VR Series VRED Pro - Output

To help document VRED Pro files, this tutorial will cover how to create Snapshots using two methods in VRED Pro. The first method will use Standard Display settings. This is the same setting for VR sessions. The second method will use raytracing, which can be done either by GPU or CPU settings. If using the VR systems, the graphics cards are able to use the CPU raytracing, which is more interactive.

- Using SnapShots, Setting the Image Size and Output Location
- Standard Display Settings Realtime Antialiasing
- Raytrace Tracing Settings GPU vs CPU raytracing, Antialias, Denoiser
- Render Image
- Other Display Methods



SnapShots

File > Export Snapshot (Ctrl+P) will be the used to create either Standard Display or Raytrace image.



Setting Image Size

To set the Image size or frame for the SnapShot tool, go to Windows > Render Window Size. Several preset sizes are available. Once a size is selected, the window will resize to it as shown.



Setting Non-Standard Image Size

If a size or proportion is not available in the list, it can be set through the Preference window. Go to Edit > Preferences. Select Render Options and then the Visualization tab (A). Turn on Fixed Resolution and set the Pixel Resolution. Click on the Apply, then click OK. Make sure the Use Preference option (C) is selected the Windows > Render Window Size.



Output Location from SnapShot

On a desktop computer, the location of the image file created from SnapShot are saved in a folder called "vred-snapshots". It is located under the main drive for the computer. On a virtual desktop computer (vLab), this folder cannot be create so snapshots cannot be created and result in an error. The location needs to be reset through the preferences (next page).



Changing the Output Location

To change output location for SnapShots, go to Edit > Preferences. Select Render Settings and then the Advance tab (A). Click on the folder icon and pick the folder location. In this example, the Pictures folder was selected. Click on the Apply button in the Preference window, then click OK button to close the window.

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Standard Display - Realtime Antialiasing

Quality settings can be adjusted through the Visualization > Realtime Antialiasing. Off is the default settings. If a SnapShot is being created, then Medium or High can be used. If a VR session is going to be used, then start with a Low setting and make sure the frame-per-second (FPS) is not adversely affected before trying Medium or High



Realtime Antialiasing Comparison

Increasing Antialiasing helps to smooth out graphics and remove jagged edges between geometry. These four images compare the different settings of antialiasing.



Antialias: Off



Antialias: Low



Antialias: Medium



Antialias: High

Raytracing

For still images, Raytracing is another option to add realism. If true reflection of geometry and realistic refraction of transparent geometry is required, Raytracing is a good choice. In this example, raytracing helps to add realism because of the glass and reflection in the body paint.



<image>

Non-raytraced

Raytrace

Raytracing

Otherwise, the Standard Display can be as good and provide the same realism. In this example, the raytrace image is not much different than the non-raytraced image.

Raytracing is not an viable option for VR session since the interactivity is extremely low compared to Standard Display.





Raytrace

Non-raytraced

Raytracing - Starting

Turn on Raytracing by selecting the button along the top ribbon or go to Visualization > Raytracing > CPU Raytracing. This starts the raytracing engine. Initially, the raytracing will look very rough since this only starts raytracing but does not smooth out the image through antialiasing.



Raytracing - Start Antialiasing

Turn on Antialiasing for Raytracing by selecting the Antialias button along the top ribbon. The image will start to smooth and a progress circle with a percentage will replace the mouse. The percentage represents the number of samples completed. The sampling value is set in the Rendering window.



Raytracing - Setting Antialiasing

Open the Render Settings window (Rendering > Render Settings) and click on the General tab (A). The Use Image Sample (B) is the number of samples that will be completed once 100% is each. For the example shown, 50% completion would represent 128 samples. Depending on the speed of the computer and complexity of the scene, lower or higher values can be used. 256 or 128 are good starting points for number of samples.

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Raytracing - CPU vs GPU

There are two methods for calculating raytracing. For virtual desktops (vLab) system, the only option is CPU or central processing unit. This method uses the CPU to calculate raytracing. For the VR systems, the second option of GPU or graphical processing unit is available. This method tends to be faster since it uses the power of the graphics card to calculate raytracing.



Raytracing - Denoise Option

Another option to use during raytracing is the Denoise. This actually uses AI technology to help smooth out the preview for raytracing. There is one denoise option for CPU and two for GPU. The Deep Learning Still-frame seems to work the best if GPU raytracing is being used. *Note: Denoise tends to blur the results since it is using AI to calculate results. It is great for quick previews. For the best results with a SnapShot image, turn off the Denoise option and use a higher sample rate.*

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Render Image

If a higher resolution image is needed for a presentation or a print, a render image can be created using the Render Settings window. Either a Standard Display image (non-raytraced) (A) or a Raytrace image (B) can be created. The only difference is that the Raytracing and Antialias options (B) must be turned on when a Raytrace image is render.



Render Image - Setting the Aspect Ratio

Set the correct proportions for the rendering and frame the view by selecting the size under Render > Render Window Size. Do not worry if the full resolution is not available. Make sure to pick the resolution with the correct aspect ratio.



Render Image - Adjust Settings

In the Render Settings window, choose Current from the View drop down (A). Skip the Filename section for now. Set the image size and resolution (B). Make sure the Render Mode is Full Global Illumination and Render Quality is Production (C). Select the Render button (D).



Render an Image

A file name and location can now be entered.



Render an Image

Raytrace renders will take longer to render than Standard Display render. A progress bar will be shown to indicate the progress.



Other Display Methods

Under the Visualization menu, there are several other ways to visualize a scene. Shown here are four different ways to view the scene.

Ambient Occlusion is used to verify the quality of AO but this style is popular to just show the form of a model.

Non Photorealistic Rendering uses the Base Color of the material. If the material does not have a Base Color value, then shades of green as used.

Several different Stereo methods are available depending on the equipment/glasses you have to view them.

Wireframe is a toggle that display the edges of the polygon model. It is used with other methods to such as Realistic Rendering.



Ambient Occlusion



Stereo > Red/Cyan



Non Photorealistic Rendering



Wireframe