



FILM & TV PIPELINE Animation and VFX

Whether you are creating live action plates enhanced with visual effects or full CG shots, the ultimate goal of Film and TV projects is moving pictures. These pictures are created using assets such as characters, sets and effects which all come together in a final composition.

Houdini is a full featured package that contributes to all stages of a Film & TV pipeline. From modeling to rendering to animation and final compositing, Houdini has procedural tools that support your creative process. Over the years, VFX is one area where Houdini is known as an industry standard. SideFX has been honored with several Scientific and Technical Achievement awards including an ACADEMY AWARD OF MERIT Oscar.

Other areas such as procedural modeling, lighting or character work continue to get stronger to the point where a growing request from studios is more skilled Houdini artists.

HOUDINI CORE / HOUDINI FX

There are two commercial versions of Houdini that you use in your pipeline. Houdini Core covers all of Houdini's tools except for DOPS, and Houdini FX has a full toolset. Scenes and VFX created in Houdini FX can be staged, animated, lit and rendered in Houdini Core. This gives you a robust pipeline with Houdini FX licenses for your FX artists and Houdini Core licenses for everyone else.

One solution is for senior technical directors to use Houdini FX to solve a particular production challenge then wrap up the resulting nodes and networks into Houdini Digital Assets. An artist-friendly UI is then built to support the animators and VFX artists who can then use the more cost effective Houdini Core to execute shots.

INTEROPERABILITY

Most studios are equipped with a variety of 3D applications to each handle a different part of the pipeline. Houdini has a lot of strong interoperability tools to allow for this interchange of data. Whether they are using USD, Alembic, FBX or EXR, your artists can easily work back and forth with a wide variety of DCC applications. They can also use the Houdini Engine plug-ins to bring the Houdini Digital Assets into other applications, such as Autodesk® Maya® or 3DS MAX®, while maintaining the asset's procedural controls.

Smaller studios may want to avoid extensive file exchange, especially with tight deadlines, therefore Houdini provides a full featured procedural "pipeline-in-a-box" that can take you through all of the stages under one roof.

DISTRIBUTED RENDERS AND SIMS

Rendering images and simulating VFX can be time consuming, especially as you aspire towards photorealistic results. For this reason, Houdini lets you distribute both rendering and simulation tasks to a compute farm using **Houdini Engine** in **Batch** mode.

Distributed simulations allow you to work faster or to handle effects that would max out the memory on any one computer. By slicing the sim and distributing it, memory is managed without compromising the final result. Studios should definitely consider using **Houdini Engine** to simulate on the farm.

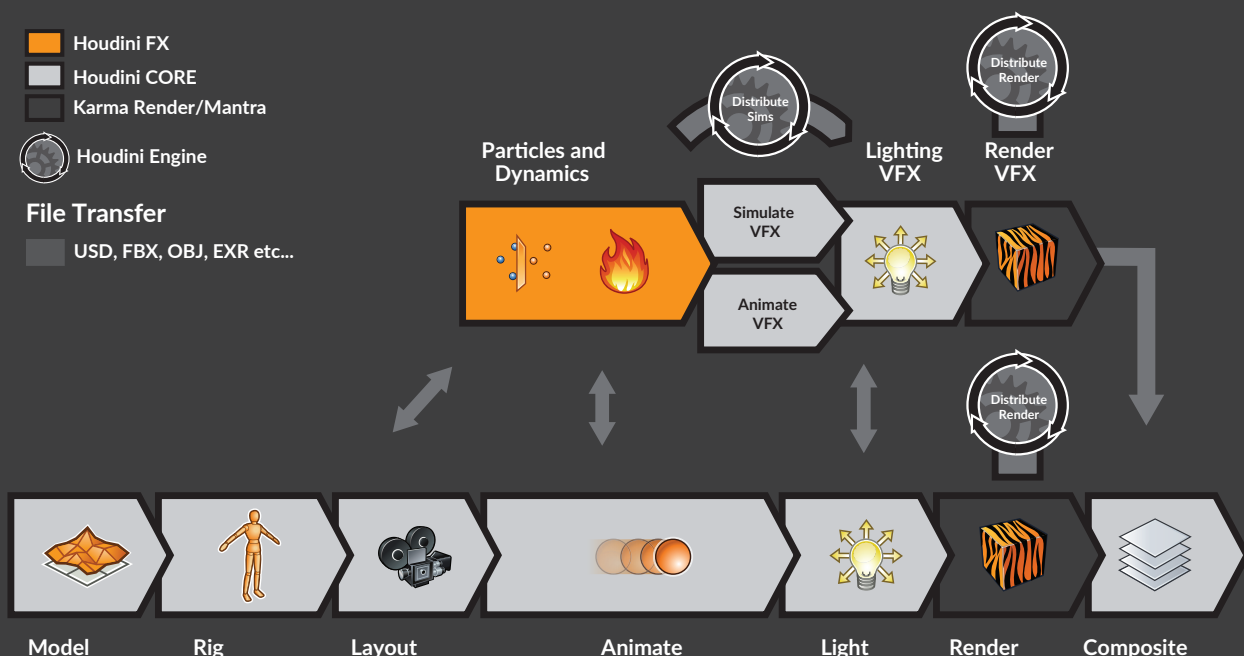
FILM & TV PIPELINE

- Houdini FX
- Houdini CORE
- Karma Render/Mantra



File Transfer

USD, FBX, OBJ, EXR etc...





GAMEDEV & VR PIPELINE

Interactive Experiences

In Video Game and Virtual Reality projects, the main focus is creating interactive 3D worlds built using content that is highly optimized for a smooth gameplay experience. This creates a different kind of pipeline compared to rendered out game cinematics which are more like film.

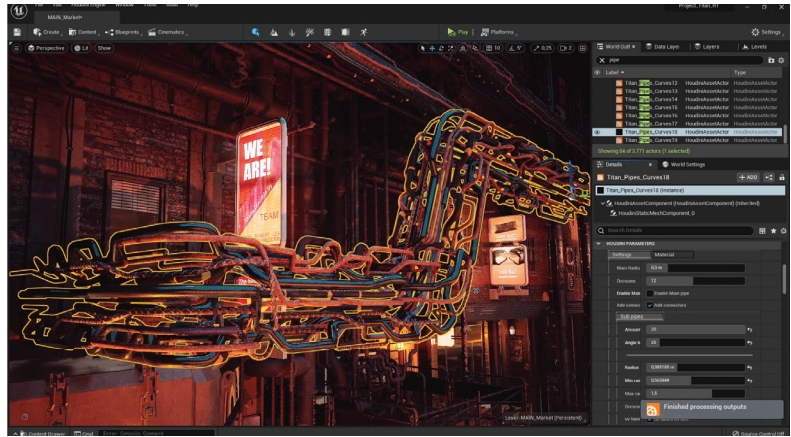
At the core of a games pipeline is a game engine like Unreal or Unity. The engine is where the game art and the game interactions are put together to create a playable experience. Houdini can be used by game artists to create terrain, design and populate levels, build procedural models, build and animate characters and create Realtime FX such as fire, fluids and destruction.

EXPORTING TO GAME ENGINES

There are two ways of getting content from Houdini to a game engine. The traditional approach is to export out to a format like FBX or OBJ and import this into the engine. You would create procedural systems in Houdini then flatten out the results.

The second approach is to create **Houdini Digital Assets** and load these into the game engines using the **Houdini Engine plug-ins** for Unreal and Unity. These assets import into the game editor with their parameters and controls intact. You can therefore make changes inside the game editor and the Houdini Engine works in the background to update the artwork.

This proceduralism is available to game artists inside the editor then when the game is compiled the artwork is baked down. The Houdini Engine is not a runtime solution and you cannot access it as part of the gameplay.



Houdini Digital Assets loaded into Unreal using the Houdini Engine

REALTIME FX

Houdini is known for VFX and it is a great tool for creating FX for games. But these FX need to be optimized using techniques such as texture sheets, flowmaps and vertex animation textures. This way the footprint for the effect is as light as possible and does not take away from the frames per second of the game. The SideFX Labs Tools mentioned earlier in this document have been designed to support these kinds of workflows.

GAMEDEV & VR PIPELINE

