

SetTexturePixel

Sets the RGBA values of a single texture pixel. To be used to generate small to medium maps in real-time, e.g. to feed Texture2HeightMap channels. The custom channel is optimized for speed in continuous mode. Corresponds loosely to the VectorOperator channel “Get Pixel from Texture”.

Supports LDR and HDR (floating point) textures. 8 bit low dynamic range textures come with a 256 value range restriction. The use of floating point numbers in high dynamic range textures delivers practical unlimited dynamic range and precision, at the expense of more resource consumption.

Children

- | | |
|-------------------|---------|
| 1. IN OUT texture | texture |
| 2. IN x position | value |
| 3. IN y position | value |
| 4. IN R | value |
| 5. IN G | value |
| 6. IN B | value |
| 7. IN Alpha | value |

A valid initial texture is required, as the parameters of the child texture are used to determine the texture format and resolution. Accepted formats are: D3DFMT_A32B32G32R32F, D3DFMT_X8R8G8B8, and D3DFMT_A32B32G32R32F. You are save with *.jpg and *.hdr files.

X and y position select a specific pixel, The pixel RGBA values are replaced with new values read from the R, G, B, and A children. In no child is provided, the corresponding value remains unchanged. LDR textures expect values in the range from 0 to 1. HDR textures have no restrictions.

Usage:

Use a ChannelCaller. Any call will update the corresponding pixel. The result is immediately available. Typically called multiple times in a single Quest3D frame (e.g. with a for-loop).

A call from a Value parent returns the current channel state

- | | |
|----|--------------------------------------|
| -2 | trial expired |
| -1 | error (see Debug windows for reason) |
| 0 | inactive |
| 1 | ready |

Quest3D V 5 specifics:

Commands are set with a SetValue call.

- 1: initiate or reset channel to grey
- 10: update texture: make all changes available in child channel
- 11: fill the complete texture at once with the children RGBA values
- 12: save texture as a jpg to /c:/temp with auto-numbering.

Tips:

- Texture is not updated in the thumbnail view.
- Can be used to modify alpha maps as well.
- Tested on Win7, and Win8
- Turn off MipMap explicitly to “None”, as changes in the texture are not forwarded to the MipMap levels.
- SetTexturePixel will deliver the same result in HDR, if the input range is confined to 0 .. 1 (however, different gamma may vary the result).
- Please note that HDR pixel values above 1 are clipped in the regular rendering process.
- LDR Input values below 0 and above 1 lead to unexpected results (wrap around).
- Avoid the use of ChannelSwitches.
- If you run into trouble, try JPEG files first. The most reliable are power of 2 square textures. Floating point textures require *.hdr files.
- Don't forget: Quest3D V 5 requires additional commands to run, see the example.

Known Problems:

1. Access to very small textures is not guaranteed by the Quest3D engine.

Supported Quest3D Versions:

- Quest3D V 4.3.2 Win32
- Quest3D V 5.0 X64

Version History:

2013 07 29 HDR introduced, changes in trial restrictions, new write strategy adopted
2012 11 29 major update,
2010 initial release

Examples:

- SetTexturePixel-Demo.cgr
- SetTexturePixelDemoV500.cgr
- See the material on the Texture2HeightMap plug-in for an application scenario in the realm of landscape generation.
- Audio Spectrum Analysis: see <http://quest3d.com/forum/index.php?topic=69494.0>