EZScript Toolkit Quickstart

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Overview

The EZScript toolkit is an open-source scripting implementation for the Open Wonderland Toolkit for creating virtual interactive environments. The EZScript toolkit provides affordances for developing, documenting, and executing JavaScript code at runtime. The aims of the toolkit are not only to script individual worldly objects, but rather the wonderland user's experience. To meet this goal, an architecture has been put in place to allow JavaScript code to execute at user-centric times, most notably during a user's interaction with the world.

Capability

The EZScript capability allows objects that can be added to a virtual world, to take advantage of the toolkit. This can be done by performing the following,

1. Click on the "Insert" menu in the menu bar, and click "Object" in the popup menu that appears.
2. Choose an object to add to the world by clicking on its name and then the insert button.
3. Once the object appears, right click on the object and choose "Properties" from the popup menu that appears
4. A popup window will appear with a plus button in the bottom left corner of the window. Click on the plus (+) button. Another popup window will appear.
5. Click on the EZScript entry within the new popup window and then click "OK".

Script Editor

The Script Editor is the primary means of adding scripting code to be executed inside wonderland. The Script Editor has two tabs, an Editor tab, and a Library tab. The editor tab is where a user will write JavaScript code to be executed. The Library tab is where a user can look to see what scripting functions have been automatically added by other developers to be executed in a script. To access the script editor, perform the following:

1. Right click on the object that has the EZScript capability attached. A popup menu will appear.
2. In the popup menu, click on "Script". The Script Editor window will appear with two tabs.
3. To access the script editor, click on the "Editor" tab in the window. To access the Script Library click on the "Library" tab in the window.

Executing a Script

Inside the Script Editor window, a user can type JavaScript code to be executed by an object. The process is fairly straightforward:

1. Enter desired JavaScript code within the "Editor" tab inside the Script Editor window.
2. Click on the "Execute" button.

Callbacks

Part of the infrastructure for scripting world objects in Wonderland is the use of events that can occur when a user interacts with an object in Wonderland. Various events include: mouse clicks, moving the mouse over an object, moving the mouse off an object, walking one's avatar close to an object, walking one's avatar away from an object, and pressing a key on the keyboard while the user's mouse is over an object. We can write scripts, called "callbacks" to be executed whenever one of these events occur. As an example, we can show how we can print the word: Hello!, every time a user gets close to an object:

1. Right click on an object that has the EZScript capability attached. A popup menu will appear.
2. Click on "Script", in the popup menu. The Script Editor window will appear.
3. Inside the Script Editor window type the following JavaScript code:
   ```
   ScriptContext.enableProximityEvents();
   function hello() { ShowHUDMessage("Hello!"); }
   ScriptContext.onApproach(hello);
   ```
4. Click the "Execute" button.
5. Move your avatar close to the object you've chosen.
6. A popup window should appear on your Head's Up Display showing our message. Click OK.

Global Methods

As a means to allow developers to provide scripting support for more complex actions, a developer can write special classes that can be included in a script at runtime. A list of these functions are shown (and documented) in the Library tab of the Script Editor Window. The descriptions of each function should include how the function is to be used in a script. For further information on using and developing Global Methods, please see: "Developing the EZScript Toolkit – Global Methods.pdf".