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Houdini SpeedTree FBX

This Houdini node extends the standard FBX importer for use with SpeedTree-generated models.

Houdini Scripts Location

The SpeedTree for Houdini scripts are contained in a digital asset file for both Houdini 11.1 and Houdini 12:

"[SpeedTree Modeler Install Dir]/Scripts/Houdini 11.1/SpeedTreeFBX.otl" "[SpeedTree Modeler Install Dir]/Scripts/Houdini 12.0/SpeedTreeFBX.otl"

Automatic Loading

It is recommended to load "SpeedTreeFBX.otl" when Houdini is started. To do this, you will need to place copy the file to the startup OTL folder. This location varies depending on the platform you are running ("x.x" represents the Houdini build in use, such as "12.0"):

Windows - "Users/[Username]/My Documents/houdinix.x/otls/"

Mac - "[Username]/Library/Preferences/houdini/x.x/otls/"

Linux - "/opt/hfsx.x/houdini/otls/"

Overview

The SpeedTree FBX object node is a container for FBX files generated from the SpeedTree Modeler. It extends the standard FBX importer by providing several new features that are specific to SpeedTree models.

If your SpeedTree FBX file was exported with the geometry divided into separate objects, the SpeedTree FBX node will automatically generate a Subnet container and place all SpeedTree FBX objects inside.

Features Include:

- SpeedTree Material shaders are created automatically and assigned to the correct parts of the SpeedTree FBX node. Please see the SpeedTree Material help file for more info.
- "Spike" display proxies are included with each imported model. Located under the Proxy folder, the spike option provides a minimalistic representation of the tree model only in the Scene View. When rendered with Mantra, the full geometry will render beautifully.
- Support for .bgeo conversion built in.
- SpeedTree FBX nodes can be reloaded in place.
- When used as a shelf tool, trees can be placed on the grid plane during creation instead of always at the origin.
- Point cache or manual bone animation supported.
- Better node organization. Since there are thousands of possible export combinations from the SpeedTree Modeler, this utility is designed to parse the FBX file and reorganize the data for easier use within Houdini specifically. This includes moving shaders to the SHOP network, moving bones into a subnet, etc.

Tips

When exporting FBX files from the SpeedTree Modeler, use these settings for the best results:

- Coordinate system: Right-handed, Y-up (the same as Houdini). However, the SpeedTree FBX node will interpret Z-up exports correctly.
- Group By: All. This option works best for a variety of reasons, although the other grouping options will work as well. Be careful with the "node" and "none" options though, as they can

potentially create thousands of object nodes in Houdini.

- Enable “Include detail layers”. Houdini supports them, so they should be enabled.
- Enable “Include branch blending”. Houdini supports this, so it should be enabled.
- Enable “Transmission to emissive”. This will carry the transmission color and mask over to Houdini.
- Enable “Separate alpha textures”. This will create separate image files for opacity, displacement, and transmission.

Avoid:

- Wind animation longer than 10 seconds unless it is completely necessary. Wind animation is saved as point cache files, which can easily make your FBX and HIP files go from megabytes to gigabytes.
- Only export bones (skeleton) and spines if necessary. These options are better implemented on an as-needed basis, since they require the creation of many nodes.

Where's My Tree? - Having trouble seeing your imported tree in the Scene View? In Houdini, go to your “Display Options→Effects” tab and disable the option for “Textures→Mipmap textures”.

Transform Folder

The parameters in the Transform folder are the same as for all other geometry objects. Please see the Houdini documentation for more info.

Material Folder

Depending on how the 'FBX' file was exported from the SpeedTree Modeler, there may be no material assigned here. In that case, dive into the SpeedTree FBX node and locate the Material node within. This is where materials are assigned to specific groups of geometry.

In the case where the 'FBX' file was exported “per material”, or if only a single material is assigned to the tree, there will be a material assignment here.

Proxy Folder

Enable spike display proxy

Enabling this option will display a proxy object (a “spike” set to the height of the tree) in the Scene View. At render time, the actual tree will still be used. This option will greatly speed up scene navigation, especially in a scene with multiple tree models.

Proxy Material

The material applied to the spike display proxy. A simple material is automatically generated upon import, and assigned here.

Wind Folder

Frame offset

Offsets cached wind data by this number of frames. This is useful for keeping wind animations between instances out of sync.

Render Folder

The parameters in the Render folder are the same as for all other geometry objects. Please see the Houdini documentation for more info.

Reload & Convert Options

Reload .fbx file

This option will reload the original FBX disk file. Any material reassignments and transform changes should remain intact. This can also be used to revert a “.bgeo” SpeedTree mesh back into a “.fbx” file (see below).

Convert to .bgeo file

This option will convert the FBX data into Houdini-native “.bgeo” files. If animation data is present, a single “.bgeo” file will be generated per frame in the existing point cache folder.

Lock .fbx contents

When enabled, the contents of the last imported FBX file will remain. This safeguards against source file overwrites, but will increase the filesize of “.hip” files.

Version History

speedtree_fbx 1.2

- Added support for Houdini 12
- Added support for SpeedTree 6.1.1
- Fixed Mac OSX error from checking “TEMP” envvar
- Removed error pop-up caused by corrupted FBX data

speedtree_fbx 1.1

- Added handles to the SpeedTreeFBX node.
- Added “Lock .fbx contents” option to give the user the option whether to include the FBX data in the HIP file, or to load from disk.
- Added support for MDD point caches. They must be in the same folder as the FBX file, and

associated MC point caches will still take precedence.

- Changed FBX point caches so they point to the CHOP network. In turn this fixes a Windows issue where Houdini would report a crash on close after an animated tree was loaded prior to closing.
- Added support for point cache and bones used in tandem.
- Added support for relative filepaths in FBX associated files, such as textures.
- Fixed issues with loading trees out of \$TEMP folders on Linux, and added better support for environment variables in general.
- Added generic “Render” folder to the SpeedTreeFBX node.
- Added zero padding (to 3 digits) for .bgeo animation files.
- Added a hold to the last frame of animation in .bgeo animation files so they still render past the animation length.
- Added “Wind offset” property to animated files for offsetting wind animation.
- Fixed conversion of .fbx to .bgeo in the case of bone inclusion to maintain bone associations.

speedtree_fbx 1.0.1

- Fixed conversion of .fbx to .bgeo in the casewhere multiple meshes (such as grouped by material, etc.) all use point cache wind.

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