



Custom Keyboard Settings

Documentation

Creator: Lucas Gomes Cecchini

Pseudonym: AGAMENOM

Overview

This document will help you use **Assets Custom Keyboard Settings** for **Unity**.

With it, you can easily configure and change your game's **Keyboards** from a **menu**.

It will create two types of **Scriptable Objects**, one for saving data to **PlayerPrefs** and another for accessing the Keyboard via script.

It also has **auto-save** capabilities as soon as settings are changed.

Instructions

You can get more information from the Playlist on YouTube:

<https://www.youtube.com/playlist?list=PL5hnfx09yM4Kqkhx0KHyUW0kWviPMTPCs>

Script Explanations

KeyboardControlData

The `KeyboardControlData` script is a Unity script that defines a class used to manage a list of `InputData` objects. Here's a detailed explanation of the script and its components:

Script Purpose

The purpose of the `KeyboardControlData` script is to act as a container for multiple keyboard input configurations. This container is implemented as a `ScriptableObject`, which allows for the creation of an asset in Unity that can store persistent data. The script manages a list of `InputData` objects, each of which represents a specific keyboard input configuration.

Script Breakdown

1. Namespace and Imports

```
using System.Collections.Generic;
using UnityEngine;
```

The script starts by importing the necessary namespaces:

- `System.Collections.Generic` is used to allow the use of generic collections such as `List<T>`.
- `UnityEngine` is the core namespace of Unity that provides access to Unity's engine features.

2. Class Declaration

```
public class KeyboardControlData : ScriptableObject
{
    public List<InputData> inputDataList;
}
```

- The class is declared as `public`, making it accessible from other scripts.
- The class inherits from `ScriptableObject`, which is a special class in Unity that allows you to create custom assets.

3. List of InputData

```
public List<InputData> inputDataList;
```

- `inputDataList` is a public field of type `List<InputData>`.
- This list holds multiple instances of the `InputData` class, each representing a specific keyboard input configuration.
- By making this field public, it will be visible and editable in the Unity Editor when the `KeyboardControlData` asset is selected.

ScriptableObject Explanation

`ScriptableObject` is a special type of object in Unity that allows you to create asset files to store data. Unlike MonoBehaviour scripts, `ScriptableObject` instances do not need to be attached to GameObjects. They are useful for storing data that can be shared across multiple scenes and objects.

Conclusion

The **`KeyboardControlData`** script provides a way to manage multiple keyboard input configurations in a structured and persistent manner using Unity's **`ScriptableObject`** system. This approach is beneficial for managing configurations that need to be shared across different parts of your game or application.

InputData

The **`InputData`** script is a Unity script that defines a class to represent individual keyboard input configurations. Here's a detailed explanation of the script and its components:

Script Purpose

The purpose of the **`InputData`** script is to encapsulate data for a single keyboard input configuration. This configuration includes a tag to identify the input and a key code representing the specific keyboard key. The script is implemented as a **`ScriptableObject`**, allowing the creation of assets that store this data persistently within the Unity Editor.

Script Breakdown

1. Namespace and Imports

```
using UnityEngine;
```

The script starts by importing the **`UnityEngine`** namespace, which is essential for accessing Unity's core engine features, including **`ScriptableObject`** and **`KeyCode`**.

2. Class Declaration

```
public class InputData : ScriptableObject
{
    public string keyboardTag;
    public KeyCode keyboard;
}
```

- The class is declared as **`public`**, making it accessible from other scripts.
- The class inherits from **`ScriptableObject`**, a special Unity class that allows for the creation of custom asset files.

3. Public Fields

```
public string keyboardTag;
public KeyCode keyboard;
```

- **`keyboardTag`** is a public field of type **`string`**. This field is used to store a tag or identifier for the input data. It helps in distinguishing between different input configurations.
- **`keyboard`** is a public field of type **`KeyCode`**. **`KeyCode`** is an enumeration in Unity that represents all possible keys on a keyboard. This field stores the specific key associated with the input configuration.

ScriptableObject Explanation

`ScriptableObject` is a special type of object in Unity designed for holding data. Unlike **`MonoBehaviour`**, **`ScriptableObject`** instances do not need to be attached to GameObjects. They are useful for creating

assets that store data which can be easily shared and reused across different parts of your game or application.

Conclusion

The `InputData` script provides a simple yet effective way to manage individual keyboard input configurations using Unity's `ScriptableObject` system. By storing input data in assets, you can easily configure and reuse keyboard settings across different parts of your game or application. This approach also makes it easier to manage and update input configurations without hardcoding them into scripts.

KeyboardControlDataInspector

This script is a custom Unity editor for managing `KeyboardControlData`, a `ScriptableObject` that holds a list of `InputData` objects. The custom editor enhances the Unity Inspector interface for `KeyboardControlData` to make it easier to interact with and manage the input data. Here's a detailed explanation of what the script does:

General Overview

The custom editor script provides a user interface within the Unity Editor to:

- Display and edit `InputData` entries.
- Detect and assign key codes.
- Create new `InputData` assets.
- Save and rename `InputData` assets.

Key Components

1. Editor Class:

- The script defines a class `KeyboardControlDataInspector` that inherits from Unity's `Editor` class.
- This class is annotated with `[CustomEditor(typeof(KeyboardControlData))]`, indicating that it customizes the inspector for `KeyboardControlData` `ScriptableObject`.

2. Fields:

- `isDetectingKey`: A boolean that indicates if the editor is currently in key detection mode.
- `detectingIndex`: Tracks the index of the `InputData` entry being edited for key detection.

3. OnInspectorGUI Method:

- This method is overridden to define how the custom inspector should be drawn.
- It initializes the `inputDataList` if it's null.
- Displays a read-only field showing the script name.
- Renders a list of `InputData` entries with options to edit the `keyboardTag` and `KeyCode`.
- Provides buttons for deleting entries, detecting key presses, saving all entries, and creating new entries.
- Handles key detection by updating the `InputData` with the pressed key code.

4. DeleteInputData Method:

- Deletes an `InputData` asset from the project and removes it from the list.
- Uses Unity's `AssetDatabase` to delete the asset file and update the list.

5. CreateInputData Method:

- Creates a new `InputData` asset and adds it to the list.
- Ensures that the asset is placed in a proper folder and generates a unique file name to avoid conflicts.
- Uses `AssetDatabase` to create the new asset and save it.

6. SaveAllInputData Method:

- Saves all `InputData` assets and renames them based on their `keyboardTag`.
- Counts occurrences of each `keyboardTag` to handle naming conflicts.
- Renames files to ensure each asset has a unique name if the `keyboardTag` is duplicated.
- Updates and saves assets using `AssetDatabase`.

User Interface

- **Read-Only Script Field:** Displays the script name without allowing edits.
- **Input Data List:** Shows a list of ``InputData`` entries with editable fields for ``keyboardTag`` and ``KeyCode``, and buttons for actions.
- **Action Buttons:**
 - **Delete:** Removes the selected ``InputData`` after confirmation.
 - **Detect:** Enables key detection mode for the selected entry.
 - **Save All:** Saves and renames all ``InputData`` assets.
 - **Create Input Data:** Creates a new ``InputData`` asset and adds it to the list.

Key Detection

- When in key detection mode, the editor waits for a key press and updates the ``InputData`` with the pressed key code.
- The detection mode is toggled with a button, and once a key is pressed, the detection mode ends and the editor updates accordingly.

Overall, this script provides a powerful and user-friendly way to manage ``InputData`` assets within the Unity Editor, facilitating tasks such as editing, creating, and saving input configurations.

KeyboardControlDataCreator

This script is designed to facilitate the creation and management of custom ``KeyboardControlData`` assets within the Unity Editor. Here's a detailed explanation of how it works:

Overview

The script automates the process of creating a ``KeyboardControlData`` asset, which is a type of custom data used to store keyboard control configurations. It also ensures that this asset is created automatically if it doesn't already exist in the project.

Components

1. KeyboardControlDataCreator Class:

- **Purpose:** Provides functionality to create a ``KeyboardControlData`` asset through a custom menu option in Unity.
- **CreateCustomObjectData Method:**
 - **Menu Item:** Adds a new option to the Unity Editor's Asset menu under "**Create/Custom Keyboard Settings/Keyboard Control Data**".
 - **Asset Path:** Defines the path where the asset will be saved (``Assets/Resources/Keyboard Control Data.asset``).
 - **Folder Check:** Verifies if the ``Resources`` folder exists in the project. If not, it creates the folder.
 - **Duplicate Check:** Checks if an asset with the same name already exists at the specified path. If it does, it prompts the user to confirm if they want to replace the existing asset.
 - **Asset Creation:** Creates a new instance of ``KeyboardControlData``, saves it as an asset at the specified path, and marks it as dirty to ensure it is saved correctly.
 - **Focus Editor:** Automatically focuses on the Project window and selects the newly created asset.

2. KeyboardControlDataCreatorStartup Class:

- **Purpose:** Ensures that the ``KeyboardControlData`` asset is created automatically when the Unity Editor starts, if it doesn't already exist.
- **Static Constructor:**
 - **Delayed Execution:** Uses a delayed call to check for the asset after the Unity Editor has started up.

- **Asset Existence Check:** Checks if the asset already exists at the specified path. If it doesn't, it triggers the `CreateCustomObjectData` method to create it.

Functionality

1. Creating the Asset:

- The script provides a menu option in the Unity Editor to create a `KeyboardControlData` asset.
- When this menu option is selected, it ensures that the necessary folder structure is in place and handles the creation and saving of the asset.
- If the asset already exists, the user is prompted to confirm if they want to replace it, avoiding accidental overwrites.

2. Automatic Asset Creation:

- On editor startup, the script checks for the presence of the `KeyboardControlData` asset.
- If the asset does not exist, it automatically creates it, ensuring that the project always has this essential asset available without requiring manual intervention.

Summary

This script streamlines the process of managing `KeyboardControlData` assets in Unity by providing a convenient way to create the asset through the editor menu and ensuring its presence in the project through automatic creation on editor startup. This automation simplifies asset management, especially in larger projects where such assets are crucial for keyboard control settings.

KeyboardTagHelper

This script provides functionality for managing and persisting keyboard control data within a Unity project. It handles tasks such as retrieving, updating, and saving `InputData` associated with specific keyboard tags using Unity's PlayerPrefs system. Here's a detailed breakdown of its functionality:

Overview

The script is designed to work with `KeyboardControlData`, a data structure that holds multiple `InputData` instances. Each `InputData` instance contains a keyboard tag and a corresponding key code. This script facilitates interactions with this data and ensures that changes are saved and loaded correctly.

Components

1. Retrieving Data

- **GetKeyboardControlData:**
 - **Purpose:** Loads the `KeyboardControlData` asset from the Resources folder.
 - **Error Handling:** Logs an error if the asset cannot be found or loaded, ensuring that the rest of the operations have a valid data source.
- **GetInputFromTag:**
 - **Purpose:** Finds and returns the `InputData` associated with a specific keyboard tag.
 - **Error Handling:** Logs an error if the `KeyboardControlData` asset is null or if no matching `InputData` is found.

2. Updating Data

- **SetKey:**
 - **Purpose:** Updates the key code for a given `InputData` instance.
 - **Error Handling:** Logs an error if the `InputData` instance is null, ensuring that invalid operations are not performed.
- **SetKeyFromTag:**

- **Purpose:** Updates the key code for the ``InputData`` associated with a specific tag.
- **Error Handling:** Logs an error if no matching ``InputData`` is found for the given tag.

3. Saving and Loading Data

- **SaveKeyboardControlData:**

- **Purpose:** Saves the current state of ``KeyboardControlData`` to PlayerPrefs.
- **Process:**
 1. Retrieves the ``KeyboardControlData`` asset.
 2. Converts each ``InputData`` in the list to a serializable format (``InputDataListSave``).
 3. Serializes the data to JSON and saves it to PlayerPrefs under a specific key ("Keyboard Control Data").
- **Error Handling:** Logs an error if the ``KeyboardControlData`` asset cannot be found.

- **LoadKeyboardControlData:**

- **Purpose:** Loads and applies saved keyboard control data from PlayerPrefs.
- **Process:**
 1. Checks if PlayerPrefs contains saved data.
 2. Retrieves and deserializes the JSON data.
 3. Updates the ``KeyboardControlData`` asset with the loaded data, ensuring that existing ``InputData`` instances are updated or logs errors if they cannot be found.
- **Error Handling:** Logs errors if the ``KeyboardControlData`` asset is not found or if individual ``InputData`` entries cannot be matched with saved data.

Serializable Classes

- **KeyboardControlDataSave:**

- **Purpose:** A container for storing the serialized ``InputData`` list.
- **Structure:** Holds a list of ``InputDataListSave`` objects, which represent the saved ``InputData`` instances.

- **InputDataListSave:**

- **Purpose:** Represents individual ``InputData`` entries for saving and loading.
- **Structure:** Contains a keyboard tag and a key code, which are serialized into JSON format.

Summary

This script provides a robust utility for managing keyboard control configurations in Unity. It ensures that changes to the control data are saved persistently and can be loaded correctly at runtime. By using PlayerPrefs for storage and providing methods to handle data updates, retrieval, and persistence, the script integrates seamlessly with Unity's editor and runtime systems.

KeyboardSettingsManager and TMP_KeyboardSettingsManager

This script is a Unity component designed to manage keyboard settings through a user interface. It allows users to select, reset, and save key configurations, ensuring that key codes are unique across different managers. Here's a detailed breakdown of its functionality:

Overview

The script handles keyboard settings within Unity by providing a UI for users to select key codes, reset them to defaults, and save these settings. It also manages conflicts between key codes used by different instances of the settings manager.

Key Components

1. UI Elements

- **Buttons and Text:**

- **Select Button:** Initiates the process of selecting a new key code.
- **Selected Button Text:** Displays the currently selected key code or indicates the selection process.
- **Reset Button:** Resets the key code to its default value.

2. Default Settings

- **Default Key Code:** Defines the default key code used when resetting settings.

- **Keyboard Tag:** A unique identifier used to associate the settings with specific ``InputData`` in a data management system.

3. Current Settings

- **Current Key Code:** Stores the currently selected key code.

- **Previous Key Code:** Keeps track of the key code before the current selection, used for comparison and UI updates.

- **Listening State:** Indicates whether the script is currently listening for a new key code input.

- **Delay Timer:** Manages a delay before starting to listen for new inputs.

- **Other Managers:** Keeps track of other instances of the ``KeyboardSettingsManager`` in the scene to avoid key code conflicts.

Functionality

1. Button Click Handlers

- **OnSelectButtonClick:**

- Starts a delay before listening for a new key code input.
- Sets the UI to indicate the key selection process.

- **OnResetButtonClick:**

- Resets the key code to its default value and saves the updated settings.

2. Initialization

- **Start Method:**

- Initializes a list of all ``KeyboardSettingsManager`` instances in the scene.
- Sets up button click listeners to ensure they respond to user interactions.
- Loads the saved settings or applies default settings if no saved data is found.

3. Settings Management

- **SetSettings:**

- Applies saved key code settings and updates the UI to reflect the current selection.

- **SetDefaultSettings:**

- Resets the key code to the default value and updates the UI accordingly.

4. Update Method

- **Update:**

- Checks for new key inputs if the script is in listening mode.
- Manages the delay timer to ensure inputs are detected correctly.

- Enables or disables the reset button based on whether the current key code is different from the default.

5. Input Handling

- **ListenForNewInput:**

- Iterates through possible key codes to detect new inputs.
- Checks if the new key code is not already used by other managers.
- Updates the selected key code and saves the settings if a valid new input is detected.

- **IsKeyCodeUsedByOtherManagers:**

- Checks if the current key code is already used by another instance of `KeyboardSettingsManager` to prevent conflicts.

6. Saving Settings

- **SaveSettings:**

- Updates the `InputData` associated with the current tag with the new key code.
- Saves the updated settings to persistent storage.

Summary

This script integrates with Unity's UI system to provide a customizable and user-friendly way of managing keyboard settings. It ensures that key codes are unique and avoids conflicts between different settings managers. The script also supports persistence of settings through saving and loading, making it easy to maintain consistent keyboard configurations across sessions.