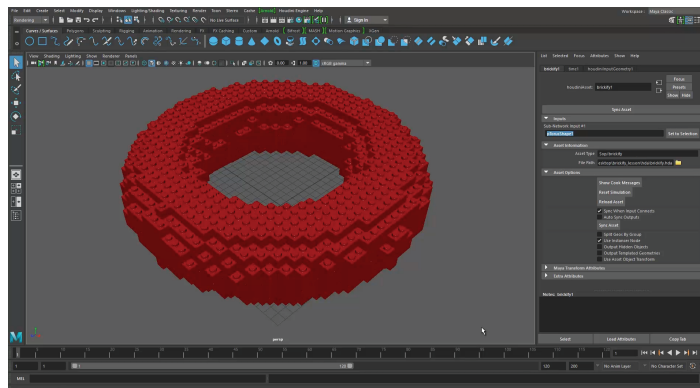# HOUDINI ENGINE
FOR FILM & TV

Houdini Engine brings a procedural node-based approach to your favorite app.
Build networks that define a recipe that can be applied over and over, then wrap them up
to create custom smart assets. Share these assets with colleagues who can load them
directly into 3D apps such as Autodesk® Maya® or 3ds Max®
or into game editors such as Unreal® or Unity.®
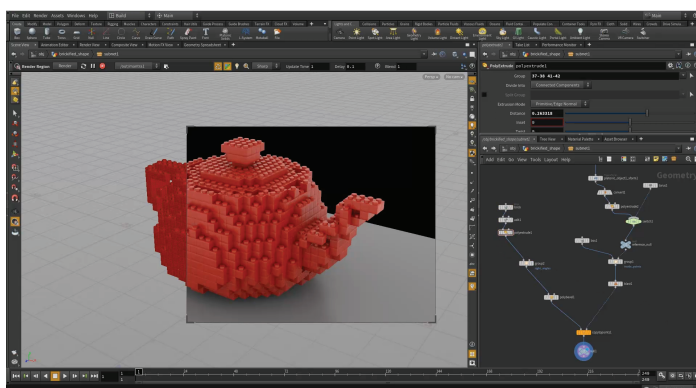
Procedural "Brickify" asset being built in Houdini

Houdini Engine for Maya plug-in used to apply "Brickify" asset to a torus

IN HOUDINI | In Houdini, everything you do creates a node. These nodes are wired together into networks which define the flow of data which allows you to easily go back and make changes. Networks can also be encapsulated into single nodes called Houdini Digital Assets which let you share your techniques with colleagues. These assets provide artist-built tools that can bring Houdini's procedural solutions to your favorite application.
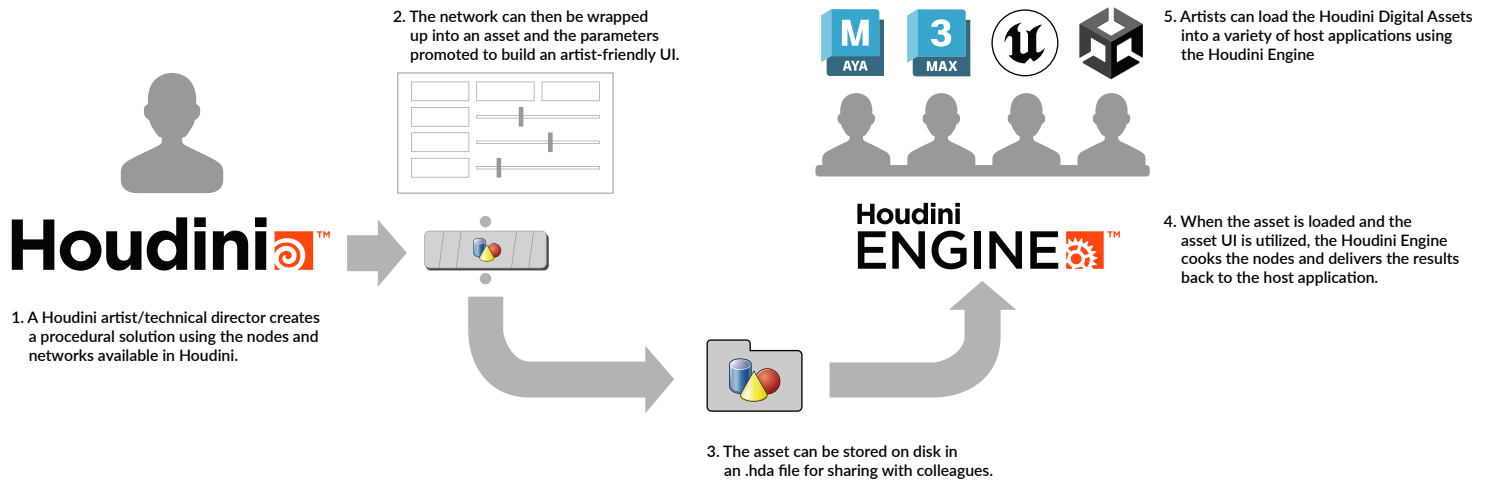
IN AUTODESK MAYA | Houdini Engine lets you load these Houdini Digital Assets into other 3D apps. Any parameters added to the asset are available for editing and handles can be set up in the viewport for interactive manipulation. One asset can be used multiple times in a level or in multiple levels. Changes made to the core asset, even deep into production, will update all instantiations of the asset.

Interoperability is a key issue for studios and Houdini Engine takes it to a new level by putting Houdini's fully procedural node networks right inside Maya. Houdini Digital Assets can be easily created by using geometry, particles, FLIP fluids, Pyro FX, volumes and finite elements, that are then handed off to Maya artists working in the software they know best.

SIDEFX.COM/FILMTV

HOW ENGINE WORKS

2. The network can then be wrapped up into an asset and the parameters promoted to build an artist-friendly UI.

5. Artists can load the Houdini Digital Assets into a variety of host applications using the Houdini Engine

1. A Houdini artist/technical director creates a procedural solution using the nodes and networks available in Houdini.

4. When the asset is loaded and the asset UI is utilized, the Houdini Engine cooks the nodes and delivers the results back to the host application.

3. The asset can be stored on disk in an .hda file for sharing with colleagues.

PLUG-INS

Houdini Engine lets you load Houdini Digital Assets into other digital content creation apps such as Autodesk Maya, Autodesk 3ds Max, Unreal or Unity. You can also use the Houdini Engine API to create your own plug-ins for proprietary applications.

Autodesk Maya | With the Houdini Engine, Houdini Digital Assets can be loaded into Autodesk® Maya® with procedural controls available to artists. These assets can interact with Maya geometry and the results can be rendered in the Maya UI.

Autodesk 3DS Max | Bring Houdini Digital Assets into this popular Windows-based 3D modelling and animation package. This plug-in is available on github and is being generously developed by Hideki Suzuki, a member of the Houdini community.

Unreal | Open the door to powerful procedural workflows with Houdini Engine for UE4. Load Houdini Digital Assets into the Unreal Editor and manipulate parameters to get the right look for your game.

Unity | Create procedural game art using Houdini Digital Assets loaded into the Unity game editor. Create unique environments and props that can be modified using parameters on the asset.

CUSTOM PLUG-INs | The Houdini Engine API can be used to create plug-ins for any number of applications. If you are interested in creating a plug-in for your favorite app, you can get started right away!

To explore the Houdini Engine API and to create your own plug-in, visit *github.com/sideeffects*. There is sample code from our other plug-ins to show you how to get started.

BATCH

A Houdini Engine license can also be used to batch process Houdini scenes on the farm. Whether you are rendering to Houdini Mantra, processing a large fluid sim or combining a library of assets into a single scene, Houdini Engine provides behind-the-scenes control.

Distributed Rendering | Houdini's Mantra renderer works by process-ing scene description [.ifd] files created by Houdini at render time. To free up your workstation from this task, you can utilize Houdini Batch to create these .ifd files then send them to the unlimited Mantra tokens which come free with each license of Houdini.

PYRO FX Sims | To create smoke and fire, VFX artists can turn to Houdini's Pyro FX tools to simulate and render fore and smoke effects then partition and distribute them to your farm using Houdini Engine. The speed and memory advantages make this a great way to meet key deadlines.

FLUID Sims | In Houdini, FLIP fluids provide a unique combination of particle and fluid dynamics to create realistic simulations of flowing and splashing liquids. In Houdini, these processor-heavy calculations can be sliced into smaller simulations that are distributed to the farm. These slices not only speed up your overall simulation time but also allow for bigger overall sims because the total memory used is split into smaller, more manageable chunks.

Wedging | To quickly explore multiple iterations in Houdini, you can turn to the Wedge tool to re-render or re-simulate a shot multiple times, using different parameter settings. This approach lets you easily compare results with different values whcih can then be stamped on the resulting images to identify each wedge.

SideFX®

Head Office

123 Front St. West, Suite 1401
Toronto, Ontario,
Canada M5J 2M2

Tel: (416) 504 9876
Fax: (416) 504 6648

US

520 Broadway, 2nd Floor,
Santa Monica, California,
USA 90401

Tel: (310) 319 9876
Fax: (310) 319 6264

Asia-Pacific

Singapore

Web: SideFX.com
Toll Free: 1 888 504 9876
Email: info@sidefx.asia