V-Ray Next for Blender

Process A (blender.exe)

Blender

* Custom build of Blender
* Customized splash screen
* Built-in **_vray_for_blender** Python module for scene data export

Add-on: V-Ray for Blender

* Python
* License: GPL v2
* Imports **_vray_for_blender** module
* Implements UI
* Implements **bpy.types.RenderEngine**

_vray_for_blender

* Python module compiled into Blender
* Made for fast scene data processing using C++ RNA API.
* License: Apache 2.0

Exporter Class API (simplified)

```
struct ZmqExporter {
    void export_vrscene(const std::string&);

    AttrPlugin export_plugin(const PluginDesc &pluginDesc, bool replace, bool dontExport);

    bool is_aborted() const;

    void replace_plugin(const std::string &, const std::string &);
    int remove_plugin(const std::string&);

    void set_current_frame(float val);

    RenderImage get_image();
    RenderImage get_render_channel(RenderChannelType);

    void show_frame_buffer();
    void hide_frame_buffer();

    void set_render_mode(RenderMode);
    void set_render_size(const int&, const int&);
    void set_render_region(int x, int y, int w, int h, bool crop);
    void set_viewport_quality(int);
    void set_camera_plugin(const std::string &);
}
```

https://github.com/ChaosGroup/blender_with_vray_additions

Branch: dev/vray_for_blender/vb40
Subdir: intern/vray_for_blender_rt

ZMQ Wrapper

* Wrapper on top of ZMQ message

https://github.com/ChaosGroup/vray_for_blender_zmq_wrapper

ZMQ Client API (simplified)

```
void connect(const char * addr);
bool connected() const;
void send(zmq::message_t && msg);
void stopServer();
```

ZMQ Message (simplified)

```
enum Type {
    None,
    Image,
    ChangePlugin,
    ChangeRenderer,
    VRayLog,
};

enum PluginAction {
    None,
    Create,
    Remove,
    Update,
    Replace
};

enum RendererAction {
    None,
    Free,
    Start,
    Stop,
    Pause,
    Resume,
    Resize,
    Reset,
    _ArgumentRenderAction,
    Init,
    ResetsHosts,
    LoadScene,
    AppendScene,
    ExportScene,
    SetRenderMode,
    SetAnimationProperties,
    SetCurrentTime,
    SetCurrentFrame,
    ClearFrameValues,
    SetRendererState,
    GetImage,
    SetQuality,
    SetCurrentCamera,
    SetCommitAction,
    SetVfbShow,
    SetViewportImageFormat,
    SetRenderRegion,
    SetCropRegion,
};
```

Process B (zmqserver.exe)

V-Ray ZMQ Server

* Manages connections
* Manages render instances
* License: MIT

V-Ray AppSDK

* Implements the renderer
* Linked with the Server
* Proprietary license

https://github.com/ChaosGroup/vray_for_blender_server