RealToon

V 5.0.9

User Guide

(V22)

(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 **a. Default** ** The default RealToon shader.* **b. Fade Transparency** ** 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** ** A Refraction shader.* ** It can't receive shadow and can cast shadow.* **B. Default - Tessellation** **a. Default** ** The default RealToon shader.* ** With tessellation.* **b. Fade Transparency** ** 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** ** A Refraction shader.* ** It can't receive shadow and can cast shadow.* ** With tessellation.* **C. Lite** **a. Default** ** Lite version of the Default shader.* **b. Fade Transparency** ** Lite version of the Fade Transparency shader.*	**A. LWRP** **a. Default** ** The default RealToon shader.* **b. Fade Transparency** ** 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** **a. Default** ** 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** **a. Default** ** 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]*** **If you put the name folder only, it will be created to your Unity3D root project folder.* **If you want to save the files to a different location/drive, include the drive letter, Example **C:\PNGFiles.*** **If this field is empty, it will create the folder **Rendered Files**.*

PNG File Name *(Default: Frame)*

- The file name

[Note]
**If this field is empty, it will name the file Frame.*

Frame Rate *(Default: 24)*

- The frame rate of the frame by frame session.

Start Frame *(Default: 0)*

- The beginning of the frame.

End Frame *(Default: 0)*

- The end of the frame.

Single Frame Rendering Mode *(Default: Unchecked)*

- Render a single image only.

[Note]
**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".*

Picture Mode *(Default: Unchecked)*

- Render a single image only.

[Note]
This option is only available on the **Frame by Frame (Manual) version.*
This is similar to **Single Frame Rendering Mode.*

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 Script Tool

- 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
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 normal.
The Object To Follow *(Default: Empty)*
- The object to follow by the **Object Helper**.
Offset *(Default: 10)*
- Adjust the overall offset of the **Smooth Object Normal** to follow the **Object Helper.**
Additional Position Adjustment *(Default: X:0 Y:0 Z:0)*
- Additional position adjustment **for Object Helper**.

*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	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 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.

(Smooth Object Normal – Helper Script)

[How to use]

1. Select the model you want the **Smooth Object Normal – Helper Script** to be applied.
2. Click **Add Component** and go to **RealToon -> Tools** and select **Smooth Object Normal – Helper**.
3. Create an empty game object.
4. Reset its **Transform** of the empty game object you've created.
   All transform **(Position, Rotation and Scale)** should be **0**.
4. Put it on the **Root** bone of the model.
5. Select again the model that contains the helper script that you add earlier.
6. Go to the **Inspector** then **Smooth Object Normal – Helper**.
7. Assign a material that uses **Smooth Object Normal** to the **Material** field.
8. Put the empty object that you created earlier to the **Object Helper field**.
9. Assign the object that will be followed by the **Object Helper** to the **The Object To Follow** field.

(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 Shade**r.

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

(Perspective Adjustment Controller – Tool)

[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] – Helper Script)

[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]*** **Change this to white if you want the screen color to color the outline.* **Increase the **Color Power** to make it dark.*
Color Power *(Default: 2)*
- How strong the outline color is. ***[Note]*** **Negative values will make it light, while positive values will make it strong/dark color.*

*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)***

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)***	**All RealToon Shader**	**Built-In RP/3D LWRP**
- Make the other side of a plane object or face visible.		
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**."*	**Default Shader**	**URP and HDRP**
Texture/Main Texture ***(Default: Empty)***	**All RealToon Shader**	**All Render Pipeline**
- The main texture of the object.		
Texture Pattern Style ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Turn **Texture/Main Texture** into pattern style.		
Refraction Intensity ***(Default: 1)***	**Refraction Shader**	**Built-In RP/3D**
- How strong the **Refraction** is.		
Texture Intensity ***(Default: 0)***	**Refraction Shader**	**Built-In RP/3D**
- How visible the **Texture/Main Texture** is.		
Main Color ***(Default: White)***	**All RealToon Shader**	**All Render Pipeline**
- The main color of the object.		
Main Color Power ***(URP Default: 0.8) | (HDRP Default: 0.15)***	**Default Shader**	**URP and HDRP**
- 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.*		

Mix Vertex Color ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Mix the object vertex color to the **Main Color**. ***[Note]*** **This can also be use as View Object Vertex Color for debug.*		
Main Color in Ambient Light Only ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Put the Main Color into the Ambient light. ***[Note]*** **This will only works if there is Ambient/Environmental Light/GI.* **Enable this if you're doing multi-shading.*		
Highlight Color ***(Default: White)***	**All RealToon Shader**	**All Render Pipeline**
- Put the Main Color into the Ambient light. ***[Note]*** **This will only works if there is Ambient/Environmental Light/GI.* **Enable this if you're doing multi-shading.*		
Highlight Color ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- Highlight color power or intensity.		
Enable Texture Transparent ***(Default: Unchecked)***	**Default Shader**	**Built-In RP/3D** **LWRP**
- Enable texture transparent. ***[Note]*** **This is disabled if no texture assign on the* ***Texture/Main Texture****.*		

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

Specular Mode ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Turn **MatCap** into specular style.		
Specular Power ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- How strong or intense the specular look is.		
Mask MatCap ***(Default: Empty)***	**All RealToon Shader**	**All Render Pipeline**
- Mask the **MatCap**. ***[Note]*** **Use a **Black** and **White** or **Grayscale** texture/map.* ***White** is the **MatCap** while the **Black** is the non **MatCap** part.*		

Cutout	Shader Type	Render Pipeline
Cutout ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- Cutout value or threshold		
Alpha Based Cutout ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Use the **Main Texture** alpha for cutting out. ***[Note]*** **If this is unchecked it will follow the bright and dark colors of the **Main Texture** for cutting out.*		
Soft Cutout ***(Default: Unchecked)***	**Default Shader**	**URP and HDRP**
- For a soft edge cutout. ***[Note]*** **This feature uses the dithering style cutout.* ** Currently to reduce the artifacts use a high resolution texture or use a high resolution screen size.* *You can also use some kind of full screen Anti-Aliasing.*		
Use Secondary Cutout Only ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Use only the secondary cutout for cutting out.		
Secondary Cutout ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- A texture to be use as secondary cutout. ***[Note]*** **You can use **Colored** or **Black** and **White** or **Grayscale** color texture.*		
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: ScrAlpha)***	**Default Shader**	**URP and HDRP**
- Transparent blend source.		
Blend – Destination ***(Default: OneMinusScrAlpha)***	**Default Shader**	**URP and HDRP**
- Transparent blend destination.		
Affect Shadow ***(Default: Checked)*** - Transparent opacity affect shadow.	**Default Shader**	**URP**
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]*** **- 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.*		

Outline	Shader Type	Render Pipeline
Width ***(Default: 0.5)***	**All RealToon Shader**	**All Render Pipeline**
- Outline width or thickness. ***[Note]*** **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**.*		
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]*** **This will not work if the **Width** option is **0**.* ****Black** is **0** while **White** is **1**.*		
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)*** - Outline extrusion type/method to be use. ***[Note]*** ***Origin** – The extrusion will be based on the object's center of origin.* ***Normal** – The extrusion will be based on the object's normal direction.*	**All RealToon Shader**	**All Render Pipeline**
Outline Offset ***(Default: X:0 Y:0 Z:0)*** - XYZ offset value of the outline.	**All RealToon Shader**	**All Render Pipeline**
Double Sided Outline ***(Default: Off)*** - This will show the front side of the outline or change the culling of the outline to off. ***[Note]*** **Useful for plane object.* ***Outline Z Position In Camera** option is needed to be adjust to show the object.*	**All RealToon Shader**	**All Render Pipeline**
Color ***(Default: Black)*** - The color of the outline	**All RealToon Shader**	**All Render Pipeline**
Mix Main Texture To Outline ***(Default: Unchecked)*** - This will mix **Texture/Main Texture** to outline **Color**.	**All RealToon Shader**	**All Render Pipeline**
Noisy Outline Intensity ***(Default: 0)*** - How noisy is the outline is.	**All RealToon Shader**	**All Render Pipeline**
Dynamic Noisy Outline ***(Default: Unchecked)*** - Moving noisy outline. ***[Note]*** **This will not work if the **Noisy Outline Intensity** is **0.***	**All RealToon Shader**	**All Render Pipeline**
Light Affect Outline Color ***(Default: Unchecked)*** - Light falloff, color and intensity affect outline color.	**All RealToon Shader**	**All Render Pipeline**
Outline Width Affected By View Distance ***(Default: Unchecked)*** - Camera view distance affects outline width or thickness. ***[Note]*** **Far distance will increase outline width.* **Near distance will decrease outline width.*	**All RealToon Shader**	**All Render Pipeline**
Far Distance Max Width ***(Default: Unchecked)*** - The maximum width or thickness value when camera distance is far from the object.	**All RealToon Shader**	**All Render Pipeline**

Transparent Opacity Affect Outline ***(Default: Checked)***	**Default Shader**	**HDRP**
- Transparent affect outline opacity. ***[Note]*** **This only works if **Transparent Mode** is enabled.*		
Vertex Color Blue Affect Outline Width ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Object vertex color blue channel affect **Outline Width**. ***[Note]*** **This will not work if the **Width** option is **0**.*		
Use Screen Space Outline / Use Traditional Outline	**Default Shader**	**URP and HDRP**
- Use **Screen Space Outline** or use **Traditional Outline**. ***[Note]*** **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**.*		

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]*** **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.*		
Normal Threshold ***(Default: 1.3)***	**Default Shader**	**HDRP**
- 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)***	**Default Shader**	**HDRP**
- 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.*		

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**
- How strong the **Texture/Main Texture** and **Main Color** is for **Self Lit**. ***[Note]*** **Adjust this if the **Texture/Main Texture** and **Main Color is too strong for self lit.***		
High Contrast ***(Default: Checked)***	**All RealToon Shader**	**All Render Pipeline**
- Will turn the **Self Lit** into high contrast look. ***[Note]*** **This will mix **Texture/Main Texture** and **Main Color** twice for high contrast look.* **Uncheck this if you just want the color.*		
Mask Self Lit ***(Default: Empty)***	**All RealToon Shader**	**All Render Pipeline**
- Mask **Self Lit**. ***[Note]*** **Use a **Black** and **White** or **Grayscale** texture/map.* ***White** is the **Self Lit** while the **Black** is the non **Self Lit** or just normal part.*		

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

Gloss Texture	Shader Type	Render Pipeline
Gloss Texture ***(Default: Empty)***	**All RealToon Shader**	**All Render Pipeline**
- A texture or image to be use as **Gloss**. ***[Note]*** **Use any **Black** and **White** or **Grayscale** color 4x4 or equal size texture/image.* **If you're using a wide size image, Adjust the **X Tiling** of the **Gloss Texture**.*		
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]*** **Adjust also the **Gloss Texture Offset** option to adjust the position if needed.*		

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]*** **This will adjust the follow light sensitivity.*		

Shadow	Shader Type	Render Pipeline
Overall Shadow Color ***(Default: Black)***	**All RealToon Shader**	**All Render Pipeline**
- The overall shadow color of the object. ***[Note]*** **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.*		
Overall Shadow Color Power ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- How strong the **Overall Shadow Color**.		
Self Shadow & ShadowT At View Direction ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- **Self Shadow** and **ShadowT** follow the camera's view or view direction.		
Reduce Shadow ***(Default: 0)***	**Default Shader**	**URP and HDRP**
- Reduce self cast shadow of the object.		
Reduce Shadow (Pointlight) ***(Default: 0)***	**All RealToon Shader**	**Built-In RP/3D**
- Reduce self cast shadow of the object. ***[Note]*** **This option will take effect when there's a pointlight present on the scene.*		
Point Light Shadow Visibility Distance ***(Default: 0)***	**All RealToon Shader**	**Built-In RP/3D**
- The amount of visible Point Light shadow on the object when the Point Light is move away from the object.		
Reduce Shadow (Spot & Directional Light) ***(Default: 10)***	**All RealToon Shader**	**Built-In RP/3D**
- Reduce self cast shadow of the object. ***[Note]*** **This option will take effect when there's a spotlight or directional light or both present on the scene.*		

Shadow Hardness ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- Realtime shadow hardness look.		
Self Shadow & Realtime Shadow Intensity ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- **Self Shadow** and **Realtime Shadow** intensity or visibility. ***[Note]*** **If **Self Shadow** feature is disabled, it will only affect **RealTime Shadow**.*		
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]*** **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**.*		

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)***	**All RealToon Shader**	**All Render Pipeline**
- The amount of **Self Shadow/Shade** on the object.		
Vertex Color Green Affect Self Shadow Threshold ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Object vertex color blue channel affect **Self Shadow Threshold**. ***[Note]*** **This will not work if the **Width** option is **0**.*		

Hardness ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- Hardness looks of the **Self Shadow/Shade**. ***[Note]*** **Value **1** hard look.* **Value **0** Soft look.*		
Self Shadow & Real Time Shadow Color ***(Default: White)***	**All RealToon Shader**	**All Render Pipeline**
- **Self Shadow/Shade** and **RealTime Shadow** color power or intensity. ***[Note]*** **Visible if the **Overall Shadow Color** option is color **White** or any light color.*		
Self Shadow & Real Time Shadow Color Power ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- **Self Shadow** and **RealTime Shadow** color. ***[Note]*** **Visible if the **Overall Shadow Color** option is color **White** or any light color.*		
Light Ignore Y Normal Direction ***(Default: Unchecked)***	**Default Shader**	**URP and HDRP**
- Light will ignore object's **Y** normal direction if the light angle or position is in **X** or **Y**		
Self Shadow Affected By Light Shadow Strength ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- **Self Shadow/Shade** visibility will be affected by the light shadow **Strength.**		

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

XYZ Position ***(Default: X:0 Y:0 Z:0)***	**All RealToon Shader**	**All Render Pipeline**
- The amount of smoothed object normal/ignored object normal.		
XYZ Hardness ***(Default: 14)***	**All RealToon Shader**	**Built-In RP/3D**
-The amount of hardness of the smoothed object normal/ignored object normal. ***[Note]*** ****This will only affect* ***Self Shadow/Shade*** *features and* ***ShadowT****.* **Higher value will turn the normal into hard and less movement and control for* ***Self Shadow/Shade*** *and* ***ShadowT.*** **Lower value will turn the normal into soft and more headroom for movement and control for* ***Self Shadow/Shade*** *and* ***ShadowT.***		
Show Normal ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Show the object normal. ***[Note]*** **Red color is X, Blue color is Y, Green color is Z.*		

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

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)*** - The amount of light to affect **ShadowT**.	**All RealToon Shader**	**All Render Pipeline**
Light Threshold ***(Default: 0)*** - The amount of **ShadowT**.	**All RealToon Shader**	**All Render Pipeline**
Hardness ***(Default: 1)*** - Hardness looks of the **ShadowT**.	**All RealToon Shader**	**All Render Pipeline**
Color ***(Default: White)*** - **ShadowT** Color. ***[Note]*** **Visible if the **Overall Shadow Color** option is color **White** or any light color.*	**All RealToon Shader**	**All Render Pipeline**
Color Power ***(Default: 1)*** - How strong the color is.	**All RealToon Shader**	**All Render Pipeline**
Ignore Light ***(Default: Unchecked)*** - Don't follow the light or Ignore light direction.	**All RealToon Shader**	**All Render Pipeline**
Show In Shadow ***(Default: Unchecked)*** - Show **ShadowT** in the shadow. ***[Note]*** **Visible if the **Overall Shadow Color** option is color **White** or any light color.*	**All RealToon Shader "Except the Lite"**	**All Render Pipeline**
Show In Ambient Light ***(Default: Unchecked)*** - Show **ShadowT** in Ambient Light. ***[Note]*** **Visible if the **Ambient Light/Environmental Light** or **GI** is present.*	**All RealToon Shader "Except the Lite"**	**All Render Pipeline**
Show In Ambient Light & Shadow Intensity ***(Default: 1)*** - **Show In Ambient Light** and **Show In Shadow** visibility. ***[Note]*** **Visible if the **Ambient Light/Environmental Light** or **GI** is present.*	**All RealToon Shader "Except the Lite"**	**All Render Pipeline**
Show In Ambient Light & Shadow Threshold ***(Default: 1)*** - **Show In Ambient Light** and **Show In Shadow** threshold.	**All RealToon Shader "Except the Lite"**	**All Render Pipeline**

Light Falloff Affect ShadowT ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Light falloff will affect **ShadowT**. ***[Note]*** **Visible if the **Ambient Light/Environmental Light** or **GI** is present.*		

PTexture	Shader Type	Render Pipeline
PTexture ***(Default: Empty)***	**All RealToon Shader**	**All Render Pipeline**
- A texture to be use as pattern. ***[Note]*** **This will only affect **Self Shadow/Shade**, **ShadowT** features and **RealTime Shadow**.*		
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]*** **This is connected to **Receive Environmental Lighting and GI** option.*		
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)***	**Default Shader**	**HDRP**
- Enable **Screen Space** type **Global Illumination**. ***[Note]*** **If this option is enabled, it will also allow you to use **DXR/Ray Tracing Global Illumination**.* **If this option is disabled, it will use the non **Screen Space Global Illumination.***		

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)*** - This will adjust the **Raytraced Global Illumination** shade falloff. ***[Note]*** **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.*	**Default Shader**	**HDRP**
Light Affect Shadow ***(Default: Unchecked)*** - Light intensity, color and light falloff affect shadow. ***[Note]*** **This will only affect* ***Self Shadow/Shade***, ***ShadowT*** *features and* ***RealTime Shadow****.*	**All RealToon Shader "Except the Lite"**	**All Render Pipeline**
Light Intensity ***(Default: -1)*** - How strong or intense the light on the shadow. ***[Note]*** **This will only affect* ***Self Shadow***, ***ShadowT*** *features and* ***RealTime Shadow****.* **This is connected to* ***Light Affect Shadow*** *option.* **The default value on* ***RealToon URP*** *and* ***RealToon HDRP*** *is* ***1****.*	**All RealToon Shader "Except the Lite"**	**All Render Pipeline**
Use Traditional Light Blend ***(Default: Unchecked)*** - This will use the traditional style light blending. ***[Note]*** ** If enabled light blending will be in add mode.* ** If not enabled the light blending will based on high or maximum light intensity and the blending will be similar to Anime or Cartoon.*	**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)*** - This will enabled the object to receive **Area Light.** ***[Note]*** ** 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.*	**Default Shader**	**HDRP**

Directional Light Intensity ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- How strong or intense the Directional Light on the object.		
Point and Spot Light Intensity ***(Default: 0.45)***	**All RealToon Shader**	**All Render Pipeline**
- How strong or intense the Point and Spot light on the object. ***[Note]*** **On **RealToon URP** and **RealToon HDRP** the default value is **0**.*		
Area Light Intensity ***(Default: 0)***	**Default Shader**	**HDRP**
- How strong or intense the **Area Light** on the object.		
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)***	**Default Shader**	**HDRP**
- This will make the **Area Light** shades and falloff on the object looks smooth. ***[Note]*** **If enabled, **Tube Light Falloff** option will be disabled.*		
Light Falloff Softness ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- How soft the Point and Spotlight light falloff is on the object. ***[Note]*** **Set this to **0** if you want an anime style light falloff, it is usually hard look.*		

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

Reflection	Shader Type	Render Pipeline
Intensity ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- How visible the reflection is		
Roughness ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- How rough the reflection looks.		
Metallic ***(Default: 0)***	**All RealToon Shader**	**All Render Pipeline**
- How metallic the object is. ***[Note]*** **Change the **Main Color** to something dark to make it more metallic and dark.*		
Enable Screen Space Reflection ***(Default: Checked)***	**Default Shader**	**HDRP**
- Enable **Screen Space** type **Reflection**. ***[Note]*** **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**.*		
Mask Reflection ***(Default: Empty)***	**All RealToon Shader**	**All Render Pipeline**
- Mask **Reflection**. ***[Note]*** **Use a **Black** and **White** or **Grayscale** texture/map.* ***White** is the **Reflection part** while the **Black** is the non **Reflection** part.*		

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

Rim Light/Fresnel	Shader Type	Render Pipeline
Rim Light Intensity ***(Default: 1)***	**Default Shader**	**URP and HDRP**
- How visible the **Rim Light** is.		
Unfill ***(Default: 1.5)***	**All RealToon Shader**	**All Render Pipeline**
- Reduce Rim Light on the object.		

Threshold ***(Default: 900)***	**Default Shader**	**URP and HDRP**
- The amount of Rim Light effect on the object.		
Softness ***(Default: 1)***	**All RealToon Shader**	**All Render Pipeline**
- How soft the **Rim Light** is.		
Light Affect Rim Light Color ***(Default: Unchecked)***	**All RealToon Shader**	**All Render Pipeline**
- Light intensity, color and falloff affect rim light color.		
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.		

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**
[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**.* ***[VRChat users that don't use this, Set both A and B to "Blank"]*** ***(See/open scene "See Through Example" for more info)***		

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

Disable/Enable Features	Shader Type	Render Pipeline
MatCap - It is a complete material including lighting, specular and reflection that is baked into texture/image.	**All RealToon Shader**	**All Render Pipeline**
Normal Map - Normals that are baked into texture/image.	**All RealToon Shader**	**All Render Pipeline**
Outline	**All RealToon Shader**	**All Render Pipeline**
Cutout - Cutting out parts of the object based on the assign texture.	**All RealToon Shader**	**All Render Pipeline**
Color Adjustment - Adjusting the colors of the shader output.	**All RealToon Shader**	**All Render Pipeline**
Self Lit - Self lit, Self illumination or Emission.	**All RealToon Shader**	**All Render Pipeline**
Gloss - Glossy style or looks.	**All RealToon Shader**	**All Render Pipeline**
Gloss Texture - Glossy style or looks in texture/image form.	**All RealToon Shader**	**All Render Pipeline**
Self Shadow - Objects own shadow or shade.	**All RealToon Shader**	**All Render Pipeline**
Smooth Object Normal - Smooth the normals of the object. - Useful on Anime/Cartoon model face.	**All RealToon Shader**	**All Render Pipeline**
Shadow Color Texture - Shadow colors in texture/image form. - It is use for coloring shadow using texture/image.	**All RealToon Shader**	**All Render Pipeline**
ShadowT - Shadows in texture/image form. - Add more detailed shadows that can't produce by the Real time shadow.	**All RealToon Shader**	**All Render Pipeline**
PTexture - Patterned texture for comics, pop or manga style shadows.	**All RealToon Shader**	**All Render Pipeline**

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

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]*** ** Useful for objects that are plane or quad.*	**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**
Disable DOTS Mesh Deformation ***(Default: Checked)*** - Disable DOTS Mesh Deformation: **Linear Blend Skinning** and **Compute Deformation.** ***[Note]*** ** Enable this for* ***Static Objects****.*	**Default Shader**	**URP**
Receive Decal ***(Default: Checked)*** - The object will able to receive **Decals**.	**Default Shader**	**URP**

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]*** ** Disable or uncheck this for **[Light Mode: RealTime or Mixed]** use.*		
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.)*** ** This will take effect once this enabled and when the RealToon Inspector shown.* ** You can just enable and disable it right away just to remove the unused shader keyword* ** Disable this if you experience too slow Inspector.*		
Recursive Rendering ***(Default: Unchecked)***	**Default Shader**	**HDRP**
- A replacement pipeline for rendering Meshes in the **High Definition Render Pipeline (HDRP)**. ***[Note]*** ** This option will only work on **DXR/Ray Tracing** enabled project.* ** Enable transparency to be visible on a reflective surface.* ** **Ptexture** feature and **Pattern Style** option will not work on this.* **If enabled, object will not receive **Ray Traced Global Illumination**.*		

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]*** ** This is **NOT PER-MATERIAL**.* ****THIS WILL MODIFY THE SHADER FILE** to remove or add the outline on the shader.*		
Refresh Settings	**Default Shader**	**URP and HDRP**
- This will refresh and re-apply the settings properly. ***[Note]*** ** Click this if there are some problem, after you update, after material reset or re-import RealToon.*		
Video Tutorials	**All RealToon Shader**	**All Render Pipeline**
- RealToon video tutorials.		

RealToon (User Guide).pdf - RealToon user guide or documentation.	**All RealToon Shader**	**All Render Pipeline**
Hide UI - Hide RealToon inspector UI. ***[Note]*** ** This is **NOT PER-MATERIAL**.* **This is **Global**.*	**All RealToon Shader**	**All Render Pipeline**

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

[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. 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.

C. 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.**

D. 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.**

E. 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.

F. Adjust **Reduce Shadow** to reduce unwanted object self cast shadow, especially shadow artifacts.

G. 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.

H. 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.

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

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

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

L. 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.

M. Always Change the **Overall Shadow Color** to **White** if you want to color other shadow features like **ShadowT** & **Self Shadow** and use **PTexture**.

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

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

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 use **Smooth Object Normal** feature or override object normal by using **Normal Map**.

R. 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.

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

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

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

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

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

[Contact/Support/Social Network]

Facebook Page:
https://www.facebook.com/mjqstudioworks/

Twitter:
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://forum.unity3d.com/threads/realtoon-pc-mobile.414237/

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