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CREAMS

Scaffolding Creativity of Arts Students: Framework, Toolchain, and Educational Material on how to Create their Own Virtual Exhibitions

Manual for the CREAMS Student Workshop and Personalized Virtual Reality Editor

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Responsible Institution: Cognitive UX GmbH

Editor and editor's email address: Mario Belk belk@cognitiveux.de

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CREAMS Project Consortium

Partner 1 / Coordinator	University of Patras
Contact Person	<i>Name:</i> Dr. Christos A. Fidas <i>Email:</i> fidas@upatras.gr
Partner 2	Aristotle University of Thessaloniki
Contact Person	<i>Name:</i> Dr. Efstratios Stylianidis <i>Email:</i> sstyl@auth.gr
Partner 3	Cognitive UX GmbH
Contact Person	<i>Name:</i> Dr. Marios Belk <i>Email:</i> belk@cognitiveux.de
Partner 4	Cyprus University of Technology
Contact Person	<i>Name:</i> Dr. Marinos Ioannides <i>Email:</i> marinos.ioannides@cut.ac.cy
Partner 5	Shenkar College of Engineering, Design and Art
Contact Person	<i>Name:</i> Dr. Rebeka Vital <i>Email:</i> rebekavital@gmail.com
Partner 6	Norwegian University of Science and Technology
Contact Person	<i>Name:</i> Dr. Annett Busch <i>Email:</i> annett.busch@ntnu.no

Executive Summary

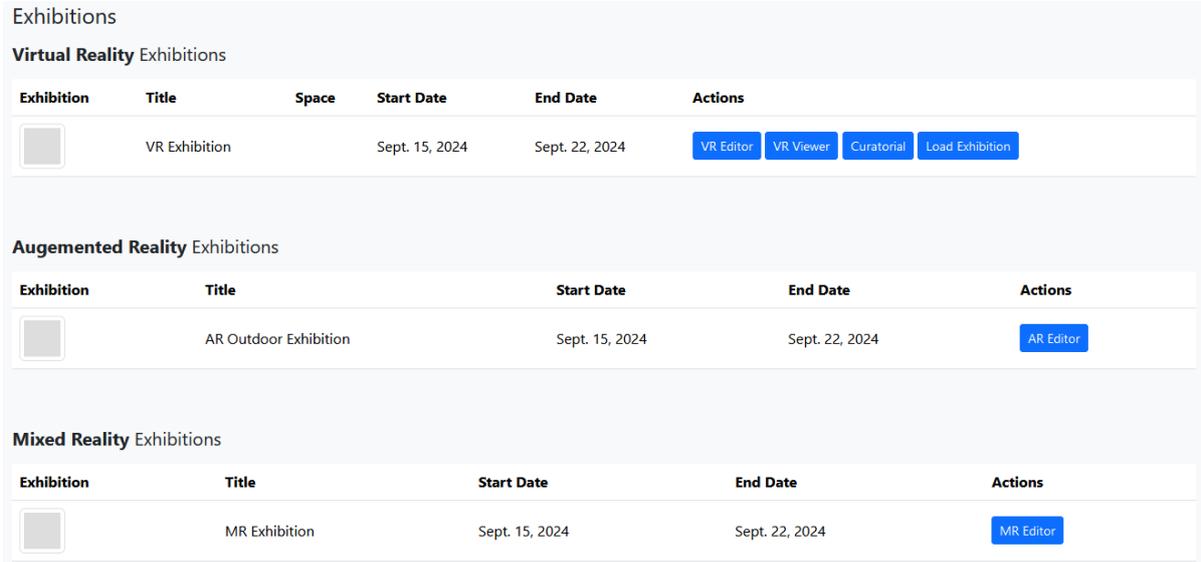
This document provides a guide manual for the CREAMS student workshop and personalized Virtual Reality editor.

Student Workshop

In the students' workshop user interface, students may access a variety of tools for managing their artworks and media, and create and manage exhibitions.

Exhibitions.

The main exhibitions user interface (**Figure 1**) summarizes the main exhibitions that the student has been assigned to including details about the exhibitions as well as action buttons for editing mainly the exhibitions.



Exhibitions					
Virtual Reality Exhibitions					
Exhibition	Title	Space	Start Date	End Date	Actions
	VR Exhibition		Sept. 15, 2024	Sept. 22, 2024	VR Editor VR Viewer Curatorial Load Exhibition

Augmented Reality Exhibitions					
Exhibition	Title		Start Date	End Date	Actions
	AR Outdoor Exhibition		Sept. 15, 2024	Sept. 22, 2024	AR Editor

Mixed Reality Exhibitions					
Exhibition	Title		Start Date	End Date	Actions
	MR Exhibition		Sept. 15, 2024	Sept. 22, 2024	MR Editor

Figure 1. Exhibitions user interface.

Furthermore, the Artworks Manager allows students to upload, view, and edit both two-dimensional (2D) and three-dimensional (3D) artworks.

Step 1: Open the Artworks Manager

- Log in to the CREAMS Online Dashboard.
- Select Artworks Manager from the main menu.

Step 2: Review Your Artworks

- The main page is split into two sections: 2D Artworks and 3D Artworks.
- Each section lists all artworks you've uploaded, displaying title, thumbnail, and upload date.

Step 3: Upload a New Artwork

- Click Upload 2D Artwork (for images) or Upload 3D Artwork (for models).
- In the file-selection dialog, choose your artwork file and click Open.
- Wait for the upload confirmation message.

Step 4: View an Existing Artwork

- In the appropriate section, click the artwork's thumbnail.
- For 2D artworks, an image preview appears.
- For 3D artworks, the built-in 3D viewer loads

Artworks		
Two Dimensional (2D) Artworks		
		Add New 2D Artwork
Artwork	Name	Actions
	2D Artwork	View
Three Dimensional (3D) Artworks		
		Add New 3D Artwork
Artwork	Name	Actions
	3D Aphrodite	Edit 3D Viewer

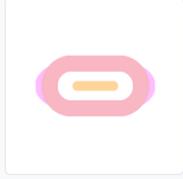
Figure 2. List of two-dimensional and three-dimensional artworks.

Artworks

Artwork Title *

Artwork *

Browse... No file selected.



Data Type *

Image (.png, .jpeg)

Year

Height

Width

Depth

Technique

Terms for Personalization and Recommendation

Art terms inspired by TATE

Spatial context terms

[Help](#) [Cancel](#) [Save data](#)

Figure 3. Creation of two-dimensional artwork.

Follow the steps below to add a new 3D artwork to the CREAMS platform.

Step 1: Enter Artwork Details

- Navigate to Create 3D Artwork (Figure 4)

- Fill in the following fields for consistency with 2D uploads:
 - o Title
 - o Thumbnail image
 - o Data type
 - o Year, Height, Width, Depth
 - o Technique used
 - o Select the 3D Artwork Type.
- Choose a supported file format: .GLB, .GLTF, or .OBJ (Figure 5).
- Add relevant keywords/tags to enable personalized recommendations.
- Click Next to proceed to file upload.

Step 2: Upload 3D Files

On the upload screen (Figure 6), click Select Files.

- Attach all necessary assets (3D model, texture maps, etc.).
- Confirm that each file meets platform requirements.
- Click Upload.
- A confirmation message will appear once the upload succeeds.

The screenshot shows a web form titled "Artworks". It contains several input fields and a dropdown menu. The "Artwork Thumbnail" field has a "Browse..." button and the text "No file selected." To the right of this field is a placeholder image of a pink and yellow oval. Below the thumbnail field are fields for "Data Type", "Year", "Height", "Width", and "Depth". There is also a "Technique" field. At the bottom of the form, there are two more input fields labeled "Terms for Personalization and Recommendation" and "Spatial context terms". At the very bottom, there are three buttons: "Help", "Cancel", and "Save data".

Figure 4. First step for the creation of a three-dimensional artwork.

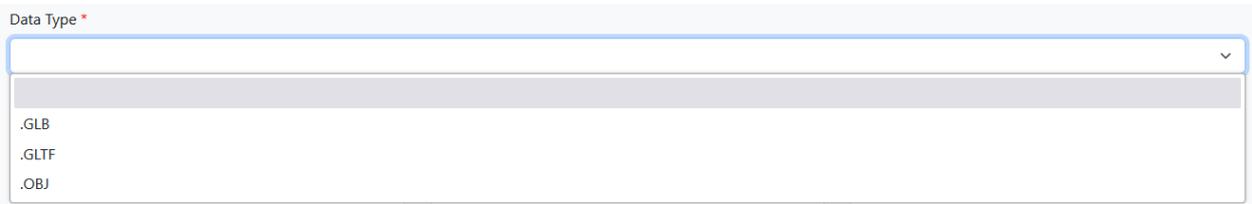


Figure 5. The CREAMS platform currently supports uploading three-dimensional artworks in .GLB, .GLTF and .OBJ formats.

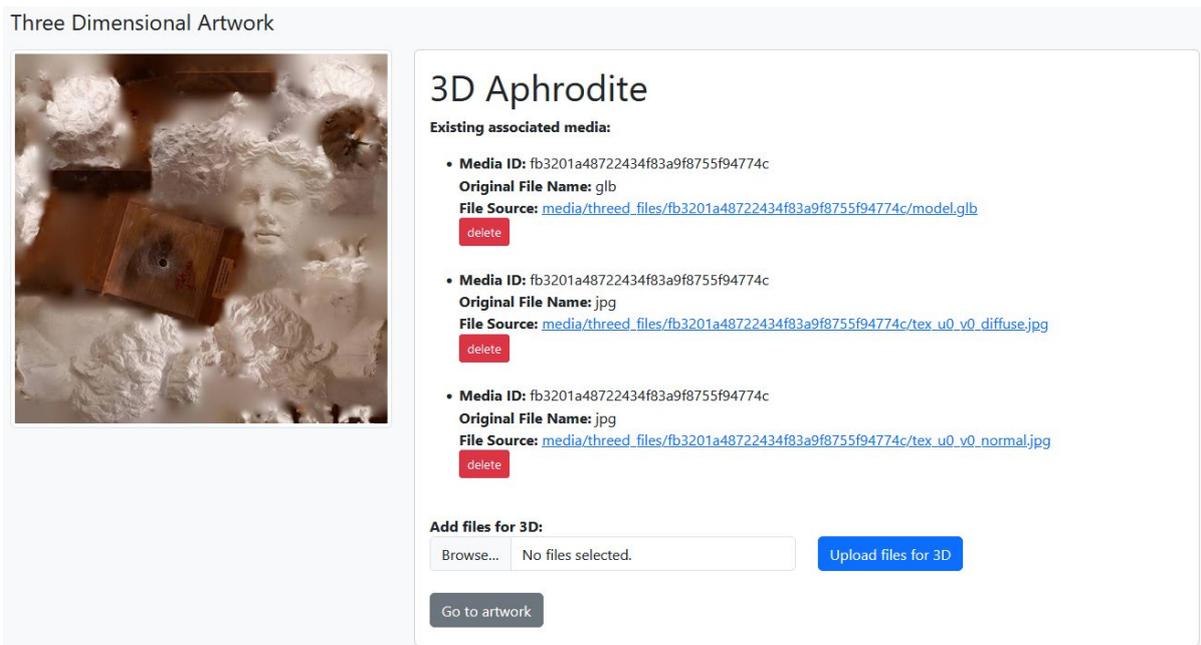


Figure 6. Students may upload any file that is relevant to the three-dimensional artwork.

Personalized Art Student Workshop - Virtual Reality (VR) Editor

The virtual reality editor of CREAMS is a Web-based application that enables students to create personalized virtual reality exhibitions based on the artworks uploaded through the artworks manager.

Create Your Exhibition Space

- Click any empty canvas block to add a room.
- The first room becomes the default starting point (highlighted).
- Click a block again to remove it or set it as the starting point.

Modular Space Creation

Click on the following canvas to create a 3D space for your exhibition. The first room you create is by default the starting point of your exhibition and its marked with a different color. You can click on a block to remove it or make it the starting point (if there is no starting point). You cannot proceed without a starting point.

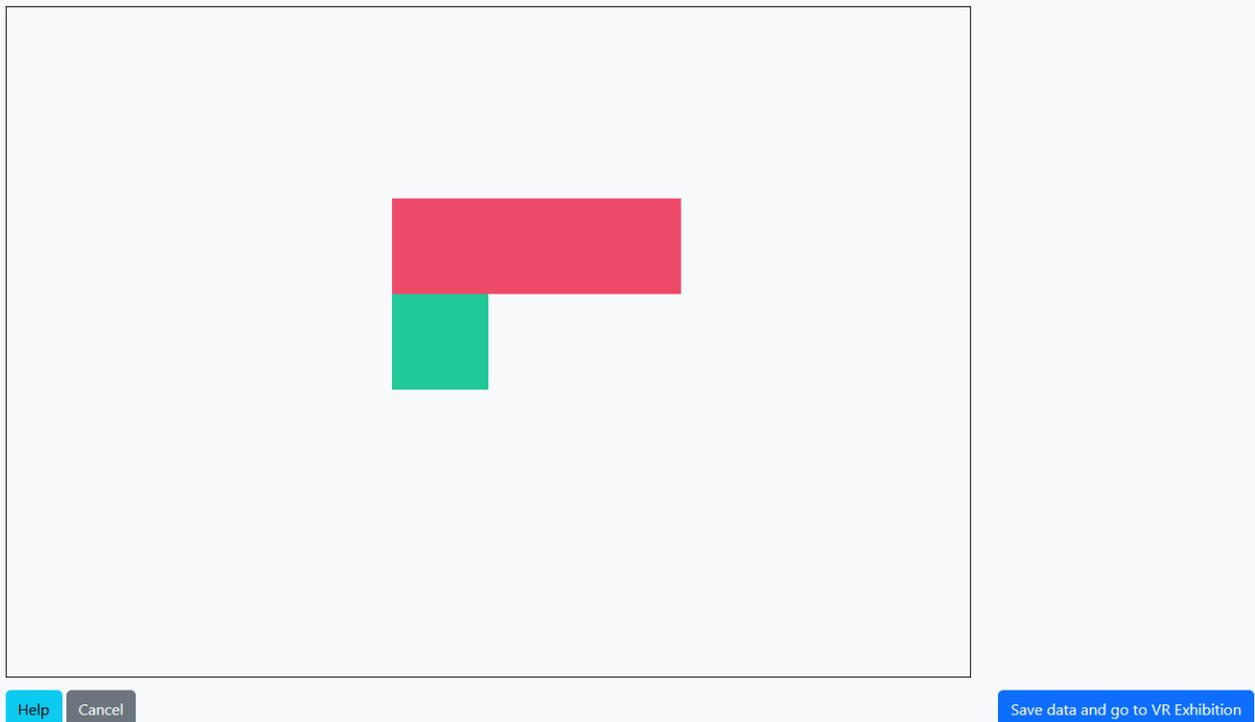


Figure 7. Modular space creation for an exhibition.

Use the Editor Panels/Tabs

The screen splits into two areas:

- Left: live 3D view of your exhibition
- Right: tabbed toolset for editing

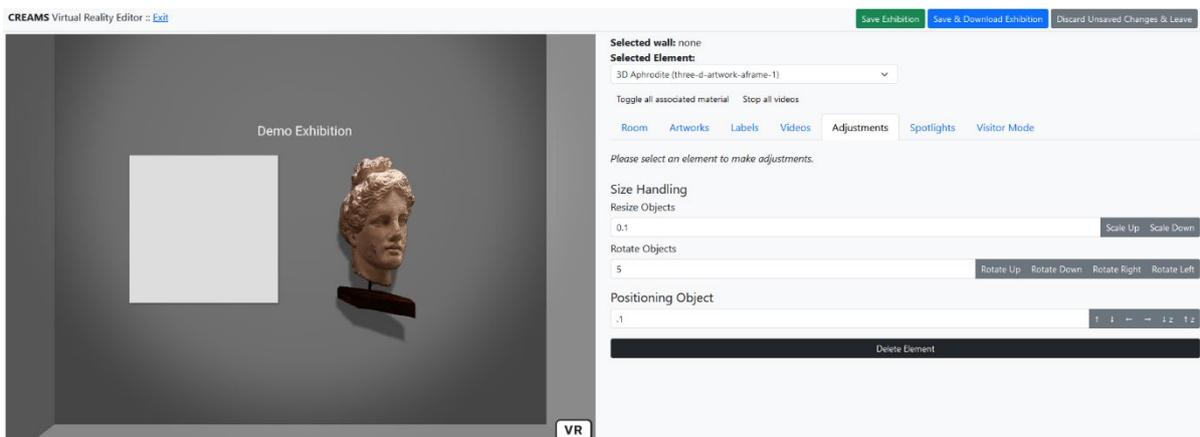


Figure 8. Main view of the VR editor and the tools for editing and managing elements of the exhibition.

Room Tools

- Select the Room tab.
- Change wall, ceiling, floor colors, and ambient light settings.

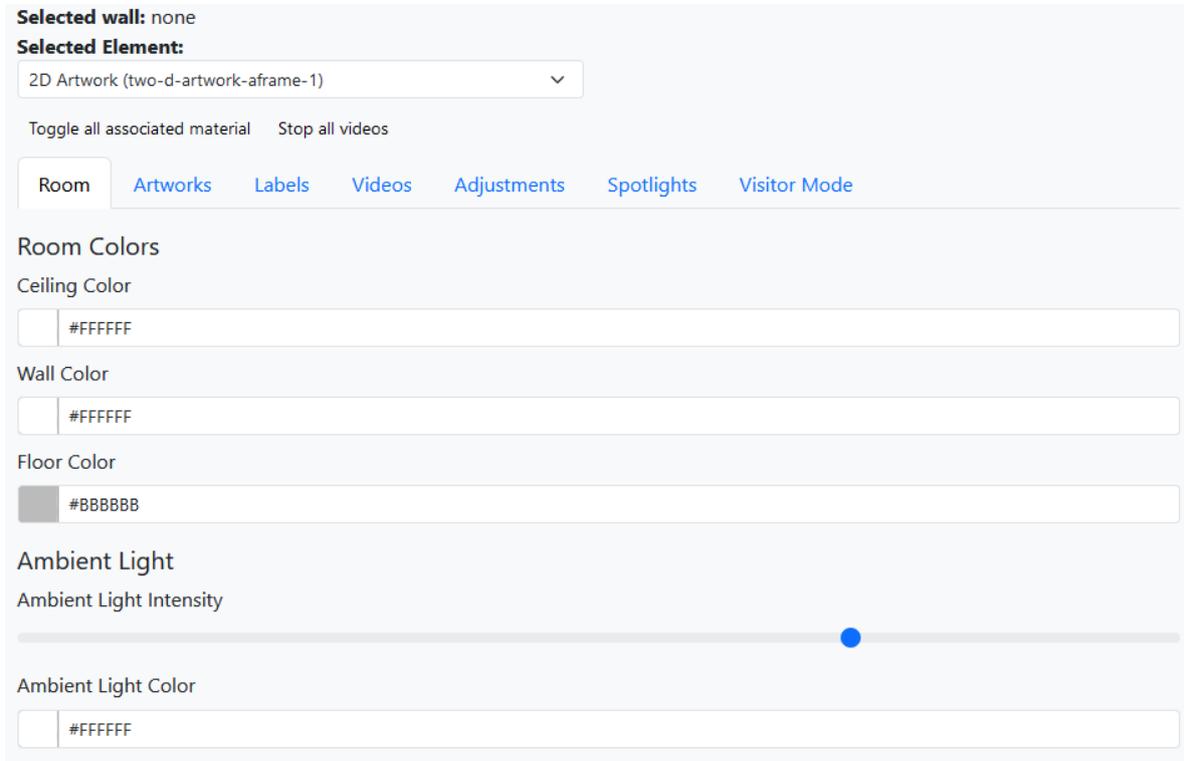


Figure 9. Tools for editing the room-related attributes.

Artworks Tools

- Select Artworks.
- Choose a 2D or 3D artwork from the list.
- Click a wall to place it or enable "Add as associated material" then click an existing artwork.

Selected wall: none
Selected Element:
 3D Aphrodite (three-d-artwork-aframe-1) ▾

Toggle all associated material Stop all videos

[Room](#) [Artworks](#) [Labels](#) [Videos](#) [Adjustments](#) [Spotlights](#) [Visitor Mode](#)

Add artwork as associated material

2D Artworks

Artwork	Name	Actions
	2D Artwork	Assign

3D Artworks

Artwork	Name	Actions
	3D Aphrodite	Assign

Figure 10. Tools for managing and assigning artworks to the exhibition.

Labels Tools

- Select Labels.
- Type your text, then click a wall to attach it or add as associated to an artwork.

Selected wall: none
Selected Element:
 3D Aphrodite (three-d-artwork-aframe-1) ▾

Toggle all associated material Stop all videos

[Room](#) [Artworks](#) [Labels](#) [Videos](#) [Adjustments](#) [Spotlights](#) [Visitor Mode](#)

Add label as associated material

Please select the wall for which you would like to add a label.

Demo Exhibition [Add Label](#)

Figure 11. Tools for managing and assigning textual information (labels) to the exhibition.

Media Tools

- Select Media.
- Pick a video and click a wall to embed or add as associated to an artwork.

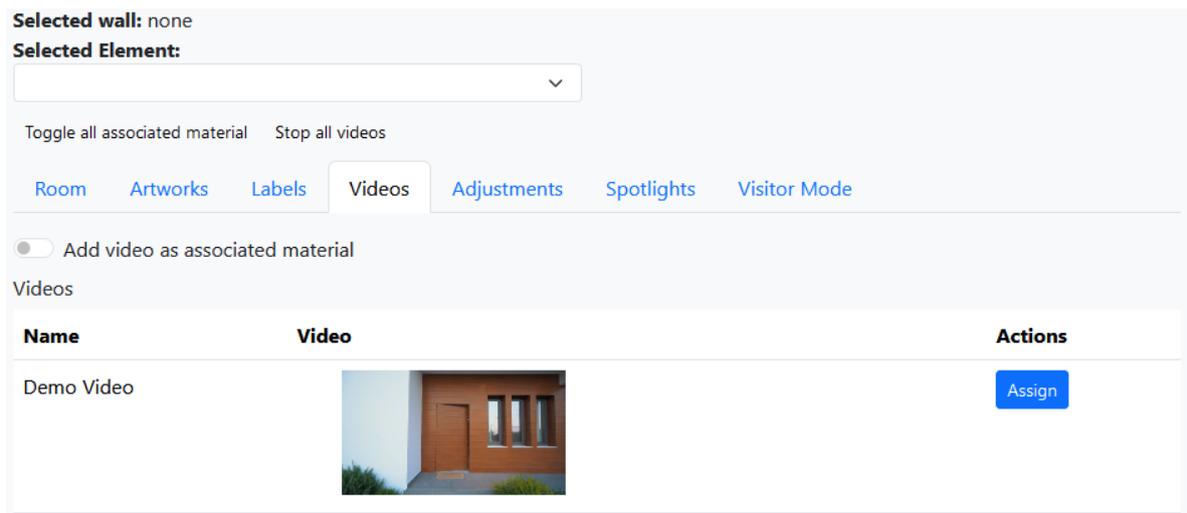


Figure 12. Tools for managing and assigning videos to the exhibition.

Adjustment Tools

- Select Adjust.
- Pick an element (via dropdown or by clicking it).
- Resize, rotate, and reposition as needed.

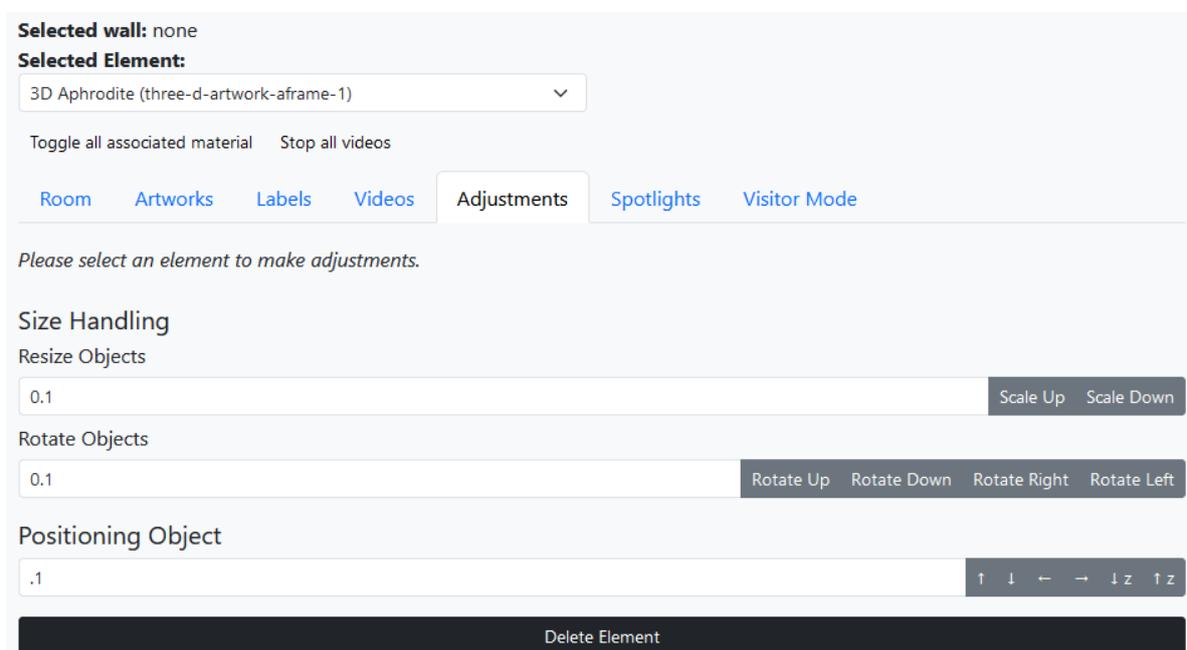


Figure 13. Tools for editing and adjusting elements (artworks, labels, videos, associated material) that have been assigned to the exhibition.

Spotlight Tools

- Select Spotlights.

- Click a wall to add a spotlight, then adjust color, intensity, angle, and position.
- Remove a spotlight via the assigned-spotlights list.

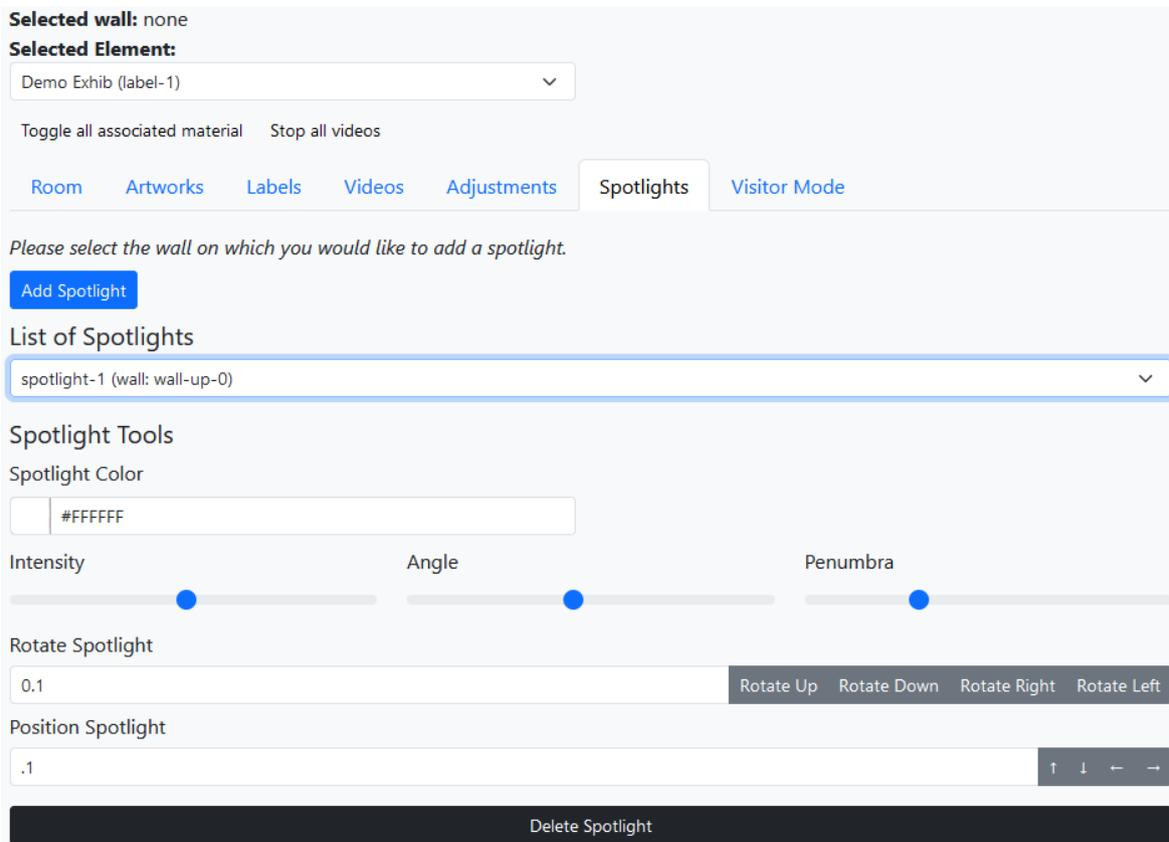


Figure 15. Tools for assigning and editing spotlights in the exhibition.

Visitor Mode

- Toggle Visitor Mode to test interactive features (show/hide associated content, play/pause videos) as a visitor would.

Selected wall: none

Selected Element:

Demo Exhib (label-1) ▾

Toggle all associated material Stop all videos

[Room](#) [Artworks](#) [Labels](#) [Videos](#) [Adjustments](#) [Spotlights](#) **Visitor Mode**

Visitor Mode

While in visitor mode, you may perform the following actions as a visitor would be.

1. **Show or hide associated material** by clicking on an artwork that has media/text associated to it
2. **Start/stop videos** by clicking on them

Figure 16. Visitor mode in which the student can test functionality as a visitor would do.