Phoenix API

This page provides information on the Chaos Phoenix application programming interface (API).

Overview

The Chaos Phoenix API is included with the installation of Phoenix for Autodesk® 3ds Max®. It provides C++ API for several different purposes:

- Loading of grid and particle data stored in AUR, VDB or F3D cache files.
- Runtime access to the grid volume and particle shading core of a Phoenix Simulator node in 3ds Max, allowing you to read and shade this data in your own plugin.
- Runtime access to different Phoenix nodes, allowing you to prepare them for rendering on demand, start and stop a simulation, access the parameters of different nodes, load and save presets.
- Access to the Phoenix color gradients and diagram curves, allowing you to embed them in your own application.

Installation

The Phoenix API is normally installed in "C:\Program Files\Chaos Group\Phoenix FD\3ds Max NNNN for x64\SDK" where NNNN is the version of 3ds Max (2021, 2020, etc).

Structure

The Phoenix API includes the following folders:

- **\include** – Contains the header files needed to interface with Phoenix API.
- **\lib** – Contains the Phoenix API binaries for both static and dynamically linked versions of the Phoenix API.
- **\samples** – Contains example projects that use different functions of the Phoenix API.

Using the Phoenix API

The Phoenix API is provided as a static and dynamic library. Depending on your project, you may pick the static or dynamic version of the library. Usually the dynamic version is preferred when there is a dependency to any version of V-Ray SDK, as Phoenix API depends on **vutils_s.lib**.

Using Phoenix API as a static library requires:

- **\lib\aurloader_s.lib** and **\lib\vutils_s.lib** to be added as an additional dependency to the linker.

Using Phoenix API as a dynamic library requires:

- **AURLOADER_DYNAMIC_LIB** to be added the compiler settings as a preprocessor definition.
- **\lib\aurloader.lib** to be added as an additional dependency to the linker.
- **\lib\aurloader.dll** to be available at run time to the executable linked to **\lib\aurloader.lib**.

Phoenix API is built with the vc14 **C++ Platform Toolset** for all 3ds Max versions and for both V-Ray Next and V-Ray 5, **with "/MD" Runtime Library flag**.

Samples

The Phoenix API comes with two code sample projects: GridView and CSVParticles.

Prerequisites:

The project uses CMake for generating project files. Additionally the following third party libraries have been used:

- GLEW (http://glew.sourceforge.net/).
- GLFW (http://www.glfw.org/) Tested with GLFW Version 3.0.4.

- Zlib (http://www.zlib.net/). Needed if static version of Phoenix API is being used.

Here is an archive containing those libraries: external_libs.

Note: This is just a collection of the libraries as we downloaded them from their respective official sites. We don't take any responsibility for the way the actual libraries work or affect your PC.

GridView

GridView is a simple smoke rendering implemented in OpenGL. it is located in the **\samples\GridView** directory.
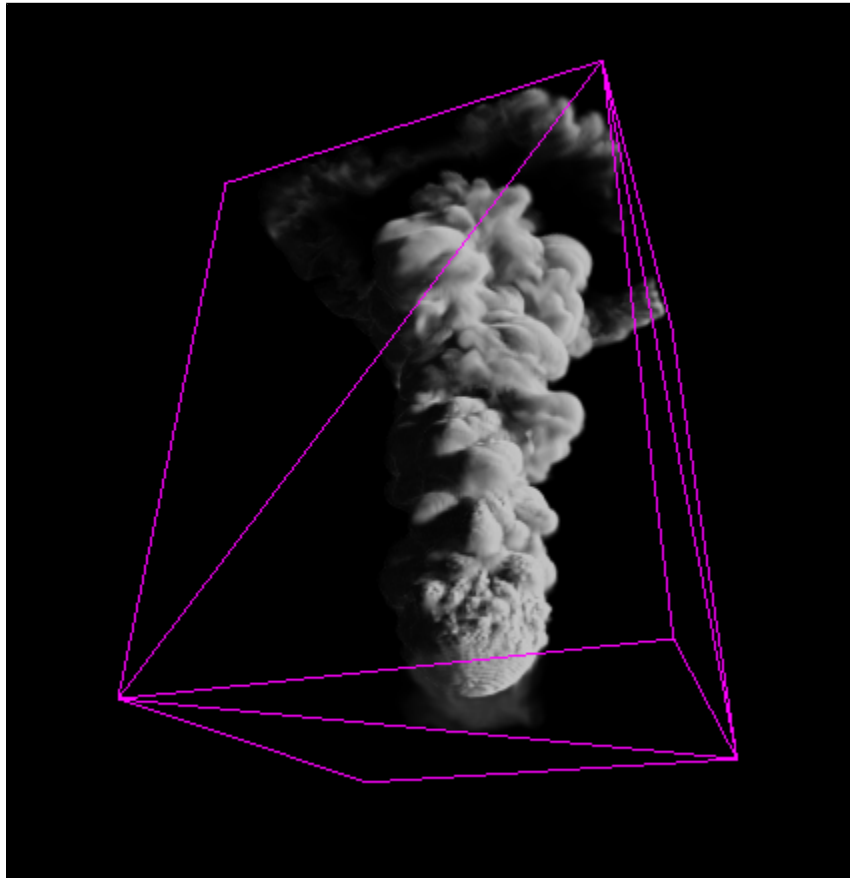
Prerequisites:

In order to build this sample, all external libraries must be located in a **GridView/external_libs**.

Build steps:

- Place all external libraries in **GridView/external_libs**.
- Use CMake to generate project files that best suite you needs. Please take in account the **C++ Platform Toolset** that is used by your version of Phoenix API. See the Using Phoenix FD API section.
- Set PHOENIX_SDK_DIR to Phoenix API, for example "C:\Program Files\Chaos Group\Phoenix FD\3ds Max NNNN for x64\SDK".
- Generate the project files and build.

CSVParticles

CSVParticles exports particle groups stored in Phoenix *.aur files to *.csv recognized by Thinkbox Krakatoa™ (CSV File Format).

Prerequisites:

In order to build this sample, all external libraries must be located in a **CSVParticles/external_libs**.

Build steps:

- Place all external libraries in **CSVParticles/external_libs**.
- Use CMake to generate project files that best suite you needs. Please take in account the **C++ Platform Toolset** that is used by your version of Phoenix API. See the Using Phoenix API section.
- Set PHOENIX_SDK_DIR to Phoenix API, for example "C:\Program Files\Chaos Group\Phoenix FD\3ds Max NNNN for x64\SDK".
- Generate the project files and build.