PhysioMIST Functional Test Plan

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The tests below are the acceptance test cases for PhysioMIST. PhysioMIST is an emerging open source programming interface for modeling human physiology by integrating mathematical models of physiological processes. PhysioMIST extends the capabilities of popular simulation software such as JSim. Its environment allows for comprehensive analysis of complex biological systems by studying different levels and scales of models (e.g., bodily systems, organs, and tissues) rather than individual components.

To run PhysioMIST, build the project and run Phy_MIST_Manager.h.

1 Load MML Model

1.1 Description

Precondition: Select the "Load" menu item and then select a file in the MML format

1.2 Expected Results

Display the model's data

1.3 Actual Results

2 Load XML Model

2.1 Description

Precondition: Select the "Load" menu item and then select a file in the XML format

2.2 Expected Results

Display the model's data

2.3 Actual Results

3 Load Incorrect File Type

3.1 Description

Precondition: Select the "Load" menu item and then select a file in any format other than MML or XML.

3.2 Expected Results

Display an error message indicating incorrect file format

3.3 Actual Results

4 Load XML Anatomical Information

4.1 Description

Precondition: Select the "Load Anatomical Information" menu item and then select an XML file. Note: The "Load Anatomical Information" button is not active until an MML model has been successfully loaded and displayed

4.2 Expected Results

Add the anatomical information to the displayed model

4.3 Actual Results

5 Save MML

5.1 Description

Precondition: Select the "Save" menu item. Alternatively, the "Save As..." menu item may be selected in which case a file name, location, and format may be input. The default is the PhysioMIST XML format.

5.2 Expected Results

The correct file name and format should appear in the correct location on the user's hard drive.

5.3 Actual Results

6 Save XML Model

6.1 Description

Precondition: Select the "Save" menu item. Alternatively, the "Save As..." menu item may be selected in which case a file name, location, and format may be input. The default is the PhysioMIST XML format.

6.2 Expected Results

The correct file name and format should appear in the correct location on the user's hard drive.

6.3 Actual Results

7 Save XML Anatomical Information

7.1 Description

Precondition: Select the "Save" menu item. Alternatively, the "Save As..." menu item may be selected in which case a file name, location, and format may be input. The default is the PhysioMIST XML format.

7.2 Expected Results

The correct file name and format should appear in the correct location on the user's hard drive.

7.3 Actual Results

8 Validate Correct User Input

8.1 Description

Precondition: Either select the "New" button for a variable or parameter table and input the name, formula, value, units, anatomical structure, and description or select the "Edit" button for an item in the variable or parameter table and make changes to these same fields.

8.2 Expected Results

The item is added or modified.

8.3 Actual Results

9 Validate Incorrect User Input

9.1 Description

Precondition: Either select the "New" button for a variable or parameter table and input the name, formula, value, units, anatomical structure, and description or select the "Edit" button for an item in the variable or parameter table and make changes to these same fields.

9.2 Expected Results

An error message is displayed indicating the flaws in the input.

9.3 Actual Results

10 Create Anatomical Query

10.1 Description

Precondition: Right-click on an anatomical structure in the Anatomical Ontology Tree and select the "Find Related Structures..." menu item. Select the type of relationship query desired.

10.2 Expected Results

Either the query is performed or an error message is displayed indicating that the relationship type is not appropriate for the selected structure.

10.3 Actual Results

11 Display Results of Query

11.1 Description

Precondition: A query has been performed as described above.

11.2 Expected Results

The list of related anatomical structures is displayed. If the query does not return any results, an error message is displayed.

11.3 Actual Results