Braille Learning Tool

User Manual

Team 4

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EECS 2311 - Software Development Project (Winter 2017)
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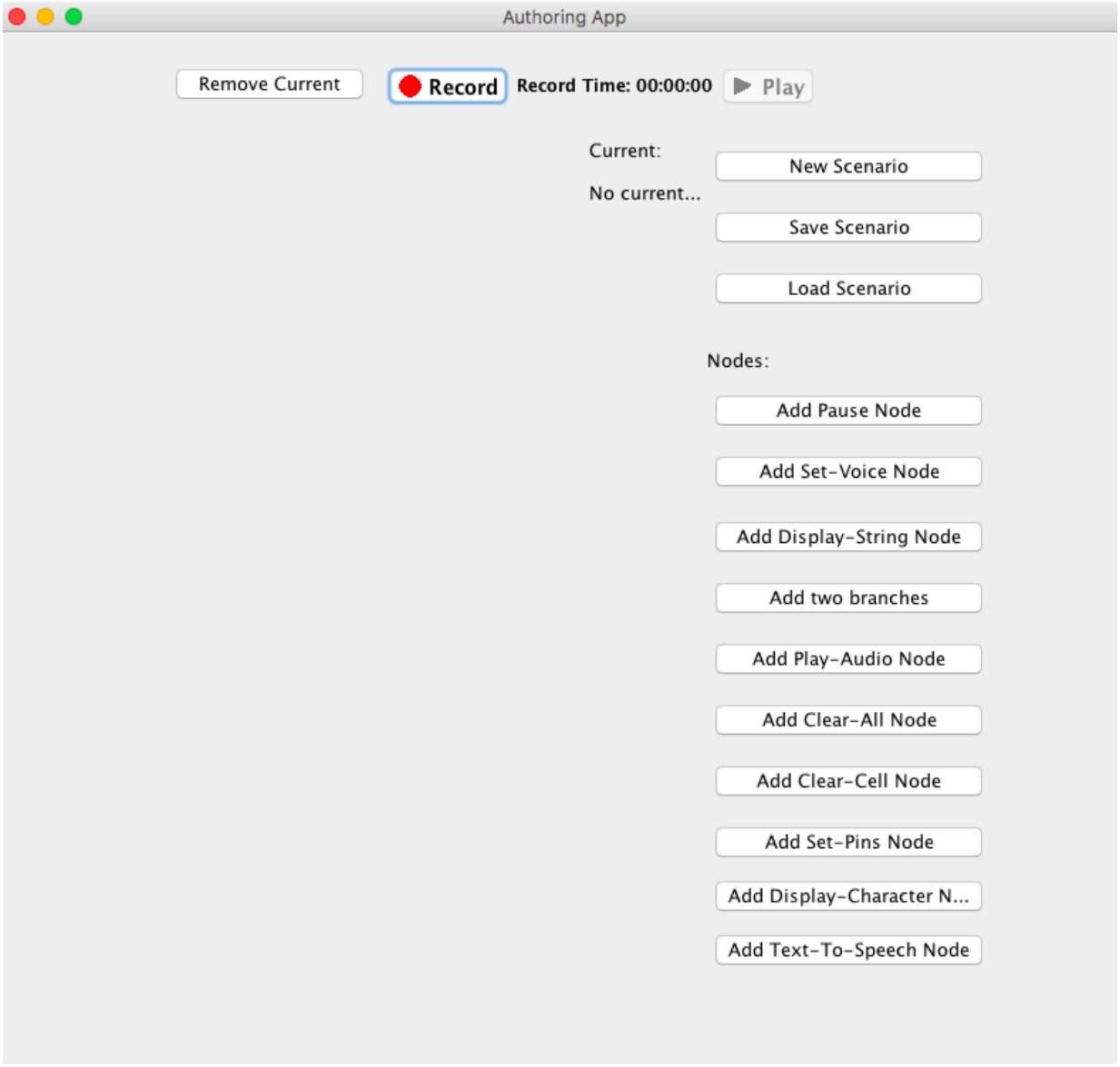
Getting Started

To get started, please download the jar file and run it. The following window will appear.



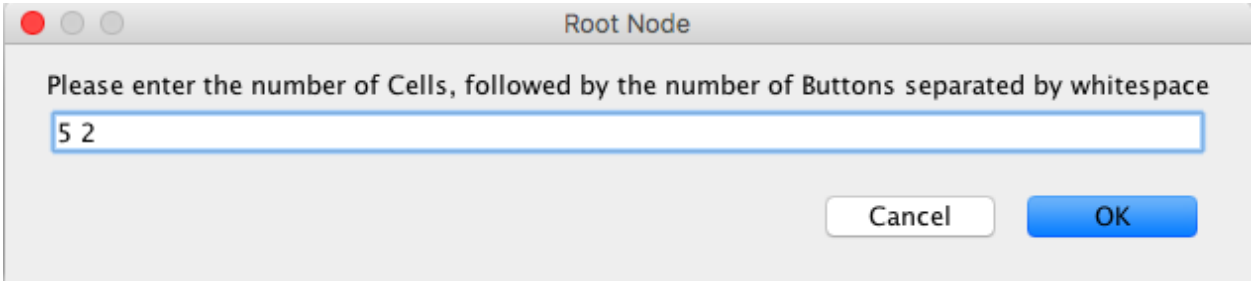
The top row allows you to record sound and saves it as a file.

The first three buttons on the right are used to manage your scenarios.

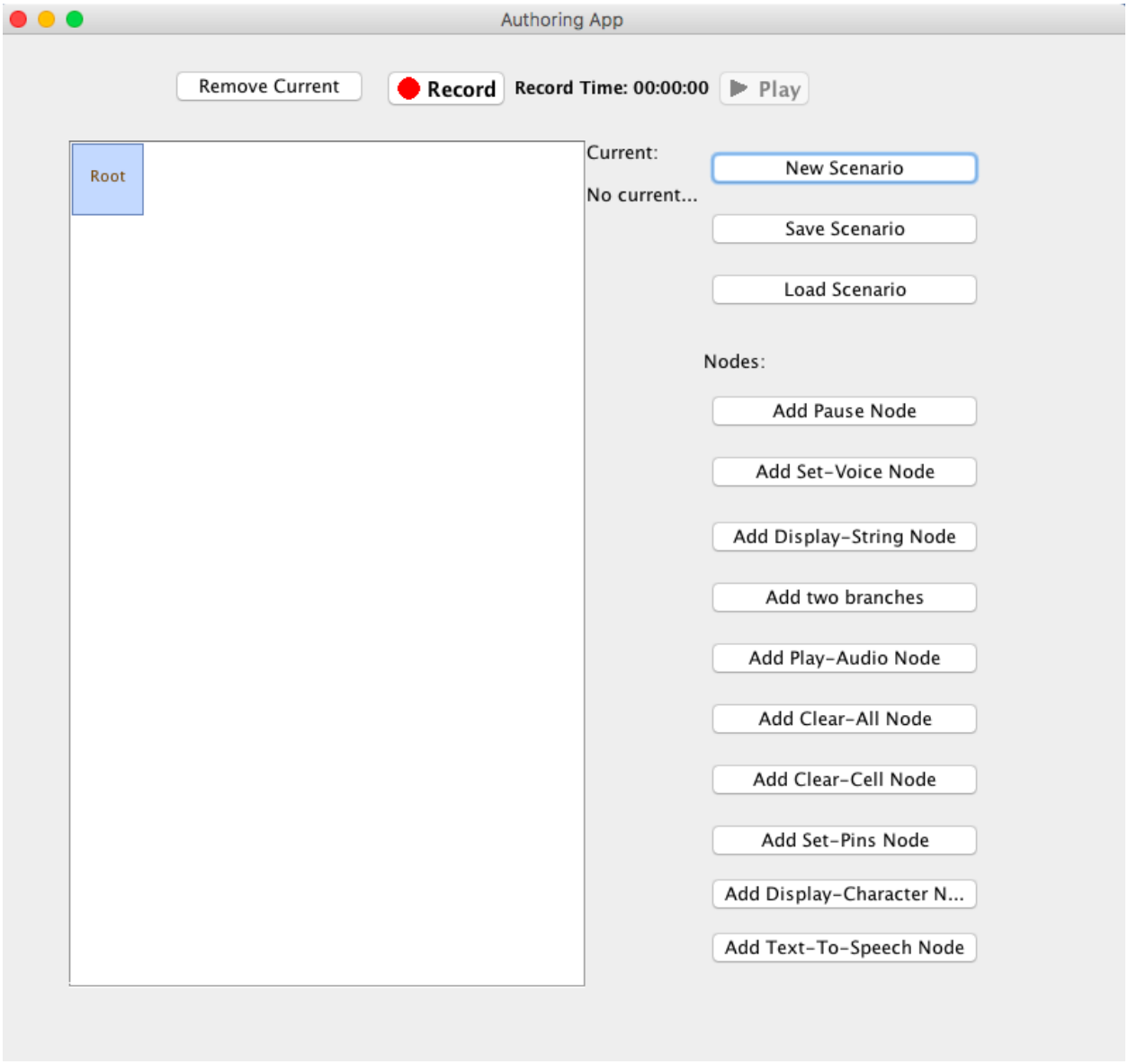
- **New Scenario** allows you to begin a new scenario.
- **Save Scenario** allows you to save the scenario you are currently working on.
- **Browse Scenario** allows you to load a scenario you have previously saved.

The remaining buttons on the right are the buttons used to build a story. We will look at those buttons later. To begin, click on **New Scenario** to create a new scenario.

A window will appear. Please type in the desired number of braille cells and buttons, separated by a space.



Afterwards, a box will appear to the left of the window. The big white box is your workspace and will represent your scenario graphically. It will look like the image below.



Inside the white box, there is a blue node labeled **Root**. Each element of a scenario is represented by a node. The **Root** node represents the beginning of your scenario.

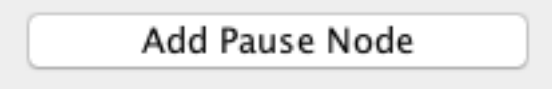
Building Your Scenario

The Authoring App provides features needed to build a scenario file. This section will provide instructions on how to use them.

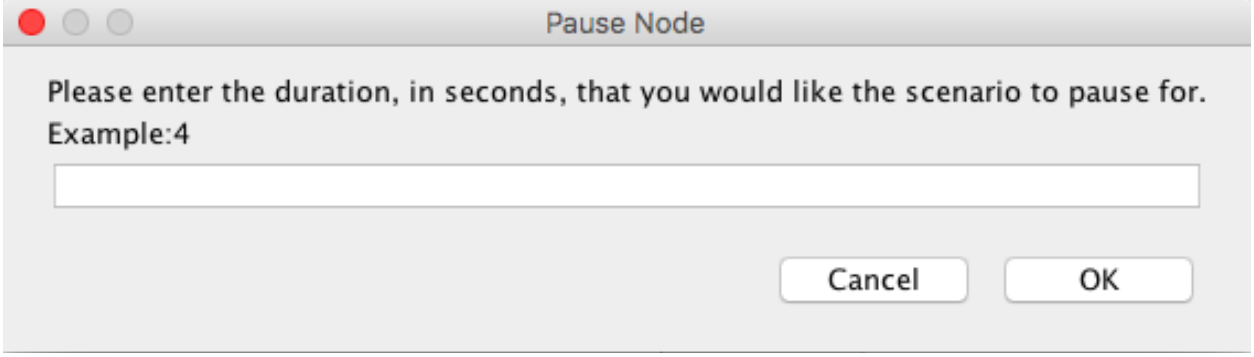
Note: As a rule, each node can only be added to another node. Every time you add a node, you must have a node selected to "add after."

Pause

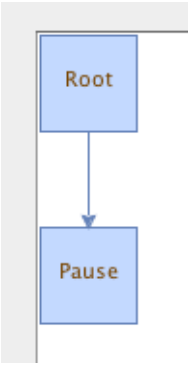
The **Pause** button is used to stop the story for a certain amount of time. This may be used in a scenario where you want the story to separate sentences and read slower. In the **Node** buttons, click **Add Pause Node**.



A window will appear asking for the duration of the pause in seconds. Please enter a number and click **OK**.

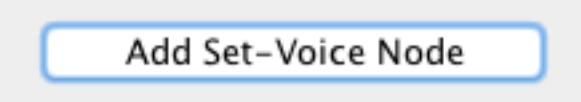


In your workspace, you will see that a **Pause Node** is added after your selected node. The new pause node will look like the image below.

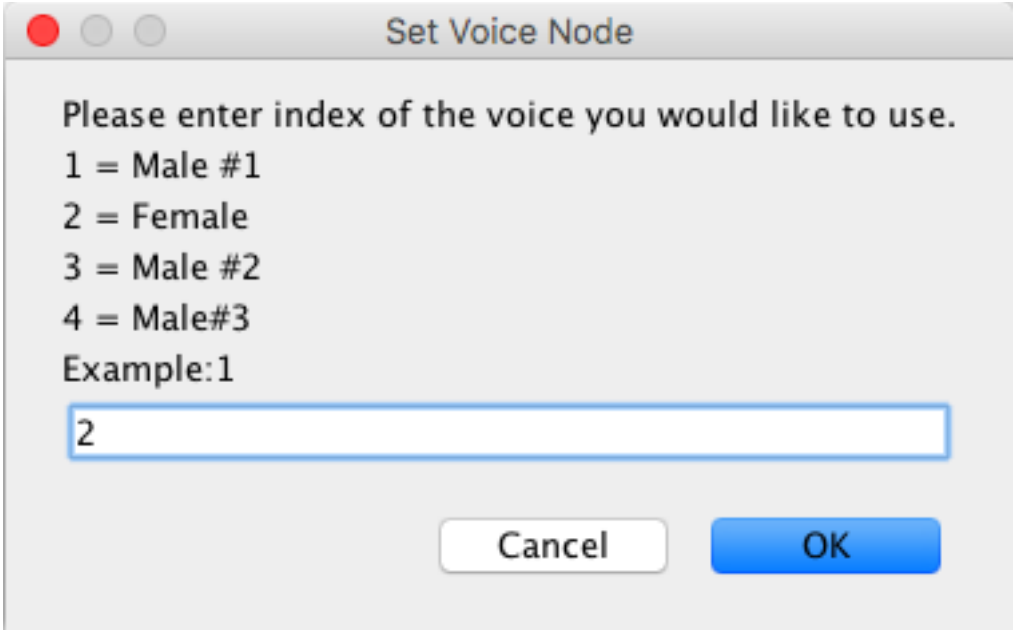


Set a Voice

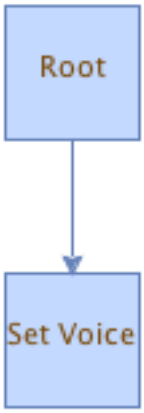
The **Set Voice** allows the user to change the voice of the reader. This may be used in a scenario where there are multiple characters speaking, and they would like to give the characters different voices. In the **Node** buttons, click on **Add Set-Voice Node**.



The following window will appear, giving you choices of the voices available. Please enter a number from 1 to 4 and press **OK**.



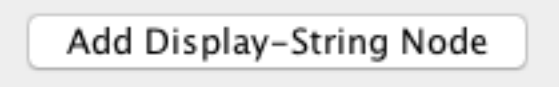
In your workspace, you will see that a **Set Voice Node** has been added. The new **Set Voice Node** will look like the image below.



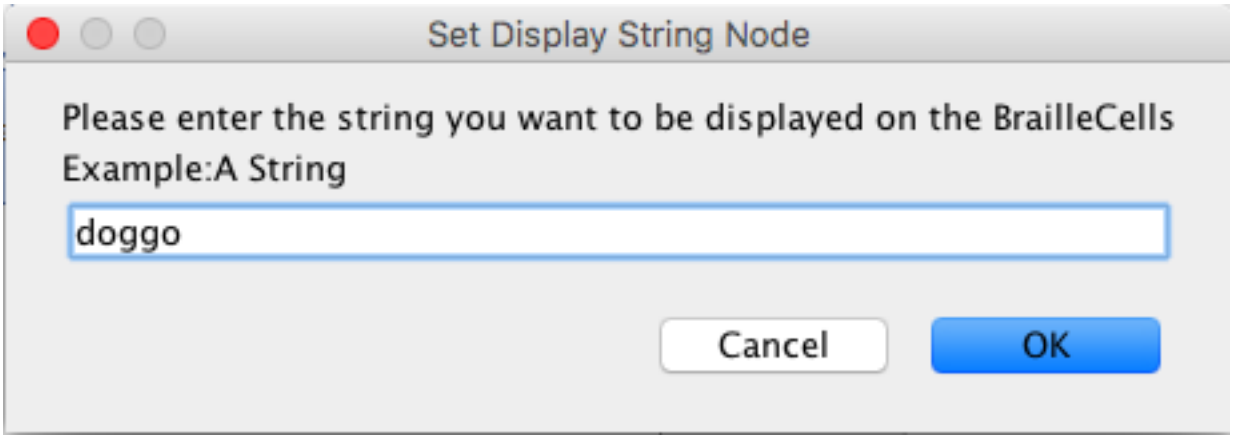
Display Word on Braille Cells

The **Display String** node allows the user to enter a word or sentence to be displayed on the braille cells. This may be used when the user would like to change multiple braille cells at the same time.

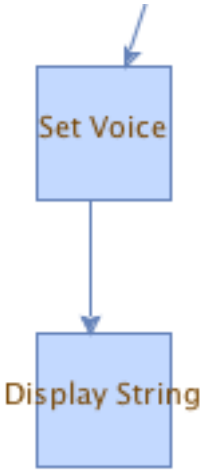
In the **Node** buttons, click on **Add Display-String Node**.



The following window will appear, allowing you to type in a word to be written on the braille cells. Please enter a word and press **OK**.



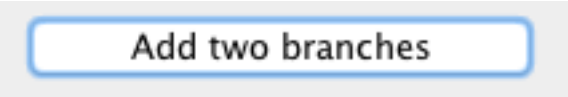
In your workspace, you will see that a **Set Display String Node** has been added. The new **Set Display String Node** will look like the image below.



Branching Node

The **Two Branches** button adds multiple paths for your story. This may be used when the player's answer changes the story. For example, when the player answers incorrectly, they can play an easier path. Conversely, when the play answers correctly, they can play a more difficult path.

In the **Node** buttons, click on **Add Set-Voice Node**.

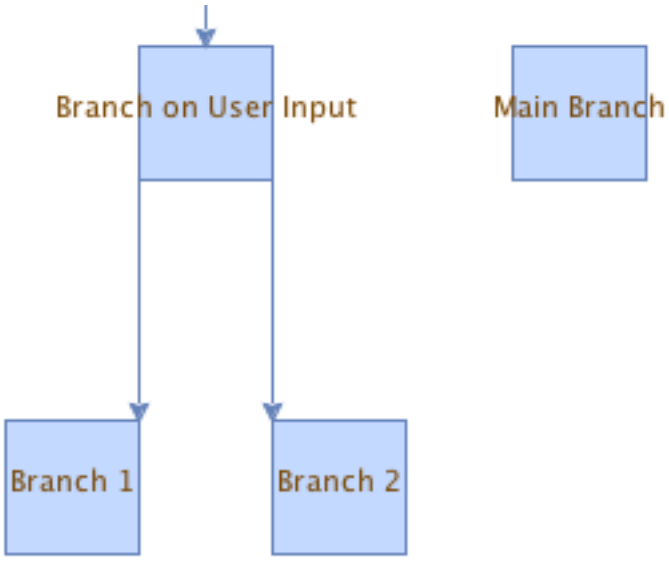


The following window will appear, allowing you to type in a word to be written on the braille cells. Please enter a word and press **OK**.

The button creates several nodes. First is **Branch on User Input**. This is a node separates the path based on which button the user presses.

If the player presses button 1, they go into branch 1. If the player pressed button 2, they go into branch 2. Branch 1 and branch 2 are **sub branches**.

You can add any nodes after the branch nodes, as you would with any other node. When either of the branch nodes are completed, it will always jump to the node called **Main Branch**. In the **main branch**, you should continue the story as if the player has only played through one **sub branch** and completed either branch.

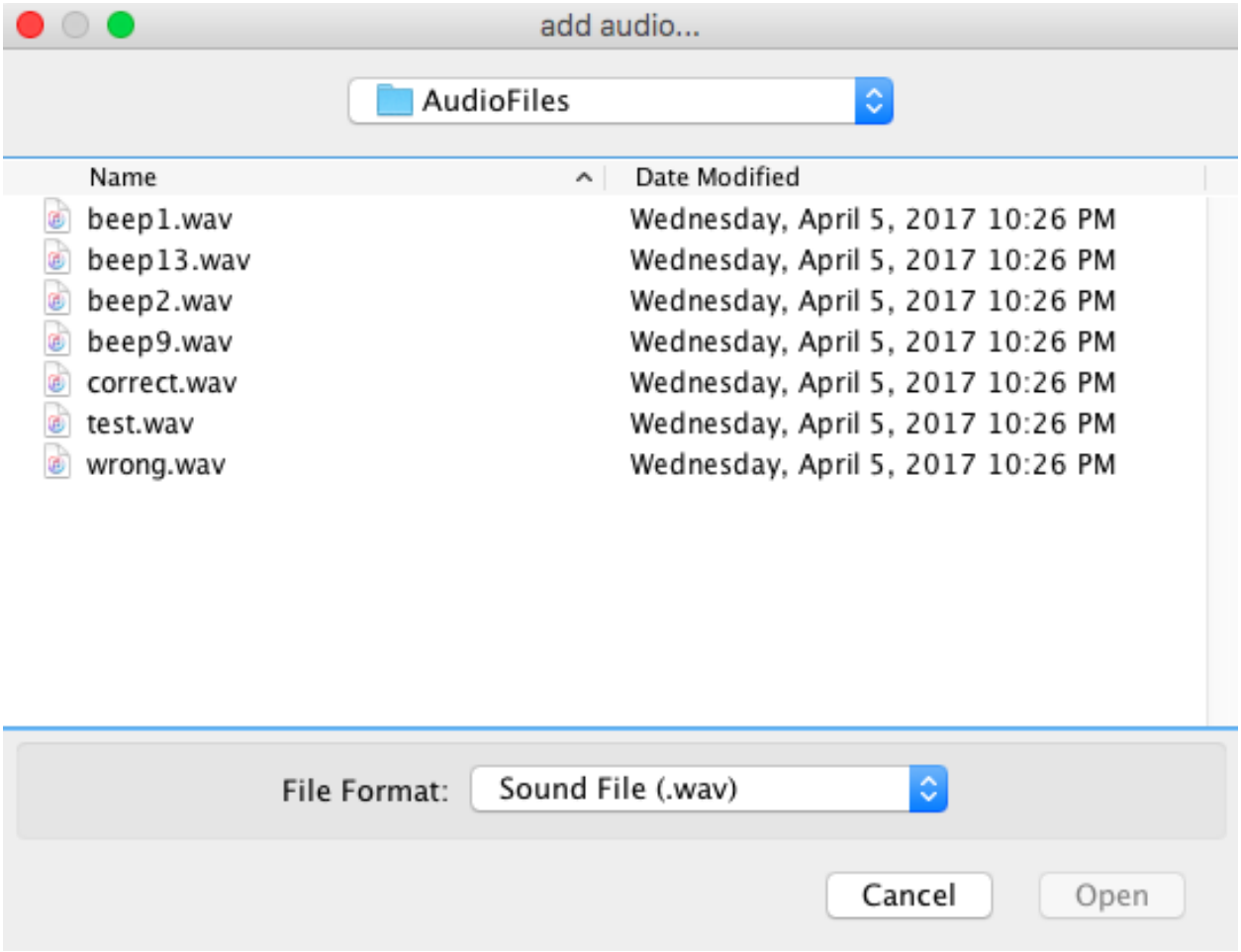


Playing Audio from Files

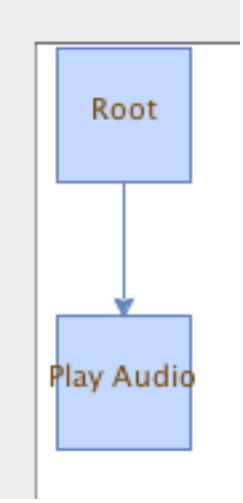
The **Play Audio** button allows the user to upload a sound file to play. This can be used if the user has downloaded a sound effect and wants to use it in the story.

In the **Node** buttons, click on **Add Play-Audio Node**.

The following window will appear. Browse for your sound file and click **Open** to continue.



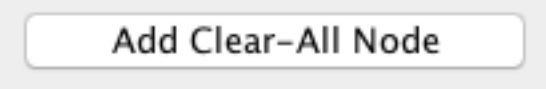
In your workspace, you will see that a **Set Display String Node** has been added. The new **Set Display String Node** will look like the image below.



Clear All Braille Cells

The **Clear All** button resets all the braille cells so that no pins are raised. This may be used when the user would like to clear all braille cells for any reason.

In the **Node** buttons, click on **Add Clear-All Node**.

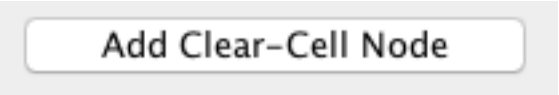


In your workspace, you will see that a **Clear All Node** has been added. The new **Clear All Node** will look like the image below.

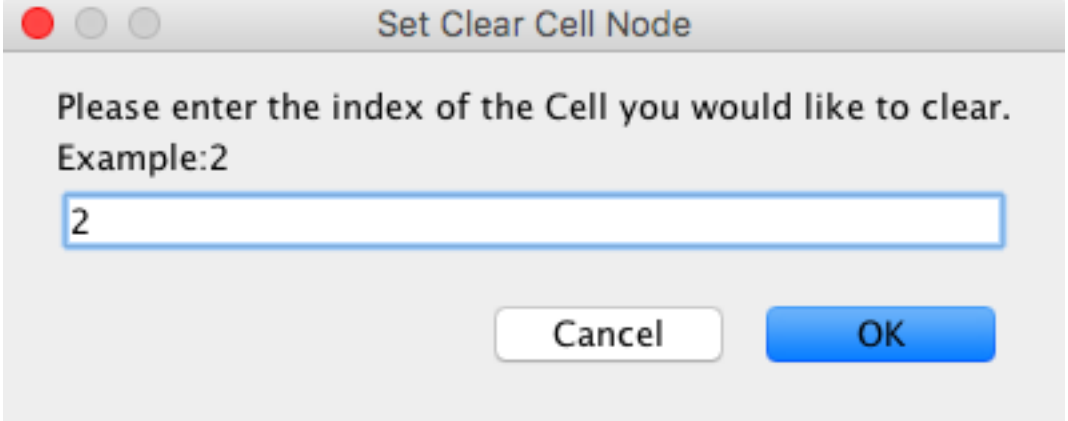
Clear Single Braille Cell

The **Clear Cell** button allows the user to clear a single cell so that all the pins in that cell are lowered. The user may want to do this to clear specific cells for any reason.

In the **Node** buttons, click on **Add Clear-Cell Node**.



The following window will appear, allowing you to type in the braille cell number that should be cleared. Please enter a number and press **OK**.

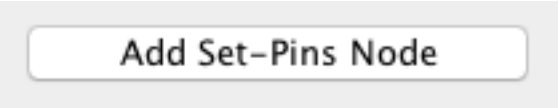


In your workspace, you will see that a **Clear Cell Node** has been added. The new **Clear Cell Node** will look like the image below.

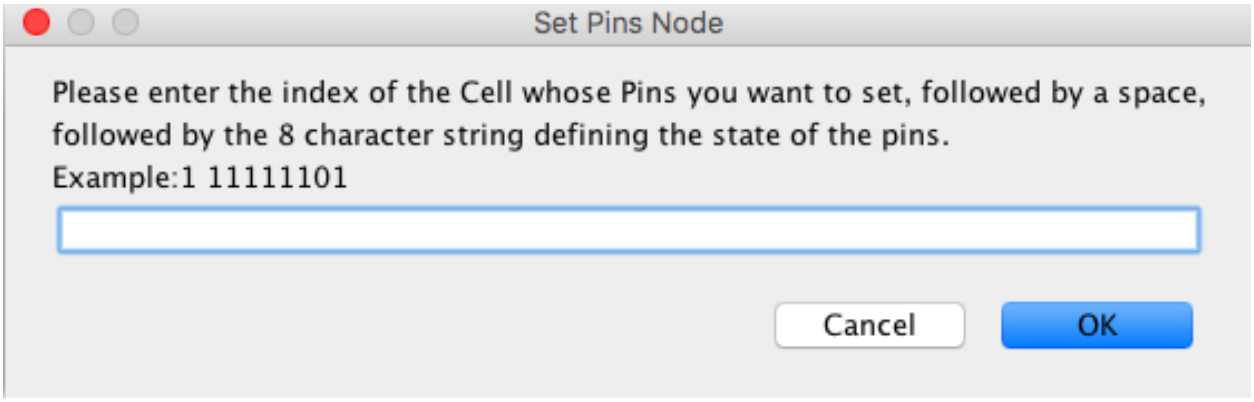
Set Pins of a Braille Cell

The Set Pins button allows the user to manually set the pins to raise in a braille cell. This may be used in a scenario where the story asks the player if the cell exists in the braille alphabet.

In the **Node** buttons, click on **Add Set-Pins Node**.



The following window will appear. Type in the braille cell number you would like to change followed by an 8-digit number representing a braille cell separated by a space. Please refer to Appendix A to learn how a braille cell relates to an 8-digit number. Press **OK** to continue.



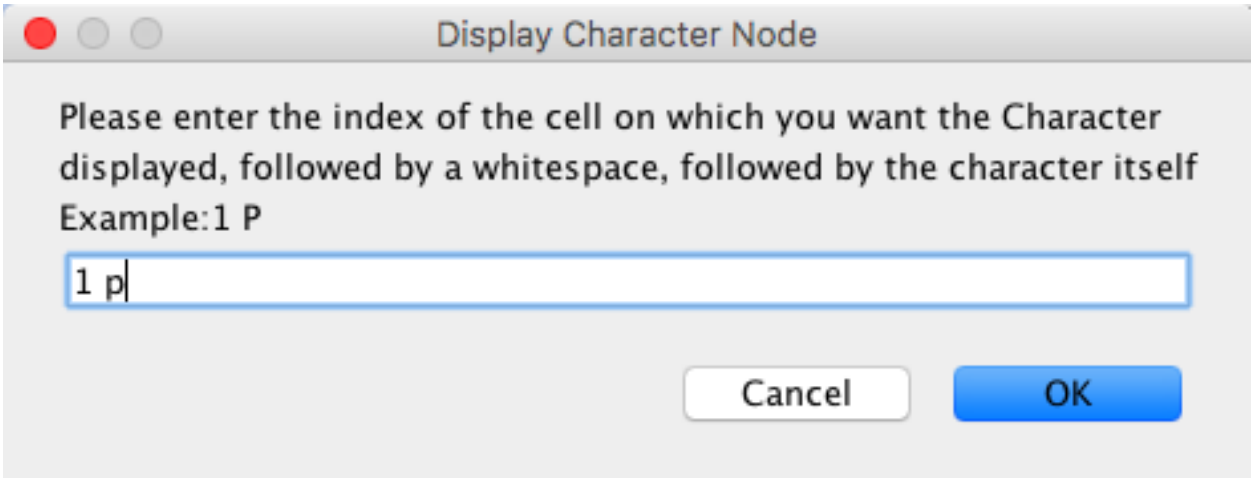
In your workspace, you will see that a **Set Pins Node** has been added. The new **Set Pins Node** will look like the image below.

Display Letters on Braille Cell

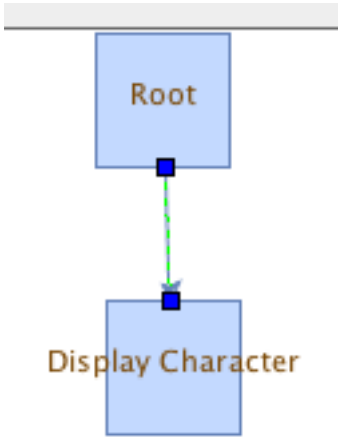
The Display Character button allows the user to change a single braille cell. This may be used when the user wants to change a braille cell for any reason to process in the story.

In the **Node** buttons, click on **Add Display-Character Node**.

The following window will appear. Type in the braille cell number you would like to change followed by the letter (either uppercase or lowercase) separated by a space. Press OK



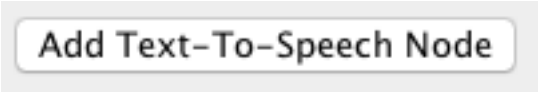
In your workspace, you will see that a **Display Character Node** has been added. The new **Display Character Node** will look like the image below.



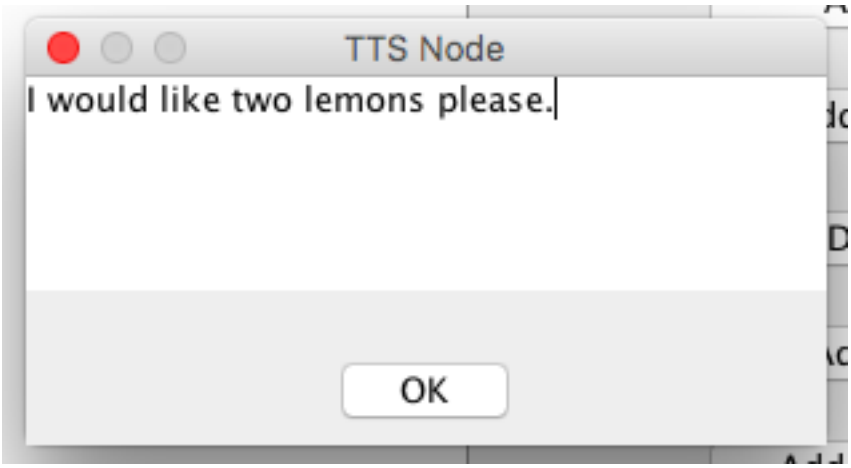
Text-To-Speech

The Text-To-Speech button allows the user to input text which will be read out. This gives flexibility to the user because they would not have to prepare audio files to build the scenario.

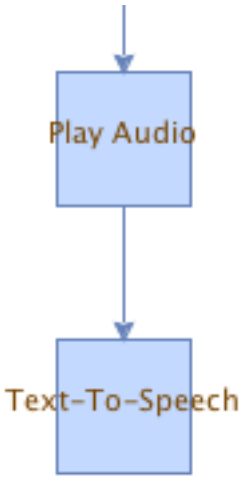
In the **Node** buttons, click on **Add Text-To-Speech Node**.



The following window will appear. Type in the text you would like the scenario to say. Press **OK** to continue.



In your workspace, you will see that a **Set Display String Node** has been added. The new **Set Display String Node** will look like the image below.



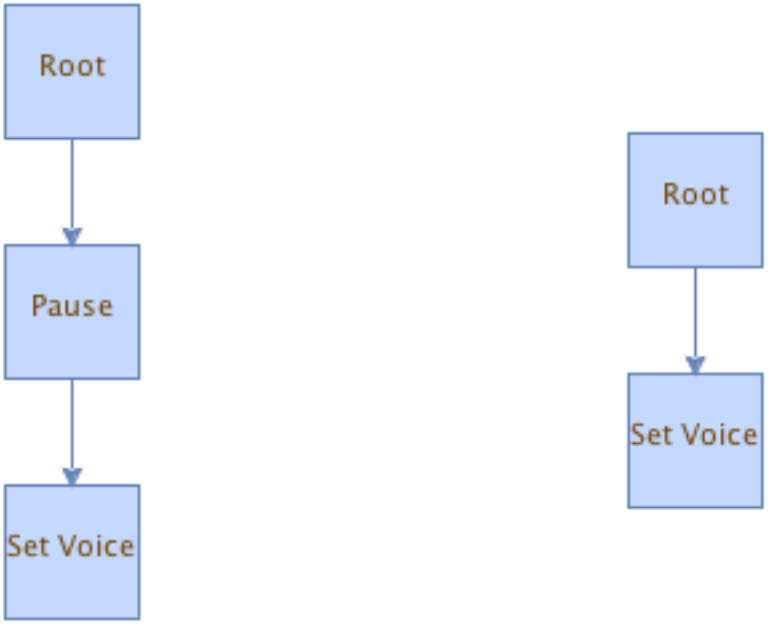
Sound Recording

You may want to record sound if you want to record voices or sound effects on-the-go. To record sound, click the **Record** button at the top of the window.

Remove a Node

You may want to remove a node if you feel like you want to change the story. To remove a node, select the node you want to remove and click the **Remove Current** button.

This will remove the node that was selected. If there is a node after the removed node, all the nodes will be shifted up. An example can be seen below.



Before Removal

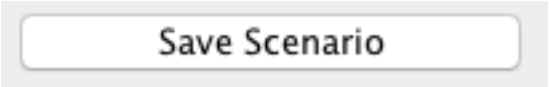
After removal

Saving and Loading

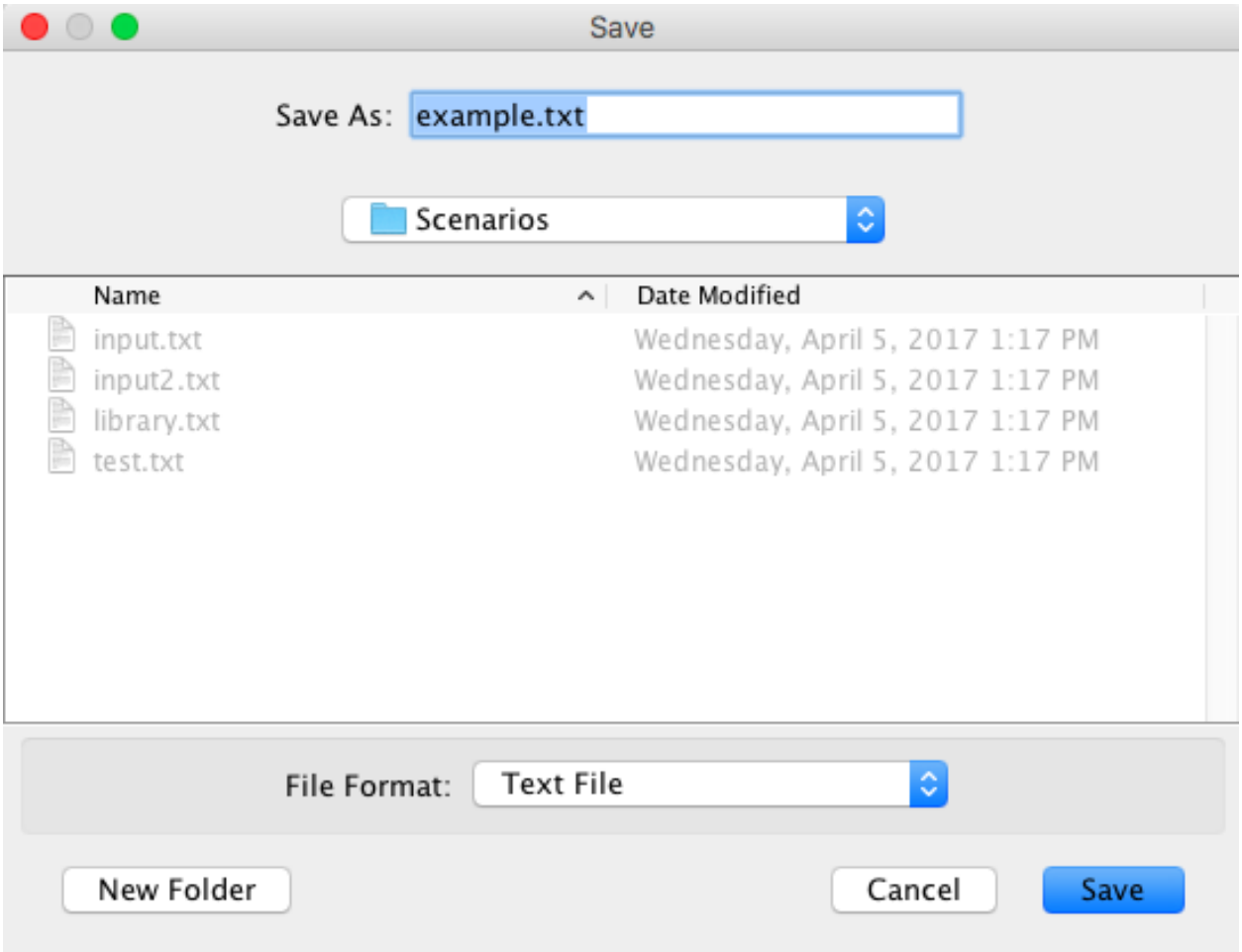
The Authoring Apps lets you save and load scenarios. This is especially useful if you cannot work on a current scenario and would like to work on it later.

Saving a Scenario

To save a scenario, click the **Save Scenario** button on the right side of the window.



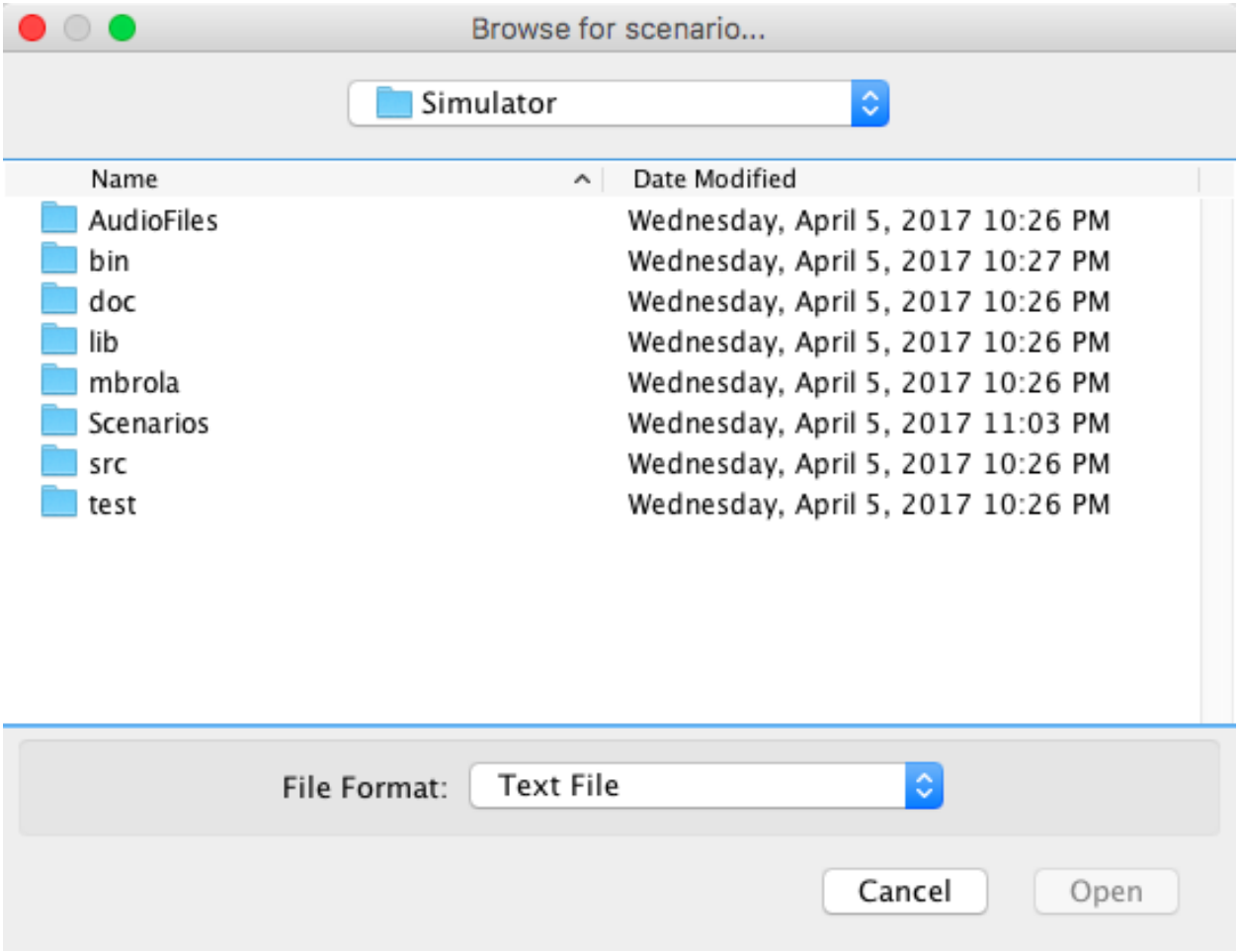
A file explorer window will appear. Give your scenario a name and choose the folder you would like to save the file in. Press **Save**.



Loading a Scenario

To load a scenario, click the **Load Scenario** button on the right side of the window.

The following window will appear. Browse your files and select the scenario file. Press **Open** to continue.



Appendix A

Braille Cells and Binary Strings

In **Set Pins of a Braille Cell**, we showed how you can raise the pins on the braille cell with an 8-digit number. This section will provide guidelines and examples of how to do this.

First and foremost, here are some guidelines:

- The number must be 8 digits
- The number must only contain the digits 0 or 1
- 1 represents a raised pin and 0 represents a lowered pin

To use this feature, perhaps it is more useful to think of the 8-digit number as a word instead of a number. We will not think of the 8-digit number as a number representing a value, but numbers in certain positions. For simplicity, we will refer to the 8-digit number as a **binary string**.

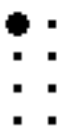
For example, let us look at the following binary string:

01110100

Reading it from left to right, we can observe that the first character is 1, the second character is 1, the third character is 0, and so on.

In the Authoring App, the position of the characters in the **binary string** correspond to the pins of a braille cell as demonstrated in the image below.

Below are some more examples of using **binary strings** to represent braille cells.



10000000

00101001

10000100

Appendix B

Troubleshooting/Frequently Asked Questions

Q: Does this work with Windows/Mac/Linux?

This application is written in Java, a cross platform language and will work with any operating system.

Q: Nothing is happening when I add nodes

Keep in mind that you must select a node before trying to add a node.

Q: Arrows sometimes disappear when I add nodes.

That's normal.