

Testing

This document explains various behaviors of the app with various conditions and know bugs are listed at the bottom.

All fields and forms are built using web2py's form builder and queries via web2py's DAL so this handles potential security vulnerabilities such as sql injection or cross site scripting. Web2py handles cleaning inputs for us.

Not Logged In:

Main Screen	
Case	Result
Create Project Link Click	Project Creation Screen Opens
Click Expand/Collapse	Expands or collapses listed projects
Click Project Title	Opens Project Screen
Click Project Image	Opens Project Screen

Project Creation Screen (will create public project)	
Case	Result
Width or height < 1	No creation: size error
Width or height > 20	No creation: size error
Project with no name	Empty string as name
Project with name	String as name
Submit pressed with errors	Appropriate errors are show
Submit pressed without errors	Opens project screen

Logged In

Main Screen	
Case	Result

Create Project Link Click	Project Creation Screen Opens
Click Expand/Collapse	Expands or collapses listed projects
Click Project Title (public or authorized)	Opens Project Screen
Click Project Image (public or authorized)	Opens Project Screen
Click Project Title (unauthorized)	Not authorized message
Click Project Image (unauthorized)	Not authorized message
	Additional Private projects appear

Project Creation Screen	
Case	Result
Public checked	Created project is public
Public uncheck	Created Project is private
Width or height < 1	No creation: size error
Width or height > 20	No creation: size error
Project with no name	Empty string as name
Project with name	String as name
Submit pressed with errors	Appropriate errors are show
Submit pressed without errors	Opens project screen

Both

Project Screen	
Case	Result
Click on a tile	Opens tile screen
Click and drag tile to invalid location	Title snaps to original position
Click and drag tile to another tile	Tiles swap positions (saved in db)
Click on save project link	Combines all images in new window

Submit button press with no text	Enter a value error
Submit button press with text	Comment posts with text
(if owner) Click manage permissions	Opens permissions screen

Permissions Screen	
Case	Result
Submit pressed with no selection	Form error
Submit pressed with selection	Selected person is added to edit list
View pressed	User information is shown
Delete	Selected person is removed from edit list
Search field used	works as expected (built in functionality)

Tile Screen without previous save	
Case	Result
Revert button press	Page reloads
Download button press	New page with white image
Save button with no name	Saves image, white as background, no name
Save button with name	Saves image, white as background, named
Brush color selector click	Opens brush html color picker, sets brush color
Eraser selector click	Sets brush to erase
Bucket selector click	Sets brush size to fill canvas
Brush selector click	Sets brush to be able to draw
Brush size slider	Sets brush size
Upload background picture click	Opens background upload screen
Click and drag on screen	Draws with appropriate brush, size and color

Tile Screen with previous save	
Case	Result
Revert button press	Page reloads with selected version
Download button press	New page with white image
Save button with no name	Saves image, previous image as background, no name
Save button with name	Saves image, previous image as background, named
Brush color selector click	Opens brush html color picker, sets brush color
Eraser selector click	Sets brush to erase
Bucket selector click	Sets brush size to fill canvas
Brush selector click	Sets brush to be able to draw
Brush size slider	Sets brush size
Upload background picture click	Opens background upload screen
Click and drag on screen	Draws with appropriate brush, size and color

Background Upload Screen	
Case	Result
No title	No value error
No file	Invalid image error
File that is not png, bmp, jpeg, gif	Invalid image error
Corrupted gif	Opens crop screen
invalid fields and submit	Errors are shows
invalid fields and submit	Opens crop screen

Crop Screen	
Case	Result
Going to another site without	The original uploaded file remains in the db without being

cropping	cropped or converted to png which causes issues later
Using corrupted image	Error occurs and cannot pass screen, breaks the site
No crop selected	no cropping is done and image is stretched to fit
Crop Selected	image is resized to selected area
Shrink crop size to nothing	sometimes an error occurs and clear image is set as background sometimes no cropping is done
Submit pressed	appropriate tile screen is opened with background set

Known Problems:

- Clicking on DrawAPiece to go to the main screen does not refresh the images. This is likely due to a caching issue. A hard reload every time fixes this.
- Overall there is a issue with either latency connecting to and updating the db or with cached versions. Sometimes pages appear as the old version and take a second to update. This is usually solved by hard refreshing but it could also just be that x seconds have passed and the server has completed its tasks.
- Every time the main screen is refreshed all the projects thumbnails are made. This could cause a huge performance drain when there are many projects. To fix this we should only rerender when images are changed.
- There is no pagination feature so after lots of projects are made it will potentially require a lot of scrolling to reach a project.
- All thumbnails aren't actually thumbnails so lots of images will make the page take a long time to load.
- Adding an Image on an already drawn canvas causes the picture to be made over the doodle.
- Similarly, if the save version is reverted to a state before uploading the picture, save states behave to act differently (difficult to pinpoint because there seems to be no pattern).
- Sometimes saving misbehaves and doesn't save or it takes a while to save, since saving refreshes the page the current drawing info is lost, this is likely due to a failed ajax callback and/or network issues .
- no canvas element when using https. This is likely due to security.
- scaling issues when uploading large images. The crop screen becomes hard to navigate as it shows the original size which can dominate the page
- Saving does not work after a failed background upload, this is probably caused by a decoder error because saving assumes the image is a png and can be fixed by deleting the record on a failed cropping
- All users can be removed from a project leaving a dangling project with no possible way to access it by users. A possible fix is to not allow the owner to be deleted.
- Additionally users may find it difficult to add a friend with a common name because users do not know their own id which is the only unique identifier and users are added to the edit list based on names.
- We never handle multiple simultaneous users so this can cause issues with saving that creates save states that are inaccessible or corrupted save stacks that are not all of the same tile. To fix this we could implement a lock system that only allows one user to edit a tile at a time.
- This issue also extends to dragging and dropping. One solution is only allow swaps after the previous has completed. To ensure that this process happens quickly even with a large number of save states that need to be updated, we could limit the number of saved states after some time. Alternatively we could also make a queue of requests to swap

but this could potentially also cause issue with things visually not matching up to what a user expects.

- Uploading a file then clicking webpy before cropping still uploads the file which when using a corrupted image results in “<type 'exceptions.IOError'> broken data stream when reading image file”. This requires a complete overhaul of the image reading system and is likely an issue with PIL. A more robust file validator would fix this error. Also not inserting uncropped images would also fix this error
- Many users uploading files simultaneously will almost certainly overload the database
- The owner of a project can add a user to the list of authorized users more than once in the project management page. Doesn't affect functionality but will probably slow down system with large numbers of users.
- Owner can remove himself from list of authorized users which causes the project to disappear from the owner's list of projects
- moving the picture while someone else is saving can cause images to be duplicated. This is likely related to the latency issue where things aren't updated in the database in time. So an old value is used on the save method which is unique to the save position method.
- The version selector always seems to be a version behind until a refresh of the page occurs. This again is probably due to latency.
- Sometimes clicking on a tile opens another tile because the user's view is out of date with the database. This is more of a quirk than an error. It could be improved by redirecting to the tile based on the user's view instead of the database's state.