

Release 2022 R1 Highlights

Ansys EnSight



/ What's new for EnSight at Ansys 2022 R1

2022 R1 's development efforts were focused on:

- Ansys Toolchain embedding:
 - We continue to spend most of our developer time working on integrating EnSight into various toolchains and workflows within other Ansys applications.
 - Data transfer mechanisms for Fluent, LS-Dyna
 - Post Analysis Workspace development and data transfer mechanisms.
 - Fluent Report generation
 - Developing towards browser based visualization and communication of results.
- Improvements in High Quality output functionality and workflow.
- Misc. user requested items.
- Beta:
 - Improvements to Turbomachinery analysis (Turbo Surfaces)
 - Parallel animation save capability.
 - Long term development items (not visible yet, but coming in 2022 R2)
 - 3D viewer consolidation

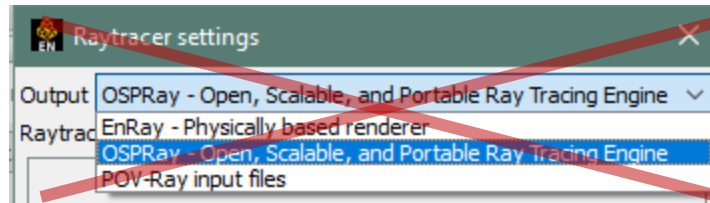
OSPRay --- 2022 R1

- **Default now OSPRay ray tracing**

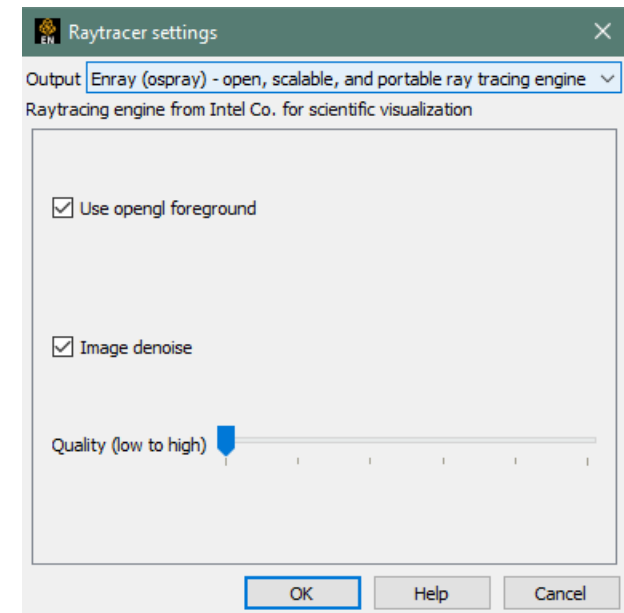
- More realistic shadows and light interaction
- Far quicker (~10-20 seconds to render image)
- Still remains a Software implementation (graphics card not engaged)

- **What's Changed:**

- Promoted the OSPRay rendering from Beta (2021 R2) to full release.
- Deprecated the older EnRay Physical Based Rendering (PBRT), and PovRay export



- Legacy Command files which utilize the older Ray Trace will still run via playback.



/ Quad (Area) Light Source

- New light source Type : **Quad**
 - More realistic soft shadows (light box effect)
 - Generally more realistic looking images.
- Specification of location and direction, and size of the light source.
- Hint: Using the “Get Plane tool Position” is a handy way to manipulate the location of the light source.

☒ Active ☐ Visible Glyph size 7.002170e-01

Type Quad

A quad-shaped area light source. Ideal for soft shadows in ray traced images

Intensity 1.00

Location

X	Y	Z
7.185448e+00	1.980000e-04	1.592956e+01

Get cursor tool position

Ray direction

Normal: X Y Z

0.000	0.000	-1.000
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Size

X	Y
1.000	1.000

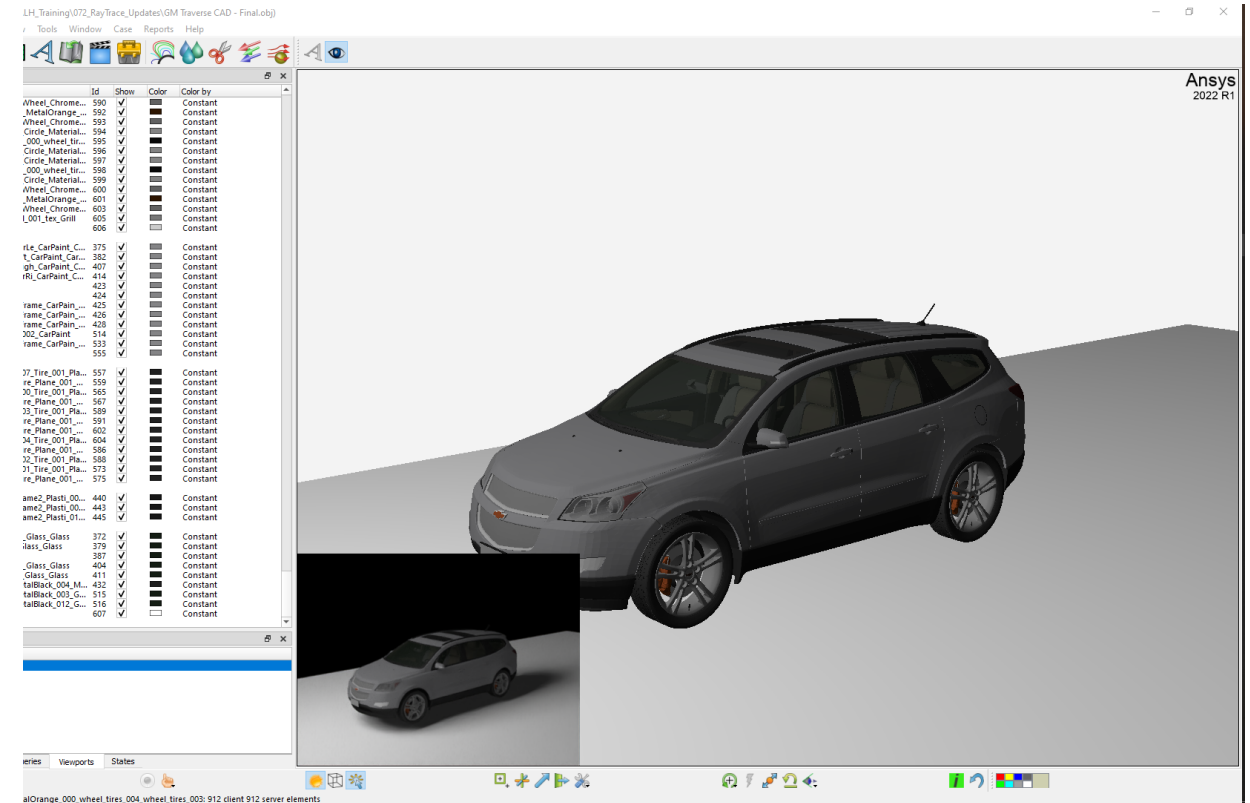
Get plane tool position Set plane tool position



Single Area light specification, straight on, upstream of vehicle, about 15' off ground pointed slightly aft.

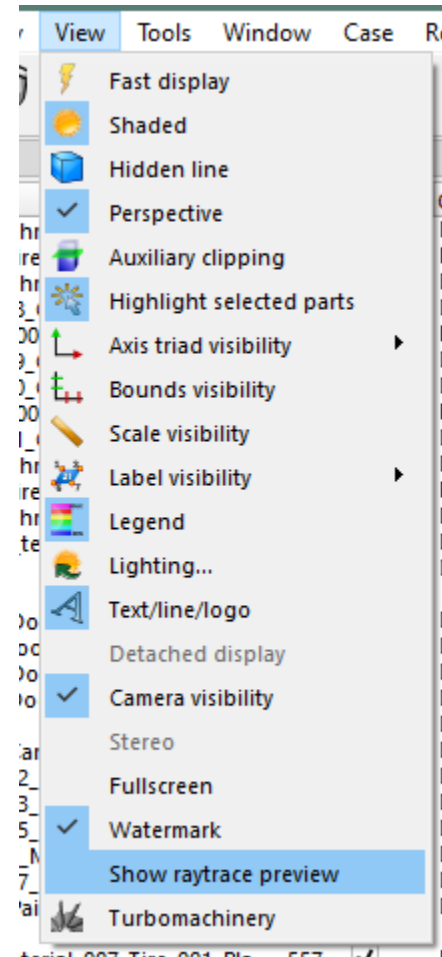
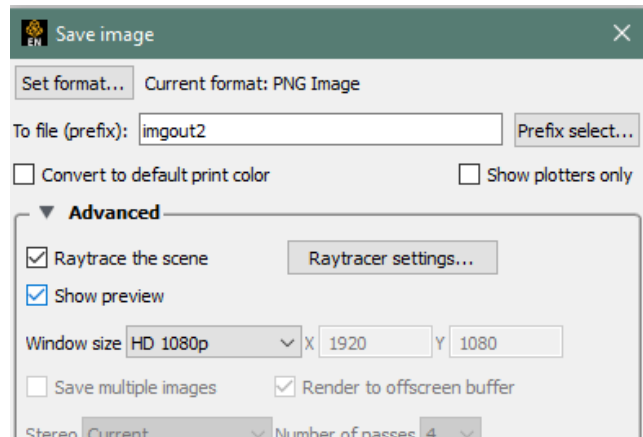
Preview Window

- New **Preview** window for Ray Traced Rendering
 - Live preview of ray trace image (what you are going to get when you save image).
 - Will continue to update for ~10 seconds if in the idle loop.
 - Can be resized to inspect
- Quick feedback on change to the scene
 - materials, lights, parts, etc.



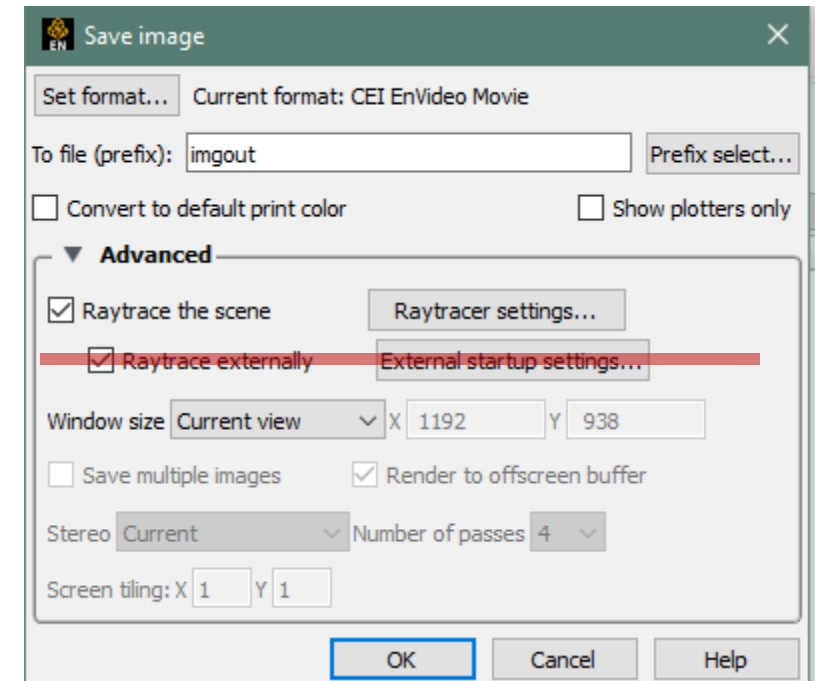
Preview Window

- Enable:
 - View --> Show raytrace preview
- Save Image dialog : “Show Preview”



Offline Ray Trace Save Option Removed

- Offline Save of ray trace option removed
 - Removal of the 'offline' ray trace saving that was more trouble than it was worth.
 - For Images, it was on option -- > no longer used.
 - For Animations, it was the only option -- > no longer used.
- Saving Images and Animations will hold up EnSight while the images & animations are rendering.
- More robust save process
- Gains were never realized in day-to-day use.

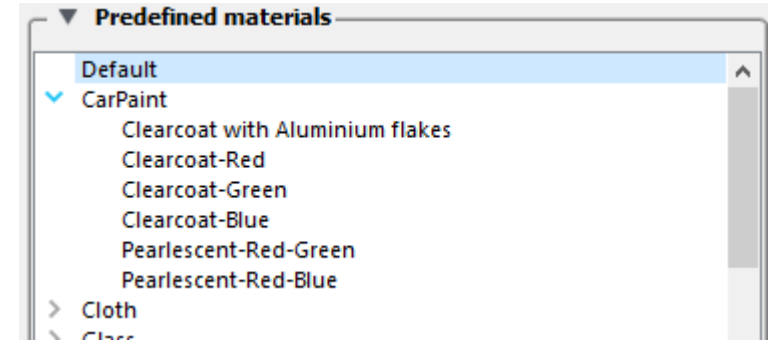
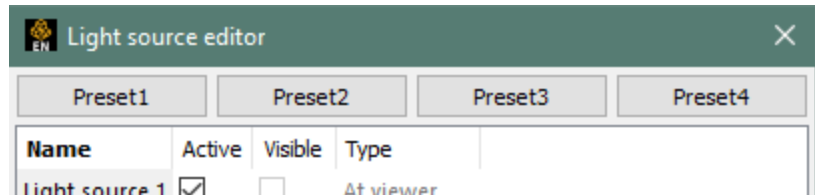


/ Example OSPRay output from within EnSight 2022 R1



/ Beta options in 2022 R1

- BETA (environment variable 'ENSIGHT_ANSYS_BETA_FLAG' to 1)
 - Additional material options available
 - Car Paint (metallic fleck paint)
 - Lighting Preset
 - Easily specify a collection of light attributes.



- ALPHA (environment variable 'ENSIGHT_ANSYS_ALPHA_FLAG' to 1)
 - Environment Light Settings
 - Take light from the texture image scene

/ Misc. User Requests

- By default now, EnSight (regardless of where installed), will take on Ansys consistent behavior (background colors, logo, mouse mappings). If desired, legacy decoration of EnSight can be set by setting ENSIGHT_ANSYS_VERSION to 0.
- Address interaction of QEA and right click operations. (Improved UI for right mouse button).
- SLURM added to Job Scheduling Support.
- LSTC-LSDYNA extended support for CPM Particle data, more MS data types, improved performance of ALE dataset reading.
- CFF Post format enhancements for rigid body motion, reading performance improvements.

/ Misc. User Requests

- Particle Trace emitters locations can now be random locations on surface (rather than existing node locations), and more than the number of nodes in a part)
- Vector Arrows can now have show cylinder shafts (rather than lines).
- Updates to CGNS-XML (BCs Zonal Properties, Undefined relative velocity, enabling user defined math for new parts (i.e. new cases loaded).
- For the Color Palette Legend, you can now set the number of tick marks independently of the number of palette levels.

Beta in this Release

We have a number of features which are marked as Beta for this release. This means the feature has not been fully tested, documented, or have their intended functionality. However, they are features which you can expect to see shortly in their fully-released form:

- Turbo Surfaces
 - Creation of turbomachinery-based topology clips (e.g. spanwise, meridional, streamwise)
- Parallel Animation
 - Utilization of sub-EnSight processes to process solution or keyframe animations in parallel.

 **Ansys**

