For **Install & Tweaks** instructions please refer to **pages 2 and 3**.

The technique: Used by many modern real-time engines and games featuring adaptive dynamic penumbra that scales softness based on caster and receiver distances. This technique improves aliasing and banding on extremely tiny shadowmaps textures. It also requires less sampling to filter out shadows while being faster than any other similar solutions on the market. Plus, it works on any platforms where Unity support real-time shadows.

Algorithms: A PCSS filter (Area-like soft-shadows) and a PCF filter (standard soft-shadows). Both shadows types adjust penumbra size over distance and let you tweak shadows softness but the PCSS technique behaves more physically correct. Bonus, NGSS also features screen space Contact Shadows with bilateral filtering and edge tolerance. A complete shadows package to skyrocket your projects quality to the next level! :)

Compatibility: SM3.0 for PCF and SM3.5 for PCSS or better. Does not work with DX9/GLES 2.

Note: Since **v1.8.0** All shadow files are independent again. You can install what you need.

Local shadows Setup:

1. Close the **Unity Editor**. Go to the directory where you Installed Unity and open the **Data\CGIncludes** folder. On Windows: **"C:\Program Files\Unity\Editor\Data\CGIncludes".** On Mac: **"/Applications/Unity/Unity.app/Contents/CGIncludes"** .
2. Backup the file **UnityShadowLibrary.cginc** inside that folder In case you want to revert to Unity default shadows again.
3. Replace the file **UnityShadowLibrary.cginc** with the one provided one in this package (you may need administration rights to replace the file).
4. Delete the **ShaderCache** folder on your project. This will force Unity re-import **NGSS** library. To do it simply navigate to your project folder, open the **Library** folder and delete the **ShaderCache** folder.
5. To uninstall **Local** shadows, revert to your original **UnityShadowLibrary.cginc** file.

Local Shadows Properties Tweaks:

- Set the **Shadow type** to **Hard-Shadows** to enable **PCF** filter (uniform soft-shadows).
- Set the **Shadow type** to **Soft-Shadows** to enable **PCSS** filter (area-like soft-shadows).
- To change soft-ness of the shadows change the **Shadow Strength** property on the light.
- To change internal **Spot/Point shadows features and quality** please refer to **UnityShadowLibrary.cginc** file (**starting at line 24**). Normally you should not touch any of the Shadow files internally. Advanced users only!

Note: Local shadows refers to spot and point shadows. The install process for Local shadows must be done every time you install Unity as Unity overwrites these files on every install.Your project **ShaderCache** folder must be deleted every time you install or tweak the **UnityShadowLibrary.cginc** file. This won't be necessary when NGSS will support **Scriptable Render Pipelines** in the future.

Important: If you have custom shaders (such as pre-integrated skin shading) or any other shader framework that internally access to **_LightShadowData**, override that value to 1 (or 0) in that shader. Otherwise your Local shadows will behave wrong when you lower the **Shadow Strength** value. NGSS internally uses **_LightShadowData** to tweak the penumbra size of shadows which correspond to the **Shadow Strength** value of Unity built-in lights.

Note: Since **v1.8.0** All shadow files are independent again. You can install what you need.

Directional/Contact shadows:

Directional Shadows install: Open your Scene, select your main **Directional light** and add the **NGSS_Directional.cs** script to it. Directional Shadows properties are tweaked within that component and they are self documented too (hover your mouse over properties to display tips). Make sure **Cascaded Shadows** is enabled in the **Graphics** panel (disabled by default on mobile).

Contact Shadows install: Add **NGSS_ContactShadows.cs** to your **Main Camera** to enable raymatched screen space shadows. Contact Shadows properties are tweaked within that component.

Directional Shadows uninstall: Uncheck the **NGSS_KEEP_ONDISABLE** property in the NGSS_Directional component before removing or disabling the component.

Contact Shadows uninstall: Just remove or disable the **NGSS_ContactShadows** component attached to the main camera.

Pro tips: If your target platform is Desktop or Consoles, try to enable 32 bit depth buffer in Graphics Menu, this provide better shadows precision. Available only in Unity 2017 and up.

If you are targeting Mobile or low end Desktop, don't go crazy with the maximum quality. Start at the lowest quality possible ex: 16 samplers, PCSS disabled, one or two cascades and scale quality from there. Also tweaking the noise value can be a good way to improve the appeals of your shadows, even at the lowest settings possible.

We always recommend **StableFit** projection over **CloseFit** as the later has projection problems and produces large shadows artifacts due to the pankake.

For older versions than 5.6 or any custom inquiry please email **support**: support@psychozinteractive.com with your invoice number.

Email Support and custom inquiries: support@psychozinteractive.com

Unity Forum: https://forum.unity3d.com/threads/next-gen-soft-shadows-custom-shadows-filters-for-unity-lights-with-adaptive-penumbra-size.440088/