

SRL Sketch-based Online User Study Application Guide
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I. Introduction

This guide is intended for use with SOUSA, located at:
<http://srlweb.cs.tamu.edu/~sousa>

We suggest reading through the guide before creating your own studies, as information found in the guide may be helpful. Additionally, we recommend that you try our example studies, titled “Basic Shapes” and “Verify Shapes” before creating your own. These studies can be located by clicking on the “Browse Studies” link, located on the left-hand side of the main page. For the rest of this documentation, we will refer to these two studies.

If you have any questions while creating or managing your studies, you will note that doing a mouse-over of many of the fields will pop up a description of that field.

Also, please note that the Java applet used for sketch data collection and verification requires Java 5. If the applet does not load, you may have an older version, or you may have upgraded to Java 6. To download Java, visit <http://www.java.com>

II. Creating a User Account

Creating a user account simply requires accessing the main page and clicking “register.” You will be asked to enter a username and password, along with your current institution and a valid email address. Once you have registered, you can log in and begin using SOUSA.

III. Collection Studies

a. Creating a Collection Study

Once on the collection study creation page:

- 1) Enter a “Study Title.” This is the title that will show up when users go to take your study, download any associated data (if data is set to public), or when they are browsing for public studies and data. In our example, we will enter “Math Signs”
- 2) Choose whether this study will be published. If you select “yes,” this study will appear when users search for or browse studies, and will be available for any user to complete. If you select “no,” this study will not appear during any searches or browsing. Instead, we will provide a unique URL which you will then give to any users that you wish to take your study. In this example, we will select “yes.”
- 3) Choose whether the data associated with this study will be published. If you select “yes,” this study will appear when users search for or browse data, and will be available for any user to download. If you select “no,” this study will not appear during any searches or browsing. Instead, you alone can

download the data associated with this study. In this example, we will select “yes.”

- 4) Enter any “Study Directions.” This field is for any directions that you would like to appear at the top of each draw panel during the study. You may leave this field blank. Any directions that you do enter will appear as the following: “Please draw an example of: <shape x description> (<special instructions for shape x>); **<study directions>**”
- 5) Enter the number of questions you would like to ask the user prior to them completing your study. Click “Update” to create text boxes for these questions. In this example, we will enter 2.
- 6) For each text field, enter a question you would like to ask the user prior to them completing the study. Questions will be asked exactly as you enter them. In this example, we will enter “Input type (pen or mouse)?” and “What is your occupation?” Questions are useful to gather any contextual information you want to know about each participant, such as the participant’s familiarity with the domain, or any contextual information you deem important.
- 7) Enter the number of shapes you wish to collection. Click “Update” to create text fields for these shapes. In this example, we will enter 2.
- 8) For each shape, you will be asked to enter information in four fields. To see how we completed these fields, please see the screenshot at the end of this section.
 1. Description: this is the text description that will be provided to each user. The description will appear as the following: “Please draw an example of: **<shape description>**”
 2. Any Special Instructions: these are any instructions specific to this shape. You may leave this field blank. Any instructions that you do enter will appear as the following: “Please draw an example of: <shape description> (**<special instructions>**)”
 3. Draw Count: the number of times you would like each user to sketch this shape (this should be a numeric value).
 4. Maximum strokes: the maximum number of strokes you will allow a user to draw for this shape (this should be a numeric value).

* You will notice that directly below the number of shapes, the form says “Use default values:” with buttons “enable” and “disable.” If you would like to use the same draw count and maximum strokes for each shape in your study, click “enable” and enter the values you would like to use.
- 9) Enter the number of tags you would like to associate with this study. Click “Update” to create text fields for these tags. In this example, we will enter 1.
- 10) For each tag, enter a alphanumeric tag you would like to use. These tags will show up when users search for or browse studies. In this example, we will enter “polygons.” Tags are useful for other researchers browsing for data in a particular category.

When you have completed the form, click “Create New Collection Study.” If you return to “Manage User Studies,” you will notice that this study now appears.

All Fields are Required

Study Title:	<input type="text" value="Basic Shapes"/>
Study published?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Data published?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Study Directions:	<input type="text"/>
# of Questions:	<input type="text" value="2"/> <input type="button" value="Update"/>
Question #1:	<input type="text" value="Input type (pen or mouse)"/>
Question #2:	<input type="text" value="What is your occupation?"/>
# of Shapes:	<input type="text" value="2"/> <input type="button" value="Update"/>
Default Values:	Use default values: <input type="button" value="Disable"/> <input type="button" value="Enable"/>
	Default Draw Count <input type="text" value="3"/>
	Default Maximum strokes (-1 denotes infinity) <input type="text" value="-1"/>
Shape #1:	Description <input type="text" value="square"/>
	Any Special Instructions <input type="text"/>
Shape #2:	Description <input type="text" value="circle"/>
	Any Special Instructions <input type="text"/>
# of Tags:	<input type="text" value="1"/> <input type="button" value="Update"/>
Tag #1:	<input type="text" value="polygons"/>
<input type="button" value="Create New Collection Study"/>	

Figure 1. Our example collection creation form with sample values.

<i>Collection Study</i>	Study Published	Data Published	Visitors	Edit	Delete	Verification	Images
Basic Shapes	Yes (Public)	Yes (Public)	0	Edit	Delete	Create	Upload
Download data for these studies							

Figure 2. Study management page after “Basic Shapes” has been created.

Once you have created a collection study, you can also add example images for each shape. When a user takes a collection study, thumbnail images can be displayed at random. These images can provide additional information to a user, aiding in their understanding of the desired shape to be drawn. A shape can have multiple images associated with it, and a single image will be chosen at random each time a user is asked to draw that shape. A record is kept of which image was shown to the user for each sketch. If you wish to add images for a shape or shapes in your study, click “Upload” under the “Images” column for the study. For each shape, browse for the local image file. When you have located the images you wish to upload (you may upload more shapes later), click “Upload Images.” If you wish to upload an additional image for a specific shape, repeat this process. The upload page will show

you which images you have currently uploaded and will allow you to delete these images. In this example, we will upload one image per shape.

Your current file status is shown below. Users taking your study will be asked to draw each of these shapes specified by the number of images to draw for each shape.

The screenshot shows a web interface for managing file uploads. At the top, it displays the 'Current File Structure' with three entries: 'Shape: triangle' (with a red triangle icon and a 'Delete' button), 'Shape: square' (with a black square icon and a 'Delete' button), and 'Shape: circle' (with a black circle icon and a 'Delete' button). Below this, there is a section titled 'Select your local file(s) for upload.' containing three rows of input fields with 'Browse...' buttons, corresponding to 'Shape: square', 'Shape: circle', and 'Shape: triangle'. At the bottom of this section is an 'Upload Images' button.

Figure 3. Image Upload page after one image has been uploaded per shape.

b. Editing a Collection Study

To edit a collection study, simply click the “Edit” button for that study on the main management page. You will be taken to a form that looks exactly the same as the creation form, except that you cannot edit the title of a study once it has been created. Update any values you wish and click “Update Collection Study.”

During editing, you may delete questions, shapes, or tags that were associated with your study. **BE AWARE THAT IF YOU DELETE A QUESTION OR SHAPE, YOU WILL ALSO DELETE ALL DATA ASSOCIATED WITH THAT QUESTION OR SHAPE. FOR A QUESTION, THIS MEANS THAT YOU WILL DELETE ALL ANSWER DATA ASSOCIATED WITH THIS QUESTION. FOR A SHAPE, THIS MEANS THAT YOU WILL DELETE ALL SKETCH DATA ASSOCIATED WITH THIS SHAPE; ADDITIONALLY, FOR EACH VERIFICATION STUDY ASSOCIATED WITH THIS STUDY THAT USES THIS SHAPE, THIS MEANS YOU WILL DELETE THIS SHAPE IN THE VERIFICATION STUDY AND ALL VERIFICATION DATA ASSOCIATED WITH IT. ONLY DELETE QUESTIONS OR SHAPES IF YOU ARE ABSOLUTELY SURE YOU WANT TO PERMANENTLY REMOVE THE QUESTION OR SHAPE.**

c. Deleting a Collection Study

To delete a collection study, simply click on the “Delete” button for that study on the main management page. You will be asked to confirm that you do indeed wish to delete this collection study. **BE AWARE THAT IF YOU DELETE A STUDY, YOU WILL DELETE NOT ONLY ALL DATA ASSOCIATED WITH THIS STUDY, BUT ALSO ANY ASSOCIATED VERIFICATION STUDIES AND THEIR DATA. ONLY DELETE A STUDY IF YOU ARE ABSOLUTELY SURE YOU WANT TO PERMANENTLY REMOVE THIS STUDY.**

IV. Verification Studies

a. Creating a Verification Study

Creating a verification study is very similar to creating a collection study. Once on the verification creation page:

- 1) Enter a “Study Title.”
- 2) Choose whether this study will be published. If the associated collection study is not published, this study also will not be published, regardless of whether you check “yes” or “no.” We hope to change this functionality later.
- 3) Choose whether the data associated with this study will be published. As with the study, if the data associated with the associated collection study is not published, the data associated with this verification study will also not be published.
- 4) Enter any “Study Directions.”
- 5) Enter the number of questions you would like to ask, and then enter these questions in the appropriate text fields.
- 6) For each shape from the associated collection study, choose whether you would like to include this shape in the verification study. If you choose to include the shape, also enter the number of times you would like each participant to verify the shape.
- 7) Choose whether to add a “none of these” option. If you add this option, the participant will be presented with a list of all the shapes in the verification study, along with an option for “none of these.”
- 8) Choose whether to add a text field. If you add this option, the participant will be presented with the list of shapes and optionally the “none of these” option, along with a text field into which they may enter their own description.

When you have completed the form, click “Create New Verification Study.” If you return to “Manage User Studies,” you will notice this new study appears under the collection study with which it is associated.

All fields are required.

Collection Study:	Basic Shapes
Study Title:	Verify Shapes
Study published?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Data published?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Study Directions:	
# of Questions:	1 <input type="button" value="Update"/>
Question #1:	What is your occupation?
Shapes	
<i>Description</i>	<i>Use Shape?</i> <i># to Verify</i>
square	<input checked="" type="checkbox"/> 3
circle	<input checked="" type="checkbox"/> 3
triangle	<input type="checkbox"/> <input type="text"/>
Add a "None of these" Option?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Add a text field?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="button" value="Create New Verification Study"/>	

Figure 4. Our example verification creation form with sample values.

<i>Collection Study</i>	<i>Study Published</i>	<i>Data Published</i>	<i>Visitors</i>	<i>Edit</i>	<i>Delete</i>	<i>Verification</i>	<i>Images</i>
Basic Shapes	Yes (Public)	Yes (Public)	0	Edit	Delete	Create	Upload
Verify Shapes	Yes (Public)	Yes (Public)	0	Edit	Delete	View	
Download data for these studies							

Figure 5. Study management page after “Verify Shapes” has been created.

b. Editing a Verification Study

To edit a verification study, simply click the “Edit” button for that study on the main management page. You will be taken to a form that looks exactly the same as the creation form, except that you cannot edit the title of a study once it has been created. Update any values you wish and click “Update Verification Study.”

During editing, you may delete questions or shapes associated with your study. **BE AWARE THAT IF YOU DELETE A QUESTION OR SHAPE, YOU WILL ALSO DELETE ALL DATA ASSOCIATED WITH THAT QUESTION OR SHAPE. FOR A QUESTION, THIS MEANS YOU WILL DELETE ALL ANSWER DATA ASSOCIATED WITH THIS QUESTION. FOR A SHAPE, THIS MEANS YOU WILL DELETE ALL VERIFICATION DATA ASSOCIATED WITH THIS SHAPE. ONLY DELETE QUESTIONS OR SHAPES IF YOU ARE ABSOLUTLEY SURE YOU WANT TO PERMANENTLY REMOVE THE QUESTION OR SHAPE.**

c. Deleting a Verification Study

To delete a verification study, simply click the “Delete” button for that study on the main management page. You will be asked to confirm that you do indeed wish to delete this collection study. **BE AWARE THAT IF YOU DELETE A STUDY, YOU WILL DELETE ALL DATA ASSOCIATED WITH THAT STUDY. ONLY DELETE A STUDY IF YOU ARE ABSOLUTELY SURE YOU WANT TO PERMANETLY REMOVE THAT STUDY.**

d. Viewing Verification Statistics

To view up-to-date statistics about a verification study, click on “View Statistics” on the main management page. There are three possible views: by shape, by sketch, and by user. “By Shape” mode displays the accuracy per shape in your study. “By Sketch” mode displays the accuracy for each drawing of each shape in your study; in this mode, drawings are denoted at the bottom of the graph by their user number and sketch number. For instance, a drawing labeled 5-1 under the shape “square” corresponds to drawing square5-1.xml, user number 5’s first sketch attempt of a square. “By User” mode displays the accuracy for each user.

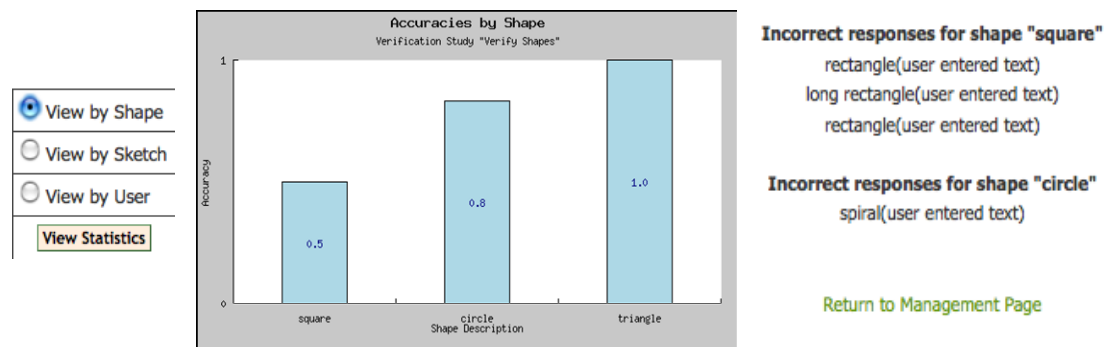


Figure 6. Example statistics with view option “view by shape.”

V. Downloading Data

Data can be downloaded for a collection study and all of its associated verification studies. To download, simply click “Download data for these studies.” You will be asked for a save location for a .zip folder whose file structure is shown below.

Main Directory File Structure:

```
<main directory>
|
|_ <shape x directory>
|   |
|   |_ <shape x directory>_<user number>_<example number>.xml
|   |   (sketch data)
|   |
|   |_ images
|       |
|       |_ <image x name>
|           (uploaded image)
|
|_ <study ID>-collectionData.xml
|   (xml file containing data associated with collection study)
|
|_ <verification study x>-verificationData.xml
|   (xml file containing data associated with verification study)
|
|_ <verification study x>-verificationStatistics.xml
|   (xml file containing statistics associated with verification study)
```