SIMPLE SCROLL-SNAP

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Getting Started

Overview:

"Simple Scroll-Snap" is an elegantly designed, intuitive solution that allows for elements within a ScrollView to be snapped to, offering a wide range of customization options.

Features:

- ✓ Fixed (Horizontal/Vertical) or free movement system.
- ✓ Optional Automatic Layout system.
- ✓ Optional Infinite Scrolling system.
- ✓ Navigate between panels using Swipe Gestures, a Pagination and/or Next and Previous buttons.
- ✓ Easily implement Transition Effects (adjusting panels' scale, rotation, opacity etc.) using functions with respect to displacement from the centre.
- ✓ Change to snap to the Nearest, Previous or Next panel.
- ✓ Define Threshold Swipe and Snap Speeds to best fit your requirements.
- ✓ Assign methods to be invoked while a panel is being selected, is selected, is being changed or has changed.
- ✓ Dynamically add/remove panels during runtime.

Included:

- ✓ Three example projects:
  - ➢ macOS Finder (File Explorer)
  - ➢ Slot Machine
  - ➢ Pinned Map
- ✓ Ready-to-use prefabs:
  - ➢ Scroll-Snap
  - ➢ Pagination
- ✓ In-depth offline documentation

Contact:

In the event you are unable to find the information you are looking for or have found a bug, please feel free to send me an email (daniel@daniellochner.com) and I will get back to you as soon as possible.

Installation:

Once you have downloaded "Simple Scroll-Snap" from the Unity Asset Store, and the "Import Asset", window appears in Unity, verify that all items to import are selected and then click the "Import" button in the bottom right of the window.

Keep in mind that the "Simple Scroll-Snap" folder does not have to be in the root directory of your project, so feel free to move it anywhere!

Quick Start:

To add a “Simple Scroll-Snap” component to your Game Object, go to “GameObject > UI > Simple Scroll-Snap” or simply search for the “SimpleScrollSnap.cs” script in the “Add Component” menu in the inspector.

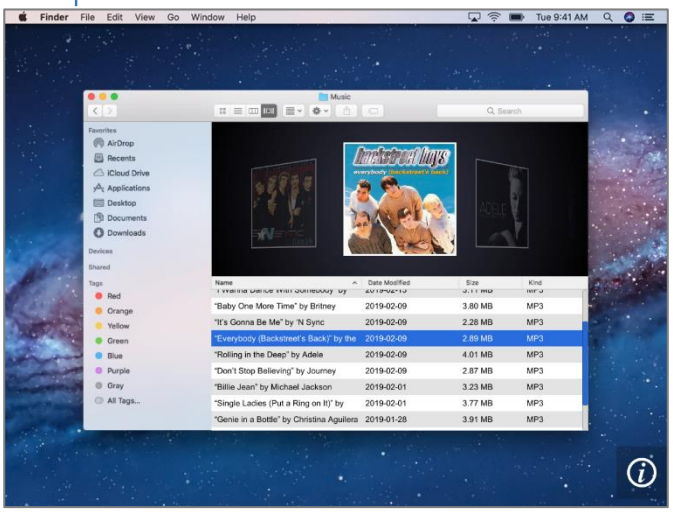
If you are unsure of how to setup your Game Object to use the “Simple Scroll-Snap” component, there are two basic prefabs that can help get you started (Scroll-Snap and Pagination)

To add any of these prefabs to your scene, simply drag it from the “/Simple Scroll-Snap/Prefabs” folder and place it under your Canvas, or navigate to “GameObject > UI > Simple Scroll-Snap”, and select it from there.

Examples:

There are three example projects included that illustrate how the “Simple Scroll-Snap” component can be used in real scenarios:

Example 1: macOS Finder



This example shows how transition effects, combined with a clever usage of the pagination, can be used to replicate the macOS file explorer, "Finder". You can transition to the next/previous file by clicking on the right/left of the selected file.

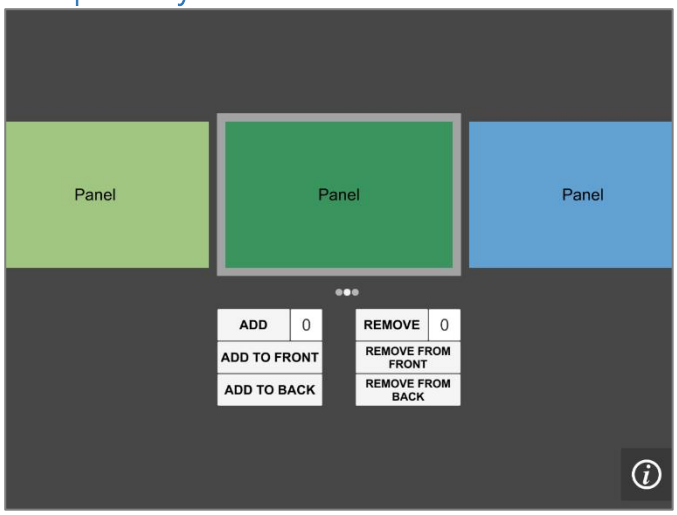
Example 2: Slot Machine

This example shows how the AddVelocity() method can be used to create a Slot Machine with multiple Scroll-Snaps that each spin with a random initial velocity. Once a slot is selected, their OnSelected() methods are invoked to stop all movement.

Example 3: Pinned Map

This example shows how a scrollable map (that allows you to zoom in/out with the scroll-wheel) can be achieved using the "Free" movement type. Clicking on pins invoke their respective GoToPanel() method, using their index as a parameter.

Example 4: Dynamic Content



This example shows how content can be added/removed dynamically during runtime. The index at which these panels are added/removed can be set in the appropriate button's onClick event.

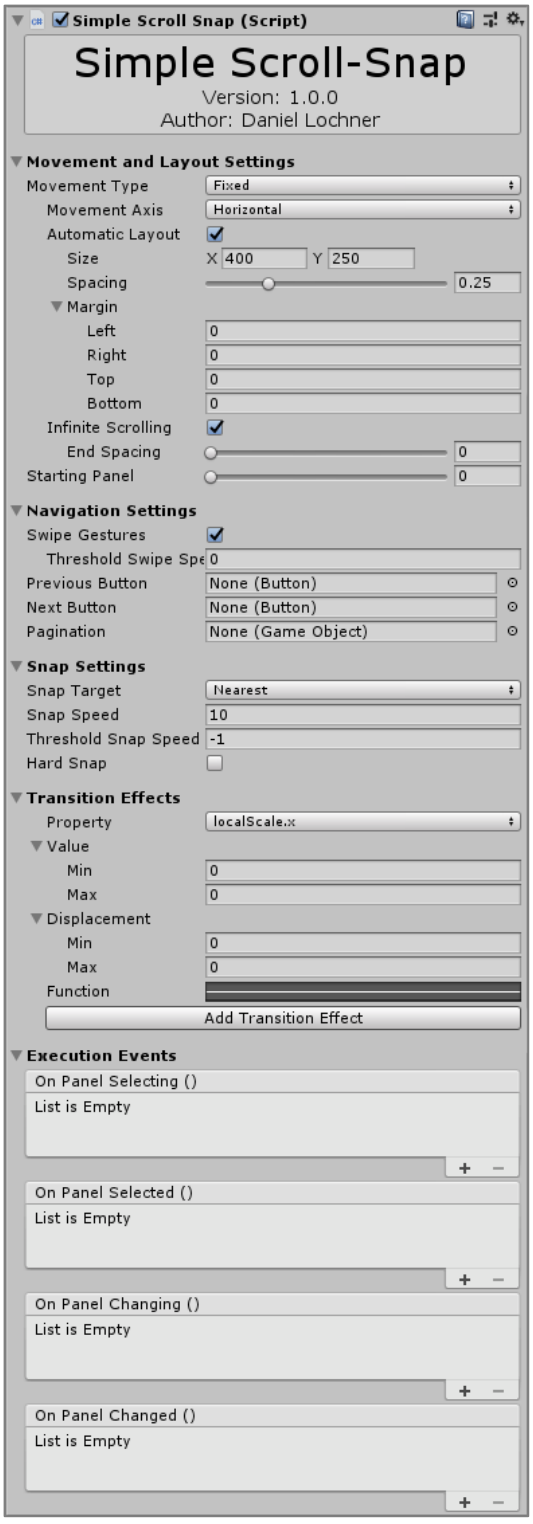
“Simple Scroll-Snap” component

Inspector Breakdown:

The “Simple Scroll-Snap” component’s inspector is broken down into five sections that can each be toggled to fold-in or out, to keep your inspector more manageable. Each section, and the configuration of each of their sub-items, are discussed in detail later.

“Simple Scroll-Snap”

1. Movement and Layout Settings:
    a. Movement Type:
        i. Movement Axis
        ii. Automatic Layout:
            1. Size (X, Y)
            2. Spacing
            3. Margin (Left, Right, Top, Bottom)
        iii. Infinite Scrolling:
            1. End Spacing
    b. Starting Panel
2. Navigation Settings:
    a. Swipe Gestures:
        i. Threshold Swipe Speed
    b. Previous Button
    c. Next Button
    d. Pagination:
        i. Toggle Navigation
3. Snap Settings:
    a. Snap Target
    b. Snapping Speed
    c. Threshold Snap Speed
    d. Hard Snap
4. Transition Effects:
    a. Add Transition Effect:
        i. Property
        ii. Value (Min, Max)
        iii. Displacement (Min, Max)
        iv. Function
    b. <Transition Effects>
5. Event Handlers:
    a. On Panel Selecting
    b. On Panel Selected
    c. On Panel Changing
    d. On Panel Changed



Configuration:

By hovering over a property's label in the editor, a tooltip will be displayed, providing a basic description of what that property is. For a more in depth guide as to how to configure each property, the following written guide on "Configuration" has been provided:

Movement and Layout Settings:

1. Movement Type:
   Determines how users will be able to move between panels within the ScrollRect. There are two options:
   1. Fixed – users are restricted to moving along either the horizontal or vertical axis.
   2. Free – users can freely move around and are not restricted to an axis.
2. Movement Axis:
   As described above, if the fixed movement type has been selected, users will be able to select which axis to restrict the user's movement to:
   1. Horizontal
   2. Vertical
3. Automatic Layout:
   If the fixed movement type has been selected, the option will be given to automatically layout the panels. If enabled, panels will be automatically positioned and scaled according to the specified movement axis, spacing, margins and size:
   1. Size – the size (in pixels) that panels will be when automatically laid out.
   2. Spacing – the spacing between panels, calculated using a fraction of the panel's width (if the movement axis is horizontal) or height (if the movement axis is vertical).
   3. Margin – the size of border (in pixels) of each panel. There are four float fields that can be filled in:
      1. Left
      2. Right
      3. Top
      4. Bottom
4. Infinite Scrolling:
   If the fixed movement type has been selected, the option will be given to infinitely scroll the panels. If enabled, panels will wrap around to the opposite end once passed, giving the illusion of an infinite list of elements.
   1. End Spacing – the spacing maintained between panels once wrapped around to the opposite end.
5. Starting Panel:
   The number of the panel that will be displayed first, based on a 0-indexed array.

Navigation Settings:

1. Swipe Gestures:
   Determines whether users are able to use swipe gestures to navigate between panels.
   1. Threshold Swipe Speed – the speed at which the user must be swiping in order for a transition to occur to another panel.
2. Previous Button:

An optional button used to transition to the previous panel.

3. Next Button:
   An optional button used to transition to the next panel.
4. Pagination:
   An optional GameObject containing Toggles that shows the current position of the user and can be used to transition to a selected panel. The number of toggles should be equivalent to the number of panels.
    1. Toggle Navigation – determines whether the pagination can be used to transition to selected panels. If enabled, users will be able to click on a toggle, and transition to that panel.

Snap Settings:

1. Snap Target:
   Determines what panel should be targeted and snapped to once the threshold snapping speed has been reached. There are three options:
    1. Nearest
    2. Previous
    3. Next
2. Snap Speed:
   The speed at which the targeted panel snaps into position. It represents the value that will be multiplied by Time.deltaTime() when panels are linearly interpolated to their respective positions.
3. Threshold Snap Speed:
   The speed at which the ScrollRect will stop scrolling and begin snapping to the targeted panel.
4. Hard Snap:
   Should the inertia of the ScrollRect be disabled once a panel has been selected? If enabled, the ScrollRect will not overshoot the targeted panel when snapping into position and instead Lerp precisely towards the targeted panel.

Transition Effects:

Effects applied to panels based on their displacement from the centre of the viewport. The following are required settings when adding a Transition Effect:

1. Property:
   The selected property of a panel that will be affected by the displacement from the centre.
2. Value:
    1. Min – the minimum value that can be assigned.
    2. Max – the maximum value that can be assigned.
3. Displacement:
    1. Min – the minimum displacement at which the value will be affected.
    2. Max – the maximum displacement at which the value will be affected.
4. Function:
   The function (with respect to displacement from centre) that will be used to determine the value.

Event Handlers:

1. On Panel Selecting:
   The events fired while a panel is being selected (i.e. when the user is dragging and has not released).
2. On Panel Selected:
   The events fired when a panel is selected (i.e. when a new panel is targeted).
3. On Panel Changing:
   The events fired while a panel is in the process of changing (i.e. when the targeted panel is snapping into position).
4. On Panel Changed:
   The events fired when the panel has been changed (i.e. when the targeted panel has snapped into position).

Scripting References:

Controlling a "Simple Scroll-Snap" from outside requires that you invoke public methods and/or get/set the values of properties defined. Each class that allows this level of control is discussed below, with each publically accessible property/method listed and described.

"SimpleScrollSnap.cs"

1. Namespace: DanielLochner.Assets.SimpleScrollSnap
2. Extends: MonoBehaviour
3. Implements: IBeginDragHandler, IEndDragHandler, IDragHandler, IPointerUpHandler, IPointerDownHandler
4. Properties:

Property	Description
CurrentPanel	The current selected Panel.
TargetPanel	The current targeted Panel.
NearestPanel	The nearest panel to the centre of the viewport.
NumberOfPanels	The number of panels.
ScrollRect	The ScrollRect associated with the Simple Scroll-Snap.
Content	The Content containing all of the panels.
Viewport	The Viewport associated with the Simple Scroll-Snap.
Panels	The array containing all of the panels.
Toggles	The array containing all of the toggles in the pagination.

5. Methods:

Method	Description
GoToPanel(int panelNumber)	Sets the targeted panel to be the panel specified.
GoToPreviousPanel()	Sets the targeted panel to be the previous panel.
GoToNextPanel()	Sets the targeted panel to be the next panel.
AddVelocity(Vector2 velocity)	Adds a velocity to the ScrollRect associated with the SimpleScrollSnap.

Add(GameObject panel, int index)	Adds a panel at the specified index.
AddToFront(GameObject panel)	Adds a panel to the front of the Scroll-Snap.
AddToBack(GameObject panel)	Adds a panel to the back of the Scroll-Snap.
Remove(int index)	Removes the panel at the specified index.
RemoveFromFront()	Removes the panel at the front of the Scroll-Snap.
RemoveFromBack()	Removes the panel at the back of the Scroll-Snap.

"TransitionEffect.cs"

1. Namespace: DanielLochner.Assets.SimpleScrollSnap
2. Extends: none
3. Implements: none
4. Properties:

Property	Description
Label	The label and tooltip of the PanelEffect.
MinValue	The minimum value that can be assigned.
MaxValue	The maximum value that can be assigned.
MinDisplacement	The minimum distance at which the value will change.
MaxDisplacement	The maximum distance at which the value will change.
Function	The AnimationCurve of the TransitionEffect.

5. Methods:

Method	Description
Init()	Initializes the Transition Effect, drawing it to the custom inspector.
Reset()	Resets each of the attributes of a Transition Effect to their default values.
GetValue(float distance)	Returns a value that is calculated using the function, by passing the panel's displacement from the centre through it.

Support

Frequently Asked Questions (FAQ):

1. How do you nest Scroll-Snaps?
   CaptainSchnittchen, a Unity Forum member, came up with a solution to nesting scroll rects by subclassing Unity's ScrollRect class (here is the link to the thread and post).
   In order to integrate this with your ScrollSnaps, copy and paste the code into a new file "ScrollRectEx.cs", and then replace the ScrollRect component with this newly created script.

   PLEASE NOTE: By removing the ScrollRect component from an existing ScrollSnap, it will break your current settings, as a ScrollRect component is required at all times.
   This can be prevented by following these steps:
   1. Copy the settings of the existing Simple Scroll-Snap component (click on the cog at the top right hand corner of the component, and click "Copy Component").
   2. Remove the Simple Scroll-Snap component first and then the ScrollRect component.
   3. Add the new "ScrollRectEx" script, and assign the content and viewport fields accordingly.
   4. Finally, click on the cog of the ScrollRectEx component and click on "Paste component as new".

Contact Information:

In the event you are unable to find the information you are looking for or have found a bug, please feel free to send me an email (daniel@daniellochner.com) and I will get back to you as soon as possible.

Please do not leave a review, regarding an issue with the asset, on the Unity Asset Store unless you have first consulted me asking for help.