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UNITYCODER.COM   **POLYGONCOLLIDER2D OPTIMIZER**

Unity PolygonCollider2D Optimizer & Tools

PolygonCollider2D Optimizer

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PolygonCollider2D Optimizer

INTRODUCTION

Unity editor plugin for optimizing sprite PolygonCollider2D.

FEATURES

- Easy to use editor plugin, optimizes all selected objects with few clicks!
- Optimize PolygonCollider2D vertices:
    o   Make lower resolution colliders (filtering by angle)
    o   Remove inner paths (accurate method, compares each point with polygon)
    o   Keep largest path only (quickly removes extra paths)
    o   Remove paths less than # vertices
- Scale PolygonCollider2D's
    o   4 Scaling modes: Estimate Neighbors, Standard Scaling, Normalized Scaling, Normalized Scaling (local center)
    o   *Scaling is useful for avoiding "floating" objects because of Box2D skin margin
- Move vertices (up/right/down/left), with adjustable step size (use after scaling, if needed)
- Add/Remove/Reset PolygonCollider2D's

LIMITATIONS

- Multiple PolygonCollider2D's in a single sprite are not supported (only 1 gets optimized)
- Only PolygonCollider2D's are optimized (if you don't use them this plugin is useless for you)

REQUIREMENTS

- Unity 4.3 or newer (indie or pro)

INSTALLATION

- Import the package and you are done.

FILES IN THE PACKAGE

Files inside the "**Tools/PolygonCollider2DOptimizer/**" folder:

FOLDER / FILE	INFO
DEMO	Demo folder (can be deleted)
DEMO/DemoPrefabs/	(this file)
DEMO/DemoPrefabs/Optimized/	Contains optimized sample prefabs
DEMO/DemoPrefabs/Original/	Contains sample prefabs
DEMO/DemoScenes/scene_demo_sample_default	Demo scene, without optimized colliders
DEMO/DemoScenes/scene_demo_sample_optimized	Demo scene, with optimized colliders
DEMO/DemoScenes/DemoScripts/HUDFPS	HUDFPS.cs from UnifyWiki (displays FPS)
DEMO/DemoScenes/DemoScripts/ObjectSpawner	Sample object spawner for demo scenes
DEMO/DemoScenes/DemoSprites	Sample sprite graphics for demo scenes
DEMO/DemoScenes/Documentation/	(this pdf)
DEMO/DemoScenes/Editor/ PolygonCollider2DOptimizer	Main script

USAGE INSTRUCTIONS

Start this tool from: **Window / PolygonCollider2D Optimizer**
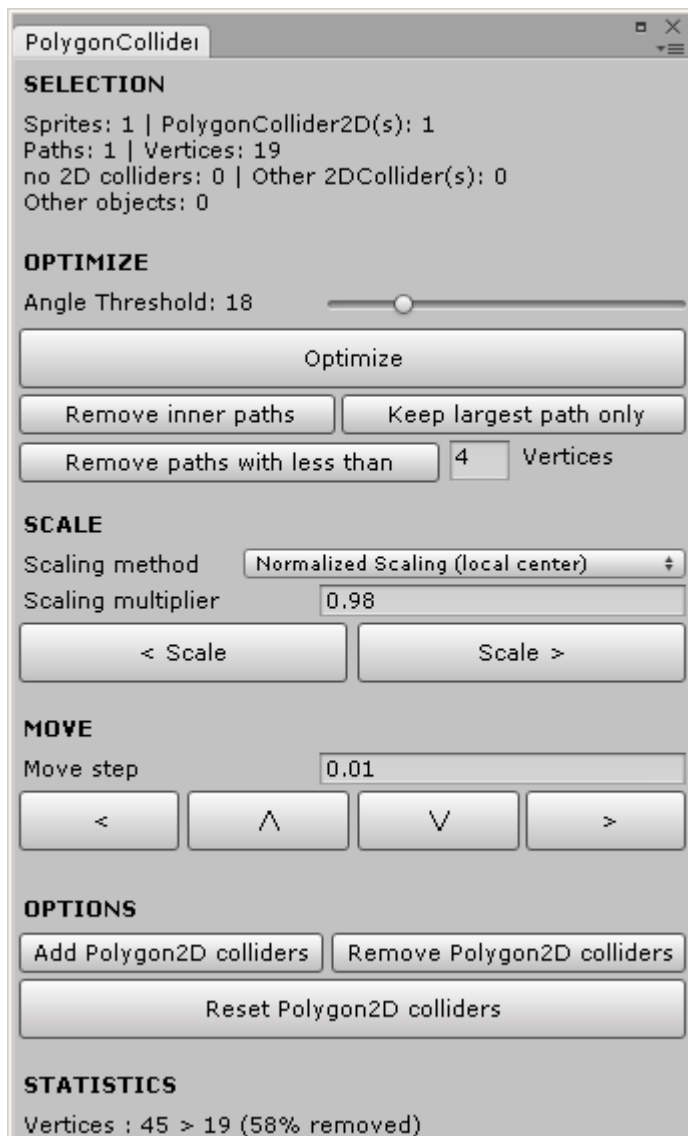
Selection (Displays info about all selected objects)

- Sprites: If object has SpriteRenderer
- PolygonCollider2D: Count of object with PolygonCollider2D
- Paths: Total collider path count
- Vertices: Total collider path vertices count
- No 2D colliders: Count of objects without any 2D colliders (but they are sprites)
- Other 2D colliders: Count of objects with either BoxCollider2D, CircleCollider2D or EdgeCollider2D
- Other objects: Count of objects without SpriteRenderer component

Optimize (main optimization tools)

- Angle threshold: Filters vertices based on neighbor vertex angles (value 18 is good in most cases)
- Optimize: Optimizes using the angle threshold
- Remove inner paths: Removes inner collider paths (if they are inside other path)
- Keep largest path only: Finds the largest collider path (by bounding box) and removes the others
- Remove paths with less than # vertices: If path has less than # amount of vertices its removed

Scale (collider path scaling)

- Scaling method
  - Estimate Neighbors, Standard Scaling, Normalized Scaling, Normalized Scaling (local center)
    - Estimate Neighbors: Checks previous & next vertex angles and scales to perpendicular direction (usually works only once or twice, after that "corrupted" vertices appear on corners)
    - Standard Scaling: Directly multiplies vertex values with scaling multiplier
    - Normalized Scaling: Fixes problem with Standard scaling where near 0,0 vertices are scaled less than far away vertices, here scaling is normalized for all distances
    - Normalized Scaling (local center): *Recommended*, this works best with multiple path colliders
- Scaling multiplier #: 1 = no scaling, 0.5 = half size
- < Scale : Scale to smaller (using scale multiplier)
- Scale > : Scale to bigger (using scale multiplier)

Move (for moving (panning) all collider paths)

- Move step (in unity world units) #
- < /\ \/ > : Move to Left/Up/Down/Right
- This is useful for fine tuning path locations after scaling

Tools

- Add Polygon2D Colliders: Adds to every selected object, only if it has SpriteRenderer and it doesn't have any other 2D colliders
- Remove PolygonCollider2D: Removes PolygonCollider2D's from all selected objects, if there is any
- Reset PolygonCollider2D: This actually removes PolygonCollider2D and adds it again (so that Unity re-creates the collider paths).
  Note. If object has physics material set, or trigger enabled, those values are preserved

Statistics

- Vertices # ># (#% removed): Displays how many vertices were removed in last operation

KNOWN ISSUES

"Optimize"

- If high angle values are used once or several times, you might end up with invisible (2 vertex) paths, so don't do it (or filter those out using the "Remove paths less than # vertices"-button)

"Remove inner paths"

- Sometimes you have to click this button twice to remove inner path(s)

Starting the plugin

- If you have objects selected when you start the plugin window, it won't display selected objects count (you need to select/deselect some objects for it to update if you want to see the count, but they are still selected and you can start optimized them)

<mark>WARNING:</mark> **Not all operations are Undoable**

- These operations are **NOT** undoable: Optimize, Remove inner paths, Keep largest path only, Remove paths less than #, Scaling, Moving
- These operations **ARE** undoable: Add, Remove, Reset PolygonCollider2D's

EXTERNAL TOOLS

Useful tools for working with sprites

- Sprite tools: http://renderhjs.net/shoebox/
- Texture packer: http://www.codeandweb.com/texturepacker
- Physics Editor: http://www.codeandweb.com/physicseditor
- Tile Map Editor: http://www.mapeditor.org/
- Sprite Editor: http://www.aseprite.org/
- Sprite Editor: http://www.cosmigo.com/promotion/index.php
- Sprite Editor: http://www.humanbalance.net/gale/us/

SUPPORT & FEEDBACK

Send comments / feedback & requests to my blog:

http://unitycoder.com/blog/2014/03/30/asset-store-polygoncollider2d-optimizer/

Unity asset store forum link will be added there later

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