RealToon

V 5.0.3

User Guide

(V8)

(RealToon Shader)

It's an AAA Anime - Toon Shader/Cel Shading Shader for Unity3D.

The goal/aim of this shader is to make your characters or objects shading to look as close to real anime or cartoon as possible in real-time and fast.

Use RealToon Shader for games, animations & illustrations/art.

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[Shaders]

A. Types:

a. Default
**RealToon Default Shaders.*
**Available for both unity default standard rendering pipeline & LWRP*

b. Lite
**RealToon Shaders Lite Version, for mobile or animation/games that don't need the other Default – high end features.*
**Currently available for unity default standard rendering pipeline.*

c. Tessellation
**RealToon Tessellation version shaders.*
**Currently available for unity default standard rendering pipeline.*

B. Shaders:

a. **Default –** Default RealToon Shader.
b. **Fade Transparency -** RealToon Shader with fade or smooth transparency.
c. **Refraction -** Refraction Shader.

C. Effects:

a. **Sobel Outline –** An edge detection or outline image effects.

[How to use RealToon]

A. Use RealToon:

a. Create a material.
b. Select the material you've created and change the shader to RealToon shaders you want to use.
c. Drag the material to your object.
d. Enable/Disable the features you don't want to use.
e. Adjust **Self Shadow Size** if needed to hide Receive Shadow weird edge.
f. Adjust **Reduce Shadow** if needed to reduce unwanted real-time shadow artifacts on the object - material. *(RealToon Default & Tessellation Only).*
g. Adjust your **Light Source** if needed.

B. Use RealToon Effects:

a. Select a camera.
b. Add component -> RealToon -> Effects.
c. Select the effect/s you want to use.

C. Use Frame By Frame Rendering:

a. Select a camera or object.
b. Add component -> RealToon -> Tools.
c. Select the type of **Frame By Frame Rendering** you want to use.

D. Use Custom Shadow Resolution:

a. Select a light source.
b. Add Component -> RealToon -> Tools.
c. Select **Custom Shadow Resolution**.

[Important Notes/Tips]

* If you want high performance game, Change **Shadow Type** to **Soft Shadow** or **Hard Shadow**, Change **Shadow Resolution** to **Low** for softer **Received Shadows** or just change **Shadow Type** to **No Shadow** and use **Self Shadow** instead,
- Or do your own high performance settings/preference.

*For Best Anime/Toon Look (For Animations & Illustrations/Arts), Adjust Light **Bias** to 0.01, Change **Shadow Type** to **Hard Shadows** and change **Shadow Resolution** to **High** or **Very High Resolution.**
- Change also **Shadow Projection** to **Close Fit**, **Shadow Cascade** to **Four Cascades** and adjust **Cascade Splits** until you get the highest quality shadow**. (Edit-> Project Settings -> Quality).**
- Adjust also **Shadow Distance** for you to see all shadows in the scene**.**
- If you want custom shadow resolution, just add the included **Custom Shadow Resolution** script to your light source. **(Add Component -> RealToon -> Tools -> Custom Shadow Resolution)**

*For clean shade, use ***Smooth Object Normal*****.** (This feature is still experimental but you can use it. A-bit tricky to use but the result is great.) (Useful for anime/cartoon style clean shade face.)
- See page 23 – V for tutorial on how to use it.

* Don't adjust ***Self Shadow Size*** beyond 0.85 if ***Received Shadows*** is turned on in your object because ***Received Shadows*** weird edge will be visible.

*You can use **Directional Light** as ambient light or you want the shadow to be affected by lights, just check or enable ***Light Affect Shadow***.

*If you want to adjust the **Environmental Lighting** intensity in your character/object or you don't want your character/object to be affected by it, just adjust ***Environmental Lighting Intensity***.

*Adjust ***Light Falloff Softness*** If you want an Anime/Cartoon like light falloff.

*If you want your transparent object have outline, use **Fade Transparency** then enable outline.
- Adjust also the ***Reduce Outline Backface*** to see though.

*If you want your low poly objects or character to high poly and smooth,
Use **RealToon Tessellation Version**.
- Note that tessellation only works on **DX11/12** to up**, OpenGL Core, OpenGL ES 3.1 mobile** & **PS4/XBoxOne** and **Shader Model 4.6** to up.

*You can use ***Self Lit*** for object emission/self illumination, can also use it with post processing/image effects **Bloom**.
- You can also use ***Self Lit*** as Unlit.
*Use ***Overall Shadow Color*** to change overall shadow color of your object/character if you don't want to use ***Shadow Color Texture*** *to color the shadow*.

*Adjust ***Overall Shadow Color*** to color ***Self Shadow*** or ***ShadowT***.

*To be able to see ***PTexture***, adjust ***Overall Shadow Color*** to white or your choice color.

*Enable ***Show In Shadow*** if you want ***ShadowT*** to be visible in shadow.
- Note: You need to adjust ***Overall Shadow Color*** or ***Self Shadow*** to be able to see it.

*Enable ***Show In Ambient Light*** if you want ***ShadowT*** to be visible in shadow.

*If you want ***Self Shadow*** intensity to be affected by **Light Shadow Strength**,
Check or enable ***Self Shadow Affected By Light Shadow Strength***.

*If you want a ***Plane*** *or flat* object to have an Outline, just change ***Outline Extrude Method*** to ***Origin*** and change ***Double Sided Outline*** and ***Double Sided*** to ***On*** then adjust ***Outline Z Position In Camera***, example values 0.1.

*If you want a silhouette type outline, adjust the camera's ***Near*** to 0.03 the adjust ***Outline Z Position In Camera.***

*Check ***No Light and Shadow On Backface*** If you don't want light and shadow showing on the other side of a plane or a face when ***Double Side*** is ***On***.

[Other info]

*You can now reduce real-time shadow of an object – material without affecting other objects/parts shadow by using ***Reduce Shadow*** feature.
- Take note, you need to adjust the ***Directional Light*** or ***Spotlight Bias*** to more than 0 when adjusting ***Reduce Shadow (Spot & Directional Light).***

*RealToon now comes with ***Frame By Frame Rendering for*** Animation/Illustration use.
- A simple scripts to render each frame into PNG File.
- Just like tradition animation frame by frame workflow.

*RealToon can receive GI & Sky light/Environment Lighting.
- If you want your object/character to receive GI Lighting, Use Light Probe.
- If you want your object to have real-time reflection, Use Reflection Probe.

*RealToon is now support **Nintendo Switch**,
Xbox One & **PS4** is already supported but these two consoles needs to test RealToon first to know if its fully working it or not.

*You can now hide Directional, Point & Spot light shadows. This feature works just like un-checking ***"Received Shadows".***

*Can now be use in 2D games.

****Fade Transparency*** now has Outline and shadow affected by texture transparent or alpha.

*You can use RealToon V5 in VRChat and VTuber works.

****Self Shadow*** can now be affected by Light Shadow Strength.

*Fog now affect ***Outline.***

*Now includes ***RealToon LWRP version***.

[RealToon Shader Features & Functions]

["*D:*" means Default Values/Settings]
["N-A in Lite Ver." means Not available on lite version.
[Red Text means New or Blue means re-added]

A. Double Sided *(D: Off)* – Can see the other side of a plane or face.

B. Texture Color – Texture and Color of the object.

a. Texture Intensity *(Refraction shader only) (D: 0)* - Intensity of the texture.
b. Texture/Main texture *(D: No Texture)* **–** The main/base texture of your object.
c. Main Color *(D: Gray/ RGB:200)* **–** The main/base color of your object.

Adjust **Main Color to something gray if you want to blend the object to other objects uses **Unity Standard shader** or if it's too bright/over-expose, just like other toon shader.*
Use pure white color (RGB:255) if you only use one light and the **light intensity is between 1 – 0.*

d. Highlight Color *(D: White)* **-** Highlight or light color on the object.
e. Highlight Power *(D: 0)* - Adjust color power/intensity.

f. Enable texture Transparent *(D: Unchecked)* **–** Enable texture transparent. (If your texture has transparent/alpha).
g. Reduce Texture Quality *(D: 0)*
h. Texture Pattern Style *(D: Unchecked)* **–** Turn main/base texture into pattern style.

C. Normal Map

a. Normal Map *(D: No Texture)*
b. Normal Map Intensity *(D: 1)*

D. Color Adjustment *(N-A on Lite Ver)***:**

a. Saturation *(D:1) – Adjust the saturation color of the object*

E. Cutout *(N-A on Lite Ver.)* **–** Cutout transparent.

a. Cutout *(D: 0)* **-** The amount of cutouts.
b. Alpha Base Cutout *(D: Checked)* **–** If checked, Will use texture/main texture transparent/alpha but if unchecked it will use the color/s of the texture/main texture.
c. Use Secondary Cutout Only *(D: Unchecked):* This will use the Secondary Cutout only.
d. Secondary Cutout *(D: No Texture)* – A secondary Cutout.

F. Transparency *(Fade Transparency shader only)* **–** Transparency/Opacity of the object.

a. Opacity *(D: 1)* **–** The opacity/transparency of the object.
b. Transparent Threshold *(D:0)* - Adjust the Transparent/Alpha Threshold of the main texture.
c. Affect Shadow *(D: Checked)*
d. Mask Transparency *(D: No Texture)* **–** Mask the part of the object you want to be affected by the transparency.

**Use pure-strong black & white or texture with alpha/transparent.*
Black means affected, White means not affected*.**

G. Refraction *(Refraction shader only)*

a. Refraction Intensity *(D: 1)*
b. Main Color Affect Texture *(D:Unchecked)*

H. Outline

a. Width *(D: 0.5)* **–** Thickness/Width of the outline.
b. Width Control *(D: No Texture)* **–** *Controls the amount of outline and outline width.*

******White means 1 or greater, black means 0.*

c. Outline Extrude Method *(D:Normal)*

****Origin** - Useful for box or cube objects, the extrusion will be base on object center of origin.*
****Normal** - Useful for round or smooth and a-bit cube shape objects, the extrusion will be base on object's normal direction.*

d. Outline Offset (*D: XYZ:0)- Change outline position.*
e. Reduce Outline Backface *(D:0)*
f. Color *(D: Black)* **-** Outline Color.
g. Outline Z Position In Camera *(D:0)* – Adjust Outline Z Position in camera space.
h. Double Sided Outline *(D: Off)*
i. Noisy Outline Intensity (*N-A on Lite Ver.*) *(D: 0)* **–** Noisiness/Distortion of the outline.
j. Dynamic Noisy Outline (*N-A on Lite Ver.) (D: Unchecked)* **–** Enable moving distorted/noisy outline.

**If checked, noisy outline will move like animated sketched drawing.*

k. **Light Affect Outline Color** *(D: Unchecked)* – Light falloff & intensity affect outline color.

l. **Outline Width Affected By View Distance** *(D: Unchecked)* **–** Outline width will be adjust by view distance.

**Far view means increase outline width, Near View means decrease outline width.*

m. **Far Distance Max Width** *(D: 10)* - Maximum outline width when far.
n. **Vertex Color Red Affect Outline Width** *(D: Unchecked)*

I. **Self Lit/Self Illumination –** Objects own light/light of its own.

a. **Intensity** *(D: 0)* **–** The amount of its own light.
b. **Color** *(D: White)* **–** Objects light color.
c. **Power** *(D: 2)* **–** Objects light strength.
d. **High Contrast** *(D: Checked)* **–** Use high contrast color.
e. **Mask Self Lit** *(D: No Texture)* **–** Mask self lit.

**Use pure-strong black & white or texture with alpha/transparent.*
**White means affected, Black means unaffected.*

J. **Gloss -** Glossy effect.

a. **Intensity** *(D:1) – Adjust gloss intensity.*
b. **Glossiness** *(D: 0.5)*
c. **Softness** *(D: 0)* **–**Adjust gloss softness.
d. **Color** *(D: White)* **–** Gloss color.
e. **Color Power** *(D:10)* **–** Adjust color power or intensity.
f. **Gloss Mask** *(D: No Texture)* **-** Mask gloss.

**Use pure-strong black & white or texture with alpha/transparent.*
**White means visible, Black means not visible.*

K. **Gloss Texture –** Gloss in texture form/custom gloss.

a. **Gloss Texture** *(D: No Texture)* **–** Texture to use as gloss.

(Recommend): *Use pure-strong black & white texture or texture with alpha/transparent and square size.*
** You can also use colored texture but it will automatically turn it to black & white.*

b. **Softness** *(D: 0) – Gloss Texture softness.*

c. **Rotate** *(D: 0) – Rotate Gloss Texture.*

**Adjust Gloss Texture Offset while adjusting this.*

d. **Follow Object Rotation** *(D: Unchecked)* **–** Gloss Texture follow object rotation.
e. **Follow Light** *(D: 0) – Gloss Texture follow light.*

L. **Shadow –** Shadows on the object.

a. **Overall Shadow Color** *(D: Black)*

Change this to white or any color you want if you want **Color Shadow Texture, **PTexture** & **ShadowT** to be visible.*

b. **Overall Shadow Color Power** *(D: 1)* – Adjust color power/intensity.

c. **Self Shadow at View Direction** *(D: Unchecked)* – Self shadow use your view direction.

***If checked, self shadow use your view direction, if uncheck it will use the default light direction.*
d. **Reduce Shadow (Point Light)** *(D: 0) - Reduce point light real-time shadow on the object – material.*

e. **Reduce Shadow (Spot & Directional Light)** *(D: 10)-Reduce spot & directional light Real-time shadow on the object – material.*

You need to adjust **Spot light or **Directional light Bias** more than 0 to be able to adjust this.*

f. **Shadow Hardness** *(D:0) (N-A on Lite Ver.) – Adjust real-time shadow hardness.*

**Adjust this if the light shadow type is soft or light shadow is soft.*

g. **Self Shadow & RealTime Shadow Intensity** *(D:1) (N-A in Lite Ver.)*

M. Self Shadow – Object's own shadow.

a. Threshold *(D: 0.56)* – The amount of self shadow on the object.

Don't adjust this beyond 0.85 if **Received Shadows is on in your object because **Received Shadows** weird edge will be visible.*

b. Vertex Color Green Control Self Shadow Threshold *(D: Unchecked)*

c. Hardness *(D: 1)* **–** Self shadow hard edge or soft.

d. Self Shadow & Real Time Shadow Color *(D: White)* – Self & Real Time Shadow Color.

You need to change **Overall Shadow Color to white so you can change the color.*
- Self Shadow & Real Time Shadow are merged together.

e. Self Shadow Affected By Light Shadow Strength *(D: Unchecked) (N-A on Lite Ver.)*

f. Self Shadow & Real Time Shadow Color Power *(D: 1)* – Adjust color power/intensity.

You need to change **Overall Shadow Color to white so you can change the color.*
- Self Shadow & Real Time Shadow are merged together.

N. Smooth Object Normal/Ignore Object Normal [Experimental]

a. Smooth Object Normal *(D: 0)* – The Intensity of the smoothness/ignore object normal.

b. Vertex Color Blur Control Smooth Object Normal *(D: Unchecked)*

c. XYZ Position *(D:0)* – Adjust normal XYZ.

d. XYZ Hardness – Adjust normal XYZ edge hardness.

High value means hard edge and less **Self Shadow & ShadowT Threshold control, if low means soft edge and more **Self Shadow & ShadowT Threshold** control.*

e. Show Normal *(D: Unchecked)* **–** Show XYZ normal.

**Use for visualizing normal and see the adjustment.*

O. Shadow Color Texture – Shadow color in texture form.

a. Shadow Color Texture (*D: No texture)* – Shadow color in texture or shadow/darker version of the main texture.

Note: Adjust **Overall Shadow Color to be able to see it.*

b. Power *(D: 0)* **–** Color strength/contrast of the texture.

**If Increase, texture color will become stronger or darker.*

P. ShadowT – Texture based shadow. **(Uses Texture/2D Texture)**

a. Intensity *(D:1) (N-A on Lite Ver.)* – Adjust ShadowT Intensity.
b. Texture *(D: No Texture)* **–** Flat or Gradient Dark Gray & White Texture to be use as shadow.

(Recommend): *Use dark gray & white texture or texture with alpha/transparent. Use pure/deep black & white texture if you don't want ShadowT to be affected by* ***Light Threshold***, ***Shadow Threshold*** & ***Light Falloff****.*

c. Light Threshold *(D: 50)* – The amount of light.

******High values lighter, Low values less light.*

d. Shadow Threshold *(D: 0)* – The amount of shadow.
**Low values less shadow, high values more shadow.*

e. Hardness *(D:0)* – ShadowT edge hardness.
f. Color *(D: Black)* – ShadowT Color.
g. Color Power *(D:1)* - Adjust color power/intensity.
h. Show In Shadow *(D: Unchecked) (N-A on Lite Ver.)* – Show ShadowT in shadow.

Note: Adjust* ***Overall Shadow Color* *or* ***Self Shadow - Color*** *to any color to be able to see it.*

i. Show In Ambient Light *(D: Unchecked) (N-A in Lite Ver.)* – Show ShadowT in Ambient Light.
j. Show In Ambient Light & Shadow Intensity *(D:1) (N-A on Lite Ver.)*
k. Show In Ambient Light & Shadow Threshold *(D: 0.4) (N-A on Lite Ver.)*
l. Light Falloff Affect ShadowT *(D: Unchecked)* – Light Falloff Affect ShadowT.

Q. PTexture *(D: No Texture)* – Texture to use as pattern style shadow.

a. Shadow PTexture *(D: No Texture)* **–** Texture to use as patterned shadow.
b. Power *(D: 1)* - Strength/contrast of the texture.

******Note:* *PTextures/Pattern Texture - use for turning shadow to pattern style shadow like manga "Half Tone" or any texture with/without alpha/transparent.*

R. Lighting - GI Lighting, Light-Falloff & Other lightings.

a. GI Flat Shade *(D: Unchecked)* – Use hard edge or flat shade GI.

b. GI Shade Threshold *(D: 0)* – Amount of shade.

Similar to **Self Shadow Threshold.*

c. Light Affect Shadow *(D: Unchecked)* **-** Lights affect Shadow.

** Use this if you want the shadow to be affected by lights.*

d. Light Intensity *(D: -1)*

You can adjust this if **Light Affect Shadow is enable or checked.*

e. Environmental Lighting Intensity *(D: 1)* – Adjust Environmental Lighting intensity on the object.

f. Point and Spot light Intensity *(D: 0)* – Adjust Point and Spot light Intensity on the object.

**Adjust this if the object is not bright enough or need more brightness when using point & spot light.*

g. Light Falloff Softness *(D: 1)* – Adjust Point & Spot Light light falloff edge softness.

**Change the value to 0 if you want the anime style light falloff.*

S. Custom Light Direction

a. Intensity *(D: 0)*

b. Custom Light Direction *(D: XY:0 Z:10)*

c. Follow Object Rotation *(D: Checked)* - **Customer Light Direction** follow object rotation.

****Note:** This only affects **Self Shadow** & **ShadowT.***
Use this if you don't want **Self Shadow & **ShadowT** to follow Light too much or you want **Self Shadow** & **ShadowT** to follow other object by script.*
**Useful in anime face.*

T. Reflection

a. Intensity *(D: 0)* **–** Reflection intensity/strength.

b. Roughness *(D: 0)*

This will also affect **FReflection.*

c. Metallic *(D:0)*

Adjust **Main Color if it's bright.*
*******Metallic is dark color.*

d. Mask Reflection *(D: No Texture)* **–** Mask Reflection.

**Use pure-strong black & white or texture with alpha/transparent.*
**White means affected, Black mean affected.*

U. FReflection – Fake Reflection **(Not Real-time, Not Cube map, Uses Texture/2D Texture).**

a. Use FReflection *(D: Unchecked)*

b. FReflection/FReflection Texture *(D: No Texture)* **–** Texture to use as reflection.
**Use square/equal sides size texture or panorama image/picture.*
Be sure to use the Tilling & Offset to adjust its position and size.

V. Rim Light

a. Unfill *(D: 1.5)* **–** The reduce Rim light on the object.
b. Softness *(D: Unchecked)* **–** Adjust Rim Light edge softness.
c. Light Affect Rim Light *(D: Checked)* – Light Intensity & Light Falloff affects Rim Light.
d. Color *(D: White)* **–** Rim Light Color.
e. Color Power*(D: 10)* **-** Adjust color power or intensity.
f. Rim Light In Light *(D: Checked)* **-** Rim Light visible only in light.

W. Depth *(Refraction Shader Only)* **–** Depth Effect.

a. Depth *(D: 0.2)* **–** Depth intensity/strength.
b. Edge Hardness *(D: 0.1)* **–** Depth hardness.
c. Color *(D: White)* – Depth color.
d. Color Power *(D: 1.8)* – Adjust color power or intensity.

X. **Tessellation** *(RealToon Tessellation Version Shader only)*

- **a.** **Smoothness** *(D: 0.5)*
- **b.** **Transition** *(D: 0.8)* **–** The amount of transition between **Near** & **Far**.
- **c.** **Near** *(D: 1)* **–** The amount of tessellation in near view.
- **d.** **Far** *(D: 1)* **–** The amount of tessellation in far view.

Y. See Through

- **a.** **ID** *(D: 0) – ID or Reference value.*
- **b.** **Set 1 & Set 2** *(D: None)*

[Note]
"A" the see through object.*
"B" the object to be seen through **"A"**.*

If **Set 1 is set to **A**, **Set 2** is also set to **A**. **(See through object)***
If **Set 1 is set to **B, Set 2** is also set to **B**. **(Object to be seen through "A")***
If the **ID of the see through object **"A"** is set to 1**,** the **ID** of the object to be seen through **"A"** is also set to **1**.*

[Important)
***[See through object "A"] Render Queue** set to Geometry (2000).*
***["B" object to be seen through "A"] Render Queue** set to Geometry (2000) and minus 1.*
(See/open scene "See Through Example" for more info)

Z. Disable/Enable Feature – Here you can enable or disable features you want or don't want to use.

AA. Other Options/Features

- **a.** **No Light and Shadow On Backface** *(D: Checked) (N-A on Lite Ver.)*
- **b.** **Hide Directional Light Shadow** *(D: Unchecked) (Default & Default Tessellation Only)*
- **c.** **Hide Point & Spotlight Shadow** *(D: Unchecked)*
- **d.** **Hide Cast Shadow** *(D: Unchecked) (Default & Tessellation Fade Transparency Only)*
- ***e.*** **ZWrite** *(Fade Transparency & Refraction Only) (D: Off)*

[Frame By Frame Rendering Tool]

"Frame by Frame Rendering is a simple tool to render each frame to PNG File. (Use For Animation & Illustration/Art)"

Two types of Frame By Frame Rendering script:

1. **Frame by Frame Rendering (Default) –** Auto Render by Start Frame.
2. **Frame By Frame Rendering (Manual) –** Manual Render.

(Controls & Function)

Frame By Frame Rendering (Default)

A. **Settings**

a. **Path Folder** *(D: Rendered Files)* **–** A path/location to where to save the PNG Files.

**You can put name folder only but it will be created into your Unity3D root project folder.*
*If you want to save the files to different location/drive, include "DriveLetter:\", example "C:\PNGFiles"
* *This will set to **"Rendered Files"** if this set to empty.*

b. PNG File Name *(D: Frame)*

* *This will set to **"Frame"** if this set to empty.*

c. Frame Rate *(D:24)*
d. **Start Frame** *(D:0):* Frame Number to start render.
e. **End Frame** *(D:0):* Frame Number to end render.
f. **Single Frame Rendering Mode** *(D: Unchecked)* – Render single image only.

This will ignore **Frame Rate, **Start Frame** & **End Frame**.*
It will only render **Frame 1.*
**If Checked/Enabled file name will be named "YouFileName Hour_Min_Sec".*
**If Uncheck/Disable file name will be named "YouFileName FrameNumber".*

B. Information – This section will only display information about the rendering and operations.

a. **Current Frame –** Display the current frame.
b. **Info –** Display rendering info and operations.

Frame By Frame Rendering (Manual)

a. **Frame Number** *(D: 0)* – Frame number to be render.
b. **Render** *(D: 0)* – To render or Start Render.

A .Settings

c. **Path Folder** *(D: Rendered Files)* **–** A path/location to where to save the PNG Files.

**You can put name folder only but it will be created into your Unity3D root project folder.*
*If you want to save the files to different location/drive, include "DriveLetter:\", example "C:\PNGFiles"
* *This will set to **"Rendered Files"** if this set to empty.*

d. PNG File Name *(D: Frame)*

* *This will set to **"Frame"** if this set to empty.*

e. **Picture Mode** *(D: Unchecked)* – Render single image only.

**If Checked/Enabled file name will be named "YouFileName Hour_Min_Sec".*
**If Uncheck/Disable file name will be name "YouFileName FrameNumber".*

B. Information – This section will only display information about the rendering and operations.

a. **Last Rendered Frame –** Display the last rendered frame.
b. **Info –** Display rendering info and operations.

(Frame By Frame Rendering Notes/Tips)

For Frame By Frame Rendering Both (Default & Manual)

1. You can pause rendering by click pause button.

2. Stop render immediately by click play button again.

3. You cannot start render if the folder has files on it so you need to change the **Path Folder** to another location or folder. (Applies only to **Non Picture Mode** & **Single Frame Mode**)

4. You can start render even if the folder has files on it. (Applies only to **Picture Mode** & **Single Frame Mode**)

5. You can create folder by just putting a folder name that is not yet exist in the current location/path. (Applies to **Path Folder**)

6. To set the resolution just set it in the Game view or Game panel.

For Frame By Frame Rendering (Manual)

1. Click **Render** to start render, once clicked it will turn back to unchecked means render 1 frame not continuous unlike **Frame By Frame Rendering (Default)**.

2. You can overwrite a specific saved frame by setting the **Frame Number** to the frame number you want to overwrite then click **Render**. Be sure that frame number is in the folder. Be careful not to double the **Render** or else it will overwrite the next frame number that is already saved.

For Frame By Frame Rendering (Default)

1. Click play button to start render, once the button is clicked **Current Frame** will start moving or display the current frame once the **Current Frame** reached the **Start Frame** number it will start rendering then later if **Current Frame** reached the **Start Frame** number it will stop render. To completely end rendering click play button.

2. If you render a scene with timeline, set **Frame Rate** to the frame rate of timeline. *Example "Timeline frame rate is 60 = Frame By Frame Rendering (Default) Frame rate is also 60"*. If the two is not equal the output is not synchronized especially if you edit it in your Video Editor Software or Compositor Software.

(For Importing PNG files to your Video Editor or Compositing Software)

1. Import PNG files as **PNG Sequence** or **Image Sequence**, be sure your video editor or compositing software has this features or option. Be sure PNG files are numbered frames like *"Frame 0002 to Frame 9000 or higher".*

2. Change the imported **PNG Sequence** or **Image Sequence** file frame rate to the frame rate you set in your **Frame by Frame Rendering** Settings.

[Notes & Tips]

A. You can control the properties of the shaders in your code.
To see/access the shader properties, just go to **RealToon Shaders** folder and select the shader you want to access.

If you want to know how to access shader properties by code, just go to unity3d manual script.

B. Disable **Outline** if your object/s don't need outline or if you don't want to use outline and want less draw calls or want to use a 3rd party image effects outline.

C. Adjust **Reduce Shadow** to reduce unwanted shadow especially shadow artifacts.

D. To properly color shadow, Adjust **Lighting -> Environmental Intensity** to 0 then change your object shadow color, after that, change **Environmental Intensity** back to 1 or your own value.

E. Note that tessellation only work on **DX11/12** to up**, OpenGL Core, OpenGL ES 3.1 mobile** & **PS4/XBoxOne** and **Shader Model 4.6** to up.

F. You can use RealToon together with Unity3D Standard Shader or your other shaders.

G. RealToon can receive GI, skylight/environment light & can do baked/real-time reflection.

H. You can use **ShadowT** as 2nd self shadow/shade.

I. You can use both use **Directional Light** & **Point – Spot light** at the same time.

J. If you want a manga/comics look, use **PTexture** and use a half tone texture and adjust **Saturation** to 0 if you want that Black and white look and don't want to edit the texture again.
*To use **Saturation**, just enable **Color Adjustment**.

K. Always Change the **Overall Shadow Color** to white if you want to color other shadow features like **ShadowT** & **Self Shadow**.

L. Enable **Light Affect Shadow** if you want your shadow to be affected by lights.

M. **Fade Transparency & Refraction** doesn't receive shadows.

N. **Refraction** doesn't have outline for some reason.

O. Make your normal map smooth for better shading details.

P. Use **ShadowT** for more detailed or additional shadows like the shadows on a cloth or hair.

Q. For better anime/toon shadow/shading, edit the Vertex Normal of your model by editing it to your 3d modeling software or you use **Smooth Object Normal feature** or override object normal by using **Normal Map**.

R. **Smooth Object Normal** is experimental and might not work in some objects/characters.

S. Use **Custom Light Direction** if you don't Self Shadow & ShadowT to not follow Light Direction or blend the two Custom Light Direction & Light Direction. Useful for anime style faces.

T. If you want your transparent object to have outline, just enable **Outline** and then adjust **Reduce Outline Backface**.

U. Set **ZWrite** to **On** if you want to see the inside like transparent bottle. **(Fade Transparency & Refraction Only)**

V. Adjust **Outline Offset** if you want to adjust the outline position.
* For silhouette outline effect, just adjust **Outline Z Position In Camera** option.

W. Contact me if you want to translate this User Guide in your local language, see page 24 for contact details.

X. Image Gallery:
http://mjq3690.deviantart.com/gallery/61884975/RealToon-Shader-Gallery

Y. Video Tutorials:
https://www.youtube.com/playlist?list=PL0M1m9smMVPJ4qEkJnZObqJE5mU9uz6SY

Z. Video Demo:
https://www.youtube.com/playlist?list=PL0M1m9smMVPI1XRV_1UL_Vz3IAHkPtQYT

AA. Other Videos
https://www.youtube.com/playlist?list=PL0M1m9smMVPK_vLCBnJ8qIc3w5WsHrCM5

BB. RealToon Tutorials|Tips (Image Version) *You can also download these images*:
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MJQ Studio Works Unity Publisher Profile (Support Links & Email):
http://u3d.as/vDv

Unity 3D Forum:
https://forum.unity3d.com/threads/realtoon-pc-mobile.414237/

Website:
https://mjqstudioworks.weebly.com/