and Data Collection on the Internet** for best practices you can implement in your security protocol.

6. Lookit Review

The final step is Lookit review. You must be approved by your IRB and have gone through peer review to submit for study approval. If you have completed both of those steps, you are ready to submit for approval. First go to the blue highlighted section called "Study Status". Click "Change State" and select "Submit (submit study for Lookit admin review)" like below:



When you select the “Submit” option you will be prompted to detail all the changes you made based on peer review. After you finish detailing the changes you made, you will submit.

After ~1 week, Lookit admin will either reject or approve your study. Typically all studies get rejected on their first submission. If your study is rejected, the admin who reviewed your study will request some changes. These changes should be implemented for your study. Once you make those changes, you can resubmit your study for Lookit approval.