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# Shadow Volumes Toolkit
# Copyright 2013 Gustav Olsson
# http://gustavolsson.squarespace.com/shadow-volumes-toolkit/
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Please visit the website for video tutorials and answers to frequently asked questions.

Important

- All components have inspector tooltips or help blurbs
- If you're targeting mobile platforms and use the Stencil Buffer backend, enable the 24bit depth buffer in the build settings and make sure that you have a valid Unity iOS/Android Pro license
- If you're targeting mobile platforms and use the Alpha Channel backend, enable the 32bit display buffer in the build settings

Quick scene setup

1. Attach the ShadowVolumeRenderer script to an empty game object in the scene
2. Attach the ShadowVolumeSource script to a light game object in the scene
3. Click on "Window->Shadow Volumes Toolkit->Quick Shadow Setup" to open up the quick shadow setup

dialog. Dock it somewhere in the editor for easy access.

4. Select a game object in the scene and then click the "Setup shadow" button in the quick shadow setup dialog

Manual scene setup

1. Attach the ShadowVolumeRenderer script to an empty game object in the scene
2. Attach the ShadowVolumeSource script to a light game object in the scene
3. Click on "Window->Shadow Volumes Toolkit->Shadow Mesh Creator" to open up the mesh creator dialog. Dock it somewhere in the editor for easy access. Select a reference mesh and click on the "Create Shadow Mesh" button to create a shadow mesh asset.
4. For each shadow caster in the scene - Attach the ShadowVolume script to the shadow caster game object. Choose a shadow mesh created from step 1.

For more information, see the Basic example scene

Unity license requirements

The toolkit can be used with any version of Unity, but different backends rely on different Unity features and thus have different Unity license requirements.

Backend	Unity Free	Unity Pro
Stencil Buffer	no	yes
^ NoTwoSided	no	yes
Alpha Channel	yes	yes
^ NoBlendOp	yes	yes

Platform compatibility

Backend	Win/OSX/Lin	iOS	Android
Stencil Buffer	yes	yes	depends
^ NoTwoSided	yes	yes	depends
Alpha Channel	yes	yes	depends
^ NoBlendOp	yes	yes	depends

> The quality of the OpenGL ES implementation on Android devices vary considerably and it is recommended to test the app on all target devices before release. Make sure that the shadows show up as expected and that no graphical artefacts are present.

Backend performance comparison

The table below shows the number of fullscreen passes and the number of shadow volume passes per shadowed game object in the scene. Lower values equal better performance.

Backend	# fullscreen passes	# passes/GO
Stencil Buffer	2	2
^ NoTwoSided	2	4
Alpha Channel	3+8	4
^ NoBlendOp	3+4+8	4