




Hydra Renderer

Quick Start
v1.6a



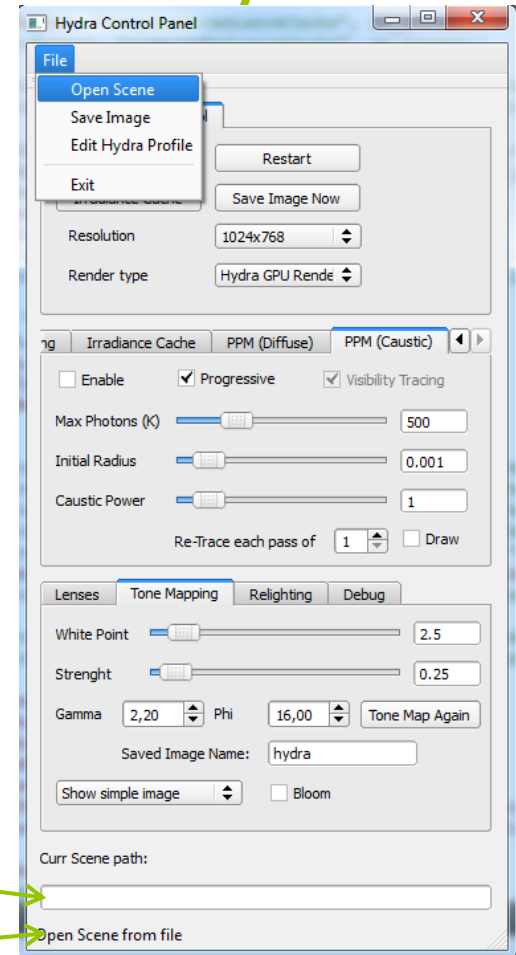
Installation

- OpenCollada for Max
- CUDA 5.0 or higher
- For this version (v1.6a) GPU with CUDA Compute Capability 2.0 (i.e. 400 series and higher) required
- The final version will support 1.3 also (GT 200 series)
- Please visit
 - <https://developer.nvidia.com/cuda-downloads>
 - <https://github.com/KhronosGroup/OpenCOLLADA/wiki/OpenCOLLADA-Tools>

Scene export

- Export your scene with
 - Autodesk Max 2012/2013
 - FBX COLLADA
 - OpenCollada (recommended)
 - If don't work use FBX COLLADA
 - Blender
 - Standart Collada export
 - Any other tool with collada export
 - OpenCollada is recommended anyway

Open the scene (.DAE)

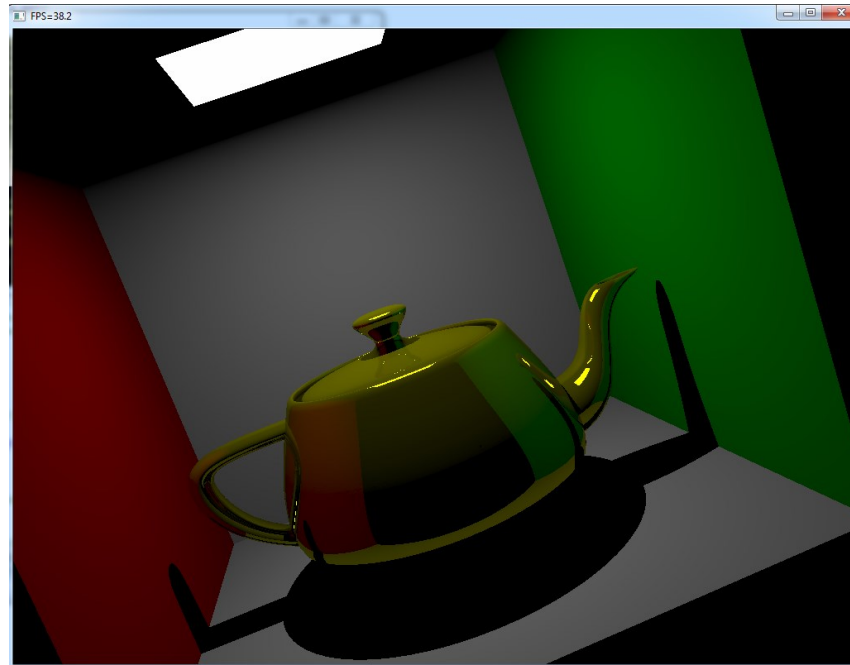


Current path displayed here

Prompts displayed here

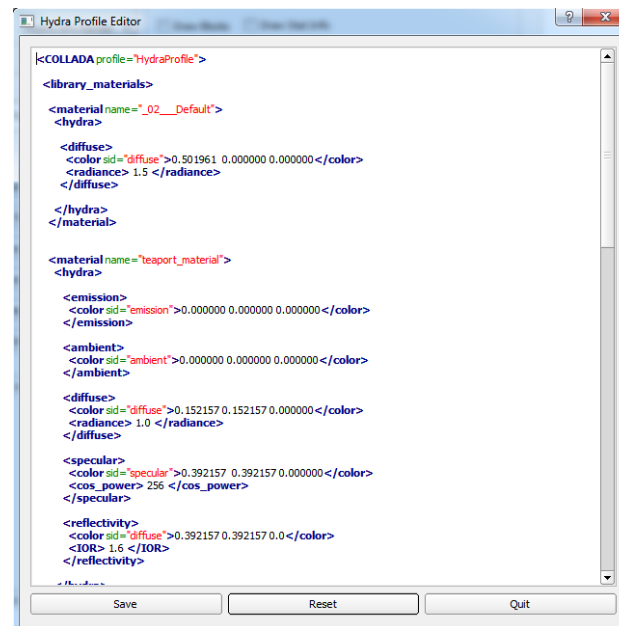
Move over the scene

- W,A,S,D (like in 3D shooters)
- R,F (up and down)
- Q,E (rotate)



Hydra materials and lights

- File->Edit Hydra Profile
- Documentation located here
 - <http://ray-tracing.ru/articles235.html> (rus)
 - Samples can be found in 'lessons' folder





Hydra materials and lights

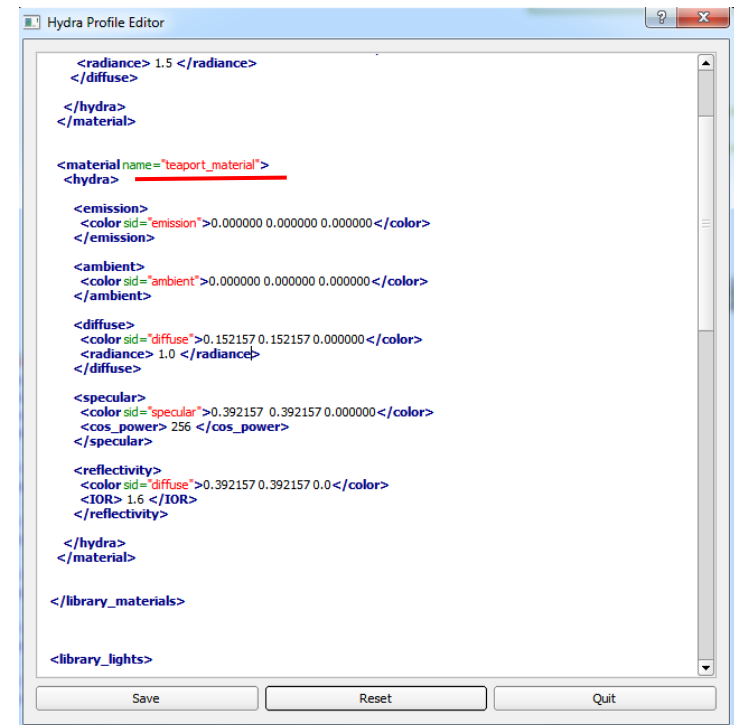
- The 'Hydra profile' mechanism was created to replace any 'standard' materials and lights with the internal Hydra materials and lights
- But you also can add new lights to the scene by using it
- To replace material or light you need to specify appropriate same material/light name
- When adding light you may specify any light name

Hydra materials and lights

- Example of replacing:
Collada file:

```
<effect id="teaport_material-fx" name="teaport_material">
  <profile_COMMON>
    <technique sid="standard">
      <phong>
        <emission>
          <color sid="emission">0.000000 0.000000 0.000000 1.000000</color>
        </emission>
        <ambient>
          <color sid="ambient">0.000000 0.000000 0.000000 1.000000</color>
        </ambient>
        <diffuse>
          <color sid="diffuse">0.392157 0.392157 0.000000 1.000000</color>
        </diffuse>
        <specular>
          <color sid="specular">0.392157 0.392157 0.000000 1.000000</color>
        </specular>
        <shininess>
          <float sid="shininess">256.000338</float>
        </shininess>
        <transparency>
          <float sid="transparency">0.000000</float>
        </transparency>
      </phong>
    </technique>
  </profile_COMMON>
</effect>
```

hydra profile:

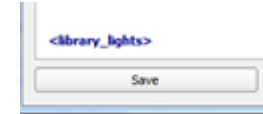


Hydra materials and lights

- You don't have to seek for material names in collada files;
- After first load:
 - **hydra_profile_generated.xml** have all names and current parameters
 - You may use this file as initial template
 - **hydra_profile_generated.xml** located in the scene folder

Hydra materials and lights

- When you press “Save button”
 - All material and lights parameters will be reloaded immediately!
 - You don't have to press “restart” unless you changed textures, or add new lights.
 - Also you have to press “restart” if you changed position of spherical, area or mesh light (because BVH have to be reconstructed)
 - **hydra_profile_generated.xml** have all names and current parameters





Render Algorithms

- Path Tracing
- Irradiance Caching
 - compute it manually!
- Progressive Photon Maps
 - Only single light is supported for now



Features in deep progress

- Will not work for now
 - Relighting GUI

Run Hydra without GUI

- Run cmd line:
 - test_app.exe “path_to_my_scene.dae” “path_to_hydra_profile.xml”
- Move: **W,A,S,D, R,F**, (up & down) **Q,E** (“Roll”)
- Path tracing : **P**
 - Enable/Disable diffuse bounces: **C**
 - Draw stat and blocks: **N,M**
- Irradiance Cache : **I**
- Trace depth: **1,2,3,4,5**
- Shadows : **Z**
- Aliasing (for RT only): **G,H,J,K,I**
- Compute images for relighting: **O**

“Other” hotkey list

- Shift+B – Draw IC records
- Shift+R – Compute Radiance Cache
- Shift+P – Trace Photons (a portion)
- Shift+O – Trace Caustics Photons (a portion)
- Shift+N – Draw diffuse photons photons
- Shift+M – Draw caustic photons photons
- Shift+(3,4,5) – Save camera
- (F3,F4,F5) – Load camera

Looks like this

