

RealToon

V 5.0.14



User Guide

(V27)

(RealToon Shader)

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

The goal/aim of this shader is to achieve real Anime/Toon look in RealTime 3D.

You can also achieve any style/stylized you want, more than Anime/Toon look.

All Real time lights can be use, from real time Directional Light, Spot, Point to real time Area Light.

It is possible to use RealToon in HDRP's DXR/Ray tracing mode.

Realistic + NPR/Non-Photorealistic are possible with the combination use of Unity's Shaders + RealToon Shaders.

You can use RealToon and other shaders, together.

Use RealToon Shader for games, animations/film, illustrations/art, VTuber, Virtual Chat Avatar Shader and any projects.

RealToon shader can also be use on projects made, Mobile (Android/iOS) and Game Console (Xbox, PlayStation and Switch).

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[Getting Started]

- Before you start, you'll need to unpack the shader package that corresponds to your project render pipeline, before that there are some things you need to know about Unity's Render Pipeline.

If you already know it, just skip to the **Unpacking the Shaders** section.

- Firstly there are 2 types of Unity Render Pipeline, **Unity Built-In/3D Render Pipeline** and **Unity SRP/Scriptable Render Pipeline (URP - HDRP)**.

Under **SRP** there are 2 Unity made SRP, **URP/Universal Render Pipeline** and **HDRP/High Definition Render Pipeline**.

***Unity Built-In/3D Render Pipeline** is the old unity render pipeline.

***Unity SRP/Scriptable Render Pipeline (URP - HDRP)**, is the new and modern render pipeline.

***URP/Universal Render Pipeline** – Formerly named **LWRP** and It is universal and focuses on low and high quality visuals that can be deploy to all devices.

***HDRP/High Definition Render Pipeline** – Focuses on advance high quality visuals and can be deploy to modern devices that supports compute and modern advance features and visuals.

- Now you know what those unity render pipelines are, so we can start unpacking the shader you need. All the shader packages are in the folder **RealToon Shader Packages**.

[Unpacking the Shaders]

***Recommended Unity versions for Built-In RP/3D:**

From **Unity 5** to current latest unity version.

***Recommended Unity and SRP Versions:**

[**RealToon LWRP**] - **Unity 2018** and **LWRP V4.0.0** or latest version.

[**RealToon URP**] - **Unity 2019.3.0** to newer versions and **URP V7.1.1** or latest version.

[**RealToon HDRP**] - **Unity 2019** to newer versions and **HDRP V7.2.0** or latest version.

***If your project is 3D or Built-In RP:**

1. Go to folder **RealToon Shader Packages** -> **Built-In RP [3D]**.

2. Double click **RealToon Built-In RP [3D]** package to unpack.

If you are using the latest unity version, double click - unpack the latest one with the 'Later' word on it.

3. Click **Import**.

***If your project is Universal Render Pipeline or High Definition RP:**

1. Go to folder **RealToon Shader Packages** -> **SRP (LWRP - URP - HDRP)**.

2. Open the folder that correspond to your project render pipeline.

3. Double click - unpack the version you need or the latest one with the 'Later' word on it.

4. Click **Import**.

[How to use]

A. How to use RealToon Shader:

- a. Create a material by pressing mouse button **Right** on the **Project** window/panel.
- b. Go to **Create -> Material**.
- c. Name your material then press keyboard key **Enter**.
- d. Click your created material.
- e. Go to **Inspector** window/panel then change the **Shader** by left mouse button - click the drop down menu.

* **For 3D/Built-In RP:** Go to **RealToon -> Default** and select **Default**.

* **For Universal Render Pipeline:** Go to **Universal Render Pipeline -> Default** and select **Default**.

* **For High Definition RP:** Go to **HDRP -> Default** and select **Default**.

- f. Drag your created material to the object you want to apply.

B. How to use RealToon Effects (Built-In RP/3D):

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

C. How to use RealToon Tools:

- a. Select an object or an empty game object
- b. **Add component -> RealToon -> Tools**.
- c. Select a tool you want to use.

[RealToon Shaders]

(RealToon Shaders for Built-In RP/3D)	(RealToon Shaders for SRP)
A. Default <ul style="list-style-type: none"> a. Default <ul style="list-style-type: none"> * The default RealToon shader. b. Fade Transparency <ul style="list-style-type: none"> * A transparent shader. * It also has the functions and feature of the Default shader. * It can't receive shadow but can cast shadow. c. Refraction <ul style="list-style-type: none"> * A Refraction shader. * It can't receive shadow and can cast shadow. B. Default - Tessellation <ul style="list-style-type: none"> a. Default <ul style="list-style-type: none"> * The default RealToon shader. * With tessellation. b. Fade Transparency <ul style="list-style-type: none"> * A transparent shader. * It also has the functions and feature of the Default shader. * It can't receive shadow but can cast shadow. * With tessellation. c. Refraction <ul style="list-style-type: none"> * A Refraction shader. * It can't receive shadow and can cast shadow. * With tessellation. C. Lite <ul style="list-style-type: none"> a. Default <ul style="list-style-type: none"> * Lite version of the Default shader. b. Fade Transparency <ul style="list-style-type: none"> * Lite version of the Fade Transparency shader. 	A. LWRP <ul style="list-style-type: none"> a. Default <ul style="list-style-type: none"> * The default RealToon shader. b. Fade Transparency <ul style="list-style-type: none"> * A transparent shader. * It also has the function and features of the Default Shader. * It can't receive shadow but can cast shadow. B. URP <ul style="list-style-type: none"> a. Default <ul style="list-style-type: none"> * The default RealToon Shader. * It has the transparent feature. * The transparent feature can receive and cast shadow. * With lightmap. * With 2 available on shader outline to be use, Traditional Outline and Screen Space Outline. C. HDRP <ul style="list-style-type: none"> a. Default <ul style="list-style-type: none"> * The default RealToon Shader. * It has the transparent feature. * The transparent feature can receive and cast shadow. * With DXR/Ray Tracing. * With 2 available on shader outline to be use, Traditional Outline and Screen Space Outline.

[RealToon Tools]

*Custom Shadow Resolution Tool

- This tool is use for customizing the light source shadow resolution.
Can only be use on **Built-In RP/3D**.

Settings
Value (Default: 2048)
- It's the resolution value of the shadow map
Final Resolution (Default: No Default Value)
- This is the shadow map final resolution. This is basically x2 value of the value you entered.
Reset (Default: Unchecked)
- To reset he settings - value

*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 Tool script:
 1. **Frame by Frame Rendering (Default)** – Auto Render when press play.
 2. **Frame By Frame Rendering (Manual)** – Manual Render, frame by frame.

Settings
Path Folder (Default: Rendered Files)
- A path/location to where to save the PNG Files.
[Note] <i>*If you put the name folder only, it will be created to your Unity3D root project folder.</i> <i>*If you want to save the files to a different location/drive, include the drive letter, Example C:\PNGFiles.</i> <i>*If this field is empty, it will create the folder Rendered Files.</i>

PNG File Name (Default: Frame)
<ul style="list-style-type: none"> - The file name <p>[Note] <i>*If this field is empty, it will name the file Frame.</i></p>
Frame Rate (Default: 24)
<ul style="list-style-type: none"> - The frame rate of the frame by frame session.
Start Frame (Default: 0)
<ul style="list-style-type: none"> - The beginning of the frame.
End Frame (Default: 0)
<ul style="list-style-type: none"> - The end of the frame.
Single Frame Rendering Mode (Default: Unchecked)
<ul style="list-style-type: none"> - Render a single image only. <p>[Note] <i>*This will ignore Frame Rate, Start Frame & End Frame.</i> <i>*It will only render Frame 1.</i> <i>*If Checked/Enabled file name will be named "YouFileName Hour_Min_Sec".</i> <i>*If Uncheck/Disable file name will be named "YouFileName FrameNumber".</i></p>
Picture Mode (Default: Unchecked)
<ul style="list-style-type: none"> - Render a single image only. <p>[Note] <i>*This option is only available on the Frame by Frame (Manual) version.</i> <i>*This is similar to Single Frame Rendering Mode.</i></p>

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

Last Rendered Frame (Default: No Default Value)

- Display the last rendered fame.

Info (Default: Empty)

- This is the shadow map final resolution.

*Smooth Object Normal – Helper

- A helper script for the RealToon Feature **Smooth Object Normal**.
- This script will help the **Smooth Object Normal** to follow the object's animation.

Settings**Intensity (Default: 0)**

- **0** means object's default normals while **1** is the full smoothed normals.

Material (Default: Empty)

- A material that uses **RealToon – Smooth Object Normal** feature.

Object Helper (Default: Empty)

- An object to help adjust the smoothed/ignored object normals.

Show Normal (Default: Unchecked)

- This will the display the object's/smoothed normals.

*ShadowT SDF Mode – Helper

- A helper script for the **RealToon ShadowT - SDF Mode**.
- This script will help you to control **ShadowT SDF** feature in one script.

Settings
Material (Default: Empty)
- A material that uses RealToon Shader .
Object Helper (Default: Empty)
- A material that uses RealToon – Smooth Object Normal feature.
SDF Texture (Default: Empty)
- A texture/map to be sure as SDF Shadow .
Light Threshold (Default: 200)
- The amount of light.
Hardness (Default: 1)
- How Hard or Soft the SDF Shadow .
Forward Inverted (Default: Unchecked)
- Invert the Forward/Front position of the object.
Right Inverted (Default: Unchecked)
- Invert the Right position of the object.
Self Shadow (Default: Unchecked)
- Enable/Disable RealToon Self Shadow feature.

*Perspective Adjustment - Controller

- A controller script for the **RealToon Perspective Adjustment**.
- This script will help you to control **Perspective Adjustment** feature in one script.

Settings
Perspective (Default: 1)
- This will change the perspective of an object to 2D or 3D or FOV stretch look.
Clip (Default: 0)
- This will change the clipping on the object.
Close Up Size (Default: 0)
- This will adjust the size of the object when the camera is closer.
Close Up Size Smooth Transition (Default: 1)
- How smooth the transition of the sizing.
Close Up Size Distance (Default: 0)
- Distance transition from the camera to the object.
Object Position Z (Default: 0)
- Z position of the object in Clip Space.
Can Animate It (Default: Unchecked)
- Can animate the values/properties or create keyframe.

*Swap Shader To RealToon - Tool

- A tool to swap from **VRoid|VRM** shader or **Unity** shaders to **RealToon** shader.
- It supports all **Unity Rendering Pipeline** shaders **Built-In/BiRP**, **URP** and **HDRP**.

Settings

From Shader

- From what shader is the selected material/s.

VRoid|VRM Options

***Force Unlit:**

This will make the material to unlit look, no lighting and shadow.

It will enable **RealToon's Hide Directional Light Shadow, Hide Point, Spot and Area Light Shadows/Hide Point and Spot Light Shadows** options, enable **Selflit** feature and adjust the selflit **Power** option, disable **Receive Environmental Lighting and GI** option, disable **Enable Punctual Lights/Enable Additional Lights** option, enable use **Traditional Light Blend** option, disable **Normal Map** feature and **Self Shadow** feature.

***Force Transparent Material To Cutout:**

This will force all transparent material to cutout.

It will enable **RealToon's Transparent Mode** then **Cutout** feature and set the **Cutout** to **4.0**.

*** Enhance Light Highlight Color Intensity:**

This will enhance the light highlight color on the material/object.

It will adjust the **RealToon's Highlight Color Power** option.

On Built-In/BiRP, this is not available if the **Project Color Space** is **Gamma**.

***Include Shade/Shadow Color:**

This will include the selected **VRoid|VRM Shade/Shadow** color.

It will copy the selected **VRoid|VRM Shade/Shadow** color to **RealToon's Overall Shadow Color** options.

On URP, It will also adjust the **Overall Shadow Color Power**.

***Light Affect Shadows:**

This will let the light intensity and color affect shadows.

If not enabled, The light will not affect the shadow and it will prevent overexpose shadow color when there are more lights on the scene and high intensity light value.

This will enable **RealToon's Light Affect Shadow** option.

***Disable Received Shadows:**

This will disable received shadows from other objects including received self cast shadows.

It will disable **RealToon's Hide Directional Light Shadow, Hide Point, Spot and Area Light Shadows/Hide Point and Spot Light Shadows** options.

***Include Emission:**

This will include **VRoid|VRM** Emission.

It will copy the **Emission Color** and **Emission Map(if present)** to **RealToon Selflit Color** and **Mask**.

*Take note: some **VRoid|VRM** default configuration will use **Emission** to light the character or to make it unlit, leave the **Include Emission** option disabled if you didn't configure the **Emission**.*

***Use Emission Map and Color as Gloss Texture:**

This will use the **Emission Map (if present)** and **Emission Color** as Gloss.

It will enable the **RealToon's Gloss Texture** feature then use the **Emission Map** to it and copy the **Emission Color** to **RealToon's Gloss Color** options.

***Force Enable Rim Light And Use White Color:**

This will force to use **Rim Light** and use **White** color to it.

It will enable **RealToon's Rim Light** feature then set the **Rim Light Color** option to **White**.

***Enable Global Illumination Shade:**

This will enable the GI soft shade look.

It will adjust the **RealToon's GI Shade Threshold** option to 1.

***Global Illumination Flat Shade:**

This will make the GI shade to look flat or cel shade.

It will enable **RealToon's GI Flat Shade** option.

Unity Options***Light Affect Shadows:**

This will let the light intensity and color affect shadows.

If not enabled, The light will not affect the shadow and it will prevent overexpose shadow color when there are more lights on the scene and high intensity light value.

This will enable **RealToon's Light Affect Shadow** option.

Compatible Shaders

VRoid VRM	Unity Built-In	Unity URP	Unity HDRP
VRM VRM10 VRM10 (URP)	Standard Standard (Specular setup) Unlit/Color Unlit/Texture Unlit/Transparent Unlit/Transparent Cutout	Complex Lit Lit Simple Lit Unlit Baked Lit	Lit Lit Tessellation Unlit

*RealToon Shader Cache - Tool

- A tool to reduce or clear cached **RealToon Shader**.
- Useful for after **Update RealToon Shader** or **Re-import RealToon Shader**.

Settings
Reduce/Clean Cached RealToon Shader
<ul style="list-style-type: none">- This will reduce/clean/clear cached RealToon Shader.
Re-import RealToon Shader
<ul style="list-style-type: none">- Re-import RealToon Shader folder and contents.- This will cache RealToon Shaders again.

[RealToon Tools Tips/Notes/How to Use]

(Frame By Frame Rendering)

[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.

(Swap Shader To RealToon – Tool)

[How to use]

1. Click **Window** then go to **RealToon -> Swap Shader To RealToon**.
2. Select the **Materials** on your project window/panel.
3. Select from what **Shader**.
4. Select the options you need if available.
5. Click **Click To Swap To RealToon Shader**.
6. All materials shader are now swap to **RealToon Shader**.

**Note: Not all Unity Shader properties and settings will be copied.*

(Smooth Object Normal – Helper)

[How to use]

1. Select an Object/Model.
2. Click **Add Component** and go to **RealToon -> Tools** and select **Smooth Object Normal – Helper**.
3. Select again the Object/Model and go to **Smooth Object Normal - Helper**.
4. Assign a material that uses **RealToon Shader** to the **Material** slot, this will automatically enable **Smooth Object Normal** feature.
5. Change the **Intensity** to full right.
6. Enable **Show Normal**, to display the **Normals**.
7. Put an Object or Bone to the **Object To Follow** slot, This will be followed by the **Smooth Object Normal** feature to maintain the shade position.
6. Disable **Show Normal**, to hide the displayed **Normals**.

**Note: For option tooltip or description, just hover your mouse to the options.*

(ShadowT SDF Mode – Helper)

[How to use]

1. Select an Object/Model.
2. Click **Add Component** and go to **RealToon -> Tools** and select **ShadowT SDF Mode – Helper**.
3. Go to the **Inspector** then **ShadowT SDF Mode – Helper**.
4. Assign a material that uses **RealToon Shader** to the **Material** slot, this will automatically enable **ShadowT** feature and **SDF mode** option.
6. Put an Object or Bone to the **Object To Follow** slot, This will be followed by the **ShadowT - SDF Mode** to maintain the shade position similar to **Smooth Object Normal** feature.
7. Click the material you put onto the **Material** slot then go to **Shadow** category then **ShadowT** then put the **SDF Texture** onto the **ShadowT** texture slot.
8. Adjust the **Light Threshold** to increase the light area of the shade, this is mostly useful when using Point, Spot and Area lights.

**Note: For option tooltip or description, just hover your mouse to the options.*

(Perspective Adjustment - Controller)

[How to use]

1. Click your **Object/GameObject**
2. Go Inspector Panel/Windows then click **Add Component**
3. Click **RealToon -> Tool -> Perspective Adjustment Controller**.

**Note: Once the component added into your selected object, it will enable the “Perspective Adjustment” feature in your object materials that uses “RealToon Shader”.*

For option tooltip or description, just hover your mouse to the options.

(Smear Effect – Helper)

[How to use]

1. Click your **Object/GameObject**
2. Go Inspector Panel/Windows then click **Add Component**
3. Click **RealToon -> Tool -> Smear Effect - Helper**.

****Note:** Once the component added into your selected object, it will enable the “Smear Effect” feature in your object materials that uses “RealToon Shader”.*

For option tooltip or description, just hover your mouse to the options.

[RealToon Effects/Post-Processing]

*Sobel Outline Effect

- Full screen sobel type outline and can only be use on **Built-In RP/3D**.

Settings
Outline Width (Default: 0)
- Outline width or line thickness.
Outline Color (Default: White)
- Outline Color.
[Note] <i>*Change this to white if you want the screen color to color the outline.</i> <i>*Increase the Color Power to make it dark.</i>
Color Power (Default: 2)
- How strong the outline color is.
[Note] <i>*Negative values will make it light, while positive values will make it strong/dark color.</i>

*DeNorSob Outline (Post-Processing)

- **Depth, Normal** and **Sobel Based Outline** into one Post-Processing.
- Can only be use on **URP** and **HDRP**.

Settings
Outline Width (Default: 0)
- Outline width or line thickness.
Depth Threshold (Default: 900)
- This will adjust the Depth near and far.

[Note]

- *Positive values will move the **Depth** far but will reduce inner outlines if too far.
- *Negative values will move the **Depth** closer but will create some unwanted outline looks if too close.
- *Be sure to balance it.
- *Increase this more than **900** to have a clean silhouette style outline.

Normal Threshold (Default: 1.3)

- This will adjust the Normals.

[Note]

- *Positive values will show more outer and inner outline.
- *Negative values will reduce more outer and inner outline.

Normal Min (Default: 1)**Normal Max (Default: 1)**

- This will adjust the Minimum and Maximum of the Normal.

[Note]

- *If **Min** and **Max** are in the same value, it will make the outline look hard or hard edge.
- *Adjusting these will help you to get more outlines.

Sobel Outline (Default: Unchecked)

- Turn on Sobel Outline.

[Note]

- *If this turned on, **Depth** and **Normal** based outline will be disabled.
- *If you want to use both **Depth – Normal Base Outline** and **Sobel Outline**,
Turn on **Mix Depth Normal And Sobel Outline** option.

Sobel Threshold (Default: 0)

- The amount of outline to be shown.

White Threshold (Default: 0)

- The amount of outline that has been detected in the white or highlight area of the screen.

Black Threshold (Default: 0)

- The amount of outline that has been detected in the black or dark area of the screen.

Outline Color (Default: Black)
- Outline Color.
Mix Full Screen Color (Default: Unchecked)
- This will mix the Screen Color into the Outline Color .
Show Outline Only (Default: Unchecked)
- Show outline only.
Mix Depth Normal And Sobel Outline (Default: Unchecked)
- This will mix Depth – Normal Based Outline and Sobel Outline .

[Note About DeNorSob Outline]

- *The outline width will be affected by the screen resolution, the higher the resolution the thinner the outline width, the lower the resolution the thicker the outline width.*
- *If some of your objects are Transparent, the outlines from the other object will be visible on the object, see through effect.*

[How To Use RealToon Post-Processing]

*Sobel Outline (Built-In RP/3D)

Built-In RP/3D

1. Select a camera on the scene.
2. Click **Add Component** and go to **RealToon -> Effect**.
3. Select **Sobel Outline**.

*DeNorSob Outline (URP and HDRP)

URP/Universal Render Pipeline

1. Open the folder **Settings** and select the default **ForwardRenderer/Renderer** or your own created renderer on the project window/panel.

[For URP 16 and below]

- a. Click **Add Render Feature** and select **Depth-Normals Feature**.
- b. Click **Add Render Feature** again and select **De Nor Sob Outline**.

[For URP 17 and later]

- a. Click **Add Render Feature** and select **DeNorSob Outline Renderer Feature**.
- b. Create a volume by right click the **Hierarchy** then go to **Volume** then click **Global Volume**.
- c. Select the **Global Volume** you've created in the **Hierarchy** then click **New** in the **Inspector** panel.
- d. Click **Add Override** then go to **Post-Processing** then **RealToon** then click **DeNorSob Outline**.

[Note]

- Before you start using it, you'll need to turn on **Depth Texture** on the camera or on URP settings. This is needed for the **Depth Based Outline**.
- **Depth-Normals Feature** is needed for the **Normal Based Outline**. (For URP 13 and below)

** If you are planning to use the effect in making games or make a build*

1. Go to **Edit -> Project Settings** then **Graphics**.
2. After that add **1** to the **Size** under **Always Included Shaders**, now it adds another element.
3. Click the last element then search for **DeNorSob Outline** then click it.

HDRP/High Definition Render Pipeline

1. Go to **GameObject -> Volume** then click **Global Volume**.
2. Then next click **Global Volume** in the **Hierarchy** window/panel or in the scene.
3. Click **New**, this will create a **Global Volume Profile**.
4. Click **Add Override** then go to **Post-Processing -> RealToon** then select **DeNorSob Outline**.

** Then next we will add that effect in the **Custom Post Process Order** so that the effect will work.*

5. To add Go to **Edit -> Project Settings -> HDRP Default Settings** then scroll down to **Custom Post Process Order**.

(For HDRP 7 and 8: Click the + sign under the **After Post Process then click **RealToon. Effects.DeNorSobOutline**.)**

(For HDRP 10 to later: Click the + sign under the **Before TAA then click **RealToon. Effects.DeNorSobOutline**.)**

** If you are planning to use the effect in making games or make a build*

1. Go to **Edit -> Project Settings** then **Graphics**.
2. After that add **1** to the **Size** under **Always Included Shaders**, now it adds another element.
3. Click the last element then search for **DeNorSob Outline** then click it.

[RealToon Shader Options and Features]

Texture - Color	Shader Type	Render Pipeline
Double Sided (Default: Off) - Make the other side of a plane object or face visible.	All RealToon Shader	Built-In RP/3D LWRP
Culling (Default: Back) - Controls which sides of polygons should be culled (not drawn). [Note] * Back: Don't render polygons that are facing away from the viewer. * Front: Don't render polygons that are facing towards the viewer, Used for turning objects inside-out. * Off: Disables culling - all faces are drawn, This also called Double Sided .		
Texture/Main Texture (Default: Empty) - The main texture of the object.	All RealToon Shader	All Render Pipeline
Texture Pattern Style (Default: Unchecked) - Turn Texture/Main Texture into pattern style.	All RealToon Shader	All Render Pipeline
Refraction Intensity (Default: 1) - How strong the Refraction is.	Refraction Shader	Built-In RP/3D
Texture Intensity (Default: 0) - How visible the Texture/Main Texture is.	Refraction Shader	Built-In RP/3D
Main Color (Default: White) - The main color of the object.	All RealToon Shader	All Render Pipeline
Main Color Power (URP Default: 0.8) (HDRP Default: 0.15) - How strong the Main Color color. [Note] *This option will also prevent overexposure when using white or bright colors. *Set this to 1 if you want the true brightness of the Main Color . *The default value for RealToon URP is 0.8 while the RealToon HDRP is 0.15 *Each time you change shader from RealToon URP to RealToon HDRP or opposite, it will automatically adjust to the right value.	Default Shader	URP and HDRP

Mix Vertex Color (Default: Unchecked)		
<p>- Mix the object vertex color to the Main Color.</p> <p>[Note] <i>*This can also be use as View Object Vertex Color for debug.</i></p>		
Main Color in Ambient Light Only (Default: Unchecked)		
<p>- Put the Main Color into the Ambient light.</p> <p>[Note] <i>*This will only works if there is Ambient/Environmental Light/GI.</i> <i>*Enable this if you're doing multi-shading.</i></p>		
Highlight Color (Default: White)		
<p>- Put the Main Color into the Ambient light.</p> <p>[Note] <i>*This will only works if there is Ambient/Environmental Light/GI.</i> <i>*Enable this if you're doing multi-shading.</i></p>		
Highlight Color (Default: 1)		
<p>- Highlight color power or intensity.</p>		
Enable Texture Transparent (Default: Unchecked)		
<p>- Enable texture transparent.</p> <p>[Note] <i>*This is disabled if no texture assign on the Texture/Main Texture.</i></p>		

MatCap/Material Capture	Shader Type	Render Pipeline
Intensity (Default: 1)	All RealToon Shader	All Render Pipeline
<p>- How visible or strong the MatCap is.</p>		
MatCap (Default: Empty)	All RealToon Shader	All Render Pipeline
<p>- A MatCap texture to be use.</p>		
Specular Mode (Default: Unchecked)	All RealToon Shader	All Render Pipeline
<p>- Turn MatCap into specular style.</p>		
Specular Mode (Default: Unchecked)	All RealToon Shader	All Render Pipeline
<p>- Turn MatCap into specular style.</p>		
Specular Power (Default: 1)	All RealToon Shader	All Render Pipeline
<p>- How strong or intense the specular look is.</p>		

Mask MatCap (Default: Empty)		
<p>- Mask the MatCap.</p> <p>[Note] <i>*Use a Black and White or Grayscale texture/map.</i> <i>*White is the MatCap while the Black is the non MatCap part.</i></p>	All RealToon Shader	All Render Pipeline

Cutout	Shader Type	Render Pipeline
Cutout (Default: 0) <p>- Cutout value or threshold</p>	All RealToon Shader	All Render Pipeline
Alpha Based Cutout (Default: Unchecked) <p>- Use the Main Texture alpha for cutting out.</p> <p>[Note] <i>*If this is unchecked it will follow the bright and dark colors of the Main Texture for cutting out.</i></p>	All RealToon Shader	All Render Pipeline
Soft Cutout (Default: Unchecked) <p>- For a soft edge cutout.</p> <p>[Note] <i>*This feature uses the dithering style cutout.</i> <i>* Currently to reduce the artifacts use a high resolution texture or use a high resolution screen size.</i> <i>You can also use some kind of full screen Anti-Aliasing.</i></p>	Default Shader	URP and HDRP
Anti – Aliasing Affect Cutout (Default: Unchecked) <p>- Anti-Aliasing/MSAA affects cutout.</p> <p>[Note] <i>*This is Alpha To Coverage and it will only work if Forward/Forward+ Path Rendering is use.</i> <i>* If you turn off Cutout feature, this will revert to disable/off.</i></p>	Default Shader	URP
Anti – Aliasing Affect Cutout (Default: 0.0001) <p>- This will adjust the Anti - Aliasing Softness/Hardness Cutout.</p>	Default Shader	URP
Use Secondary Cutout Only (Default: Unchecked) <p>- Use only the secondary cutout for cutting out.</p>	All RealToon Shader	All Render Pipeline
Secondary Cutout (Default: 0) <p>- A texture to be use as secondary cutout.</p> <p>[Note] <i>*You can use Colored or Black and White or Grayscale color texture.</i></p>	All RealToon Shader	All Render Pipeline

Enable Glow (Default: Unchecked)	Default Shader	URP and HDRP
- This will add a glow edge.		
Glow Color (Default: White)	Default Shader	URP and HDRP
- The color of the glow.		
Glow Width (Default: 1)	Default Shader	URP and HDRP
- How thick or thin the glow edge.		

Transparency	Shader Type	Render Pipeline
Simple Transparency (Default: Unchecked)	Default Shader	URP and HDRP
- Common simple transparency. [Note] *Only Opacity , Blend Modes and Affects Shadow (URP) are available. * Transparent Threshold and Mask Transparency are not available.		
Opacity (Default: 1)	All RealToon Shader	All Render Pipeline
- How opaque the object is.		
Transparent Threshold (Default: 0)	All RealToon Shader	All Render Pipeline
- The transparent alpha threshold of the object Texture/Main Texture .		
Blend – Source (Default: SrcAlpha)	Default Shader	URP and HDRP
- Transparent blend source.		
Blend – Destination (Default: OneMinus SrcAlpha)	Default Shader	URP and HDRP
- Transparent blend destination.		
Affect Shadow (Default: Checked)	Default Shader	URP
- Transparent opacity affects shadow.		
Mask Transparency (Default: Empty)	All RealToon Shader	All Render Pipeline
- Mask transparent. [Note] *Use a Black and White or Grayscale texture/map. * White is the non transparent part while the Black is the Transparent part or just normal part.		

Normal Map	Shader Type	Render Pipeline
Normal Map (Default: Empty)	All RealToon Shader	All Render Pipeline
- The Normal Map to be use.		
Normal Map Intensity (Default: 1)	All RealToon Shader	All Render Pipeline
- How strong the Normal Map is.		

Color Adjustment	Shader Type	Render Pipeline
Saturation (Default: 1)	All RealToon Shader	All Render Pipeline
- Adjust the color saturation of the object.		
[Note] <i>*- The outline width will be affected by the screen resolution, the higher the resolution the thinner the outline width, the lower the resolution the thicker the outline width.</i>	All RealToon Shader	All Render Pipeline

Outline	Shader Type	Render Pipeline
Width (Default: 0.5)	All RealToon Shader	All Render Pipeline
- Outline width or thickness.		
[Note] <i>*On Screen Space Outline mode, the Outline Width will be affected by the screen resolution, the higher the resolution the thinner the Outline Width, the lower the resolution the thicker the Outline Width.</i>	All RealToon Shader	All Render Pipeline
Width Control (Default: Empty)	All RealToon Shader	All Render Pipeline
- A black and white or grayscale color texture to be use control the outline width.		
[Note] <i>*This will not work if the Width option is 0. *Black is 0 while White is 1.</i>	All RealToon Shader	All Render Pipeline
Enhance Outline Using Normal Map (Default: Unchecked)	Default Shader	HDRP
- Use a normal map to enhance the outline normal direction.		
Normal Map (Default: Unchecked)	Default Shader	HDRP
- A normal map for enhancing the outline normal direction.		
Normal Map Intensity (Default: 1)	Default Shader	HDRP
- How strong the Normal Map is.		

Outline Extrude Method (Default: Normal)		
<p>- Outline extrusion type/method to be use.</p> <p>[Note] <i>*Origin – The extrusion will be based on the object’s center of origin.</i> <i>*Normal – The extrusion will be based on the object’s normal direction.</i></p>		
Outline Resize (Default: X:1 Y:1 Z:1)		
- Resizing the outline XYZ.		
Outline Offset (Default: X:0 Y:0 Z:0)		
- XYZ offset value of the outline.		
Double Sided Outline (Default: Off)		
<p>- This will show the front side of the outline or change the culling of the outline to off.</p> <p>[Note] <i>*Useful for plane object.</i> <i>*Outline Z Position In Camera option is needed to be adjust to show the object.</i></p>		
Color (Default: Black)		
- The color of the outline		
Mix Main Texture To Outline (Default: Unchecked)		
- This will mix Texture/Main Texture to outline Color.		
Noisy Outline Intensity (Default: 0)		
- How noisy is the outline is.		
Dynamic Noisy Outline (Default: Unchecked)		
<p>- Moving noisy outline.</p> <p>[Note] <i>*This will not work if the Noisy Outline Intensity is 0.</i></p>		
Light Affect Outline Color (Default: Unchecked)		
- Light falloff, color and intensity affect outline color.		
Outline Width Affected By View Distance (Default: Unchecked)		
<p>- Camera view distance affects outline width or thickness.</p> <p>[Note] <i>*Far distance will increase outline width.</i> <i>*Near distance will decrease outline width.</i></p>		

Far Distance Max Width (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- The maximum width or thickness value when camera distance is far from the object.		
Transparent Opacity Affect Outline (Default: Checked)	Default Shader	HDRP
- Transparent affect outline opacity. [Note] <i>*This only works if Transparent Mode is enabled.</i>		
Vertex Color Blue Affect Outline Width (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Object vertex color blue channel affect Outline Width . [Note] <i>*This will not work if the Width option is 0.</i>		
Use Screen Space Outline / Use Traditional Outline	Default Shader	URP and HDRP
- Use Screen Space Outline or use Traditional Outline . [Note] <i>*This is NOT PER-MATERIAL. *THIS WILL MODIFY THE SHADER FILE and change the type of outline to be use. *On RealToon URP, only Depth Based Outline is available and Depth Texture is needed to be On. *If Screen Space Outline is used and Transparent Mode is enabled, the outline from the other object will be visible even if the transparent Opacity is 1 and ZWrite is Off or On.</i>		
Stencil : Pass (Default: Keep)	Default Shader	URP
- Use for fixing/resolving Outline overlapping issues to other assets, objects and UI. [Note] <i>*Use Keep for Mask UI while Invert for other assets like weather and fog.</i>		

Screen Space Outline	Shader Type	Render Pipeline
Mix Outline To The Shader Output (Default: Unchecked)	Default Shader	HDRP
- This will mix the outline looks and color to the shader output.		
Depth Threshold (Default: 900)	Default Shader	URP and HDRP
- This will adjust the Depth near and far. [Note] <i>*Positive values will move the Depth far but will reduce inner outlines if too far. *Negative values will move the Depth closer but will create some unwanted outline looks if too close. *Increase this more than 900 to have a clean silhouette style outline.</i>		

Normal Threshold (Default: 1.3)	Default Shader	HDRP
<p>- This will adjust the Normals.</p> <p>[Note] <i>*Positive values will show more outer and inner outline.</i> <i>*Negative values will reduce more outer and inner outline.</i></p>		
Normal Min (Default: 1) Normal Max (Default: 1)	Default Shader	HDRP
<p>- This will adjust the Minimum and Maximum of the Normal.</p> <p>[Note] <i>*If Min and Max are in the same value, it will make the outline look hard or hard edge.</i> <i>*Adjusting these will help you to get more outlines.</i></p>		

Self Lit/Self Illumination	Shader Type	Render Pipeline
Intensity (Default: 1)	All RealToon Shader	All Render Pipeline
- How strong or intense the Self Lit is.		
Color (Default: White)	All RealToon Shader	All Render Pipeline
- Self Lit color.		
Power (Default: 2) (HDRP Default: 50)	All RealToon Shader	All Render Pipeline
- How strong the Self Lit color.		
Texture and Main Color Intensity (Default: 1) (HDRP Default: 0)	All RealToon Shader	All Render Pipeline
<p>- How strong the Texture/Main Texture and Main Color is for Self Lit.</p> <p>[Note] <i>*Adjust this if the Main Texture and Main Color is too strong for Self Lit.</i></p>		
High Contrast (Default: Checked)	All RealToon Shader	All Render Pipeline
<p>- Will turn the Self Lit into high contrast look.</p> <p>[Note] <i>*This will mix Texture/Main Texture and Main Color twice for high contrast look.</i> <i>*Uncheck this if you just want the color.</i></p>		
Map Mode (Default: Unchecked)	All RealToon Shader	All Render Pipeline
<p>- Use Self Lit Mask as Self Lit Map/Emission Map.</p> <p>[Note] <i>*This will allow you to use Emission Maps.</i> <i>*If this enabled, High Contrast will be disable and Self Lit Mask will be change to Self Lit Map.</i></p>		

Mask Self Lit (Default: Empty)		
<p>- Mask Self Lit.</p> <p>[Note] <i>*Use a Black and White or Grayscale texture/map.</i> <i>*White is the Self Lit while the Black is the non Self Lit or just normal part.</i></p>	All RealToon Shader	All Render Pipeline

Gloss	Shader Type	Render Pipeline
<p>Gloss Intensity (Default: 1)</p> <p>- How visible or strong the gloss is.</p>	All RealToon Shader	All Render Pipeline
<p>Glossiness (Default: 0.8)</p> <p>- How gloss the object is.</p>	All RealToon Shader	All Render Pipeline
<p>Softness (Default: 0)</p> <p>- How soft the gloss is.</p>	All RealToon Shader	All Render Pipeline
<p>Color (Default: White)</p> <p>- Gloss color.</p>	All RealToon Shader	All Render Pipeline
<p>Color Power (Default: 10)</p> <p>- How strong the gloss color is.</p>	All RealToon Shader	All Render Pipeline
<p>Mask Gloss (Default: Empty)</p> <p>- Mask Gloss.</p> <p>[Note] <i>*Use a Black and White or Grayscale texture/map.</i> <i>*White is the Gloss part while the Black is the non Gloss part or just normal.</i></p>	All RealToon Shader	All Render Pipeline

Gloss Texture	Shader Type	Render Pipeline
<p>Gloss Texture (Default: Empty)</p> <p>- A texture or image to be use as Gloss.</p> <p>[Note] <i>*Use any Black and White or Grayscale color 4x4 or equal size texture/image.</i> <i>*If you're using a wide size image, Adjust the X Tiling of the Gloss Texture`.`</i></p>	All RealToon Shader	All Render Pipeline
<p>Anisotropic Mode (Default: Unchecked)</p> <p>- Setting the Gloss Texture to Anisotropic Highlight Mode.</p> <p>[Note] <i>*It will use Gloss Texture texture input as noise.</i></p>	Default Shader	URP and HDRP

Noise Texture Intensity (Default: 1)	Default Shader	URP and HDRP
- How strong the Noise Texture distortion.		
Width (Default: 10)	Default Shader	URP and HDRP
- Width of Anisotropic .		
Noise Texture Affect Width (Default: Unchecked)	Default Shader	URP and HDRP
- Noise Texture affect Anisotropic Width . [Note] <i>*White means 1 while Black is 0.</i>		
Noise Texture Affect Width (Default: Unchecked)	Default Shader	URP and HDRP
- Shift the Anisotropic to Up or Down .		
Softness (Default: 0)	All RealToon Shader	All Render Pipeline
- How soft the Gloss Texture is.		
Pattern Style (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Turn Gloss Texture into pattern style.		
Rotate (Default: 0)	All RealToon Shader	All Render Pipeline
- Rotate Gloss Texture . [Note] <i>*Adjust also the Gloss Texture Offset option to adjust the position if needed.</i>		
Follow Object Rotation (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Gloss Texture follows object rotation.		
Follow Light (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Gloss Texture follows light. [Note] <i>*This will adjust the follow light sensitivity.</i>		

Shadow	Shader Type	Render Pipeline
Overall Shadow Color (Default: Black) - The overall shadow color of the object. [Note] <i>*This will affect Realtime shadow, Self Shadow/Shade and ShadowT. *Change this to White if you want to use the Color Shadow Texture feature to color the shadow.</i>	All RealToon Shader	All Render Pipeline
Overall Shadow Color Power (Default: 1) - How strong the Overall Shadow Color .	All RealToon Shader	All Render Pipeline
Self Shadow & ShadowT At View Direction (Default: Unchecked) - Self Shadow and ShadowT follow the camera's view or view direction.	All RealToon Shader	All Render Pipeline
Reduce Shadow (Default: 0) - Reduce self cast shadow of the object.	Default Shader	URP and HDRP
Reduce Shadow (Pointlight) (Default: 0) - Reduce self cast shadow of the object. [Note] <i>*This option will take effect when there's a pointlight present on the scene.</i>	All RealToon Shader	Built-In RP/3D
Point Light Shadow Visibility Distance (Default: 0) - The amount of visible Point Light shadow on the object when the Point Light is move away from the object.	All RealToon Shader	Built-In RP/3D
Reduce Shadow (Spot & Directional Light) (Default: 10) - Reduce self cast shadow of the object. [Note] <i>*This option will take effect when there's a spotlight or directional light or both present on the scene.</i>	All RealToon Shader	Built-In RP/3D
Shadow Hardness (Default: 0) - Realtime shadow hardness look.	All RealToon Shader	All Render Pipeline
Self Shadow & Realtime Shadow Intensity (Default: 1) - Self Shadow and Realtime Shadow intensity or visibility. [Note] <i>*If Self Shadow feature is disabled, it will only affect RealTime Shadow.</i>	All RealToon Shader	All Render Pipeline

Enable Screen Space Ambient Occlusion (Default: Unchecked)	Default Shader	URP and HDRP
- This will enable the object to have SSAO/Screen Space Ambient Occlusion .		
Ambient Occlusion Color (Default: Black)	Default Shader	URP and HDRP
- The color of the SSAO/Screen Space Ambient Occlusion .		
Enable Screen Space Shadow (Default: Checked)	Default Shader	HDRP
- Enable Screen Space type Outline . [Note] <i>*If this option is enabled, it will also allow you to use DXR/Ray Tracing Shadow. *If this option is disabled, it will use the non Screen Space Shadow and shadow map.</i>		

Self Shadow/Shade	Shader Type	Render Pipeline
Self Shadow Intensity (Default: 1) - How visible the Self Shadow/Shade is.	Fade Transparency Shader	Built-In RP/3D LWRP
Threshold (Default: 0.85) - The amount of Self Shadow/Shade on the object.	All RealToon Shader	All Render Pipeline
Vertex Color Green Affect Self Shadow Threshold (Default: Unchecked) - Object vertex color blue channel affect Self Shadow Threshold . [Note] <i>*This will not work if the Width option is 0.</i>	All RealToon Shader	All Render Pipeline
Hardness (Default: 1) - Hardness looks of the Self Shadow/Shade . [Note] <i>*Value 1 hard look. *Value 0 Soft look.</i>	All RealToon Shader	All Render Pipeline
Self Shadow & Real Time Shadow Color (Default: White) - Self Shadow/Shade and RealTime Shadow color power or intensity. [Note] <i>*Visible if the Overall Shadow Color option is color White or any light color.</i>	All RealToon Shader	All Render Pipeline

Self Shadow & Real Time Shadow Color Power (Default: 1)		
- Self Shadow and RealTime Shadow color. [Note] <i>*Visible if the Overall Shadow Color option is color White or any light color.</i>	All RealToon Shader	All Render Pipeline
Light Ignore Y Normal Direction (Default: Unchecked)		
- Light will ignore object's Y normal direction if the light angle or position is in X or Y	Default Shader	URP and HDRP
Self Shadow Affected By Light Shadow Strength (Default: Unchecked)		
- Self Shadow/Shade visibility will be affected by the light shadow Strength.	All RealToon Shader	All Render Pipeline

Smooth Object Normal/Ignore Object Normal	Shader Type	Render Pipeline
Smooth Object Normal (Default: 0)		
- The amount of smoothed object normal/ignored object normal.	All RealToon Shader	All Render Pipeline
Vertex Color Red Control Smooth Object Normal (Default: Unchecked)		
- Object vertex color red channel affect the amount of smoothed object normal/ignored object normal. [Note] <i>*Visible if the Overall Shadow Color option is color White.</i>	All RealToon Shader	All Render Pipeline
Show Normal (Default: Unchecked)		
- The amount of smoothed object normal/ignored object normal.	All RealToon Shader	All Render Pipeline

Shadow Color Texture	Shader Type	Render Pipeline
Shadow Color Texture (Default: Empty)		
- Texture to be use to color the shadow. [Note] <i>*Visible if the Overall Shadow Color option is color White or any light color.</i>	All RealToon Shader	All Render Pipeline
Power (Default: 0)		
- How strong the Shadow Color Texture is.	All RealToon Shader	All Render Pipeline

ShadowT	Shader Type	Render Pipeline
ShadowT Intensity (Default: 1)	All RealToon Shader "Except the Lite"	All Render Pipeline
- How visible the ShadowT is.		
Shadow T (Default: Empty)	All RealToon Shader	All Render Pipeline
- A Black and White or Grayscale texture to be use as shadow. [Note] *You can use a Flat , Gradient or SDF texture as shadow. * Black will always be visible and not affected by the light while Gray and White will always be affect by the light.		
Light Threshold (Default: 50)	All RealToon Shader	All Render Pipeline
- The amount of light to affect ShadowT .		
Light Threshold (Default: 0)	All RealToon Shader	All Render Pipeline
- The amount of ShadowT .		
Hardness (Default: 1)	All RealToon Shader	All Render Pipeline
- Hardness looks of the ShadowT .		
Color (Default: White)	All RealToon Shader	All Render Pipeline
- ShadowT Color. [Note] *Visible if the Overall Shadow Color option is color White or any light color.		
Color Power (Default: 1)	All RealToon Shader	All Render Pipeline
- How strong the color is.		
Ignore Light (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Don't follow the light or Ignore light direction.		
Show In Shadow (Default: Unchecked)	All RealToon Shader "Except the Lite"	All Render Pipeline
- Show ShadowT in the shadow. [Note] *Visible if the Overall Shadow Color option is color White or any light color.		
Show In Ambient Light (Default: Unchecked)	All RealToon Shader "Except the Lite"	All Render Pipeline
- Show ShadowT in Ambient Light. [Note] *Visible if the Ambient Light/Environmental Light or GI is present.		

Show In Ambient Light & Shadow Intensity (Default: 1)	All RealToon Shader "Except the Lite"	All Render Pipeline
- Show In Ambient Light and Show In Shadow visibility. [Note] <i>*Visible if the Ambient Light/Environmental Light or GI is present.</i>		
Show In Ambient Light & Shadow Threshold (Default: 1)	All RealToon Shader "Except the Lite"	All Render Pipeline
- Show In Ambient Light and Show In Shadow threshold.		
Light Falloff Affect ShadowT (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Light falloff will affect ShadowT. [Note] <i>*Visible if the Ambient Light/Environmental Light or GI is present.</i>		

PTexture	Shader Type	Render Pipeline
PTexture (Default: Empty)	All RealToon Shader	All Render Pipeline
- A texture to be use as pattern. [Note] <i>*This will only affect Self Shadow/Shade, ShadowT features and RealTime Shadow.</i>		
Power (Default: 1)	All RealToon Shader	All Render Pipeline
- How strong the PTexture looks.		

Lighting	Shader Type	Render Pipeline
Receive Environmental Lighting and GI (Default: Checked)	All RealToon Shader	All Render Pipeline
- The object will receive environmental lighting and GI.		
Environmental Lighting Intensity (Default: 1)	All RealToon Shader "Except the Lite"	All Render Pipeline
- How strong or intense the environmental lighting. [Note] <i>*This is connected to Receive Environmental Lighting and GI option.</i>		
Use Old Ambient Light (Default: Unchecked)	Lite Shaders	Built-In RP/3D
- Use the old unity's Ambient Light.		

Enable Screen Space Global Illumination (Default: Checked)		
<p>- Enable Screen Space type Global Illumination.</p> <p>[Note] <i>*If this option is enabled, it will also allow you to use DXR/Ray Tracing Global Illumination.</i> <i>*If this option is disabled, it will use the non Screen Space Global Illumination.</i></p>	Default Shader	HDRP
GI Flat Shade (Default: Unchecked)		
- Turn GI Shade into flat look.	All RealToon Shader "Except the Lite"	All Render Pipeline
GI Shade Threshold (Default: 0)		
- The amount of GI Shade on the object.	All RealToon Shader "Except the Lite"	All Render Pipeline
Raytraced GI Shade Falloff (Default: 0)		
<p>- This will adjust the Raytraced Global Illumination shade falloff.</p> <p>[Note] <i>*This will only take effect if the object is in a real time light (Directional, Spot, Point and Area) and the Shadow Color is not color black.</i></p>	Default Shader	HDRP
Light Affect Shadow (Default: Unchecked)		
<p>- Light intensity, color and light falloff affect shadow.</p> <p>[Note] <i>*This will only affect Self Shadow/Shade, ShadowT features and RealTime Shadow.</i></p>	All RealToon Shader "Except the Lite"	All Render Pipeline
Light Intensity (Default: -1)		
<p>- How strong or intense the light on the shadow.</p> <p>[Note] <i>*This will only affect Self Shadow, ShadowT features and RealTime Shadow.</i> <i>*This is connected to Light Affect Shadow option.</i> <i>*The default value on RealToon URP and RealToon HDRP is 1.</i></p>	All RealToon Shader "Except the Lite"	All Render Pipeline
Use Traditional Light Blend (Default: Unchecked)		
<p>- This will use the traditional style light blending.</p> <p>[Note] <i>* If enabled light blending will be in add mode.</i> <i>* If not enabled the light blending will based on high or maximum light intensity and the blending will be similar to Anime or Cartoon.</i></p>	Default Shader	URP and HDRP
Enable Punctual Lights (Default: Checked)		
- This will enabled the object to receive Punctual Lights (Point Spot and Area Lights) .	Default Shader	HDRP

Enable Area Light (Default: Unchecked)		
<p>- This will enabled the object to receive Area Light.</p> <p>[Note] <i>* If the size of a Rect Type Area Light is too un-even like 'X:24 Y:1' the light fall off will cause some noise. This only applies when Area Light Smooth Look option is disabled.</i></p>	Default Shader	HDRP
Directional Light Intensity (Default: 0)		
- How strong or intense the Directional Light on the object.	All RealToon Shader	All Render Pipeline
Point and Spot Light Intensity (Default: 0.45)		
<p>- How strong or intense the Point and Spot light on the object.</p> <p>[Note] <i>*On RealToon URP and RealToon HDRP the default value is 0.</i></p>	All RealToon Shader	All Render Pipeline
Area Light Intensity (Default: 0)		
- How strong or intense the Area Light on the object.	Default Shader	HDRP
Tube Light Falloff (Default: 20)		
- This will adjust the Tube Type Area Light falloff on the object.	Default Shader	HDRP
Area Light Smooth Look (Default: Unchecked)		
<p>- This will make the Area Light shades and falloff on the object looks smooth.</p> <p>[Note] <i>*If enabled, Tube Light Falloff option will be disabled.</i></p>	Default Shader	HDRP
Light Falloff Softness (Default: 1)		
<p>- How soft the Point and Spotlight light falloff is on the object.</p> <p>[Note] <i>*Set this to 0 if you want an anime style light falloff, it is usually hard look.</i></p>	All RealToon Shader	All Render Pipeline
Limit Light Intensity (Default: Unchecked)		
- This will limit the Light Intensity , Minimum and Maximum light intensity.	All RealToon Shader	All Render Pipeline
Minimum (Default: 0)		
- Minimum light Intensity value.	All RealToon Shader	All Render Pipeline
Maximum (Default: 1)		
- Maximum light Intensity value.	All RealToon Shader	All Render Pipeline

Custom Light Direction	Shader Type	Render Pipeline
Intensity (Default: 0) - The amount of custom light direction sensitivity.	All RealToon Shader	All Render Pipeline
Custom Light Direction (Default: X:0 Y:0 Z:10) - Custom Light Direction vector value. [Note] <i>*This will only affect Self Shadow/Shade and ShadowT features.</i>		
Follow Object Rotation (Default: Unchecked) - Custom Light Direction will follow object rotation. [Note] <i>*This will only affect Self Shadow/Shade and ShadowT features.</i>	All RealToon Shader	All Render Pipeline

Reflection	Shader Type	Render Pipeline
Intensity (Default: 0) - How visible the reflection is	All RealToon Shader	All Render Pipeline
Roughness (Default: 0) - How rough the reflection looks.		
Metallic (Default: 0) - How metallic the object is. [Note] <i>*Change the Main Color to something dark to make it more metallic and dark.</i>	All RealToon Shader	All Render Pipeline
Enable Screen Space Reflection (Default: Checked) - Enable Screen Space type Reflection . [Note] <i>*If this option is enabled, it will also allow you to use DXR/Ray Tracing Reflection. *If this option is disabled, it will use the non Screen Space Reflection and use the normal style Reflection.</i>	Default Shader	HDRP

Mask Reflection (Default: Empty)		
<p>- Mask Reflection.</p> <p>[Note] <i>*Use a Black and White or Grayscale texture/map.</i> <i>*White is the Reflection part while the Black is the non Reflection part.</i></p>	All RealToon Shader	All Render Pipeline

FReflection	Shader Type	Render Pipeline
<p>FReflection (Default: Empty)</p> <p>- A texture or image to be use as reflection.</p> <p>[Note] <i>*use any 4x4 or equal size texture/image.</i> <i>*If you're using wide size image, Adjust the X Tiling of the FReflection.</i> <i>*FReflection stands for Fake Reflection.</i></p>	All RealToon Shader	All Render Pipeline

Rim Light/Fresnel	Shader Type	Render Pipeline
<p>Rim Light Intensity (Default: 1)</p> <p>- How visible the Rim Light is.</p>	Default Shader	URP and HDRP
<p>Unfill (Default: 1.5)</p> <p>- Reduce Rim Light on the object.</p>	All RealToon Shader	All Render Pipeline
<p>Threshold (Default: 900)</p> <p>- The amount of Rim Light effect on the object.</p>	Default Shader	URP and HDRP
<p>Softness (Default: 1)</p> <p>- How soft the Rim Light is.</p>	All RealToon Shader	All Render Pipeline
<p>Position (Default: X:1 Y:1 Z:1)</p> <p>- Rim Light position.</p>	All RealToon Shader	All Render Pipeline
<p>Light Affect RimLight Color (Default: Unchecked)</p> <p>- Light intensity, color and falloff affect rim light color.</p>	All RealToon Shader	All Render Pipeline
<p>Intensity (Default: 1)</p> <p>- This will adjust the Light Affect RimLight Color intensity.</p> <p>[Note] <i>*A companion option for Light Affect RimLight Color.</i></p>	Default Shader	HDRP

Color (Default: White)	All RealToon Shader	All Render Pipeline
- Rim light color		
Color Power (Default: 10)	All RealToon Shader	All Render Pipeline
- How strong the rim light color is.		
Screen Space Rim Light (Default: Unchecked)	Default Shader	URP and HDRP
- Screen Space type Rim Light		
Rim Light In Light (Default: Checked)	All RealToon Shader	All Render Pipeline
- Rim light in the light area of the object.		
Rim Light In Shadow (Default: Unchecked)	Default Shader	URP and HDRP
- Rim Light in shadow only.		

Depth	Shader Type	Render Pipeline
Depth (Default: 0.2)	Refraction Shader	Built-In RP/3D
- The amount of Depth effect.		
Edge Hardness (Default: 0.1)	Refraction Shader	Built-In RP/3D
- How hard the depth edge looks.		
Color (Default: RGB: 128)	Refraction Shader	Built-In RP/3D
- Depth edge color.		
Color power (Default: 1.8)	Refraction Shader	Built-In RP/3D
- How strong the color is.		

Tessellation	Shader Type	Render Pipeline
Smoothness (Default: 0.5)	All RealToon Shader With Tessellation	Built-In RP/3D
- Smooth tessellated faces.		
Tessellation Transition (Default: 0.8)	All RealToon Shader With Tessellation	Built-In RP/3D
- Transition distance between Near and Far . [Note] *0 means mostly near tessellation value while 1 means mostly far tessellation value.		

Tessellation Near (Default: 1)	All RealToon Shader With Tessellation	Built-In RP/3D
- The amount of Tessellation when Near		
Tessellation Far (Default: 1)	All RealToon Shader With Tessellation	Built-In RP/3D
- The amount of Tessellation when Far .		

See Through	Shader Type	Render Pipeline
ID (Default: 0)	All RealToon Shader	Built-In RP/3D LWRP URP
- ID or Reference value.		
Set 1 (Default: None) Set 2 (Default: None)	All RealToon Shader	Built-In RP/3D LWRP URP
<p>[Note] * A the see through object. * B the object to be seen through A.</p> <p>*If Set 1 is set to A, Set 2 is also set to A. (<i>See through object</i>) *If Set 1 is set to B, Set 2 is also set to B. (<i>Object to be seen through "A"</i>) *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.</p> <p>(Important) <i>[See through object "A"] Render Queue set to Geometry (2000).</i> <i>["B" object to be seen through "A"] Render Queue set to Geometry (2000) and minus 1.</i> <i>[VRChat users that don't use this, Set both A and B to "Blank"]</i> <i>(See/open scene "See Through Example" for more info)</i></p>		

Near Fade Dithering	Shader Type	Render Pipeline
Min Distance (Default: 0)	Default Shader	URP and HDRP
- The minimum start fade distance.		
Max Distance (Default: 2)	Default Shader	URP and HDRP
- The maximum end fade distance.		

Triplanar	Shader Type	Render Pipeline
Tile (Default: 1)	Default Shader	URP and HDRP
- Tiling scale of the texture.		
Blend (Default: 4)	Default Shader	URP and HDRP
- Blending of the triplanar texture.		

Perspective Adjustment	Shader Type	Render Pipeline
Tile (Default: 1)	Default Shader	All Render Pipeline
- Tiling scale of the texture.		
Blend (Default: 4)	Default Shader	All Render Pipeline
- Blending of the triplanar texture.		
Perspective (Default: 1)	Default Shader	All Render Pipeline
- This will change the perspective of an object to 2D or 3D or FOV stretch look. [Note] <i>*For 2d Anime/Toon look, set it to 0.3 or 0.</i>		
Clip (Default: 0)	Default Shader	All Render Pipeline
- This will change the clipping on the object. [Note] <i>* Change this if the object is overlapping front or back.</i>		
Close-Up Size (Default: 0)	Default Shader	All Render Pipeline
- This will adjust the size of the object when the camera is closer.		
Close-Up Size Smooth Transition (Default: 1)	Default Shader	All Render Pipeline
- How smooth the transition of the sizing. [Note] <i>*Higher value will make the transition smooth, while lower value will make the transition strong and fast.</i>		
Close-Up Size Smooth Transition (Default: 0)	Default Shader	All Render Pipeline
- Distance transition from the camera to the object.		

Disable/Enable Features	Shader Type	Render Pipeline
MatCap	All RealToon Shader	All Render Pipeline
- It is a complete material including lighting, specular and reflection that is baked into texture/image.		
Normal Map	All RealToon Shader	All Render Pipeline
- Normals that are baked into texture/image.		
Outline	All RealToon Shader	All Render Pipeline
Cutout	All RealToon Shader	All Render Pipeline
- Cutting out parts of the object based on the assign texture.		
Color Adjustment	All RealToon Shader	All Render Pipeline
- Adjusting the colors of the shader output.		
Self Lit	All RealToon Shader	All Render Pipeline
- Self lit, Self illumination or Emission.		
Gloss	All RealToon Shader	All Render Pipeline
- Glossy style or looks.		
Gloss Texture	All RealToon Shader	All Render Pipeline
- Glossy style or looks in texture/image form.		
Self Shadow	All RealToon Shader	All Render Pipeline
- Objects own shadow or shade.		
Smooth Object Normal	All RealToon Shader	All Render Pipeline
- Smooth the normals of the object. - Useful on Anime/Cartoon model face. [Note] <i>*Add SmoothObjectNormal – Helper Component to your object for this to work.</i> <i>To Add:</i> <i>Click your object then click Add Component then</i> <i>RealToon>Tool>SmoothObjectNormal – Helper</i>		
Shadow Color Texture	All RealToon Shader	All Render Pipeline
- Shadow colors in texture/image form. - It is use for coloring shadow using texture/image.		
ShadowT	All RealToon Shader	All Render Pipeline
- Shadows in texture/image form. - Add more detailed shadows that can't produce by the Real time shadow.		

PTexture	All RealToon Shader	All Render Pipeline
- Patterned texture for comics, pop or manga style shadows.		
Custom Light Direction	All RealToon Shader	All Render Pipeline
- Customize light direction for shades. - Useful on Anime/Cartoon model face.		
Reflection	All RealToon Shader	All Render Pipeline
FReflection	All RealToon Shader	All Render Pipeline
- Reflection in texture or image form. - A Fake Reflection.		
Rim Light	All RealToon Shader	All Render Pipeline
- Light at the edge of the object.		
Depth	Refraction Shader	Built-In RP/3D
Near Fade Dithering	Default Shader	URP and HDRP
- Object fades when the camera is near.		
Triplanar	Default Shader	URP and HDRP
- For a uniform texture scale and tiles.		
Perspective Adjustment	Default Shader	URP and HDRP
- This will adjust the perspective of your object to look 2D Toon/Anime or Default 3D. [Note] <i>*Currently, turn off Screen Space Shadow on URP [Forward and Forward+] when using this, it will make the shadow distorted.</i> <i>*On URP [Deferred and Deferred+] no need to turn off Screen Space Shadow.</i>		
Smear Effect	Default Shader	URP and HDRP
- Trail lines or Line noise effect when an object moves fast, like the Anime/Cartoon. [Note] <i>*For this to work, you need to add the Smear Effect [Helper] Component to your object.</i> <i>*Adjustable options are on the Smear Effect [Helper] component.</i> <i>*To Add: Click your object then click Add Component then RealToon>Tool>Smear Effect [Helper].</i>		

Other Options	Shader Type	Render Pipeline
No Light and Shadow On BackFace (Default: Unchecked) - No light and shadow on the back side on a face of the object. [Note] <i>* Useful for objects that are plane or quad.</i>	All RealToon Shader	All Render Pipeline
Hide Directional Light Shadow (Default: Unchecked) - Hide Directional Light cast shadow and received shadow on the object.	All RealToon Shader	All Render Pipeline
Hide Point & Spot Shadow (Default: Unchecked) - Hide Point and Spot Light cast shadow and received shadow on the object.	All RealToon Shader	All Render Pipeline
Hide Cast Shadow (Default: Unchecked) - Hide or disable object cast shadow.	Fade Transparency	Built-In RP/3D
Hide Contact Shadow (Default: Checked) - Hide or disable cast and received contact shadow.	Default Shader	HDRP
Disable Cast Shadow (Default: Checked) - Disable object cast shadow.	Default Shader	URP and HDRP
ZWrite (Default: On) - Turn on Z Depth on object.	All RealToon Shader	All Render Pipeline
Object Position Z CS (Default: 0) - Adjust object position z axis in clip space. [Note] <i>*Can also use it to move the object in-front or back.</i> <i>*Can also be use for adjusting Perspective Adjustment - Clip.</i>	All RealToon Shader	All Render Pipeline
Disable DOTS Mesh Deformation (Default: Checked) - Disable DOTS Mesh Deformation: Linear Blend Skinning and Compute Deformation . [Note] <i>* Enable this for Static Objects.</i>	Default Shader	URP

Disable Decals (Default: Checked)	Default Shader	HDRP
- Disable received Decals .		
Receive Decal (Default: Checked)	Default Shader	URP
- The object will able to receive Decals .		
Optimize for [Light Mode:Baked] (Default: Unchecked)	Default Shader	URP
- This will disable all real time features on the shader and optimize it for [Light Mode: Baked] [Note] * <i>Disable or uncheck this for [Light Mode: RealTime or Mixed] use.</i>		
Automatic Remove Unused Shader Keywords (Default: Unchecked)	All RealToon Shader	All Render Pipeline
- Remove unused shader keywords automatically in all materials with Realtoon Shader. [Note] * Warning: This will also remove stored previous shaders shader keywords.) * <i>This will take effect once this enabled and when the RealToon Inspector shown.</i> * <i>You can just enable and disable it right away just to remove the unused shader keyword</i> * <i>Disable this if you experience too slow Inspector.</i>		
Recursive Rendering (Default: Unchecked)	Default Shader	HDRP
- A replacement pipeline for rendering Meshes in the High Definition Render Pipeline (HDRP) . [Note] * <i>This option will only work on DXR/Ray Tracing enabled project.</i> * <i>Enable transparency to be visible on a reflective surface.</i> * <i>Ptexture feature and Pattern Style option will not work on this.</i> * <i>If enabled, object will not receive Ray Traced Global Illumination.</i>		

RealToon Inspector Bottom Toolbar	Shader Type	Render Pipeline
Remove Outline (On Shader) Add Outline (On Shader)	Default Shader	URP and HDRP
- Remove or Add the outline on the shader. [Note] * <i>This is NOT PER-MATERIAL.</i> * THIS WILL MODIFY THE SHADER FILE to remove or add the outline on the shader.		

Refresh Settings	Default Shader	URP and HDRP
<p>- This will refresh and re-apply the settings properly.</p> <p>[Note] <i>* Click this if there are some problem, after you update, after material reset or re-import RealToon.</i></p>		
Video Tutorials	All RealToon Shader	All Render Pipeline
- RealToon video tutorials.		
RealToon (User Guide).pdf	All RealToon Shader	All Render Pipeline
- RealToon user guide or documentation.		
Hide UI	All RealToon Shader	All Render Pipeline
<p>- Hide RealToon inspector UI.</p> <p>[Note] <i>* This is NOT PER-MATERIAL.</i> <i>*This is Global.</i></p>		

Settings	Shader Type	Render Pipeline
Change Shader Compilation Target to 2.0 or 4.5	Default Shader	URP
<p>- This will change the Shader Compilation Target of the RealToon Shader file to '2.0' or '4.5'.</p> <p>[Note] <i>*If the Shader Compilation Target is changed to 4.5, the shader will support DOTS/DOTS Hybrid Renderer, GPU Resident and Tessellation.</i> <i>*GPU Resident available on Unity 6 and beyond.</i> <i>* This is NOT PER-MATERIAL.</i></p>		
DOTS HR – Use Compute Deformation or Linear Blend Skinning	Default Shader	URP
<p>- Will let you change from Compute Deformation or Linear Blend Skinning.</p> <p>- For more information about Compute Deformation see : Unity - Compute Deformation</p> <p>- For more information about Linear Blend Skinning see : Unity - Linear Blend Skinning</p> <p>[Note] <i>*This will only visible if your project is on DOTS and Hybrid Renderer and Compilation Target is on 4.5.</i> <i>*Use Compute Deformation for blend shape support.</i> <i>* This is NOT PER-MATERIAL.</i> <i>*If your object is static, it is recommend to enable Disable DOTS Mesh Deformation option.</i></p>		

Add/Remove 'See Through' feature		
<p>- This will add or remove the See Through feature.</p> <p>[Note] <i>*See Through is default remove, if you need it or want to use it just Add it again by clicking this setting.</i> <i>*Your See Through option settings will not be remove even if you remove or add the See Through feature.</i> <i>* This is NOT PER-MATERIAL.</i></p>	Default Shader	URP
Enable/Disable 'VRC Light Volumes' feature		
<p>- Enable or Disable VRC Light Volumes support.</p> <p>[Note] <i>*Applicable for VRChat.</i> <i>*You need to download and import VRC Light Volumes package before you can use this.</i> <i>* If you are using the VRC Light Volumes Unity Package version, the folder should be in the project folder "/Asset" not in other folder and the folder name should be VRC Light Volumes not VRCLightVolumes.</i></p>	All RealToon Shader	Built-In RP/3D

[Important 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 learn how to access shader properties by code, just visit this link:
[Unity Doc - API Script - Material](#)
- B. **URP**: if **Outline** does not appear/show even if you turn **Off** or **On** the **Outline**, do this:
 - ***Fix 1**: Change **Depth Priming Mode** to **Auto**.
 - ***Fix 2**: Add **Render Object** into your **Render Feature Asset** then change **Override Mode** to **None** then change **Layer Mask** to **Default** and then add one **LightMode Tags** then type **SRPDefaultUnlit**.
- C. If you are going to use **RealToon URP** or **RealToon HDRP** for environment object, Just disable the **Outline** because the custom outline pass on the shader, can't be batch.
- D. To use **RealToon URP** on a **DOTS – Hybrid Renderer** project, change the **Shader Compilation Target** to **4.5** under the **Settings** section.
RealToon HDRP is already **Shader Compilation Target 4.5**.
- E. To use **GPU Resident** on **RealToon URP**, just change the **Shader Compilation Target** to **4.5** under the **Settings** section, On **RealToon HDRP**, no need to change.
GPU Resident available on **Unity 6** and **Beyond**.
- F. 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/Post Processing outline.
- G. Adjust **Reduce Shadow** to reduce unwanted object self cast shadow, especially shadow artifacts.
- H. 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.
- I. 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.
- J. You can use **RealToon** together with **Unity3D Standard Shader** or your other shaders.
- K. You can use **ShadowT** as 2nd self shadow/shade.

- L. You can use both **Directional Light & Point – Spot light** at the same time.
- M. If you want a manga/comics look, use **PTexture** and use a half tone texture.
*Adjust **Saturation** to 0 if you want that Black and white look and you don't want to edit the texture again.
- N. Always Change the **Overall Shadow Color** to **White** if you want to color other shadow features like **ShadowT & Self Shadow** and use **PTexture**.
- O. Enable **Light Affect Shadow** if you want your shadow to be affected by lights.
- P. **Fade Transparency & Refraction** doesn't receive shadows.
- Q. Use **ShadowT** for more detailed or additional shadows like the shadows on a cloth or hair.
- R. For better Anime/Toon shadow/shading, edit the Vertex Normal of your model by editing it to your 3d modeling software or use **Smooth Object Normal** feature or override object normal by using **Normal Map**.
- S. Use **Custom Light Direction** if you don't want **Self Shadow & ShadowT** to not follow the Light Direction by script. Useful for anime style faces.
- T. Adjust **Outline Offset** if you want to adjust the outline position.
* For silhouette outline effect, just adjust **Outline Z Position In Camera** option.
- U. Image Gallery:
<http://mjq3690.deviantart.com/gallery/61884975/RealToon-Shader-Gallery>
- V. Video Tutorials:
<https://www.youtube.com/playlist?list=PL0M1m9smMVPJ4qEkJnZO bqJE5mU9uz6SY>
- W. Game & Other Uses Demo (Video):
https://www.youtube.com/playlist?list=PL0M1m9smMVPI1XRV_1UL_Vz3IAHkPtQYT
- X. Film/Animation Demo (Video):
<https://www.youtube.com/playlist?list=PL0M1m9smMVPLypGRie4Q7yBgxBtI866Yf>

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<https://www.facebook.com/mjqstudioworks/>

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<https://bsky.app/profile/mjqstudioworks.bsky.social>

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<https://twitter.com/mjqstudioworks>

YouTube:

https://www.youtube.com/channel/UC5sHbeOQdyMPV_Ck0kRgJgQ

MJQ Studio Works Unity Publisher Profile (Support Links & Email):

<http://u3d.as/vDv>

Unity 3D Forum:

<https://discussions.unity.com/t/realtoon-an-aaa-toon-anime-shader-and-stylized/632467>

Website:

<https://mjqstudioworks.weebly.com/>