Chapter 1

Exploring NukeX 7 Interface

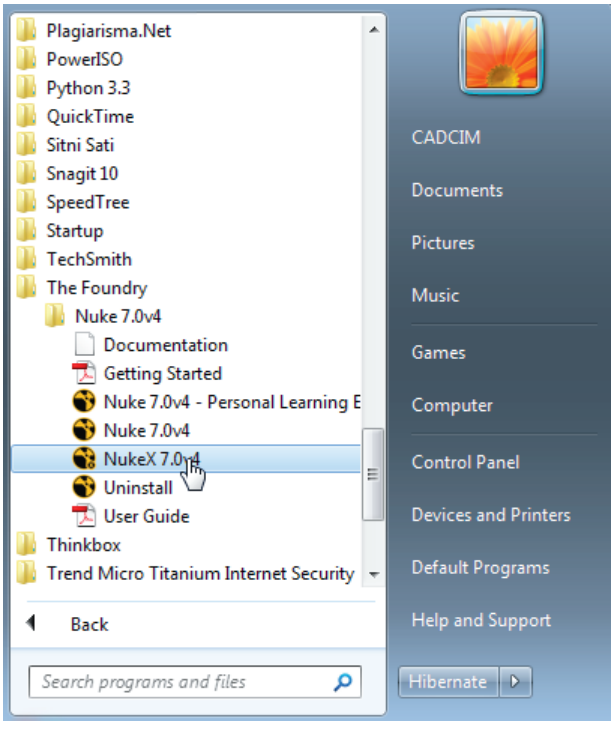

Figure 1-1 *Starting NukeX 7 from the taskbar*

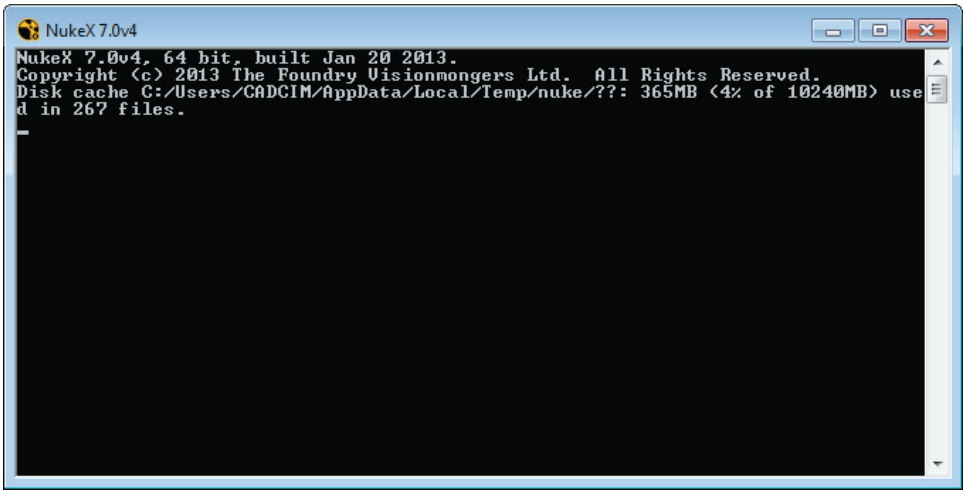

Figure 1-2 *The* ***NukeX 7.0v4*** *command window*

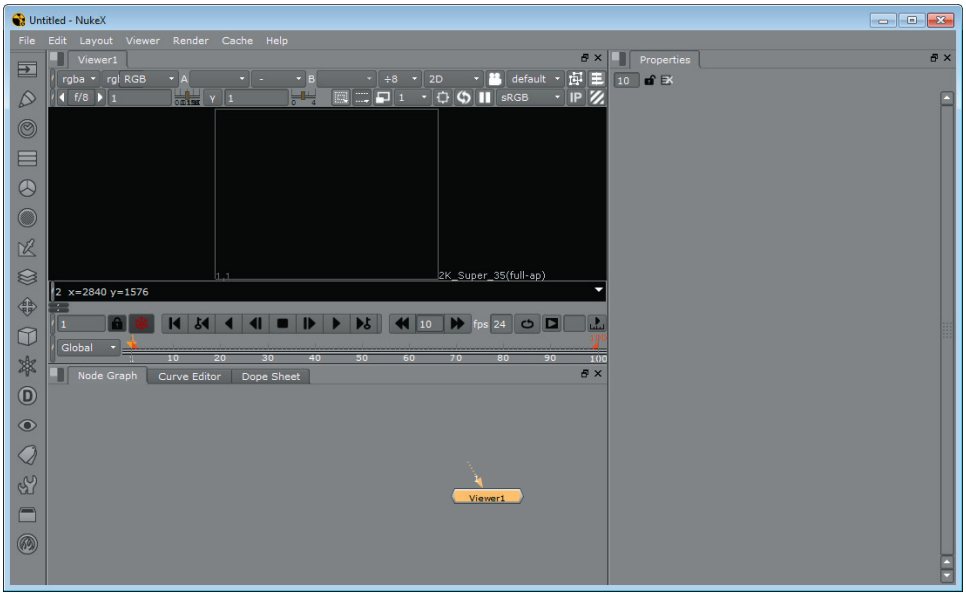

*Figure 1-3 The default **NukeX** interface window*

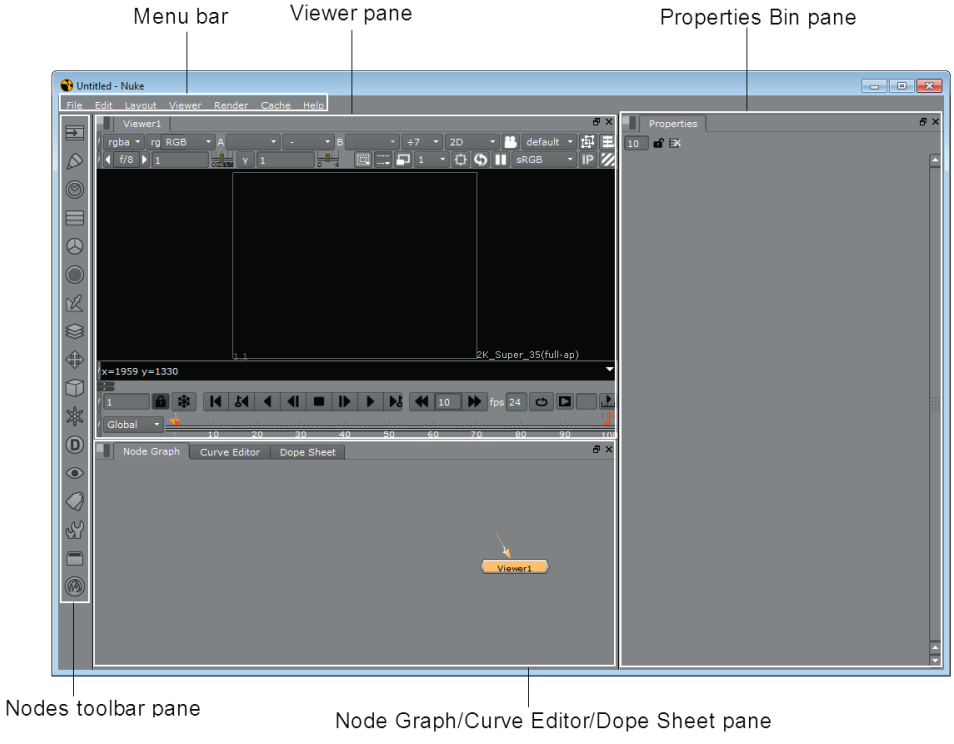

Figure 1-4 The various components of the NukeX interface

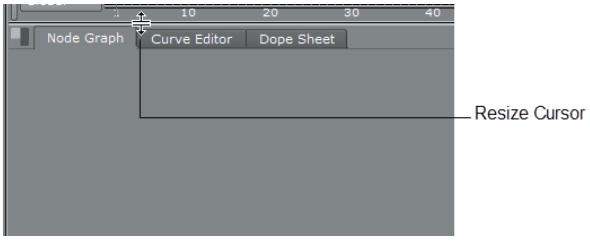

Figure 1-5 *The changed shape of the cursor*

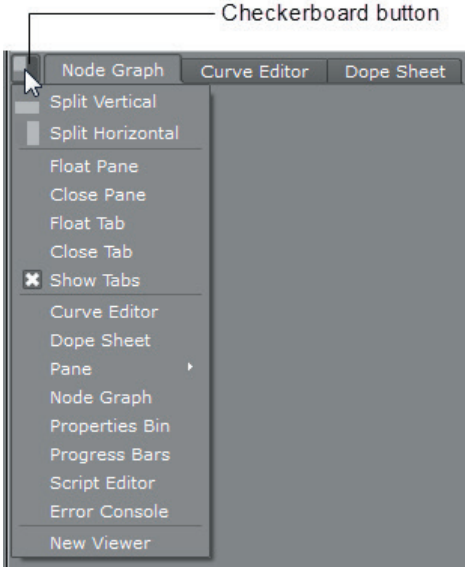

Figure 1-6 *The Content menu displayed on choosing the Checkerboard button*

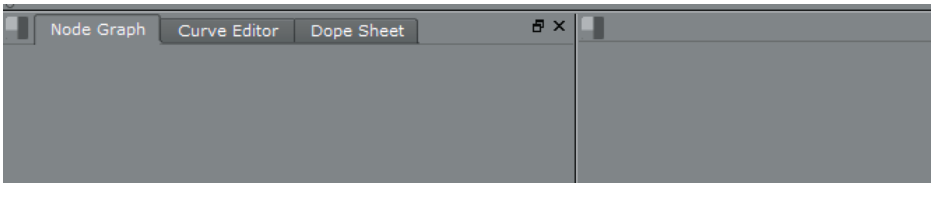

Figure 1-7 *The* ***Node Graph/Curve Editor/Dope Sheet*** *pane split horizontally*

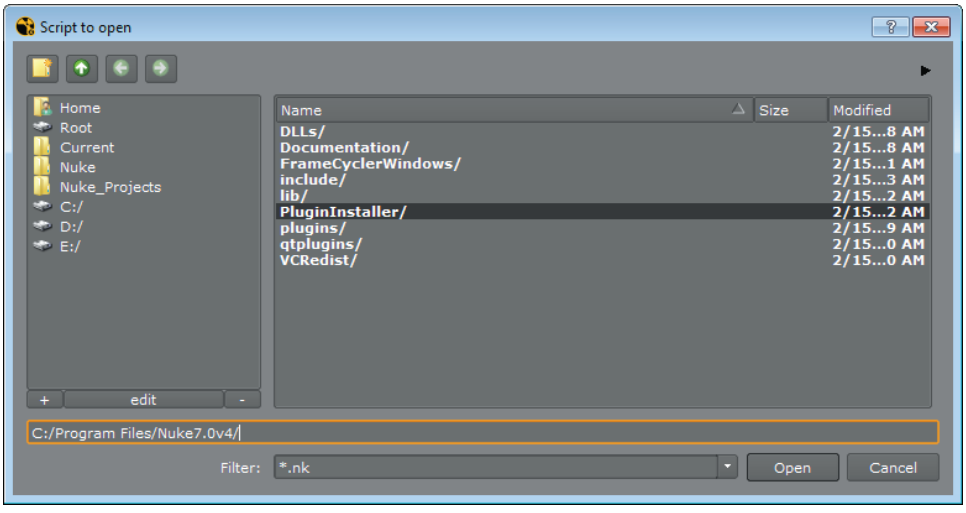

Figure 1-8 The ***Script to open*** *dialog box*

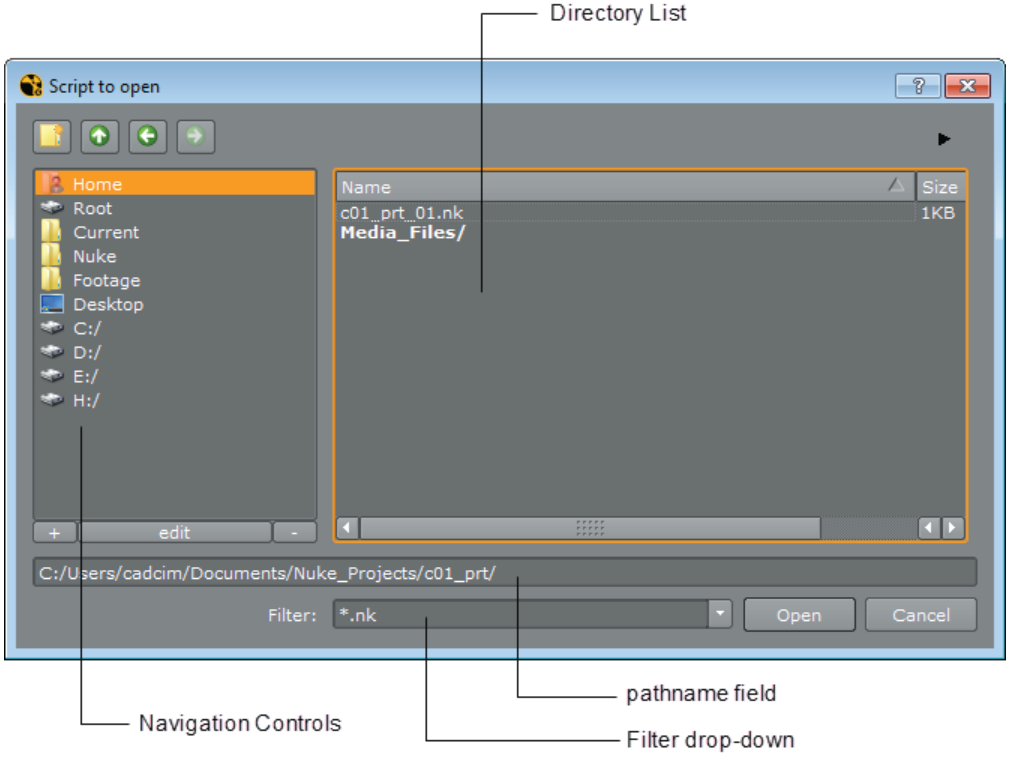

Figure 1-9 The Navigation Controls and Directory List sections in the ***Script to open*** *dialog box*

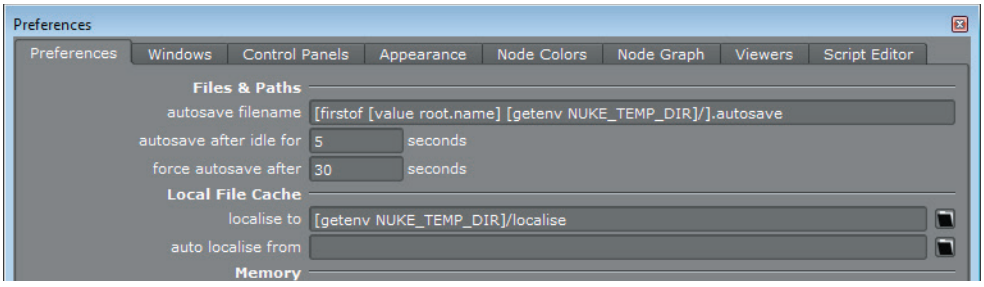

Figure 1-10 *Partial view of the* ***Preferences*** *dialog box*

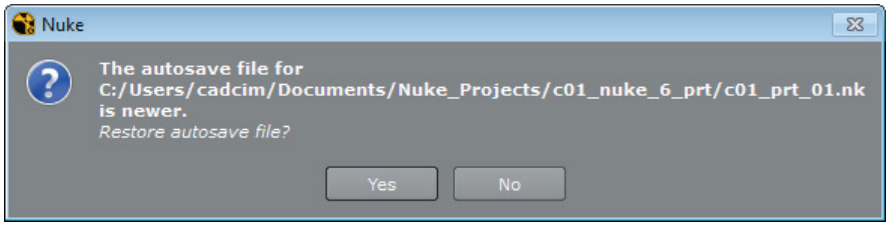

Figure 1-11 *The* ***Restore autosave file*** *message box*

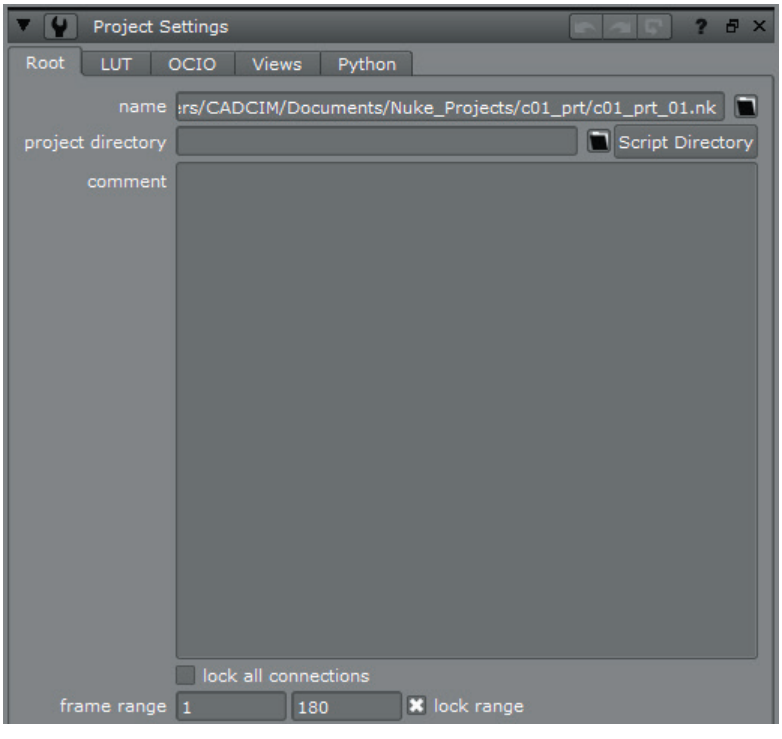

Figure 1-12 *Partial view of the* ***Project Settings*** *properties panel*

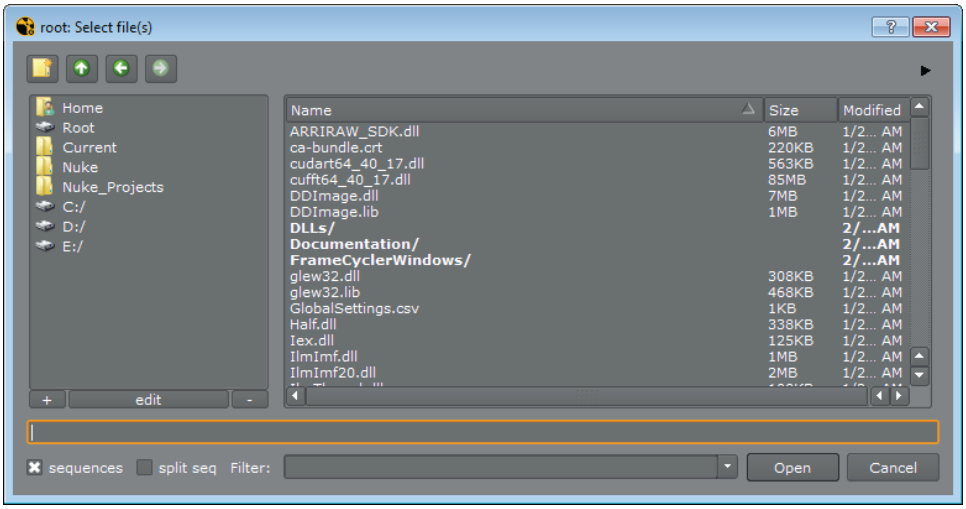

Figure 1-13 *The* ***root: Select file(s)*** *dialog box*

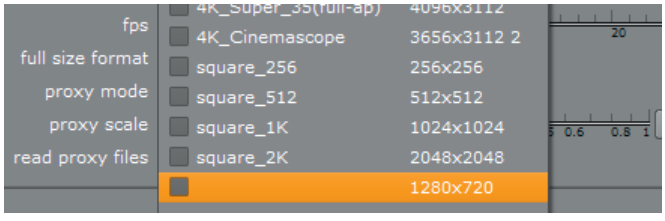

Figure 1-14 *Partial view of the* ***full size format*** *drop-down*

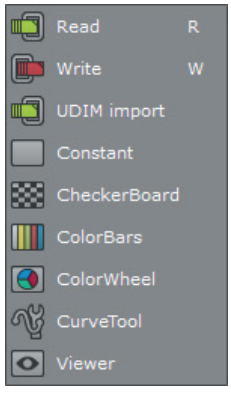

Figure 1-15 *The* ***Image*** *menu*

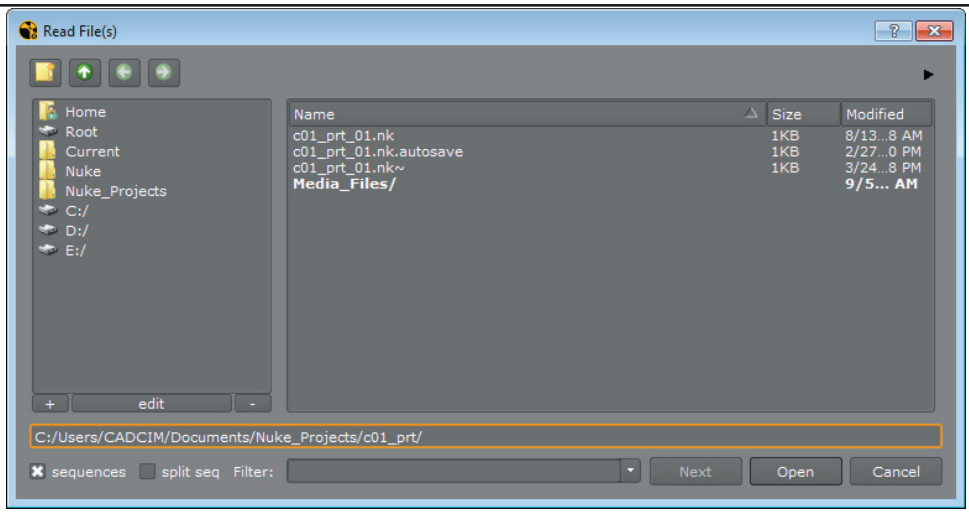

Figure 1-16 *The* ***Read File(s)*** *dialog box*

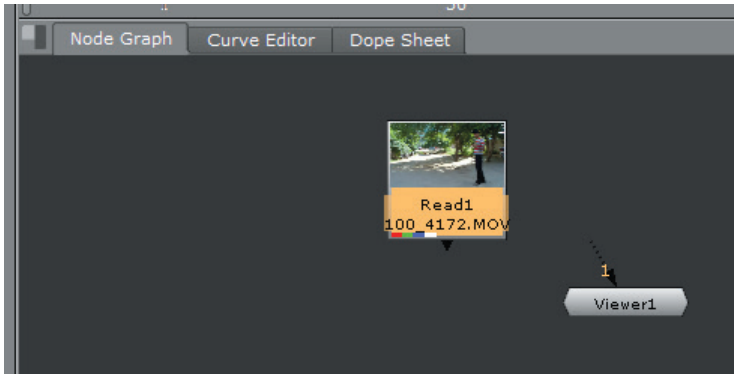

Figure 1-17 *The* ***Read1*** *node inserted in the* ***Node Graph*** *panel*

Figure 1-18 *The footage displayed in the* ***Viewer1*** *panel*

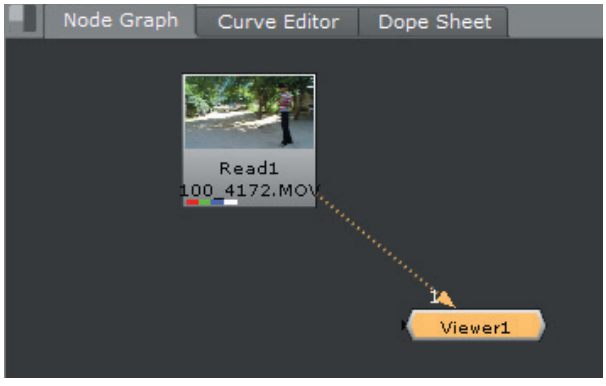

Figure 1-19 *The* ***Read1*** *node connected to the* ***Viewer1*** *node*

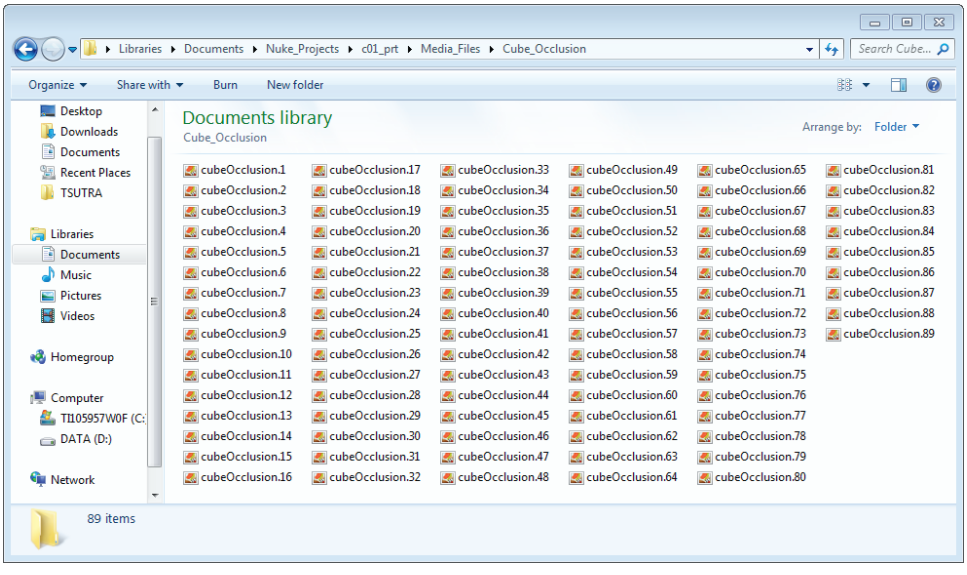

Figure 1-20 *The image sequence displayed in the Windows Explorer*

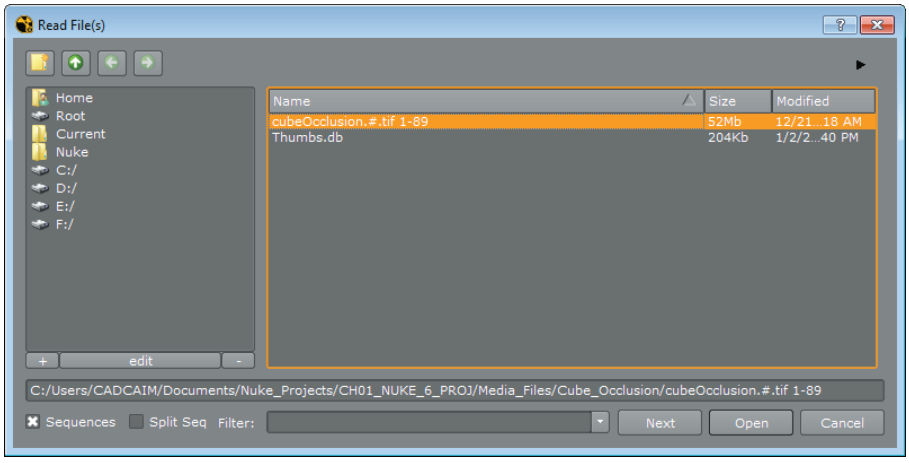

Figure 1-21 *The gathered sequence displayed in the* ***Read File(s)*** *dialog box*

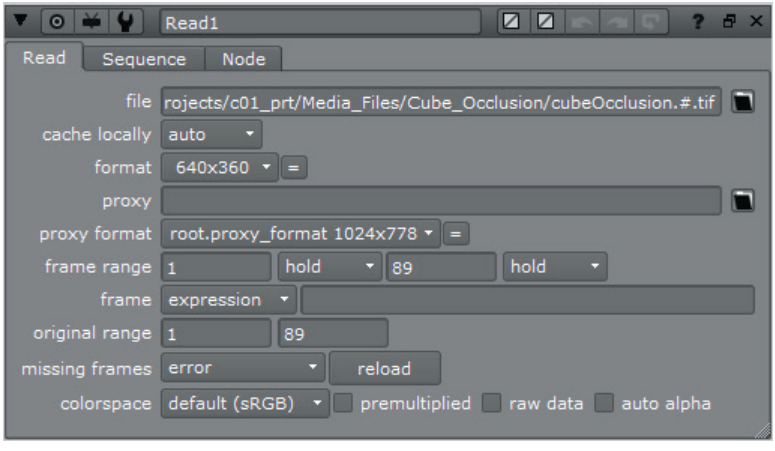

Figure 1-22 *The* ***Read1*** *node properties panel displaying the frame range*

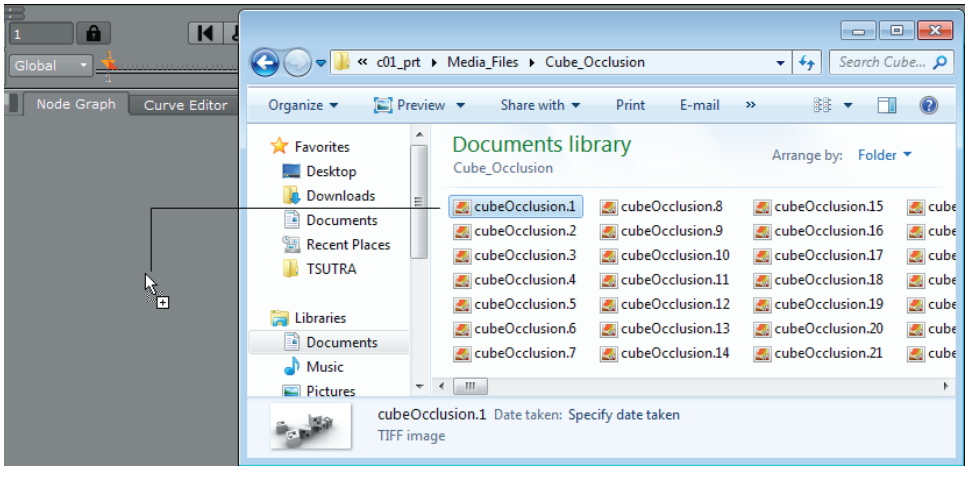

Figure 1-23 *Dragging an image from the Windows Explorer*

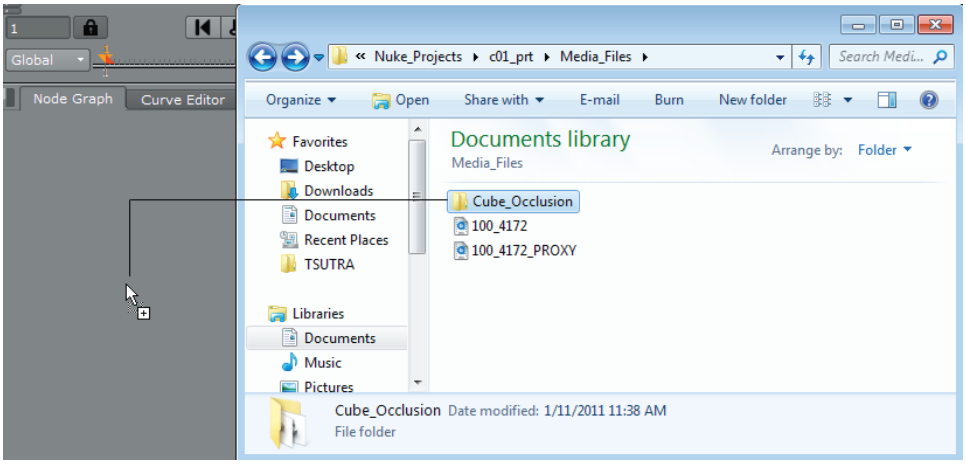

Figure 1-24 *Dragging a folder from the Windows Explorer*

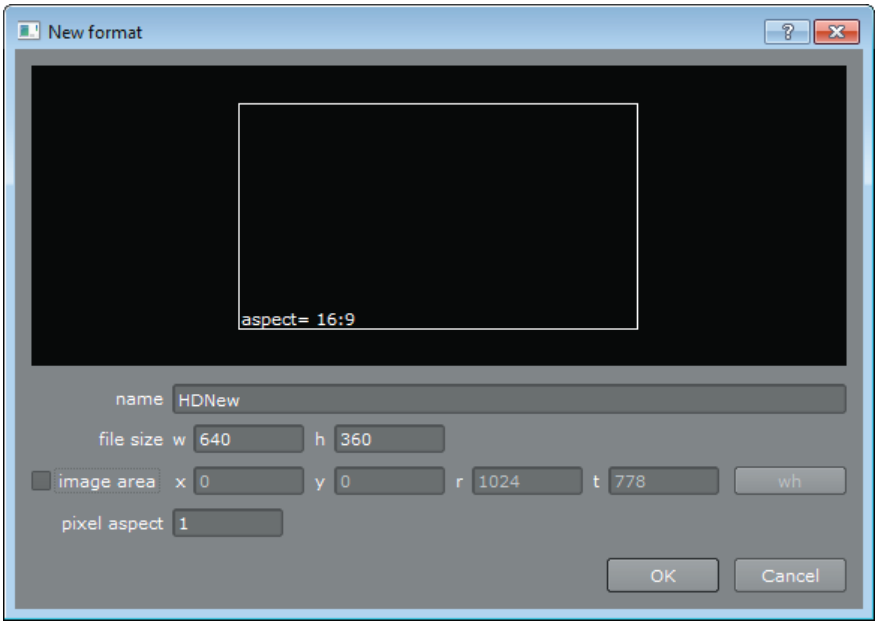

Figure 1-25 *The* ***New Format*** *dialog box*

Figure 1-26 *The* ***toggle proxy mode*** *button activated*

Chapter 2

Exploring Viewer Nodes

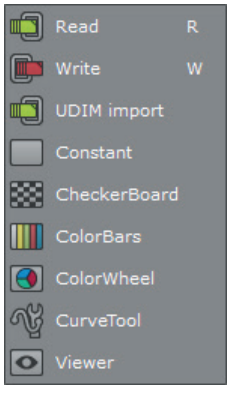

Figure 2-1 *The* ***Image*** *menu*

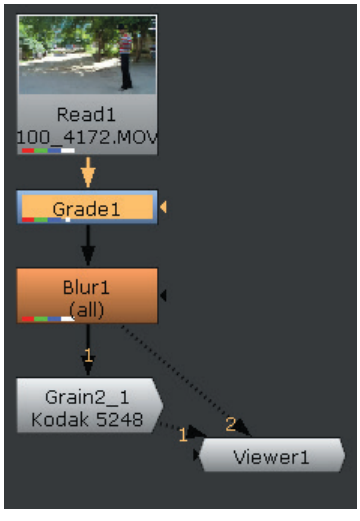

Figure 2-2 *The* ***Blur1*** *node connected to the port number* ***2*** *of the* ***Viewer1*** *node*

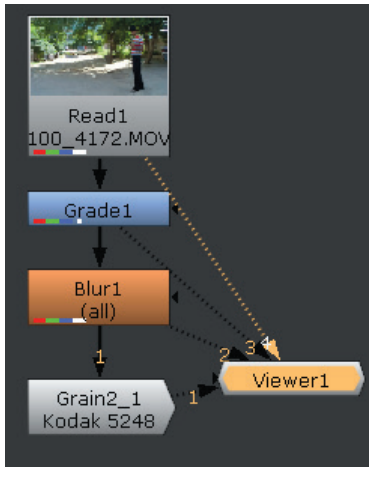

Figure 2-3 *All four nodes connected to the* ***Viewer1*** *node*

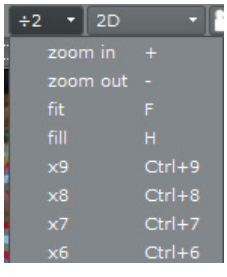

Figure 2-4 *Partial view of the Zoom drop-down*

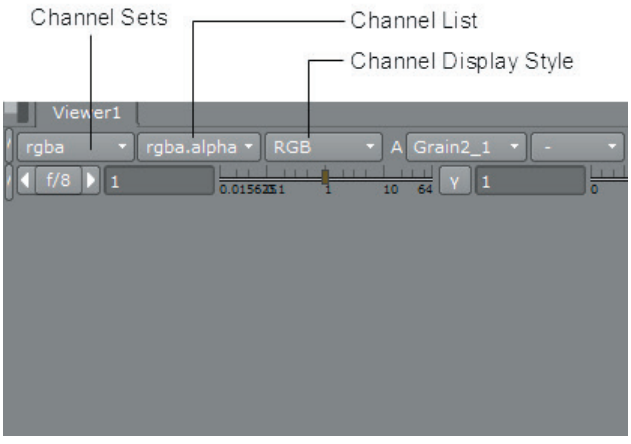

Figure 2-5 *The Channel Sets, Channel List, and Channel Display Style drop-downs*

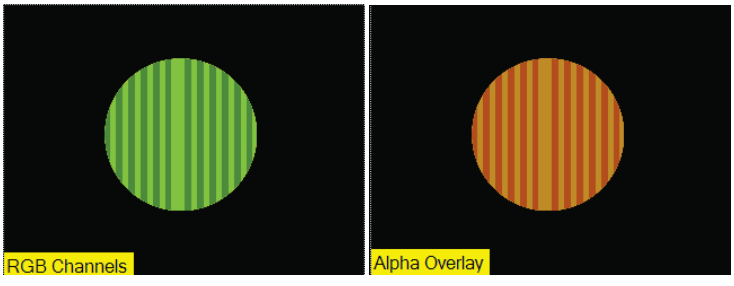

Figure 2-6 *The original RGB channels (left) and red overlay (right) on the top of the RGB channels*

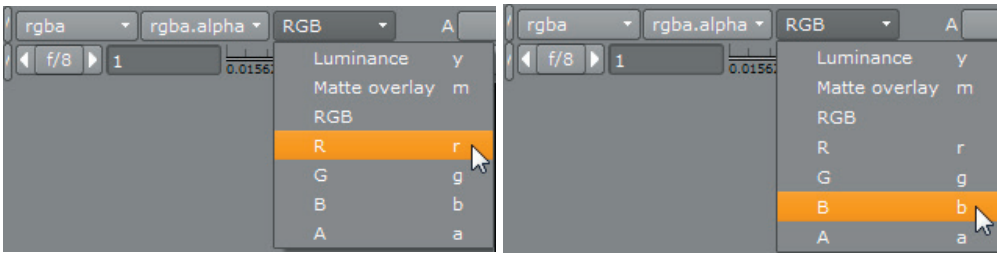

Figure 2-7 *Selecting **R** (red) and **B** (blue) channels from the Channel Display Style drop-down*

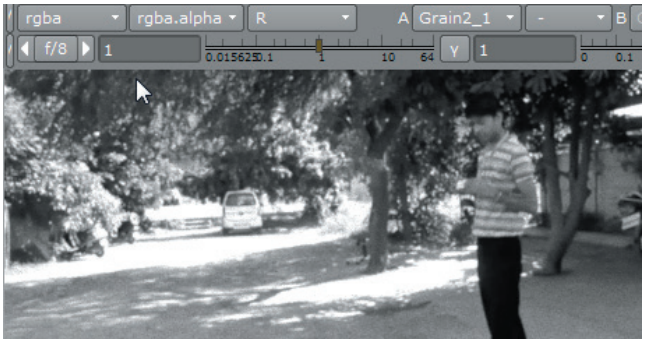

Figure 2-8 *The red channel displayed in the* ***Viewer1*** *panel*

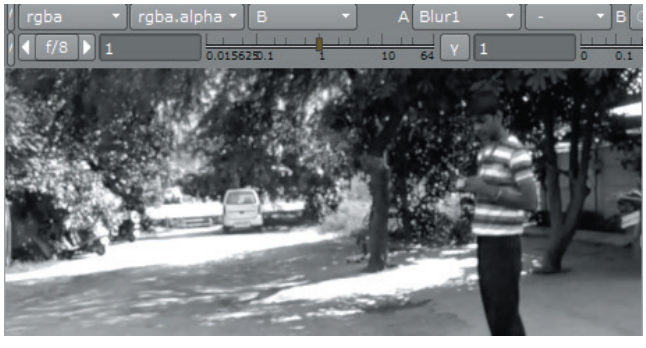

Figure 2-9 *The blue channel displayed in the* ***Viewer1*** *panel*

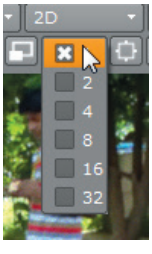

Figure 2-10
The ***downrez*** *drop-down*

Figure 2-11 *The* ***Viewer1*** *panel displaying image at full and 1/8th of the active resolution*

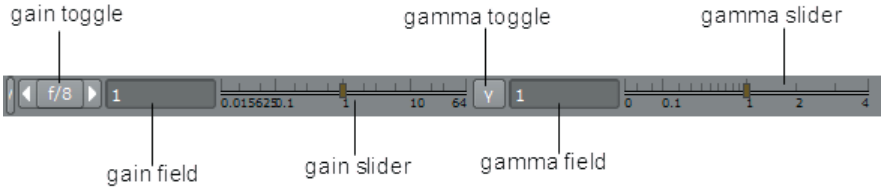

Figure 2-12 *The* ***gamma*** *and* ***gain*** *sliders*

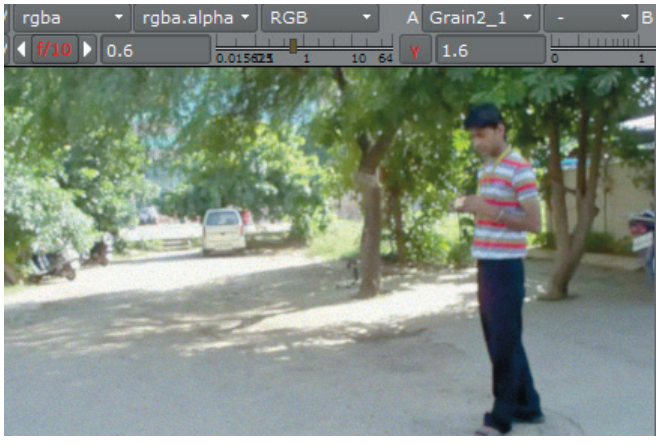

Figure 2-13 *The image with* ***gamma*** *and* ***gain*** *values set to 0.6 and 1.6*

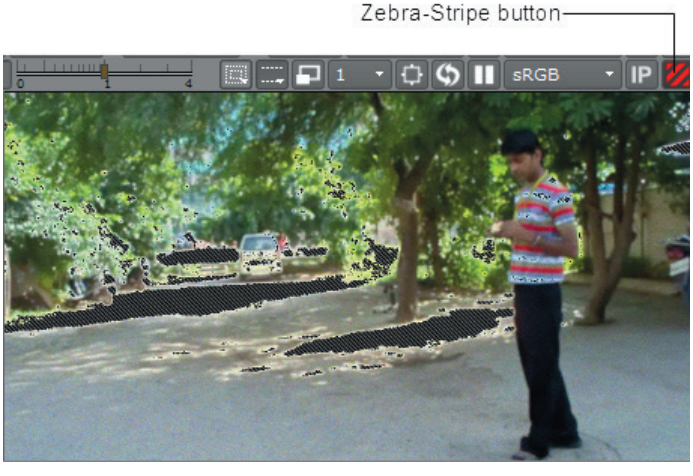

Figure 2-14 *The out of range pixels displayed as zebra stripes*

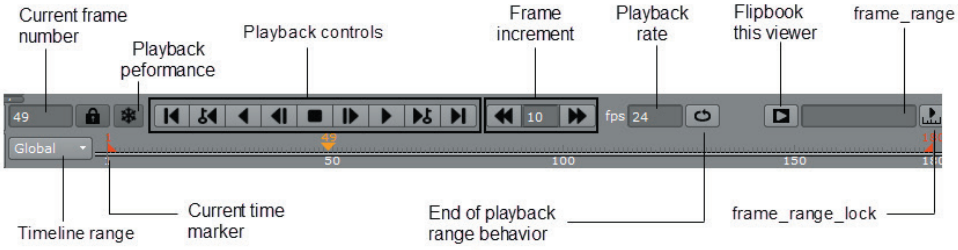

Figure 2-15 The timeline controls

Figure 2-16 The scaled timeline

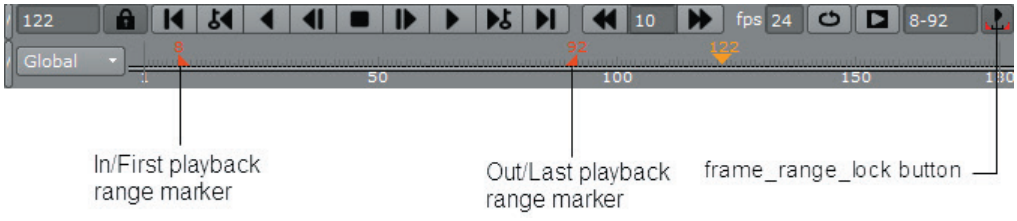

Figure 2-17 The playback range

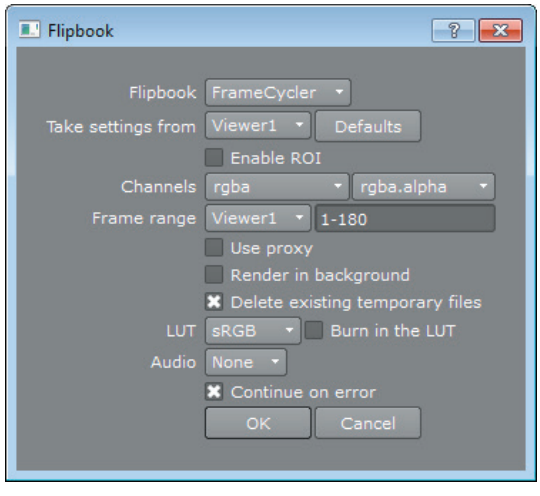

*Figure 2-18 The **Flipbook** dialog box*

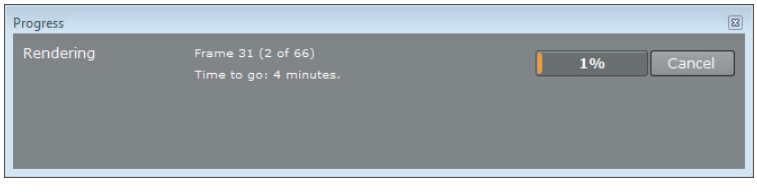

*Figure 2-19 The **Progress** dialog box*

*Figure 2-20 The **FrameCycler** window*

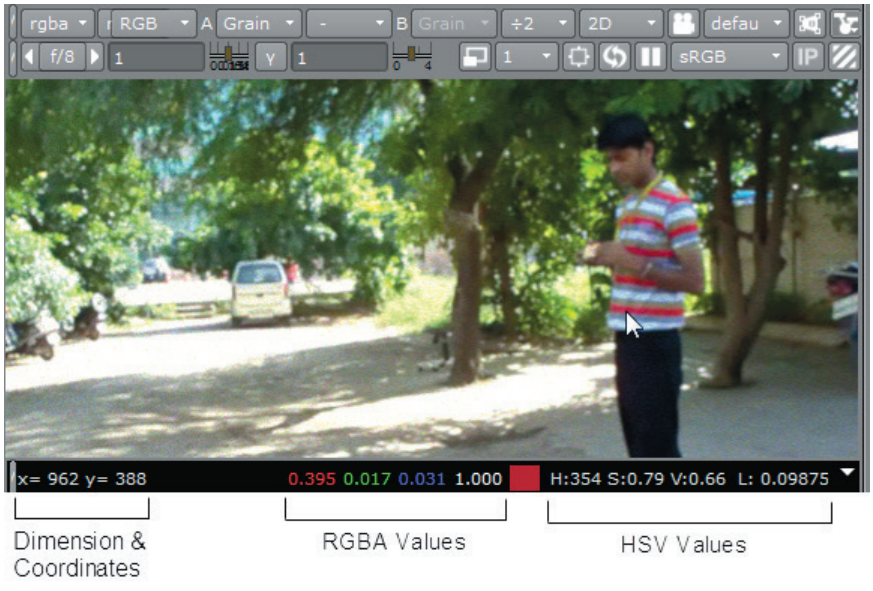

Figure 2-21 The pixel value indicator

Chapter 3

Building Node Network

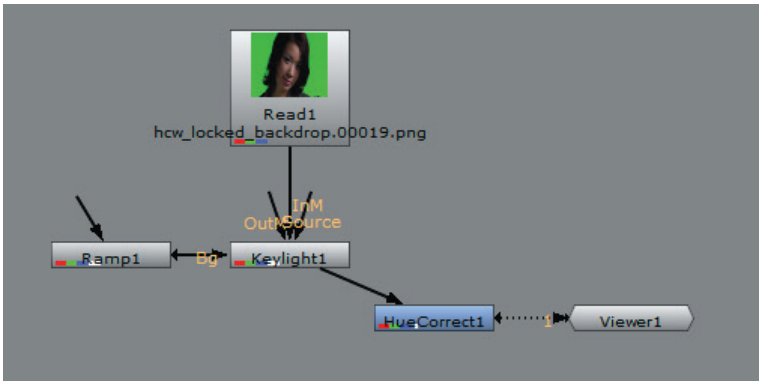

Figure 3-1 *A simple process tree*

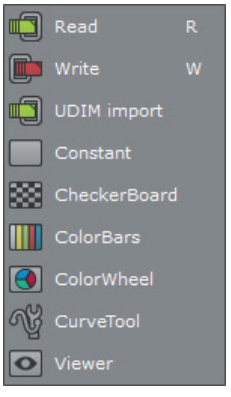

Figure 3-2 *The* ***Image*** *menu displayed on choosing the* ***Image*** *button*

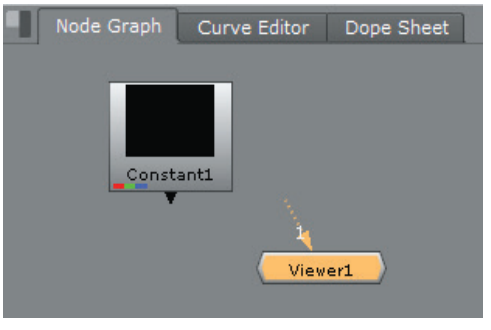

Figure 3-3 *The* ***Constant1*** *node inserted in the* ***Node Graph*** *panel on choosing* ***Constant*** *from the* ***Image*** *menu*

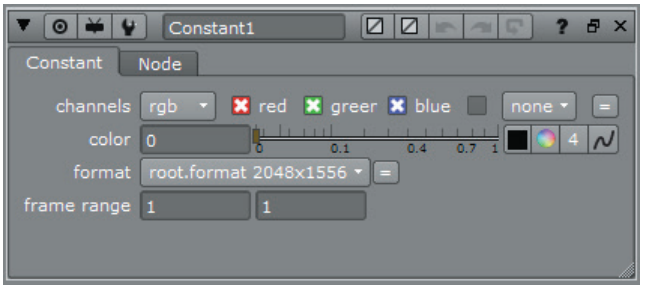

Figure 3-4 *The* ***Constant1*** *node properties panel displayed on inserting the* ***Constant1*** *node in the* ***Node Graph*** *panel*

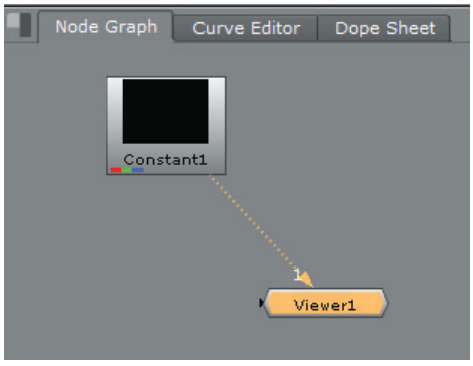

Figure 3-5 *The* ***Constant1*** *node connected to the port* ***1*** *of the* ***Viewer1*** *node*

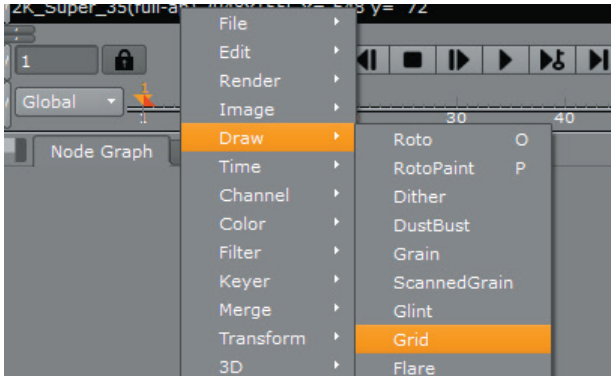

Figure 3-6 *Partial view of the* ***Draw*** *cascading menu*

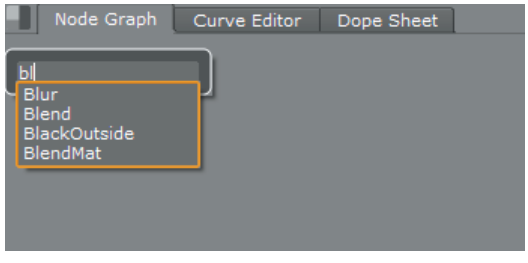

Figure 3-7 *The nodes displayed in the TAB menu on typing* ***bl*** *in the TAB menu field*

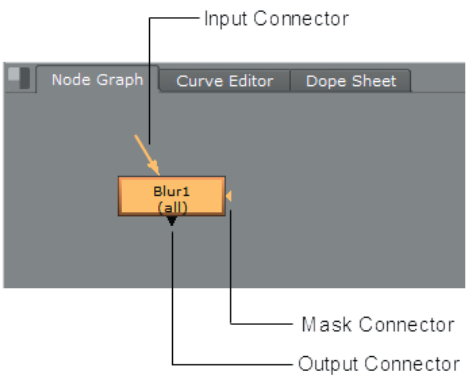

Figure 3-8 *Connectors on a* ***Blur1*** *node*

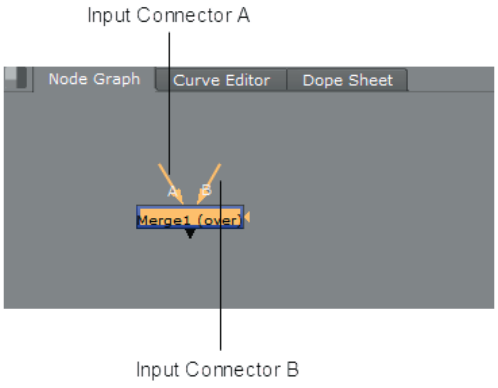

Figure 3-9 *The* ***Merge1*** *node with two input connectors*

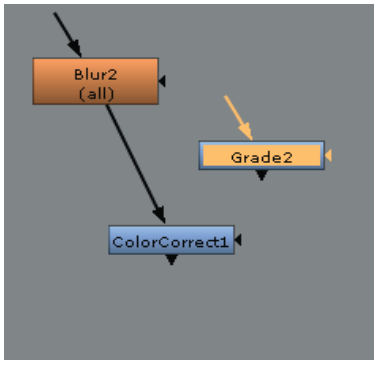

Figure 3-10 *The extracted* ***Grade2*** *node*

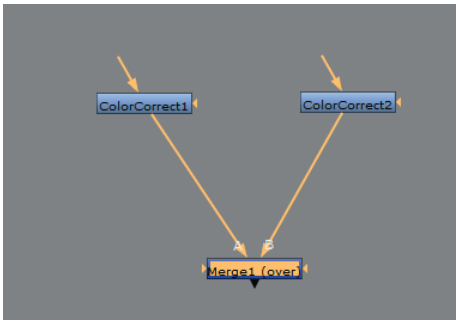

Figure 3-11 *The default* ***A*** *and* ***B*** *inputs*

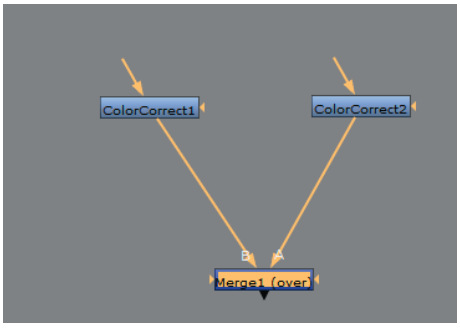

Figure 3-12 *The swapped inputs*

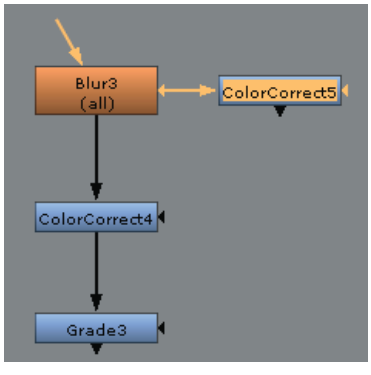

Figure 3-13 *The branches originating from the* ***Blur3*** *node*

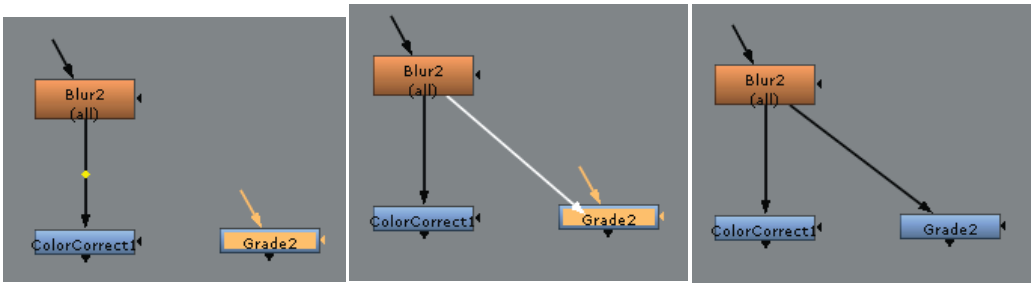

Figure 3-14 *Duplicating a connecting arrow*

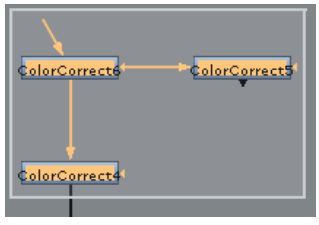

Figure 3-15 *Selecting the nodes by drawing a marquee selection*

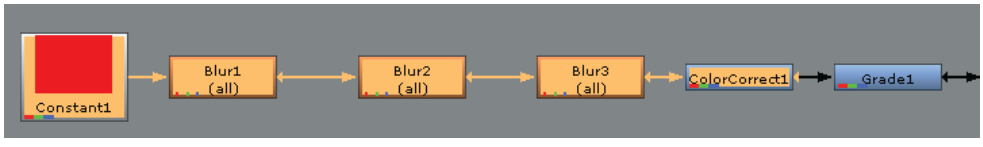

Figure 3-16 *All upstream nodes selected on dragging the* ***ColorCorrect1*** *node with CTRL held down*

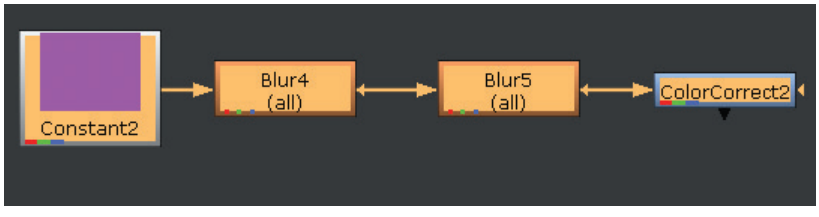

Figure 3-17 *All upstream and downstream nodes connected to the* ***Blur5*** *node selected in the* ***Node Graph*** *panel*

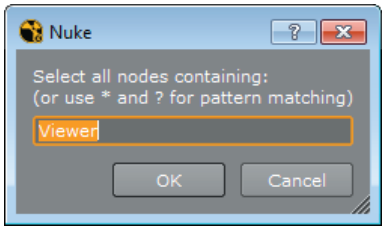

Figure 3-18 *The* ***Nuke*** *dialog box*

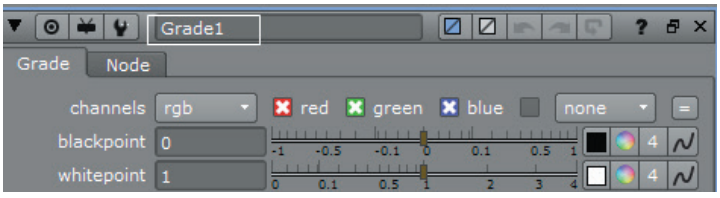

Figure 3-19 *The name of the node displayed in the* ***name*** *field of the* ***Grade1*** *node properties panel*

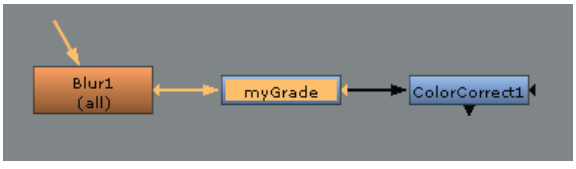

Figure 3-20 *The* ***Grade1*** *node renamed to* ***myGrade***

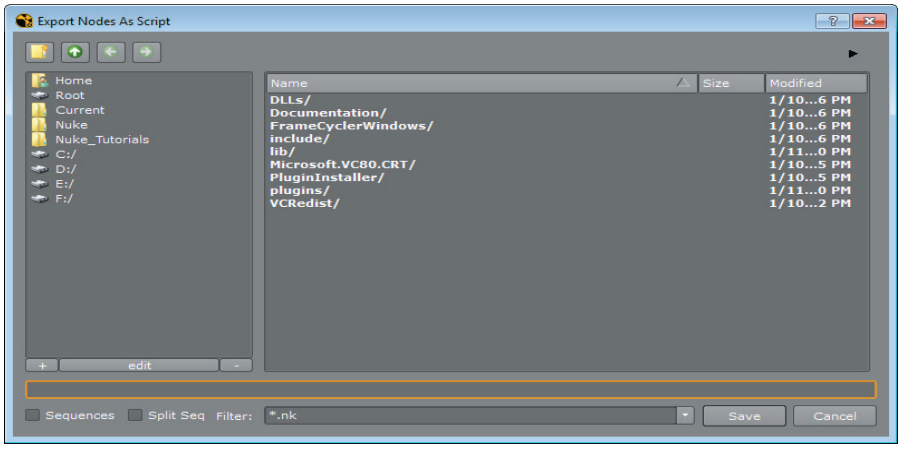

Figure 3-21 *The* ***Export Nodes As Script*** *dialog box*

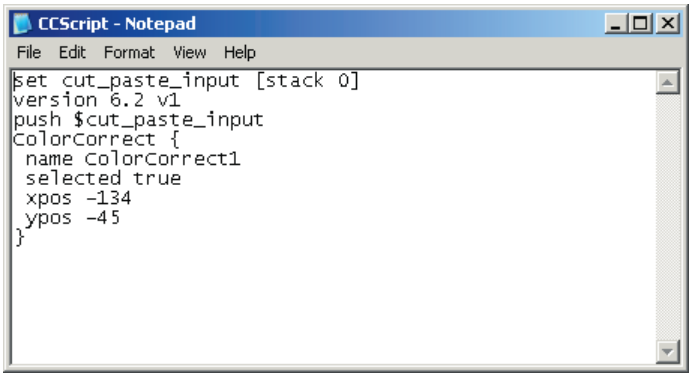

Figure 3-22 *The* ***Color Correct*** *node script displayed in Notepad*

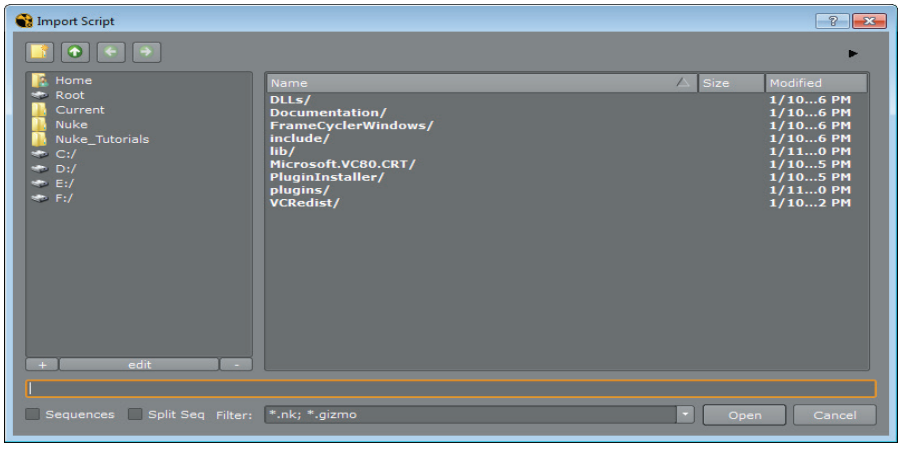

Figure 3-23 The ***Import Script*** *dialog box*

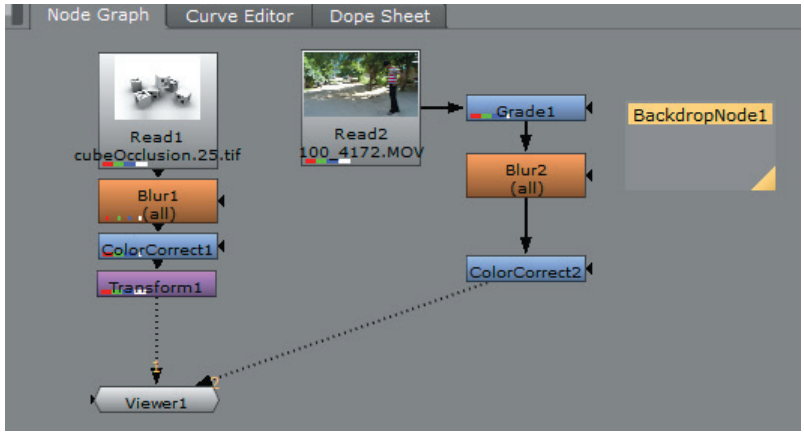

Figure 3-24 The ***BackdropNode1*** *node inserted in the* ***Node Graph*** *panel*

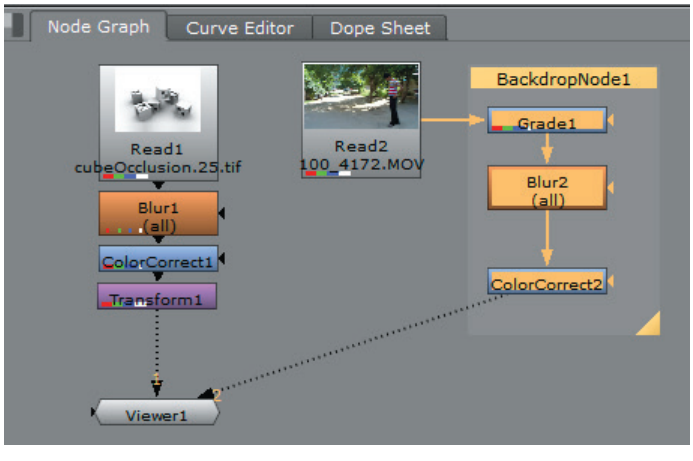

Figure 3-25 The ***Grade1***, ***Blur2***, *and* ***ColorCorrect2*** *nodes visually grouped using the* ***BackdropNode1*** *node*

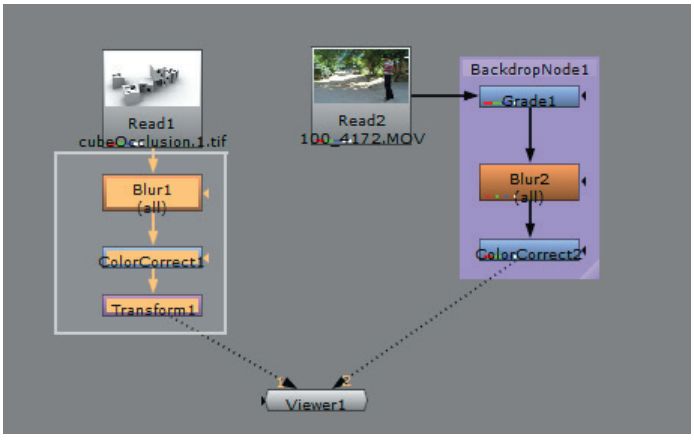

Figure 3-26 *Selecting the nodes in the* ***Node Graph*** *panel*

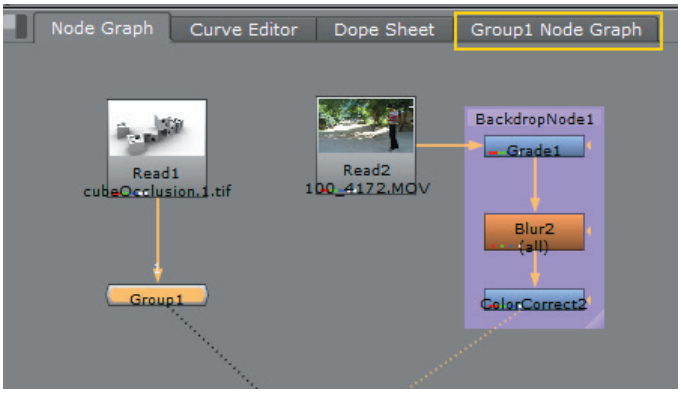

Figure 3-27 *The* ***Group1*** *node and the* ***Group1 Node Graph*** *panel*

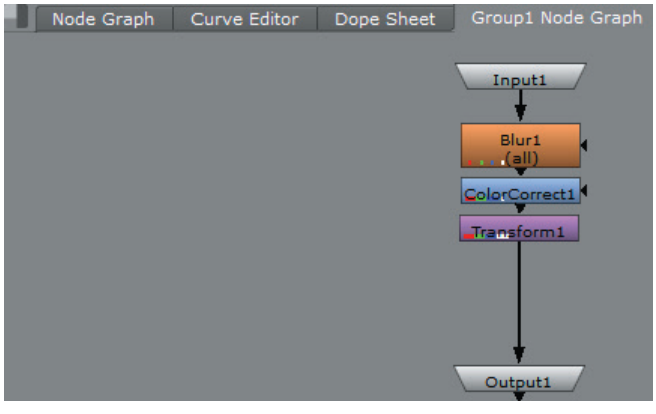

Figure 3-28 *The* ***Group1 Node Graph*** *panel displayed*

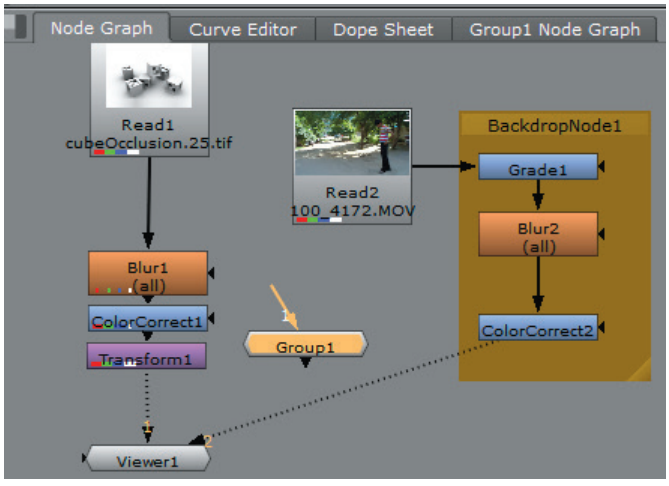

Figure 3-29 *A floating* ***Group1*** *node created*

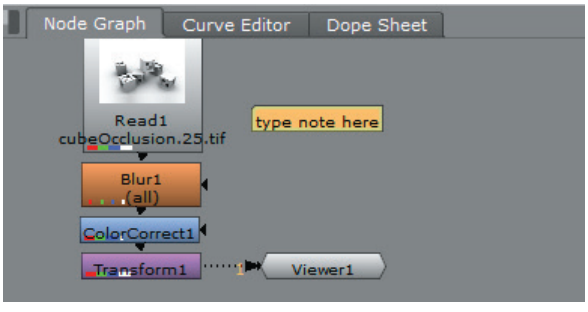

Figure 3-30 *A note displayed in the* ***Node Graph*** *panel*

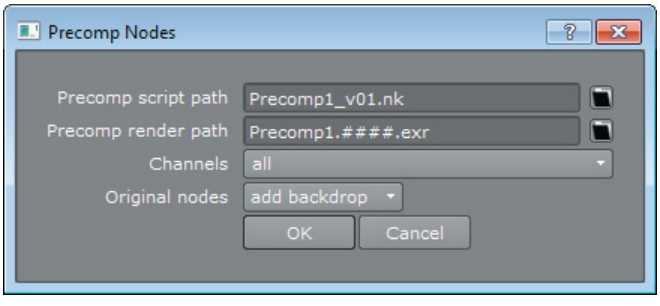

Figure 3-31 *The* ***Precomp Nodes*** *dialog box*

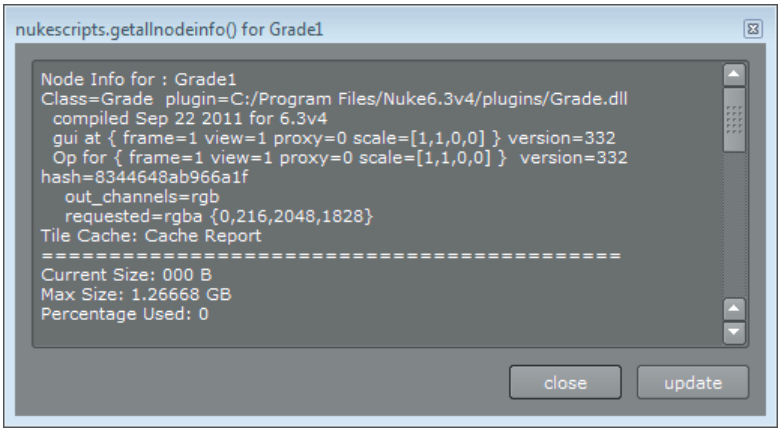

Figure 3-32 *A window displaying hash value of the* ***Grade1*** *node*

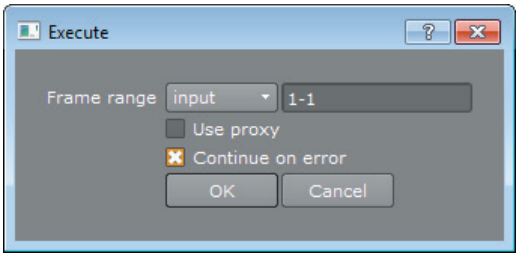

Figure 3-33 *The* ***Execute*** *dialog box*

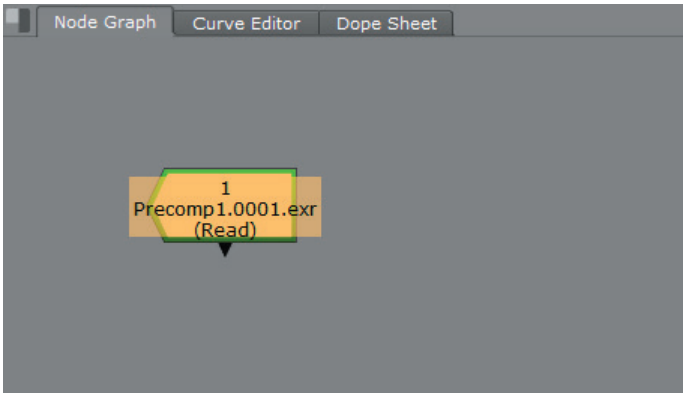

Figure 3-34 *The green colored* ***Precomp1*** *node with the* ***Read*** *label on it*

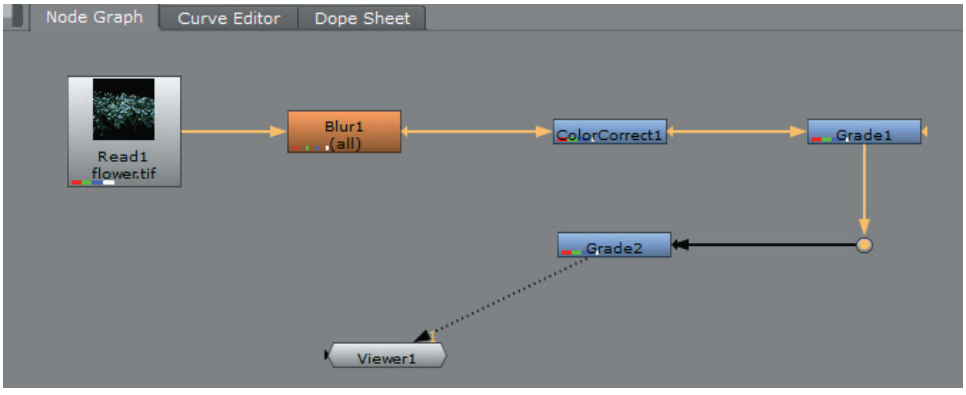

Figure 3-35 *The connecting pipe between the* ***Grade1*** *and* ***Write1*** *nodes bent using the* ***Dot*** *node*

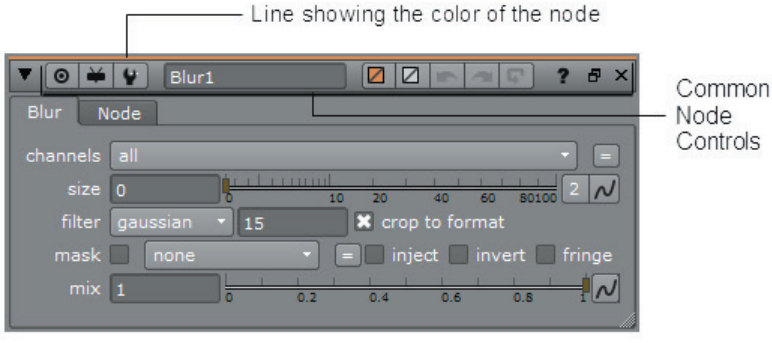

Figure 3-36 *The* ***Blur1*** *node properties panel*

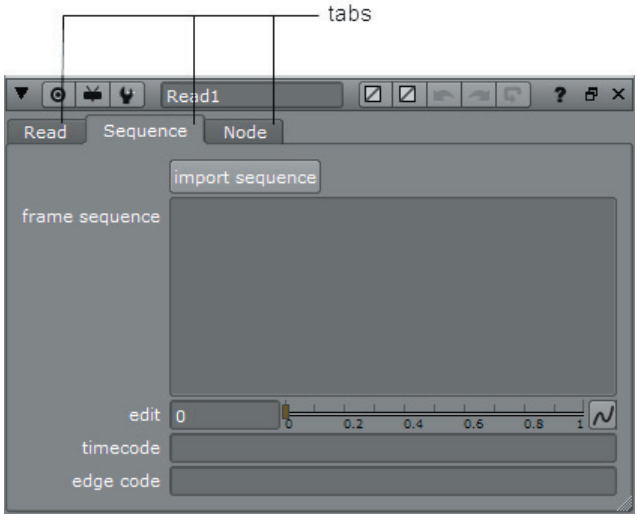

Figure 3-37 *The* ***Read1*** *node properties panel with tabs*

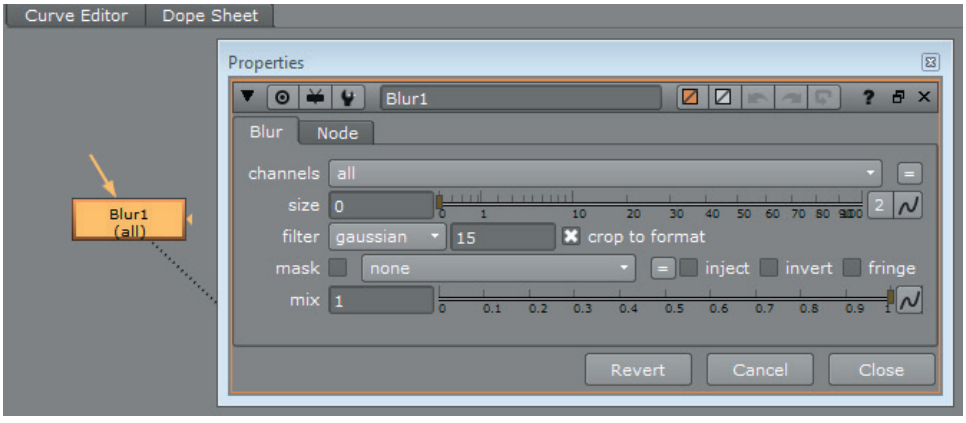

*Figure 3-38 Floating **Blur1** node properties panel*

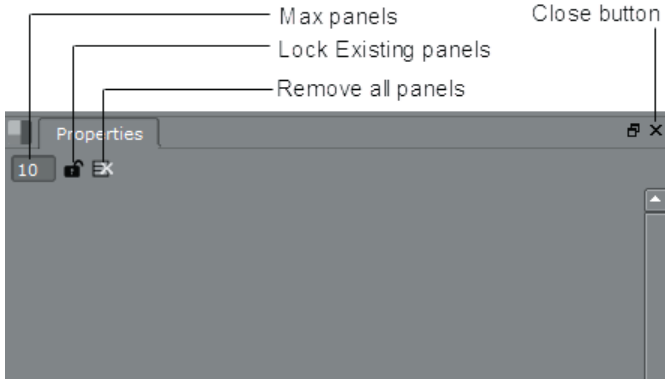

*Figure 3-39 The **Properties Bin***

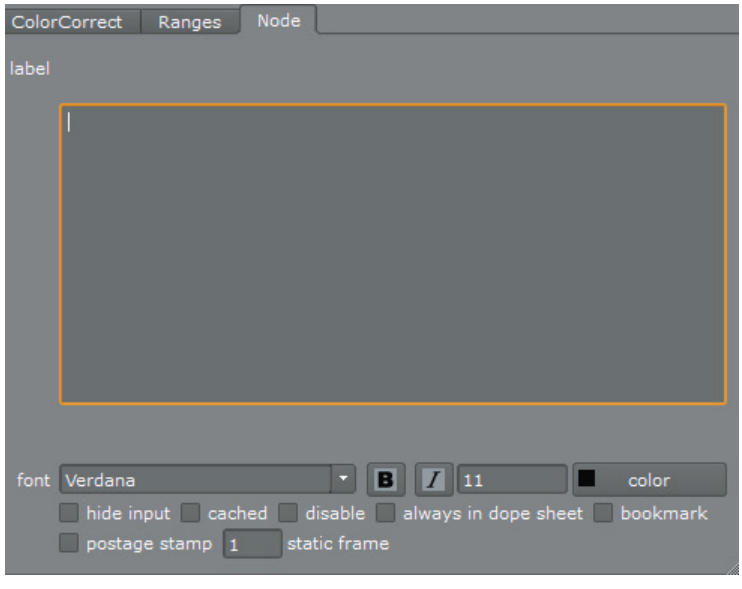

*Figure 3-40 Parameters in the **Node** tab*

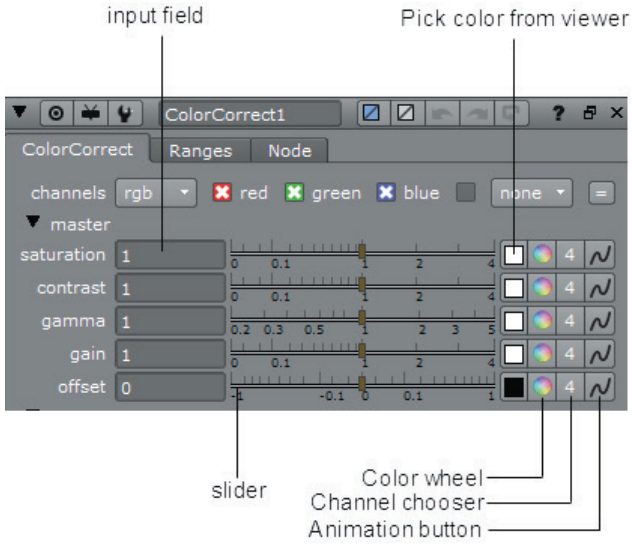

Figure 3-41 *The parameter controls in the* ***ColorCorrect1*** *node properties panel*

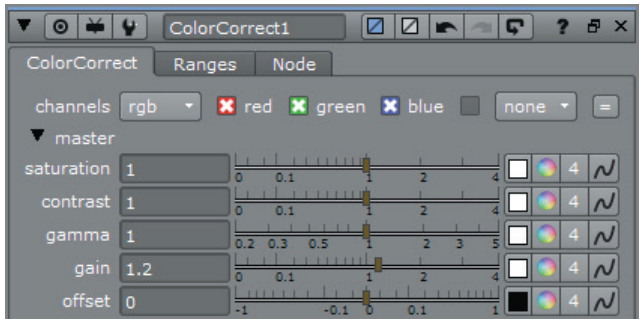

Figure 3-42 *The value* ***1.2*** *applied to all channels in the* ***gain*** *field of the* ***ColorCorrect1*** *properties panel*

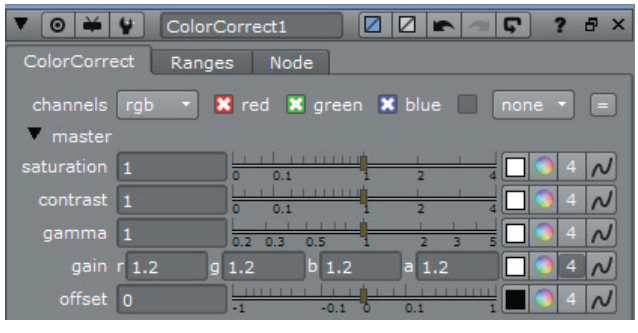

Figure 3-43 *Separate* ***r***, ***g***, ***b***, *and* ***a*** *channels displayed for the* ***gain*** *field of the* ***ColorCorrect1*** *properties panel*

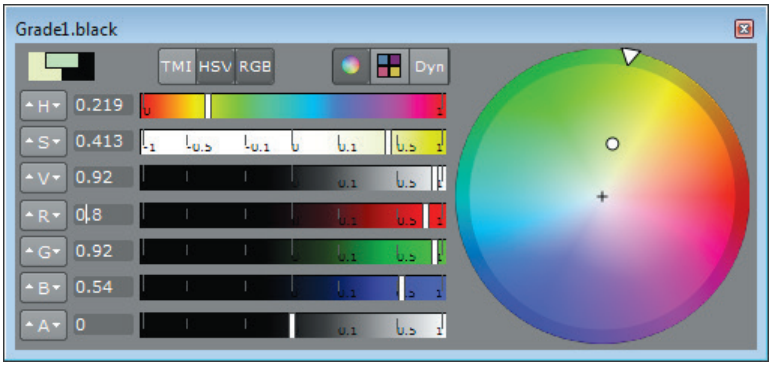

Figure 3-44 *The color picker window displayed on choosing the Color wheel button from the properties panel of the* ***Grade1*** *node*

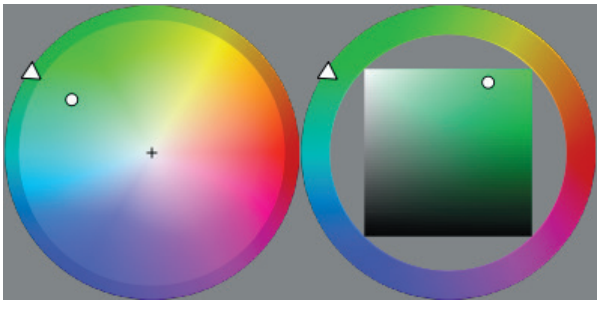

Figure 3-45 *The color wheel states*

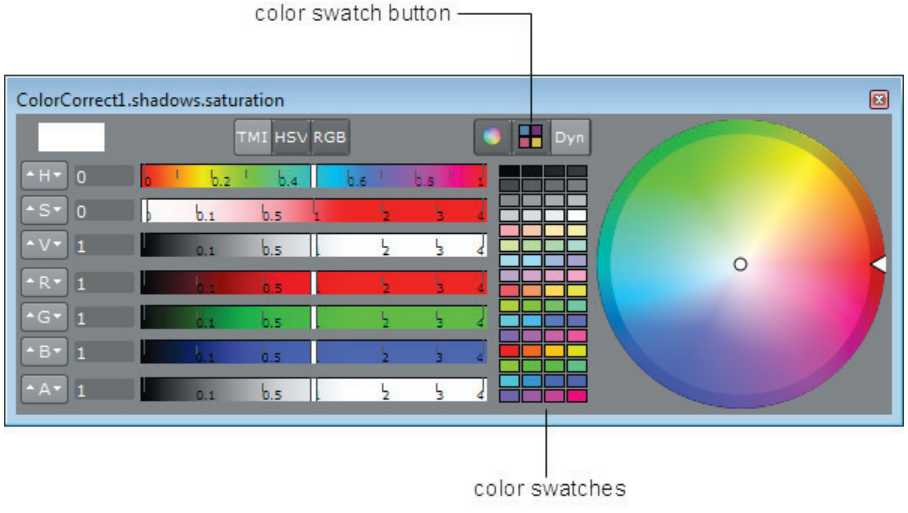

Figure 3-46 *Color swatches displayed in the color picker window on choosing the color swatch button*

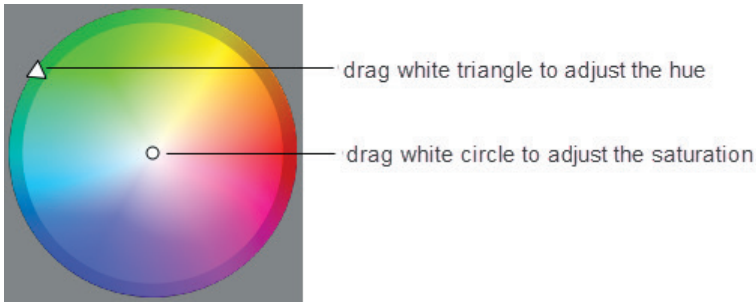

Figure 3-47 *Controls on the color wheel*

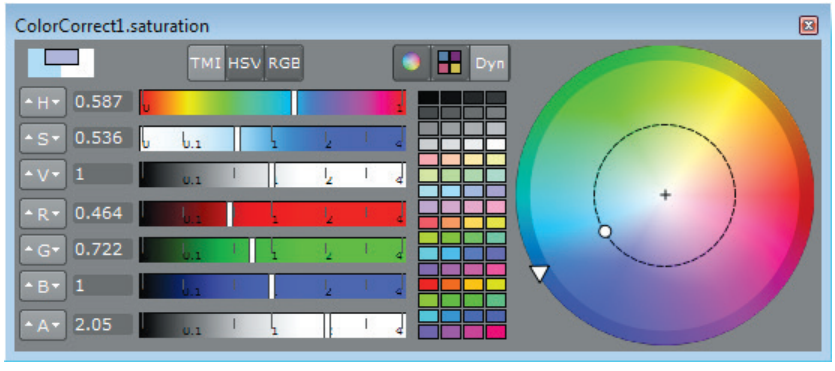

Figure 3-48 *Changing only the hue values*

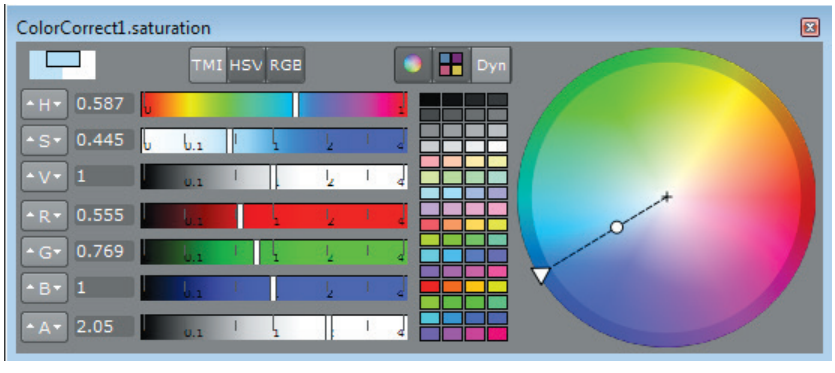

Figure 3-49 *Changing only the saturation values*

Figure 3-50 *The slider labels*

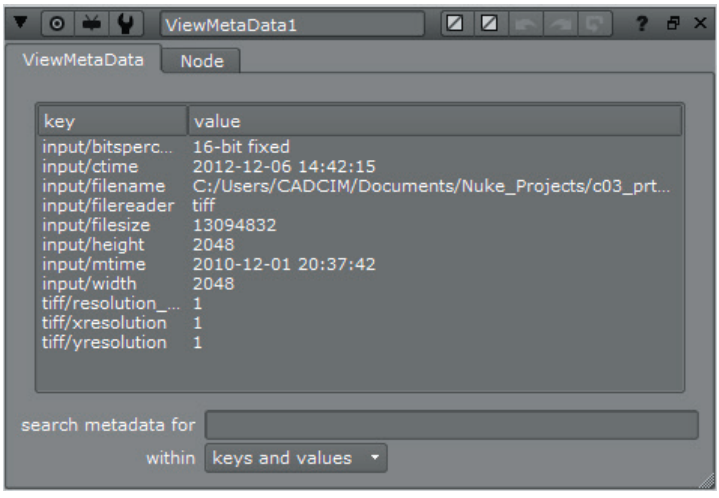

Figure 3-51 *The metadata information displayed in the* ***ViewMetaData1*** *node properties panel*

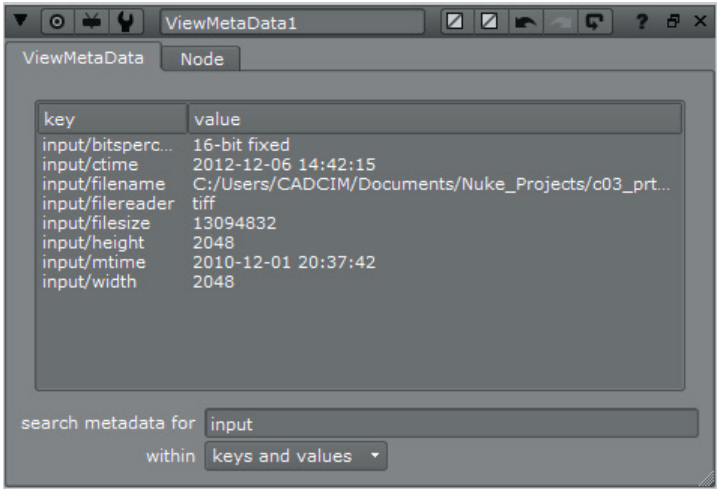

Figure 3-52 *The filtered metadata list displayed for key* ***input***

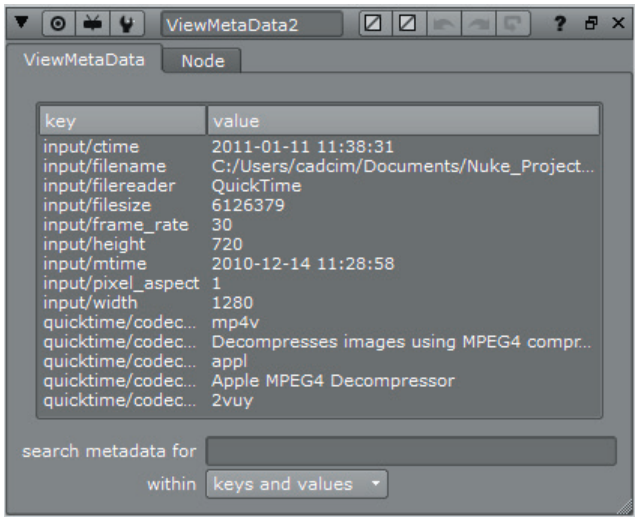

Figure 3-53 *The metadata of a QuickTime file displayed in the* ***ViewMetaData#*** *node properties panel*

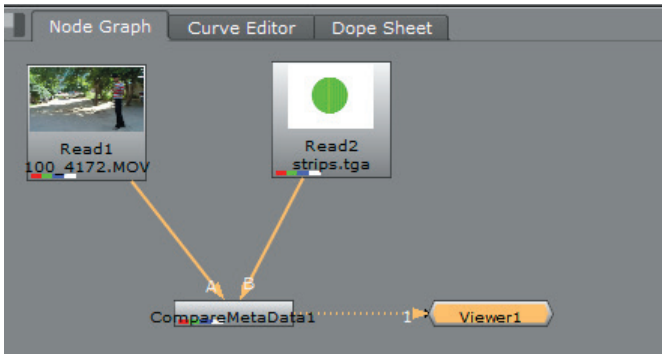

Figure 3-54 *The* ***Read1*** *and* ***Read2*** *nodes connected to the* ***CompareMetaData1*** *node*

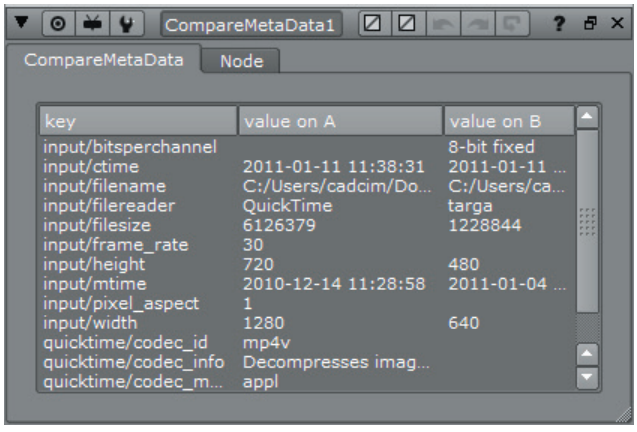

Figure 3-55 *The* ***CompareMetaData1*** *node displaying difference in the keys of the two input images*

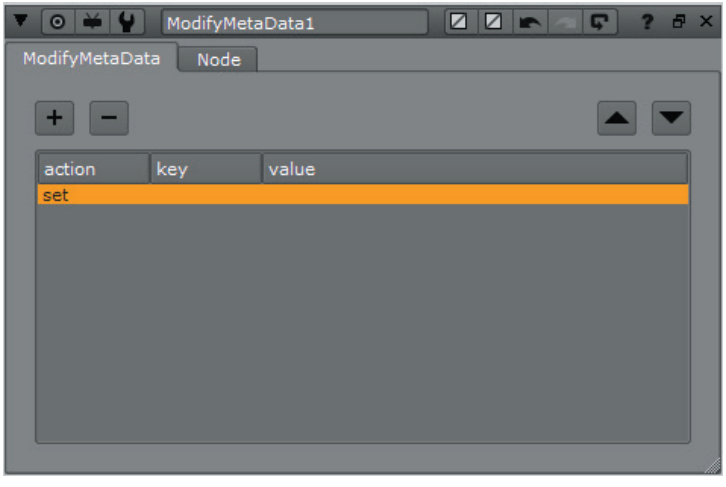

Figure 3-56 *The* ***ModifyMetaData1*** *node properties panel*

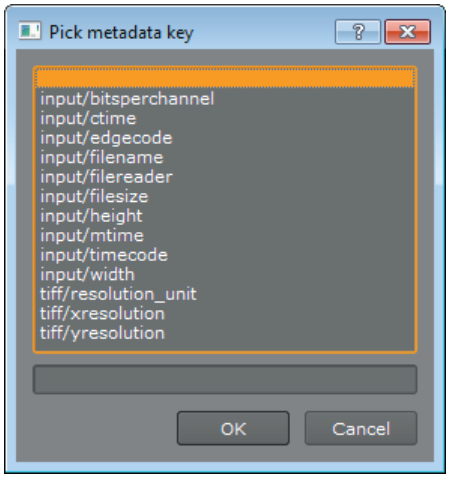

Figure 3-57 *The* ***Pick metadata key*** *dialog box*

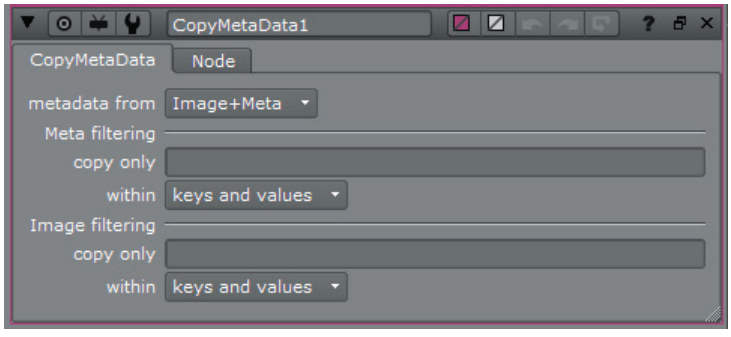

Figure 3-58 *The* ***CopyMetaData1*** *node properties panel*

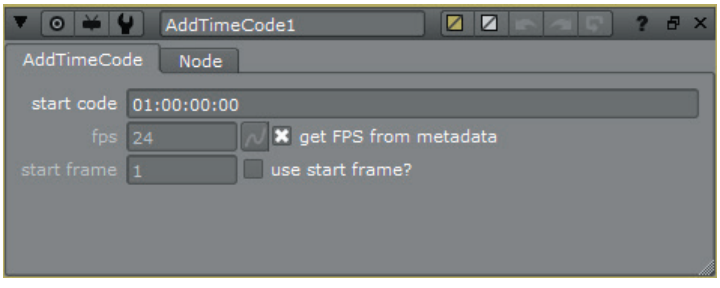

Figure 3-59 *The* ***AddTimeCode1*** *properties panel*

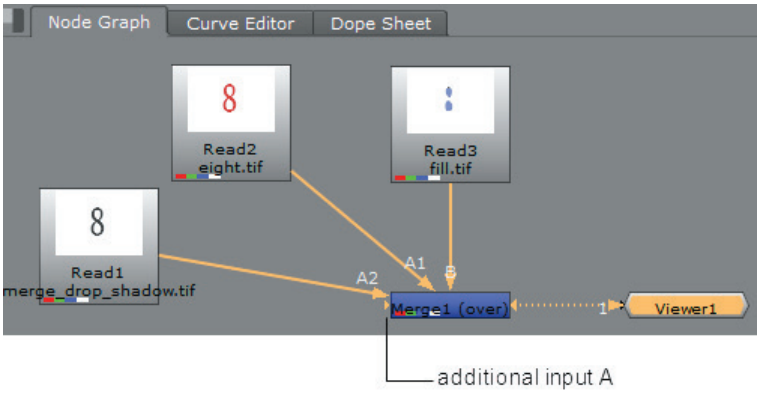

Figure 3-60 *Additional input* ***A*** *displayed on the* ***Merge1*** *node*

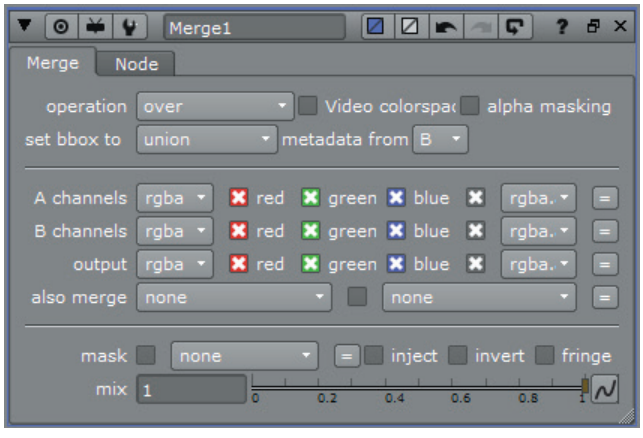

Figure 3-61 *The* ***Merge#*** *node properties panel*

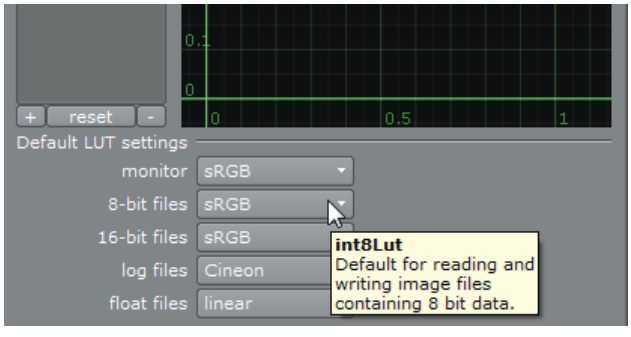

Figure 3-62 *Partial view of the* ***LUT*** *tab of the* ***Project Settings*** *panel*

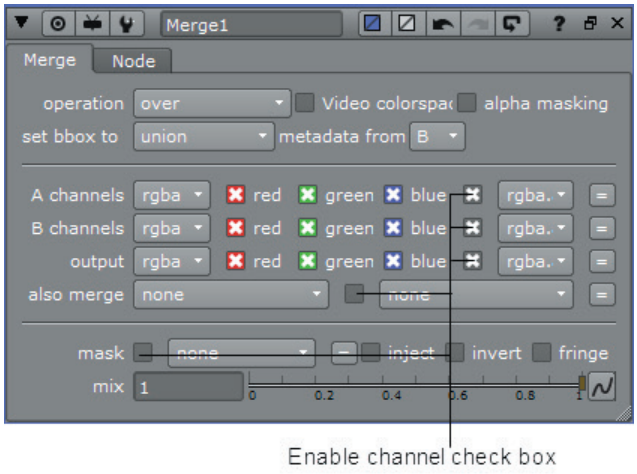

Figure 3-63 *The Enable channel check boxes displayed in the* ***Merge1*** *properties panel*

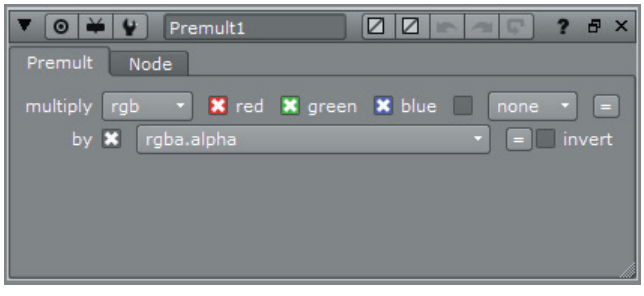

Figure 3-64 *The* ***Premult1*** *node properties panel*

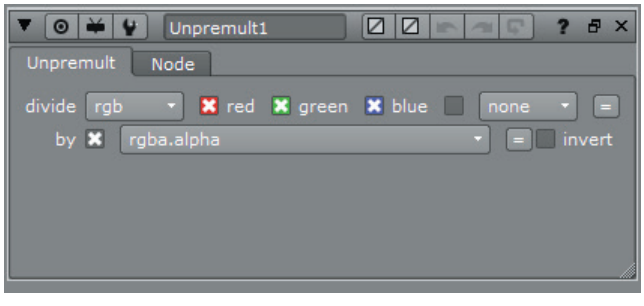

Figure 3-65 *The* ***Unpremult1*** *node properties panel*

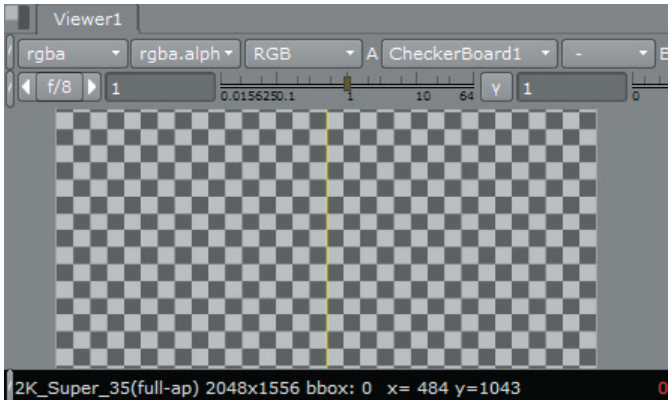

Figure 3-66 *The checkerboard pattern displayed in the* ***Viewer1*** *panel*

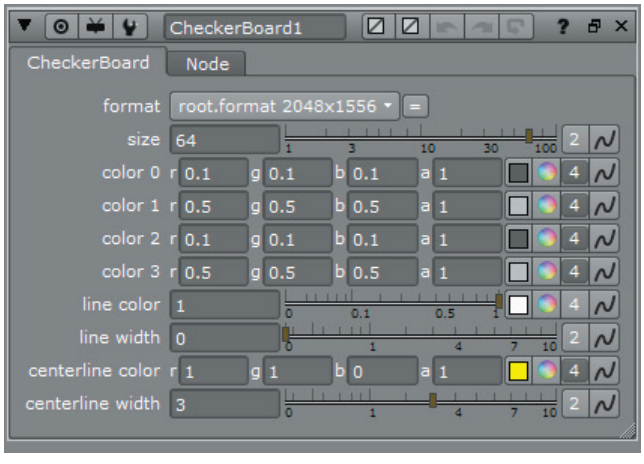

Figure 3-67 *The* ***CheckerBoard1*** *properties panel*

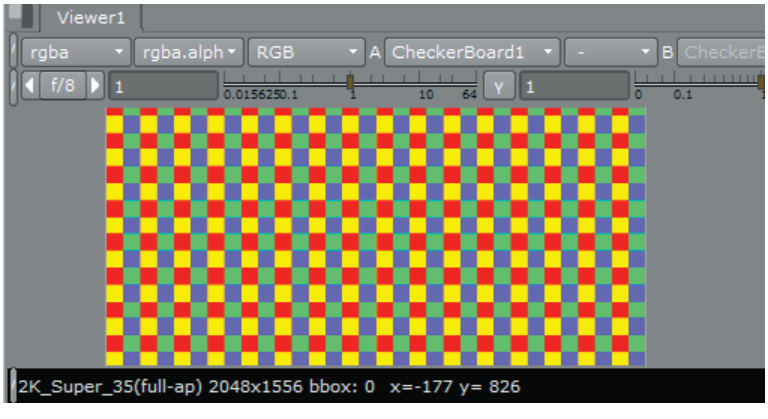

Figure 3-68 *The output of the* ***CheckerBoard1*** *node*

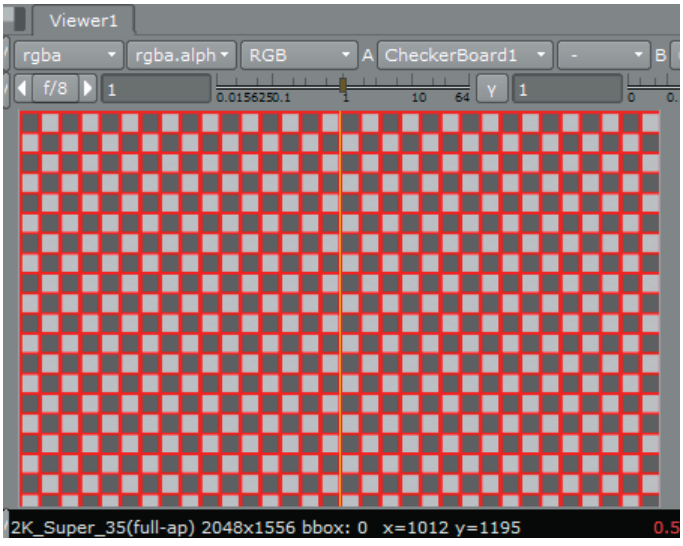

Figure 3-69 *The output of the* ***CheckerBoard*** *node displayed on changing the values of the* ***line color*** *and* ***line width*** *parameters*

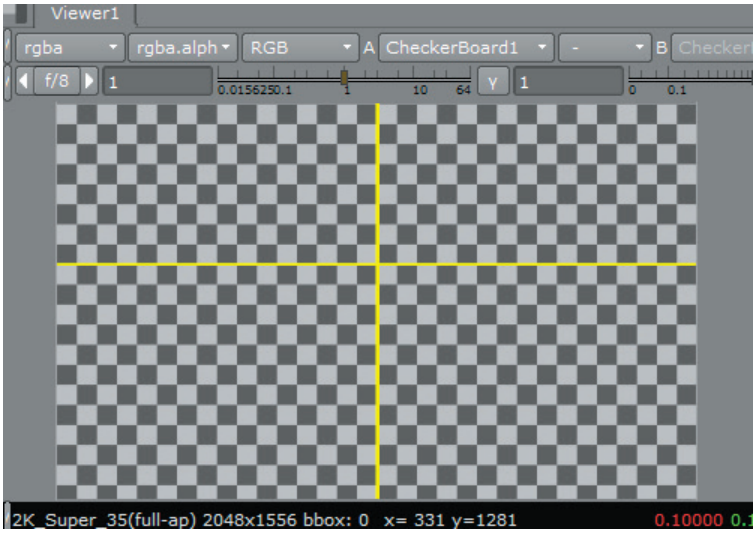

Figure 3-70 *The output of the* ***CheckerBoard*** *node displayed on changing the value of the* ***centerline width*** *parameter*

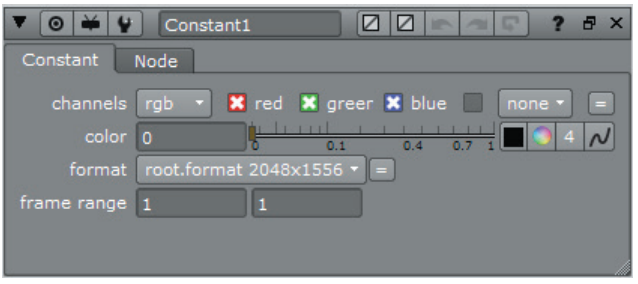

*Figure 3-71 The **Constant1** node properties panel*

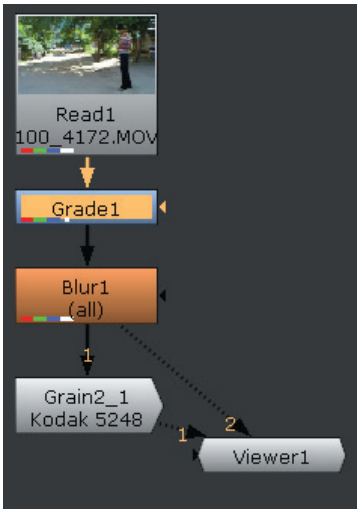

*Figure 3-72 The **Blur1** node connected to the port number **2** of the **Viewer1** node*

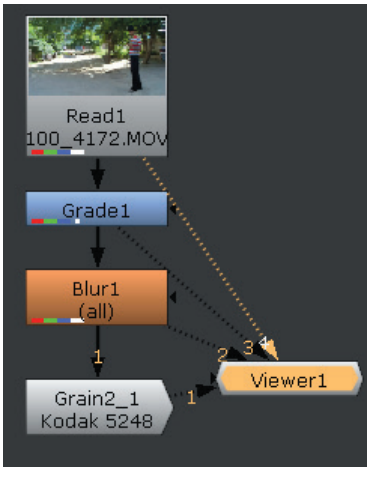

*Figure 3-73 All four nodes connected to the **Viewer1** node*

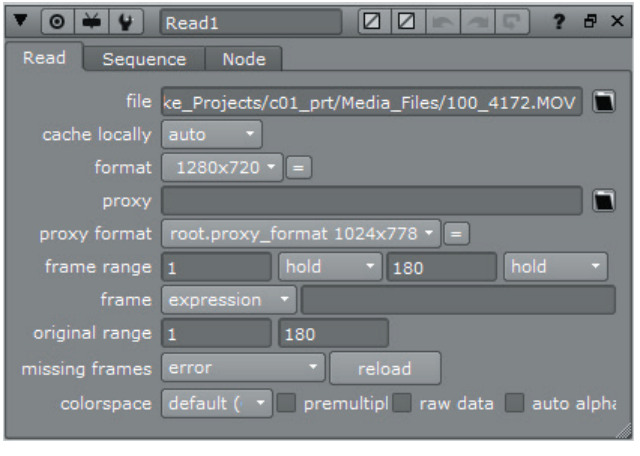

*Figure 3-74 The **Read1** node properties panel*

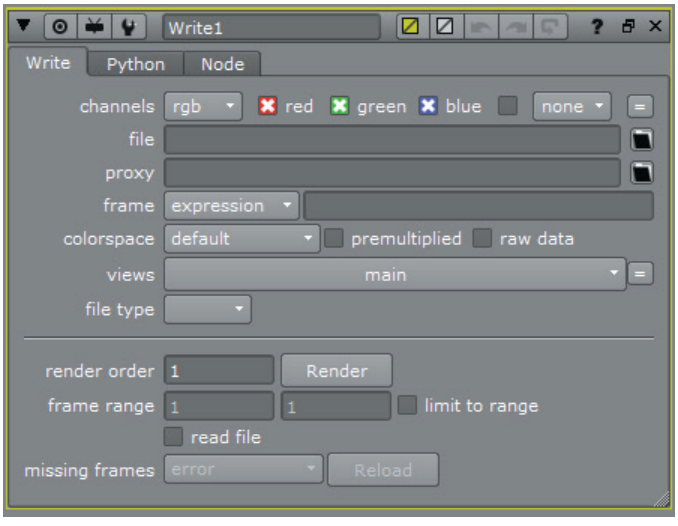

Figure 3-75 *The* ***Write1*** *node properties panel*

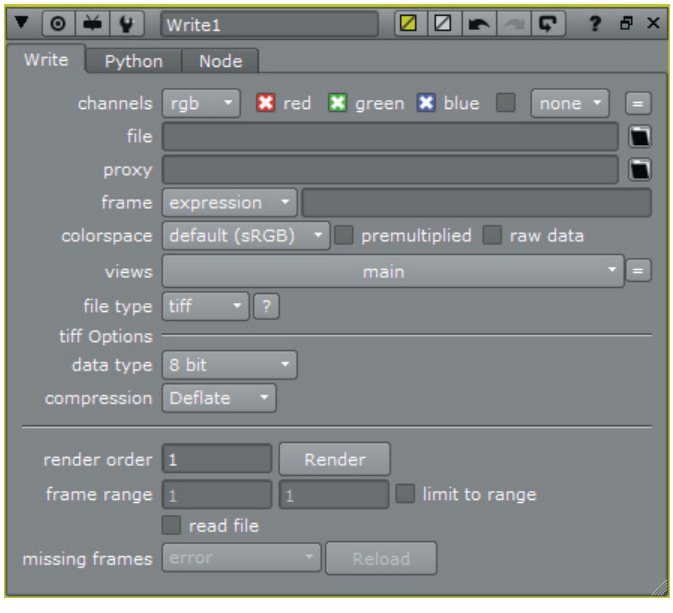

Figure 3-76 *Additional parameters displayed in the* ***Write1*** *node properties panel*

Figure 3-77 *The f1.png image*

Figure 3-78 *The f2.png image*

Figure 3-79 *The f3.png image*

Figure 3-80 *The f4.png image*

Figure 3-81 *The f5.png image*

Figure 3-82 *The f6.png image*

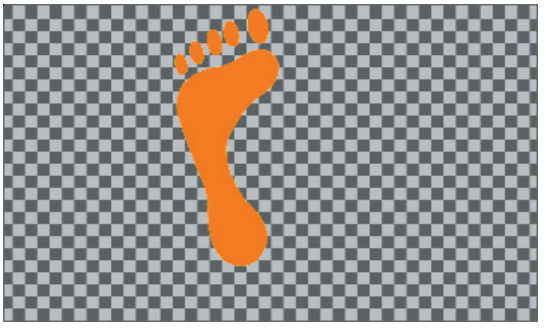

Figure 3-83 *The footprint composite*

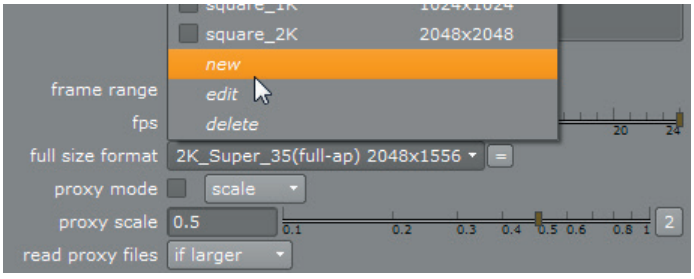

Figure 3-84 *Partial view of the* ***full size format*** *drop-down*

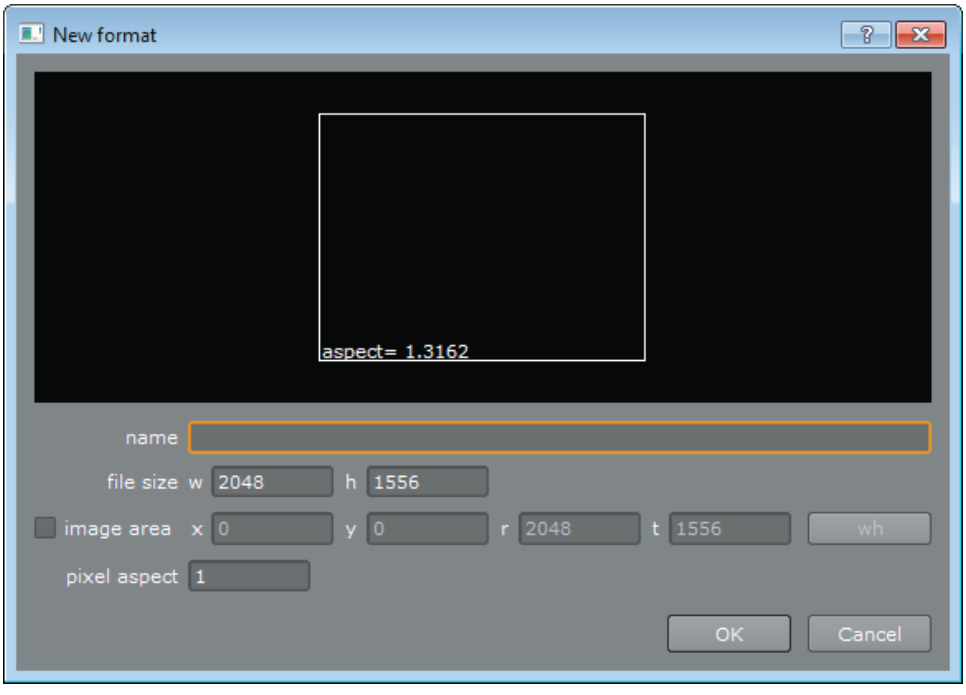

Figure 3-85 *The* ***New format*** *dialog box*

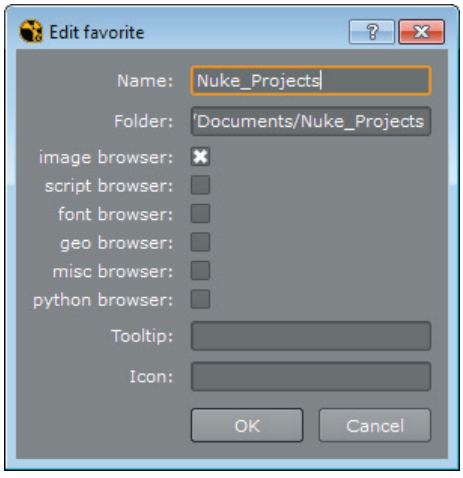

Figure 3-86 *The* ***Edit favorite*** *dialog box*

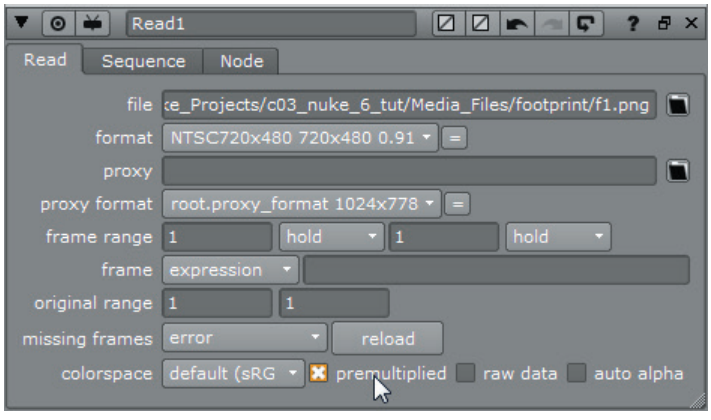

Figure 3-87 *The premultiplied check box selected in the* ***Read1*** *node properties panel*

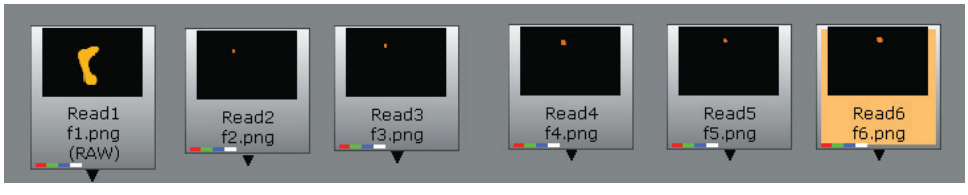

Figure 3-88 *Images imported in the* ***Node Graph*** *panel*

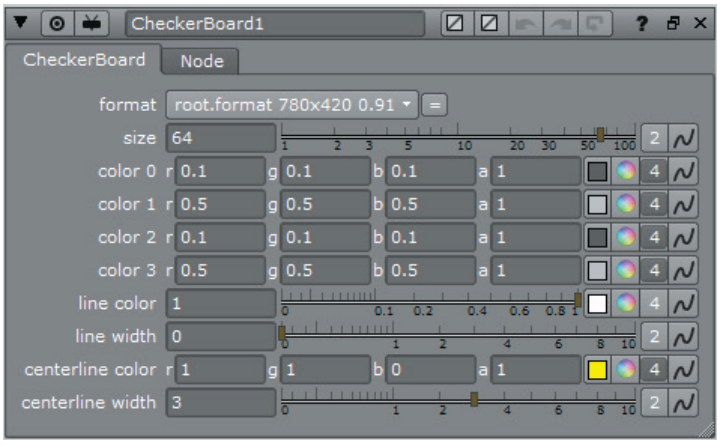

Figure 3-89 *The* ***CheckerBoard1*** *node properties panel*

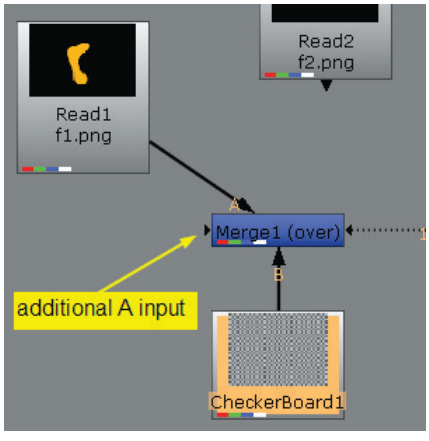

Figure 3-90 *The* ***Merge1*** *node connected to the* ***Read1*** *and* ***CheckerBoard1*** *nodes*

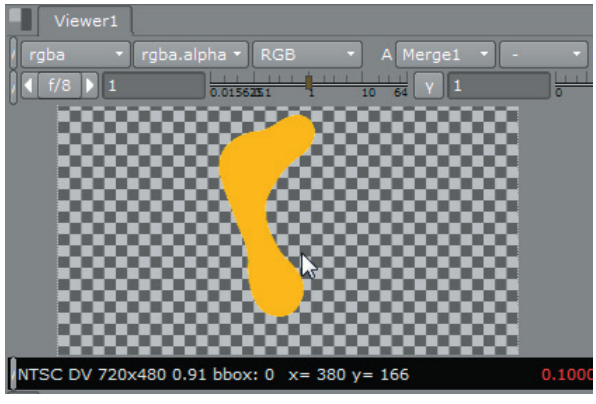

Figure 3-91 *The output of the* ***Merge1*** *node*

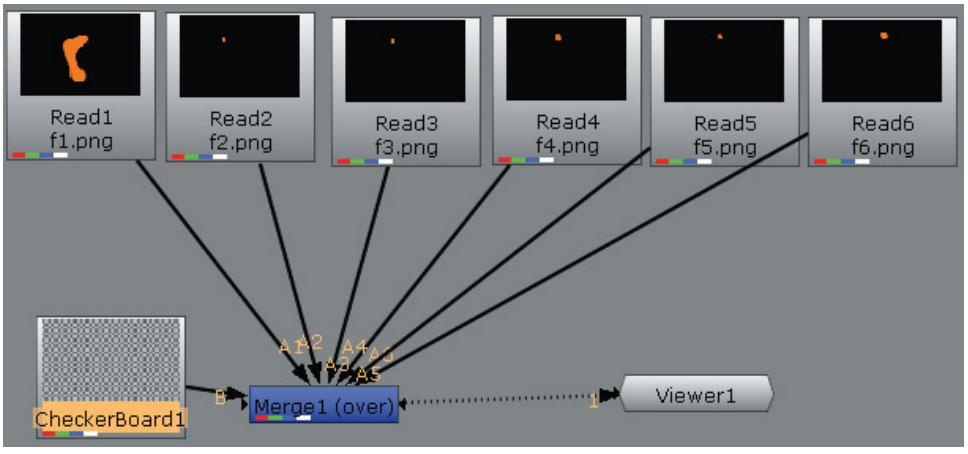

Figure 3-92 *All the* ***Read#*** *nodes connected to the* ***Merge1*** *node*

Figure 3-93 *The clouds.png image*

Figure 3-94 *The skyfog.jpeg image*

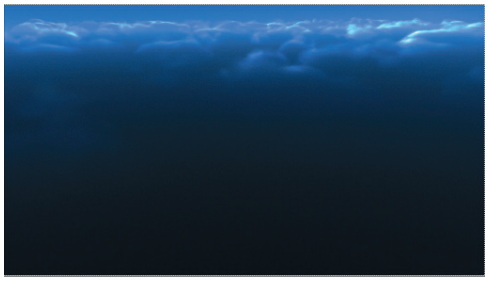

Figure 3-95 *The output of the* ***color-dodge*** *algorithm*

Figure 3-96 *The output of the* ***hard-light*** *algorithm*

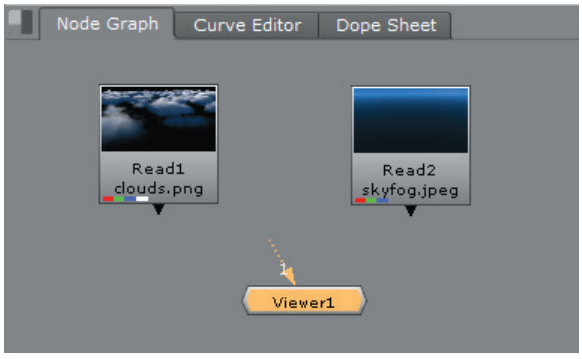

*Figure 3-97 The **Read#** nodes in the **Node Graph** panel*

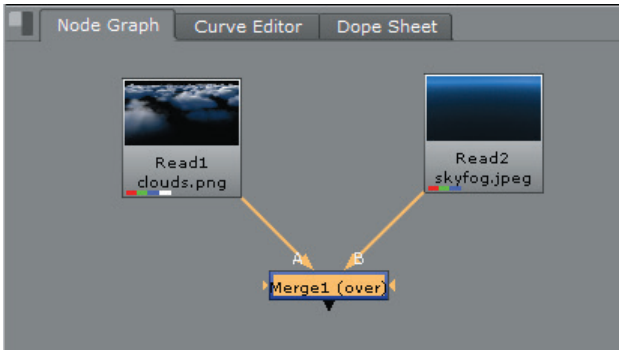

*Figure 3-98 The **Merge1** node in the **Node Graph** panel*

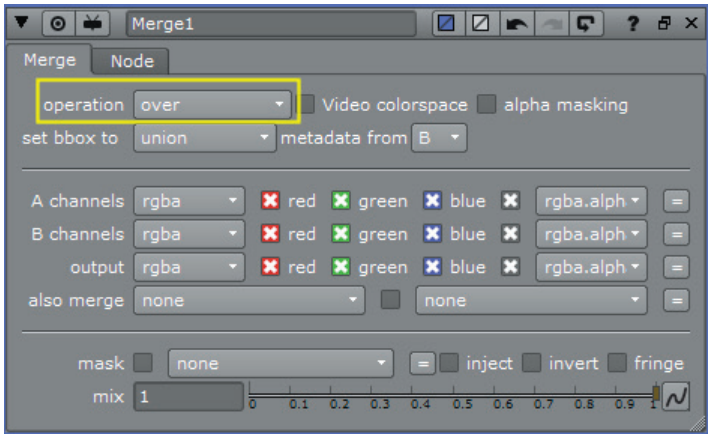

*Figure 3-99 The **Merge1** node properties panel*

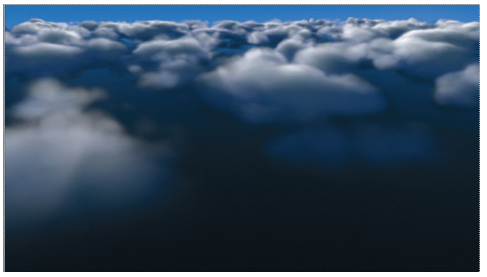

Figure 3-100 *The output of the* ***over*** *algorithm*

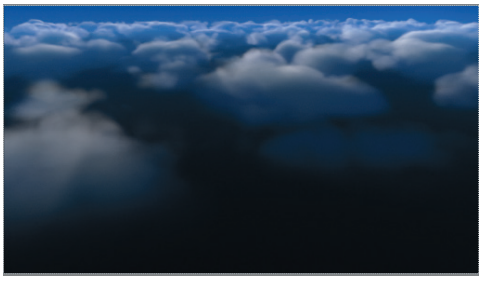

Figure 3-101 *The output of the* ***average*** *algorithm*

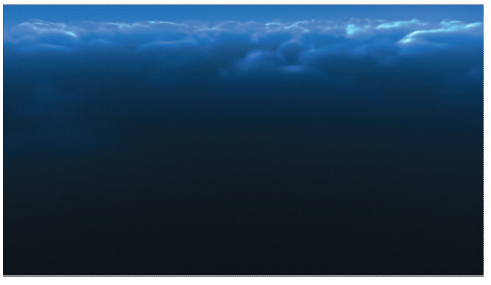

Figure 3-102 *The output of the* ***color-dodge*** *algorithm*

Figure 3-103 *The output of the* ***hard-light*** *algorithm*

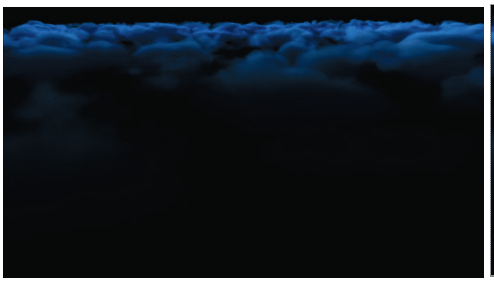

Figure 3-104 *The output of the* ***multiply*** *algorithm*

Figure 3-105 *The output of the* ***overlay*** *algorithm*

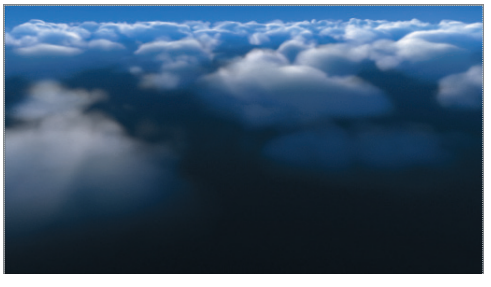

Figure 3-106 *The output of the* ***screen*** *algorithm*

Figure 3-107 *The output of the* ***soft-light*** *algorithm*

Figure 3-108 *The output of the* ***Merge1*** *node*

Figure 3-109 *The output of the merge operation before selecting the* ***alpha masking*** *check box*

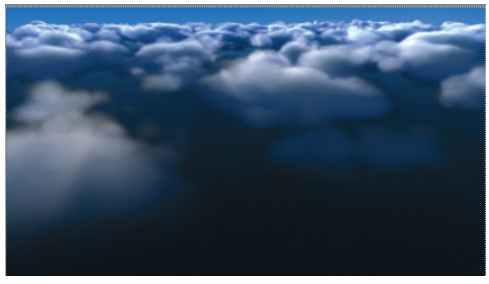

Figure 3-110 *The output of the merge operation after selecting the* ***alpha masking*** *check box*

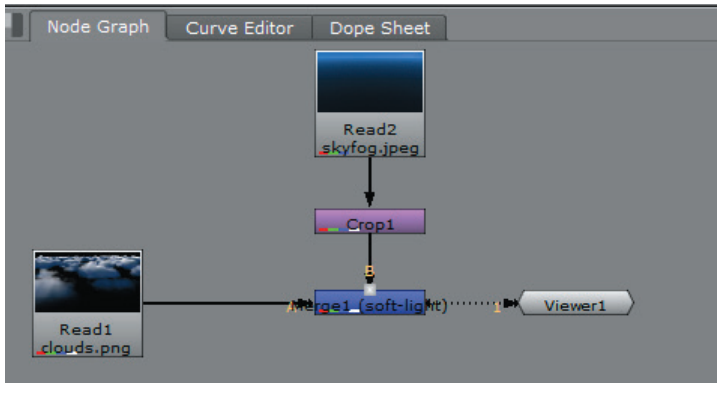

Figure 3-111 *The* ***Crop1*** *node inserted in the* ***Node Graph*** *panel*

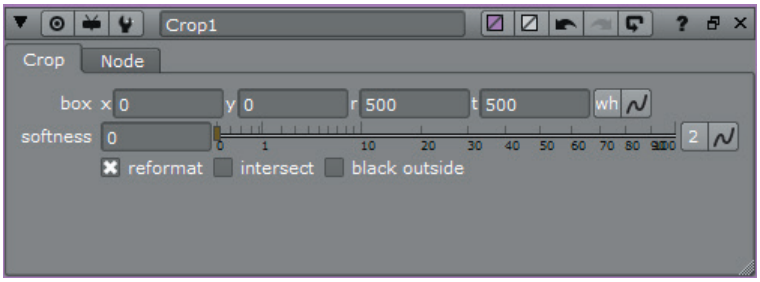

Figure 3-112 The ***Crop1*** *node properties panel*

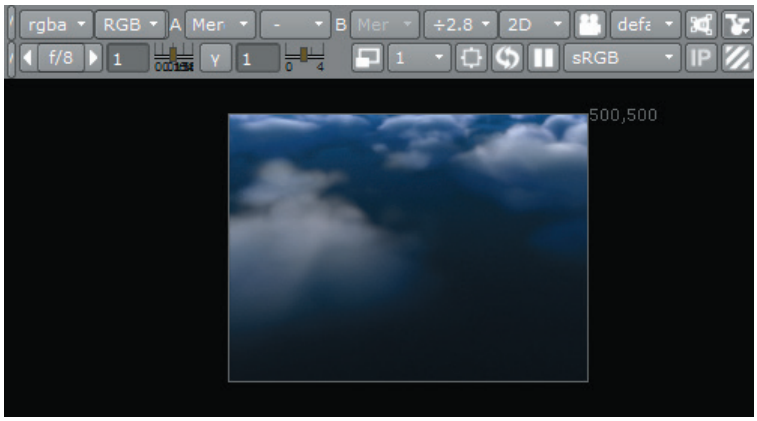

Figure 3-113 The new bounding box displayed in the ***Viewer1*** *panel*

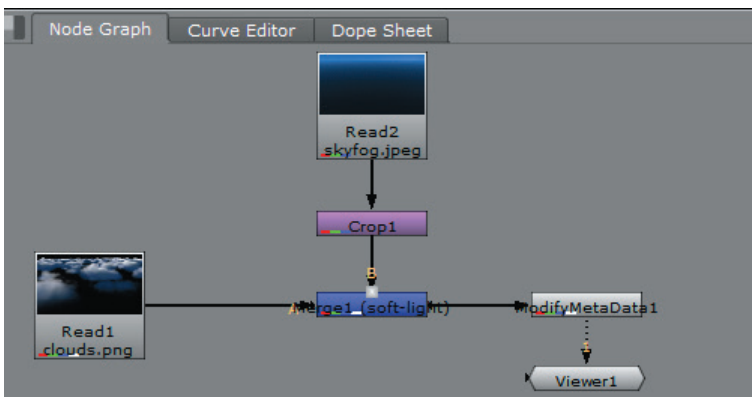

Figure 3-114 The ***ModifyMetaData1*** *node in the* ***Node Graph*** *panel*

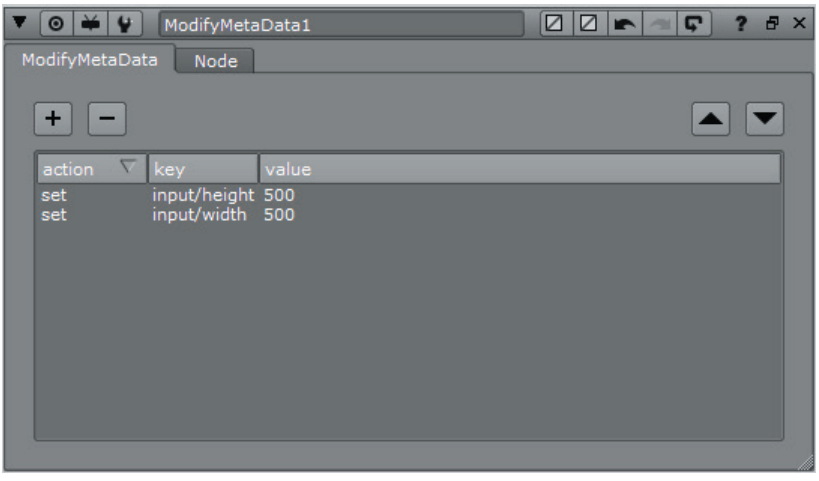

Figure 3-115 *Keys and values displayed in the* ***ModifyMetaData1*** *node properties panel*

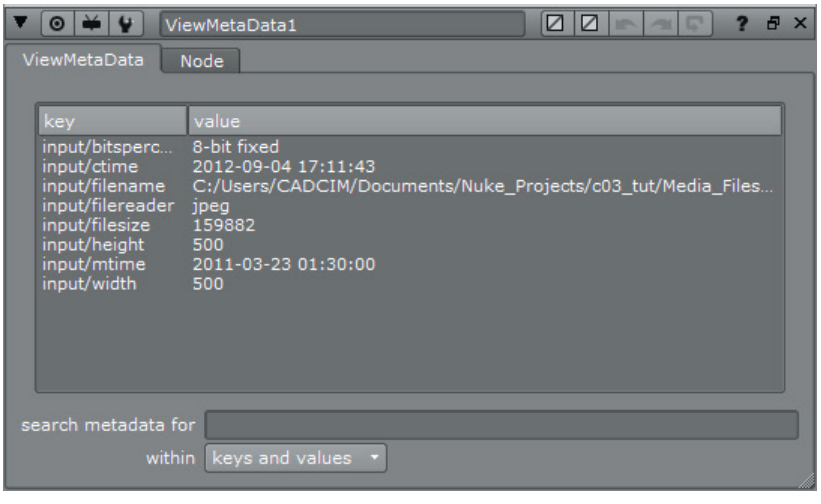

Figure 3-116 *The* ***ViewMetaData1*** *node properties panel*

Chapter 4

Exploring Channels

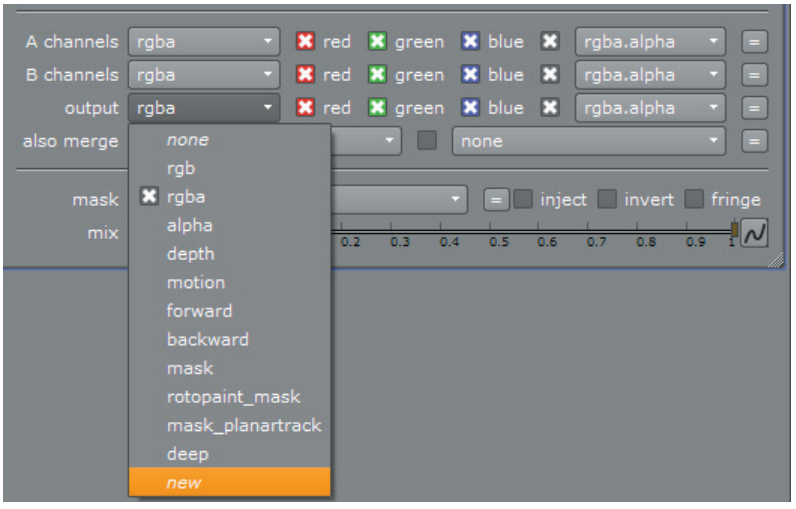

Figure 4-1 *The* ***output*** *parameter in the* ***Merge1*** *node properties panel*

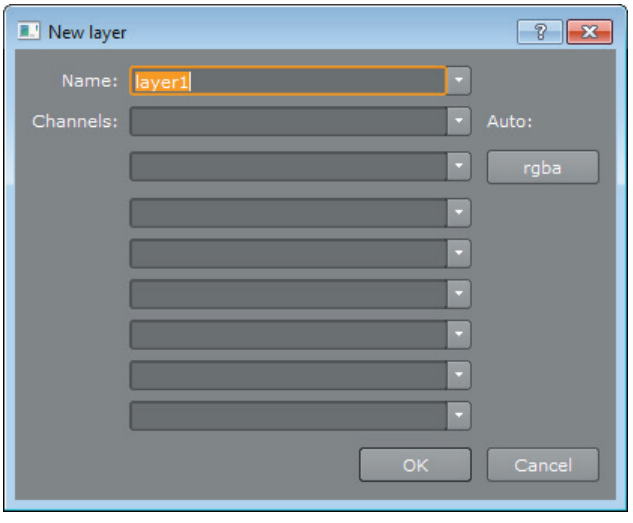

Figure 4-2 *The* ***New layer*** *dialog box*

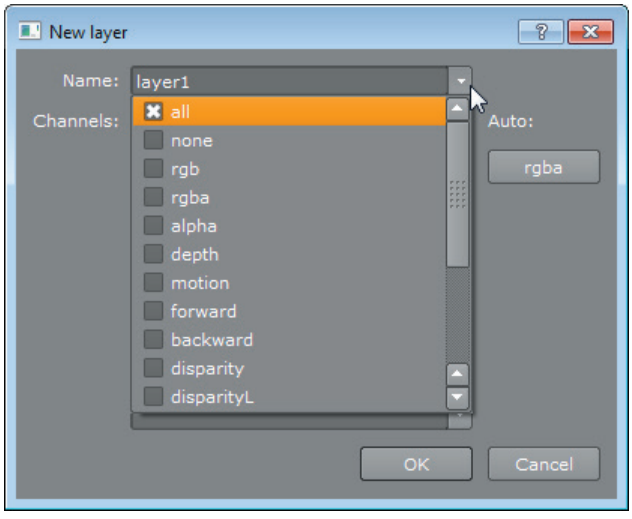

Figure 4-3 *The in-built channel sets displayed in the* ***New layer*** *dialog box*

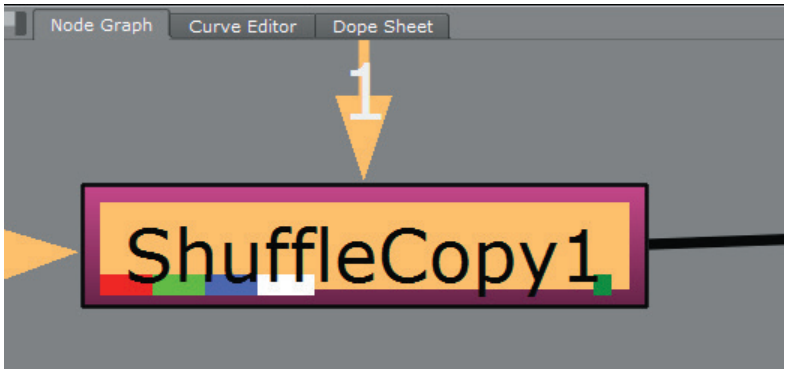

Figure 4-4 *Channels processing information displayed on the* ***ShuffleCopy1*** *node by the colored rectangles*

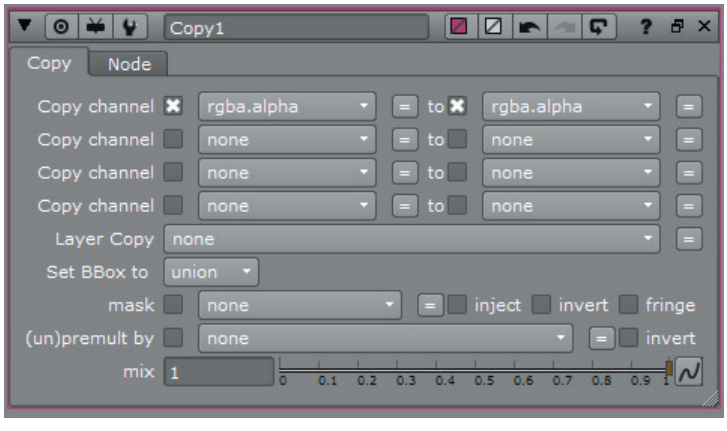

Figure 4-5 *The* ***Copy1*** *node properties panel*

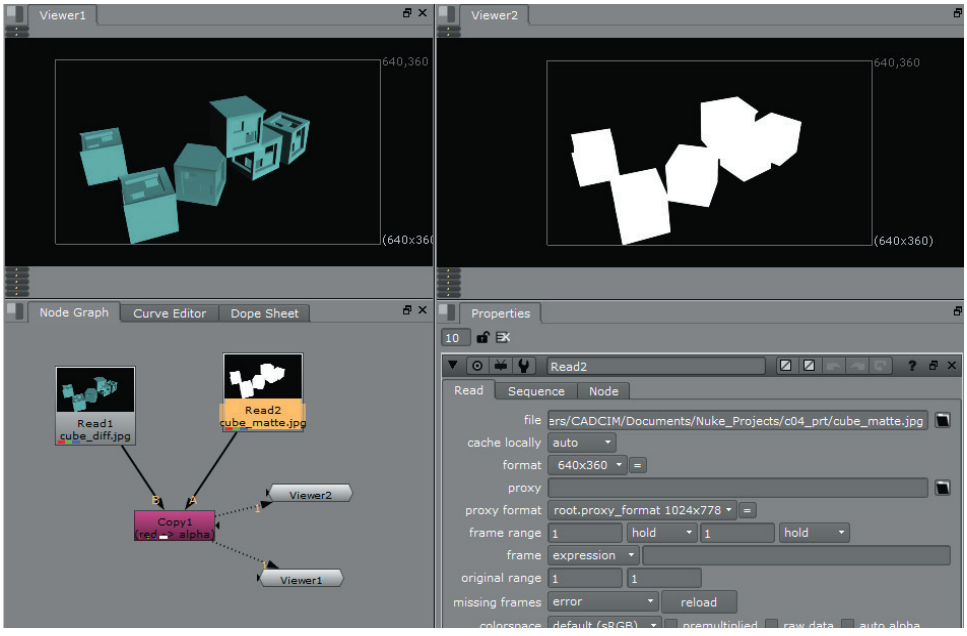

Figure 4-6 *The* ***alpha*** *channel displayed in the* ***Viewer2*** *panel*

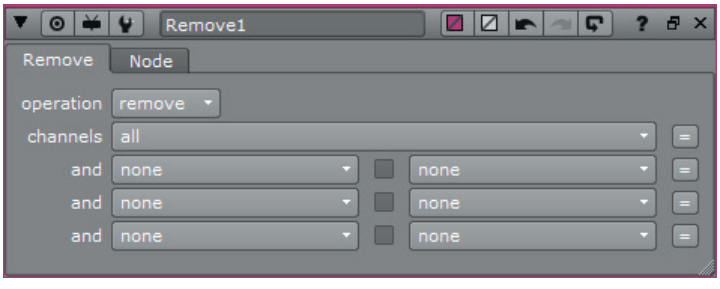

Figure 4-7 *The* ***Remove1*** *node properties panel*

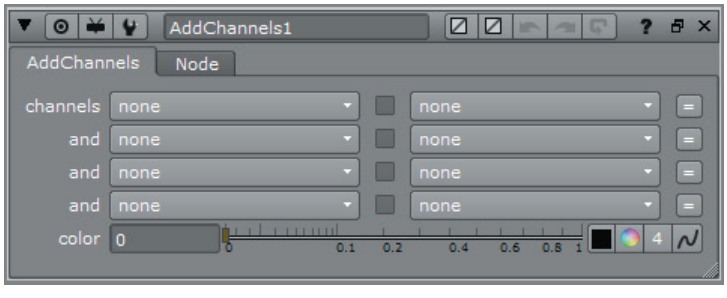

Figure 4-8 *The* ***AddChannels1*** *properties panel*

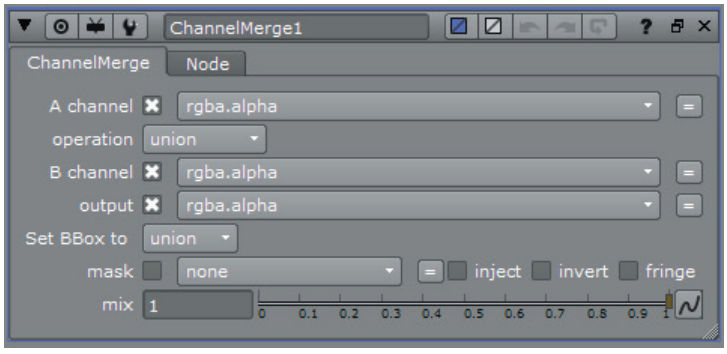

Figure 4-9 *The* ***ChannelMerge1*** *node properties panel*

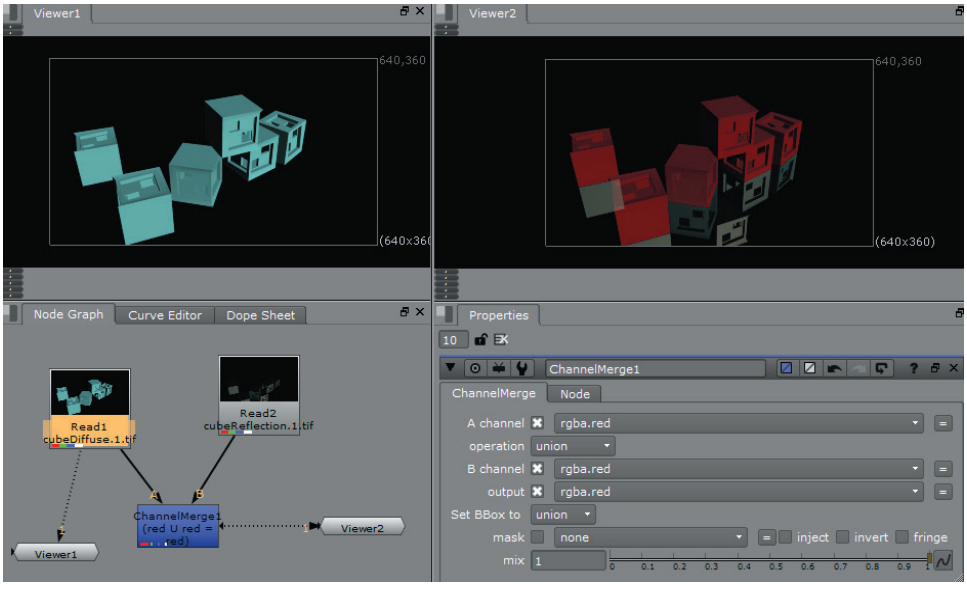

Figure 4-10 *The output displayed in the* ***Viewer2*** *panel after merging channels*

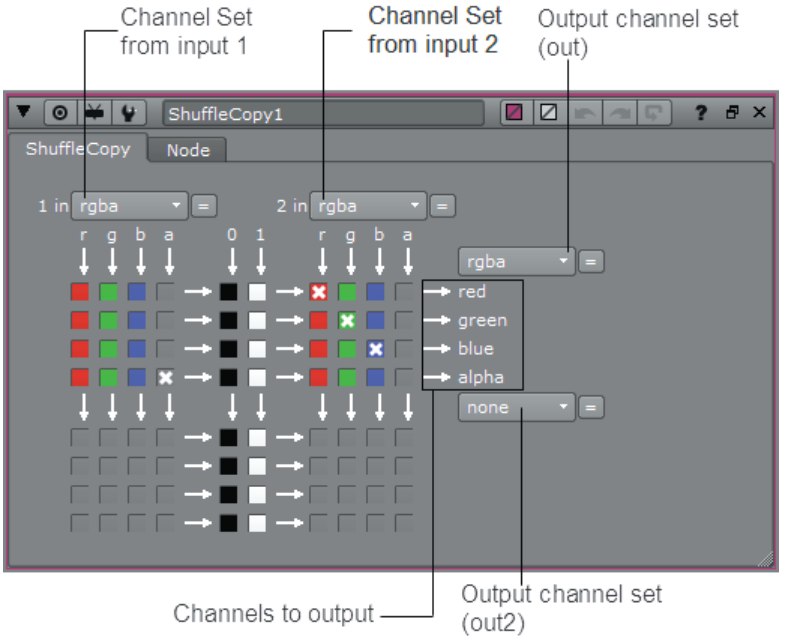

Figure 4-11 *The* ***ShuffleCopy1*** *properties panel*

Figure 4-12 *The teapot.jpeg image*

Figure 4-13 *The teapotMattePass.jpeg image*

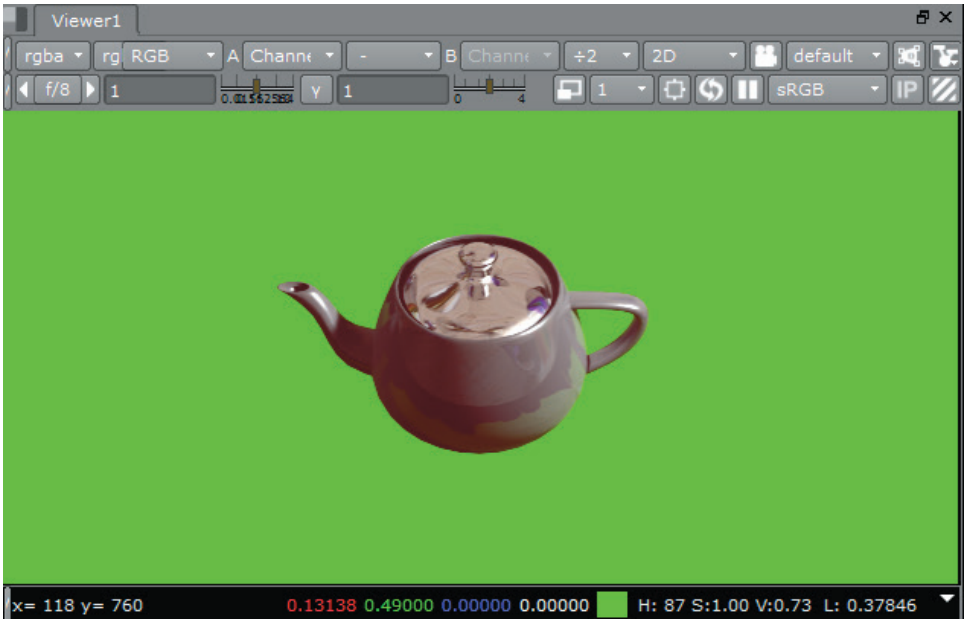

Figure 4-14 *The final result displayed in the* ***Viewer1*** *panel*

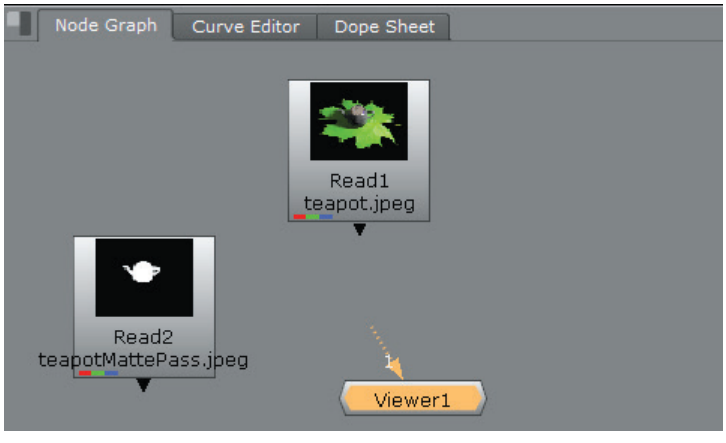

Figure 4-15 *The* ***Read1*** *and* ***Read2*** *nodes in the* ***Node Graph*** *panel*

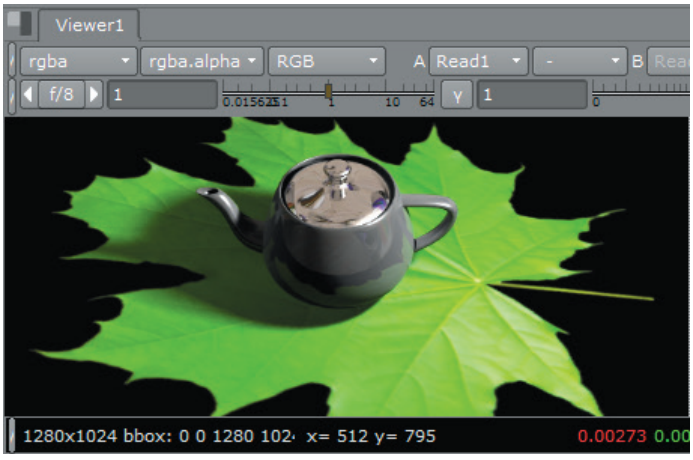

*Figure 4-16 The output of the **Read1** node displayed in the **Viewer1** panel*

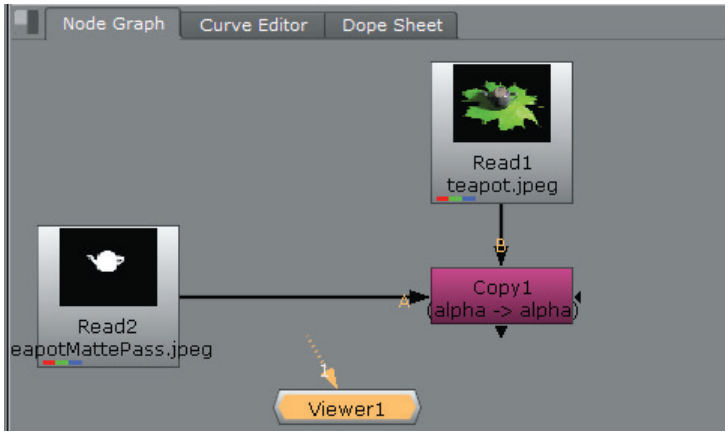

*Figure 4-17 The **Copy1** node connected to the **Read1** and **Read2** nodes*

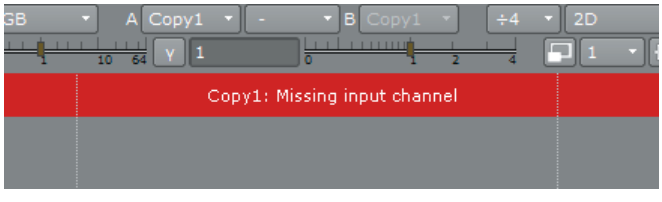

*Figure 4-18 The error message displayed in the **Viewer1** panel*

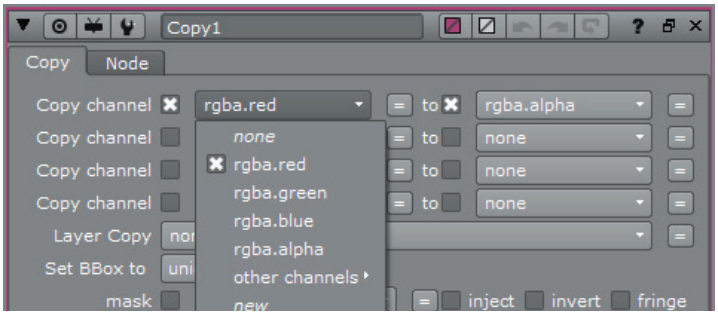

Figure 4-19 *Selecting* ***rgba.red*** *from the first* ***Copy channel*** *drop-down*

Figure 4-20 *The alpha channel of the image displayed in the* ***Viewer1*** *panel*

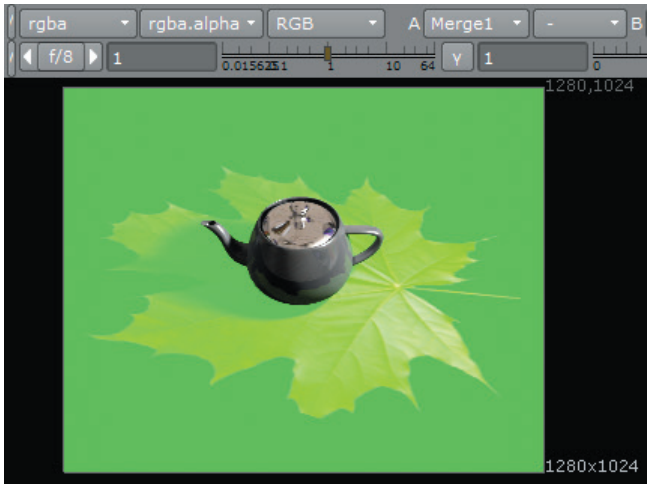

Figure 4-21 *The teapot composited with the background*

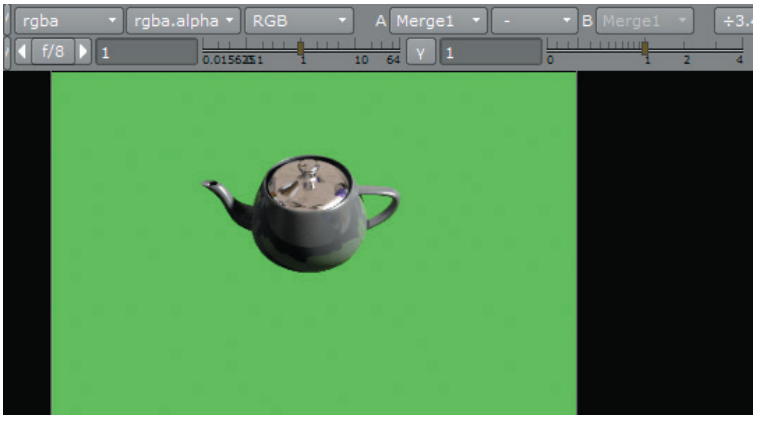

Figure 4-22 *The output of the* ***Merge1*** *node displayed on premultiplying the output of the* ***Copy1*** *node*

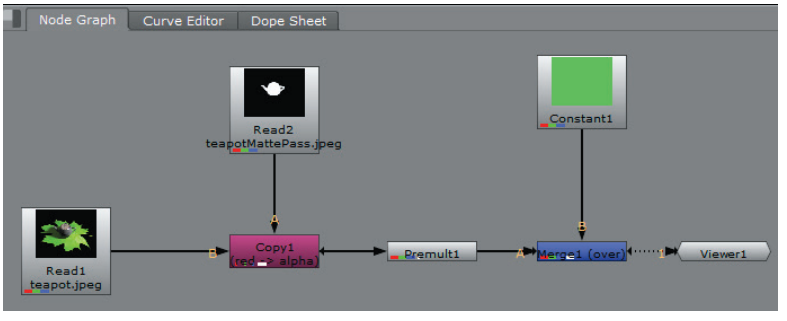

Figure 4-23 *All nodes used in the script in the* ***Node Graph*** *panel*

Figure 4-24 *The rose.jpg image*

Figure 4-25 *The output at frame 77*

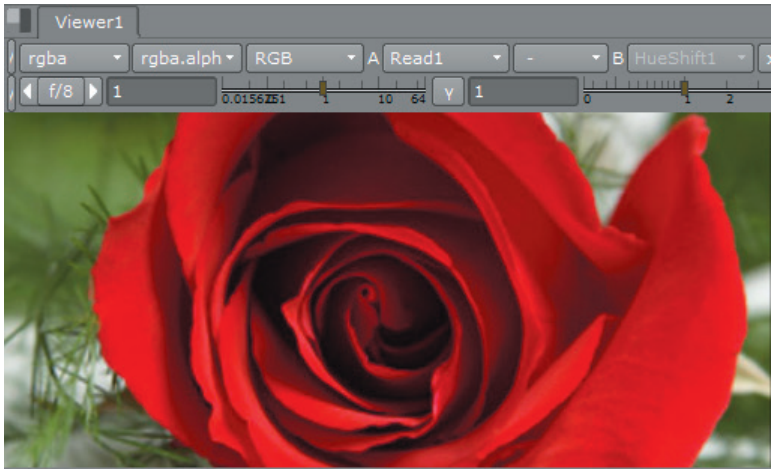

Figure 4-26 *The output of the* ***Read1*** *node*

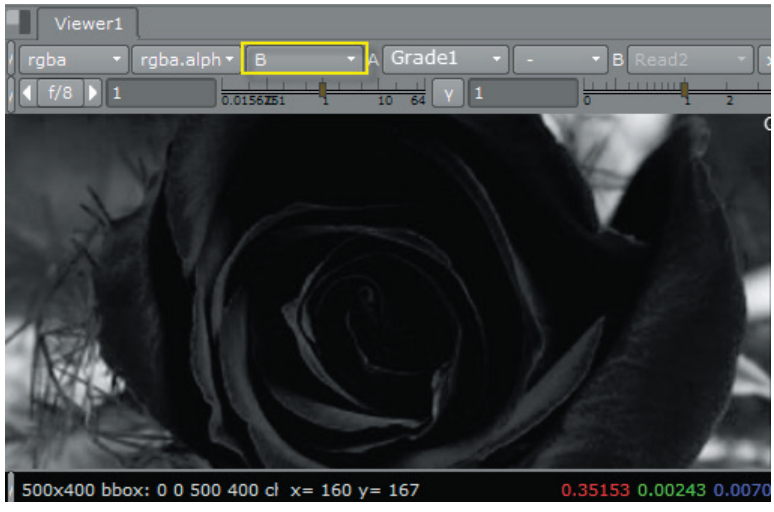

Figure 4-27 *The blue channel displayed*

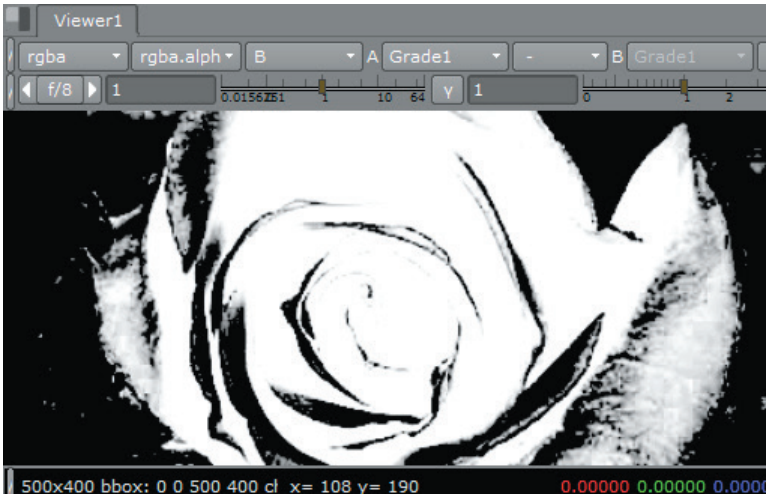

Figure 4-28 *The modified blue channel*

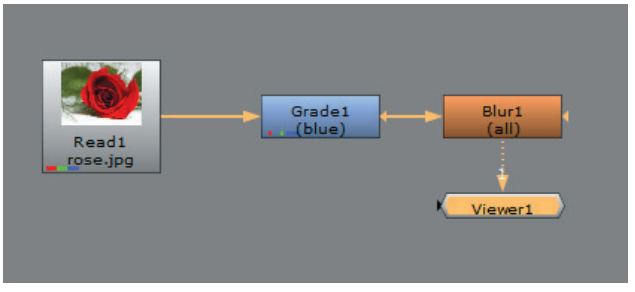

Figure 4-29 *The* ***Blur1*** *node inserted in the* ***Node Graph*** *panel*

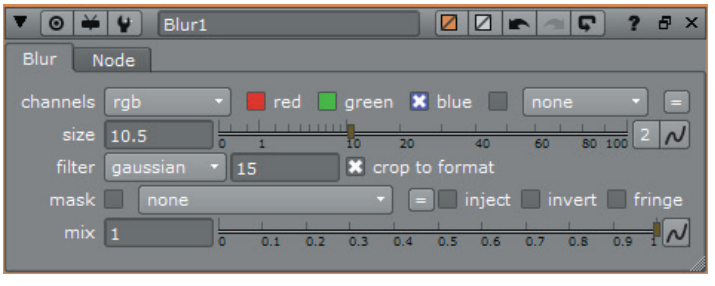

Figure 4-30 *The* ***Blur1*** *node properties panel*

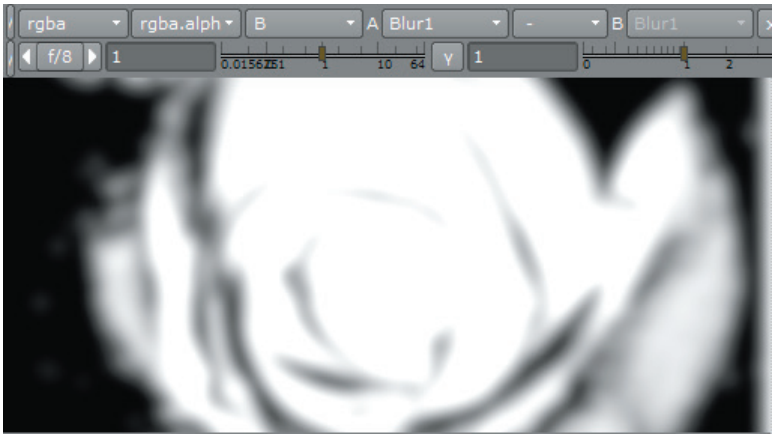

Figure 4-31 *The blurred blue channel*

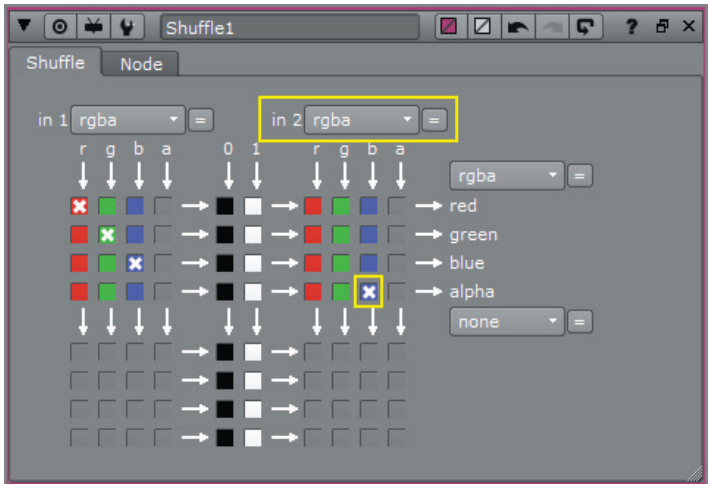

Figure 4-32 *The blue check box selected in the 4th row of the* ***in 2*** *channel matrix*

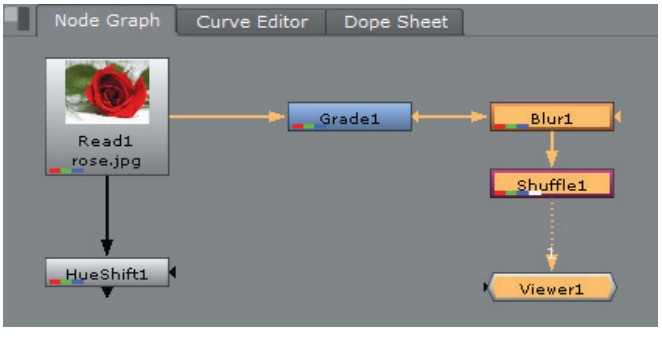

Figure 4-33 *The* ***HueShift1*** *node in the* ***Node Graph*** *panel*

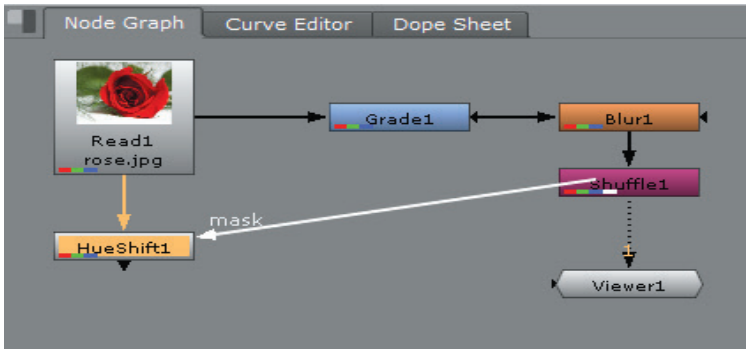

Figure 4-34 *The* ***mask*** *input dragged to the* ***Shuffle1*** *node*

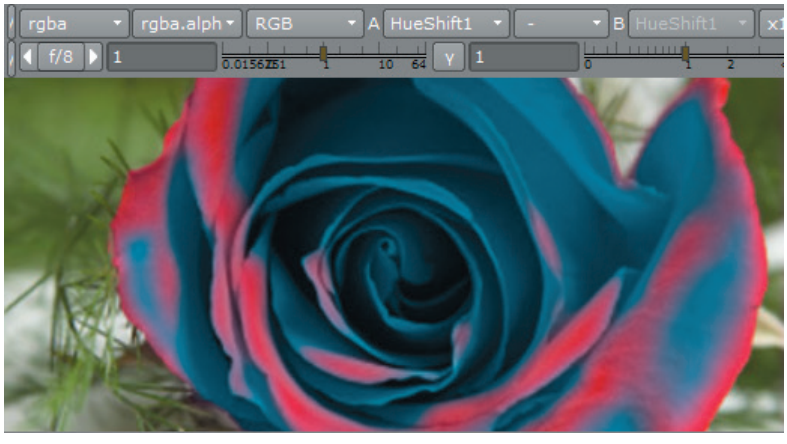

Figure 4-35 *The output of the* ***HueShift1*** *node*

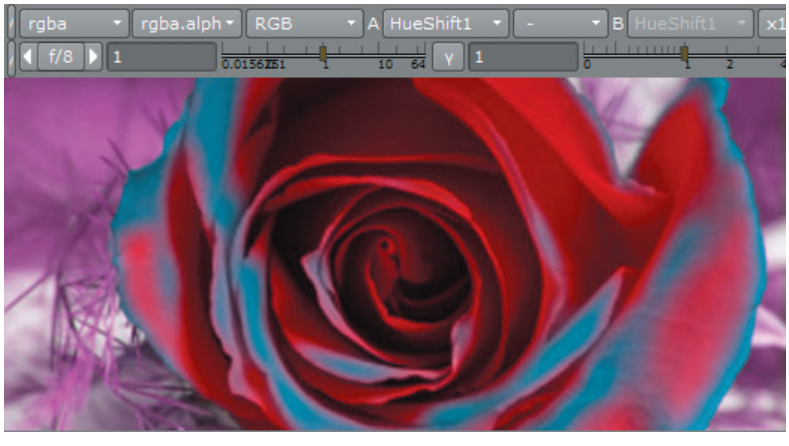

Figure 4-36 *The output after inverting the mask*

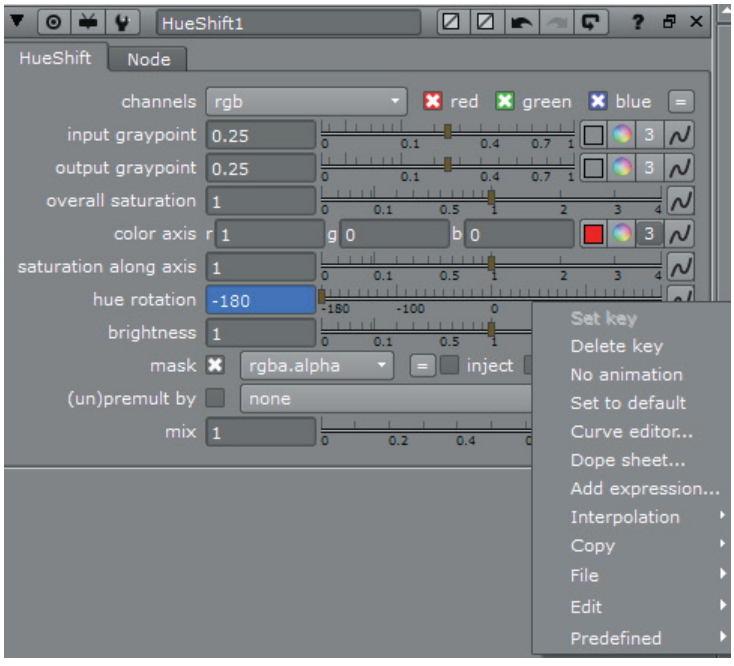

Figure 4-37 *A flyout displayed on choosing the Animation menu button*

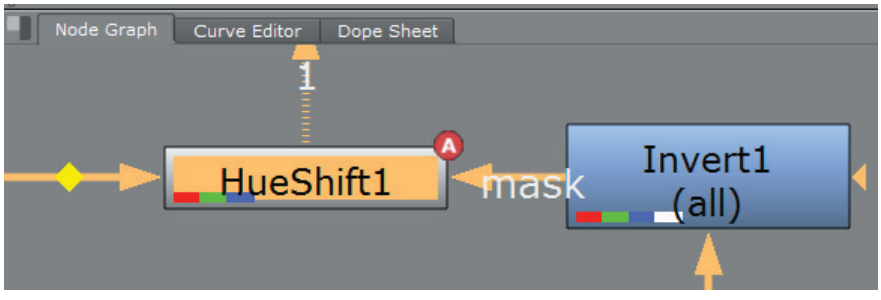

Figure 4-38 *The animation node indicator displayed on the* ***HueShift1*** *node*

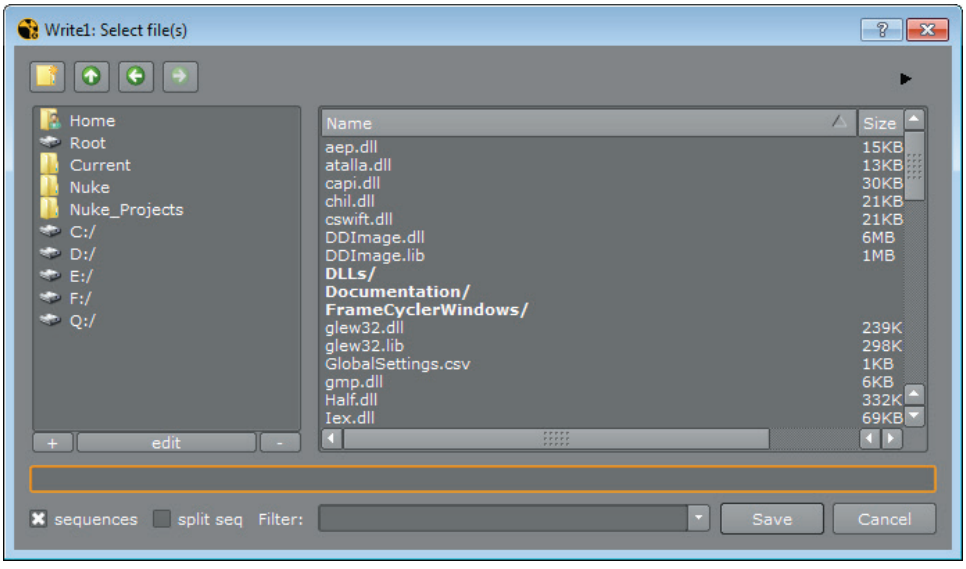

*Figure 4-39 The **Write1:Select file(s)** dialog box*

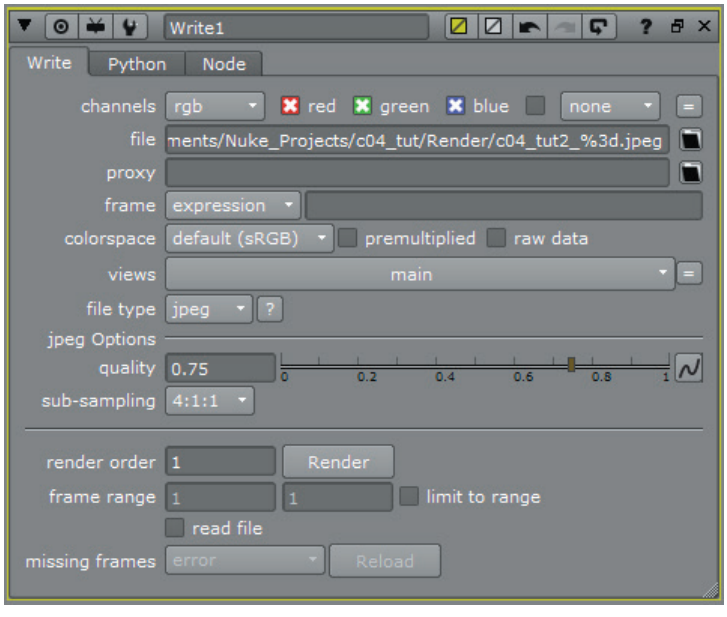

*Figure 4-40 The **Write1** node properties panel*

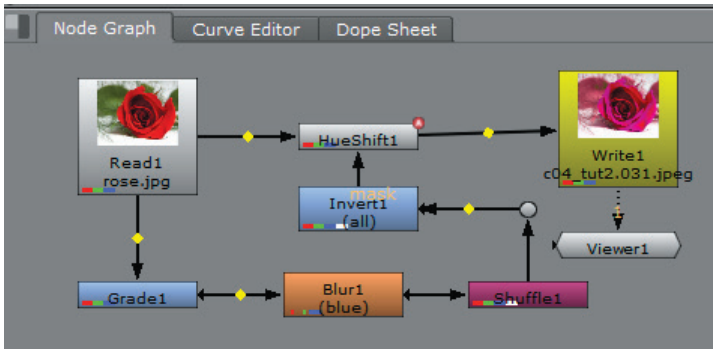

Figure 4-41 *Network of nodes used in the script in the* ***Node Graph*** *panel*

Figure 4-42 *The 1ci.tif image*

Figure 4-43 *The 3ci.tif image*

Figure 4-44 *The 4ci.tif image*

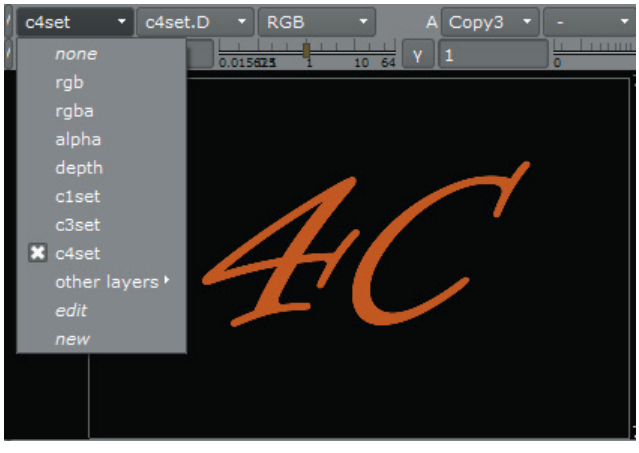

Figure 4-45 *Channel sets listed in the Channel Sets drop-down of the* ***Viewer1*** *panel*

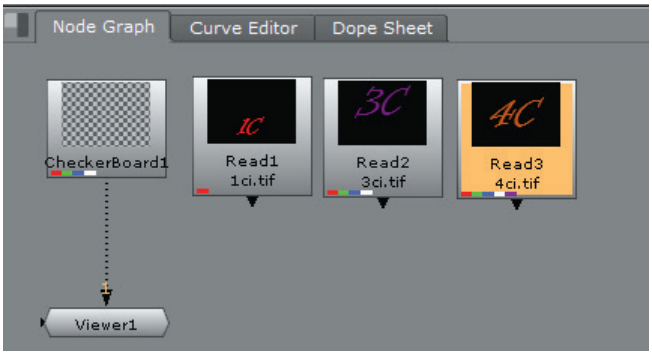

*Figure 4-46 The **Read1**, **Read2**, and **Read3** nodes in the **Node Graph** panel*

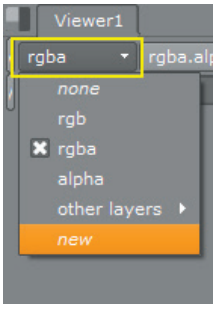

Figure 4-47 The Channel Sets drop-down

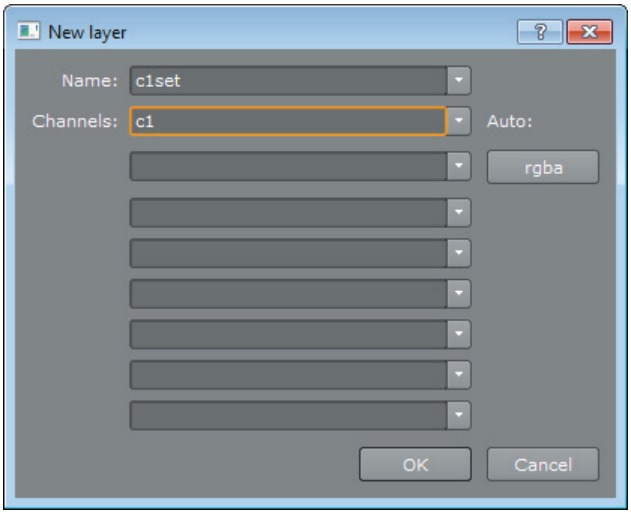

*Figure 4-48 The **New layer** dialog box*

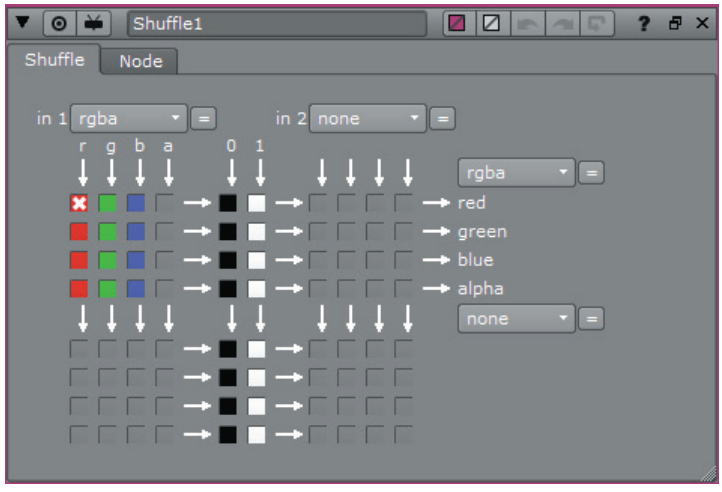

*Figure 4-49 The **Shuffle1** node properties panel*

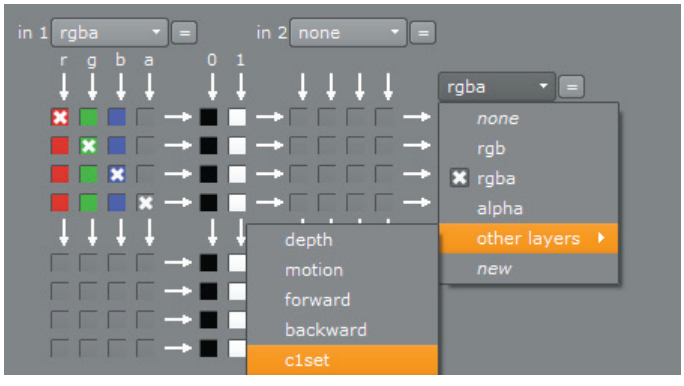

*Figure 4-50 The **out** drop-down*

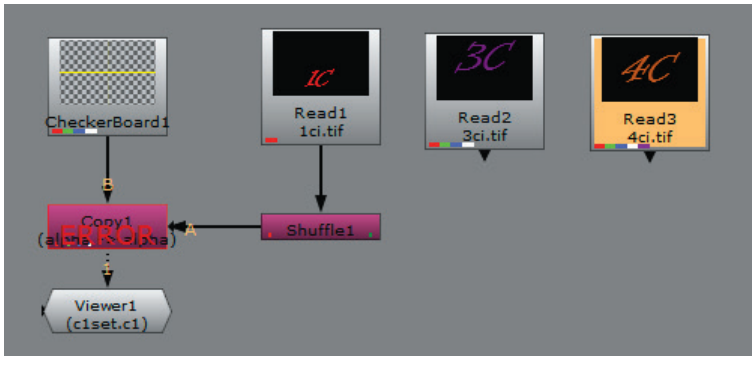

*Figure 4-51 The **Copy1** node in the **Node Graph** panel*

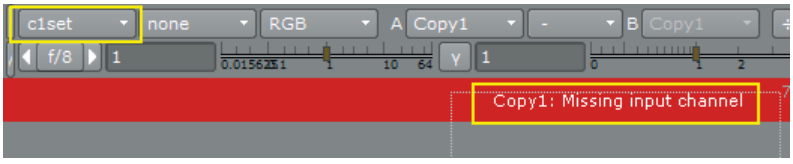

*Figure 4-52 The error message displayed in the **Viewer#** panel*

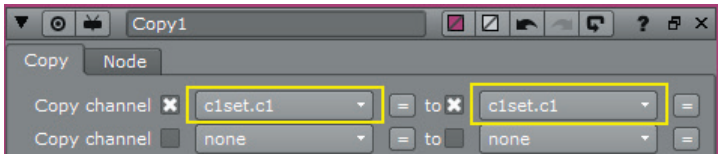

*Figure 4-53 Partial view of the **Copy1** node properties panel*

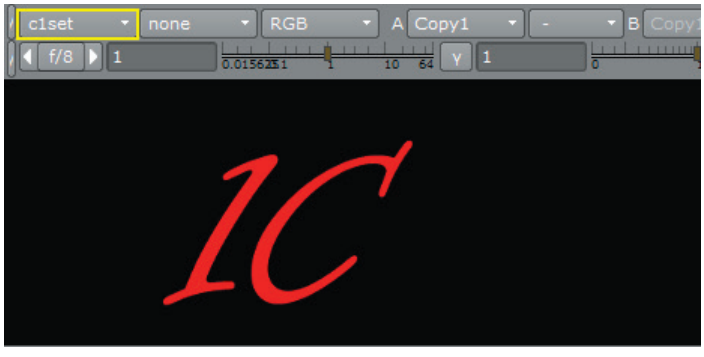

*Figure 4-54 The **c1set** option selected in the Channel Sets drop-down*

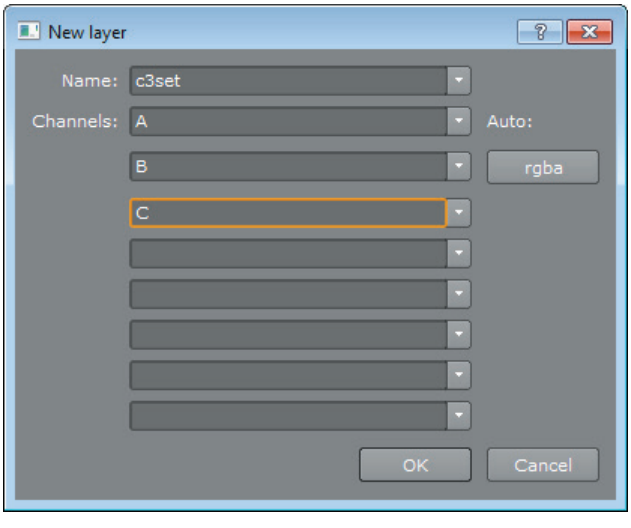

*Figure 4-55 The **New layer** dialog box*

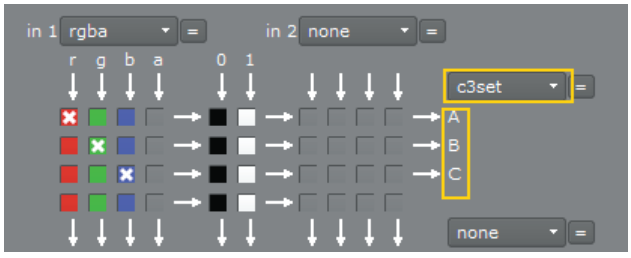

*Figure 4-56 The **c3set** option selected in the **out** drop-down*

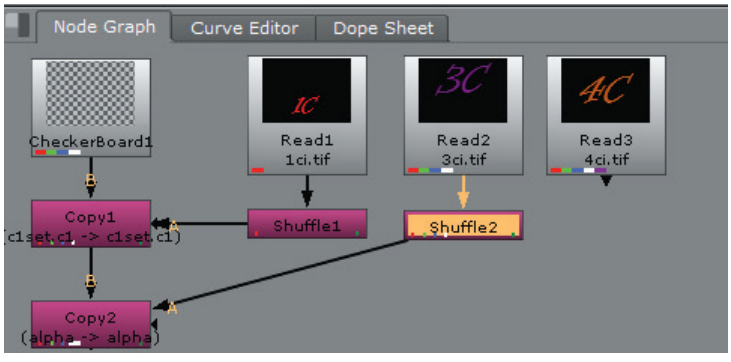

*Figure 4-57 The **Copy2** node in the **Node Graph** panel*

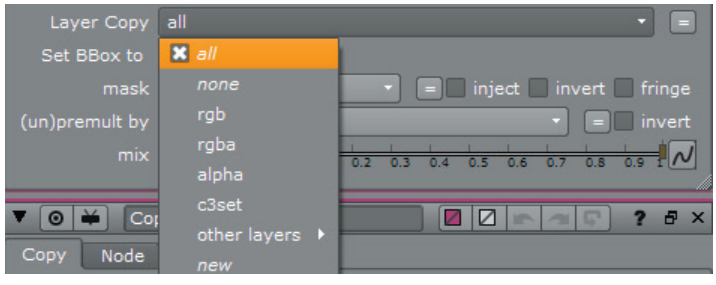

*Figure 4-58 The **Layer Copy** drop-down*

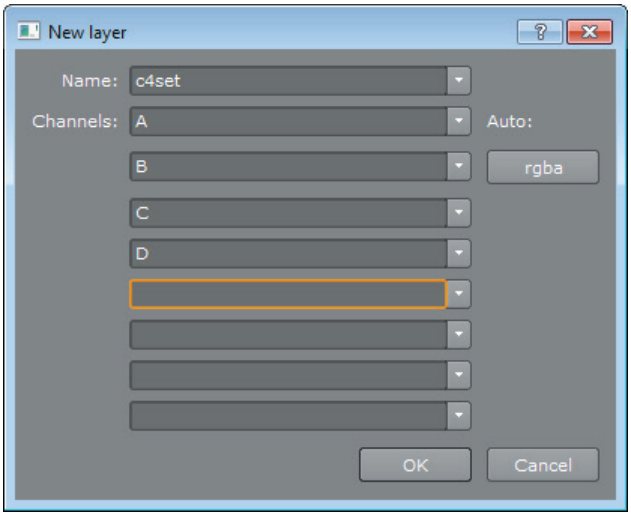

Figure 4-59 *The* ***New layer*** *dialog box*

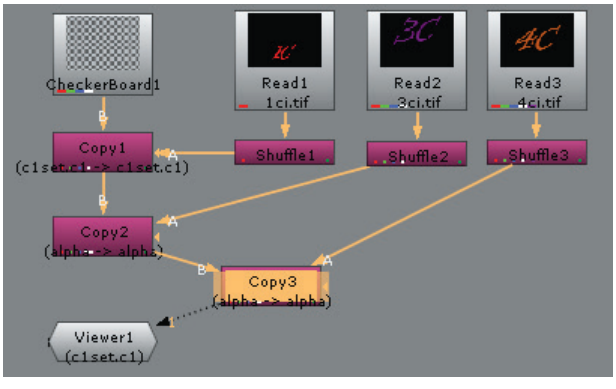

Figure 4-60 *The* ***Copy3*** *node connected to the* ***Shuffle3*** *and* ***Copy2*** *nodes*

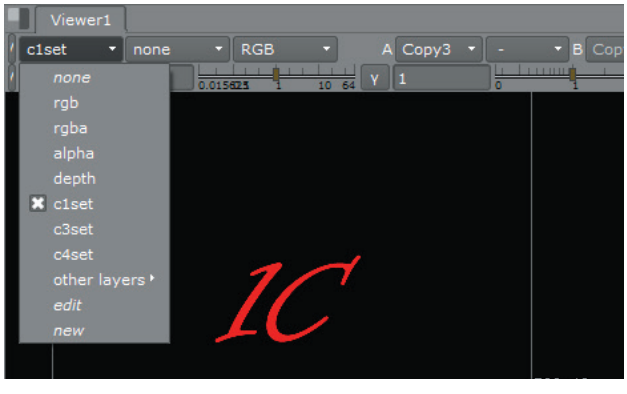

Figure 4-61 *Channel sets listed in the Channel Sets drop-down of the* ***Viewer1*** *panel*

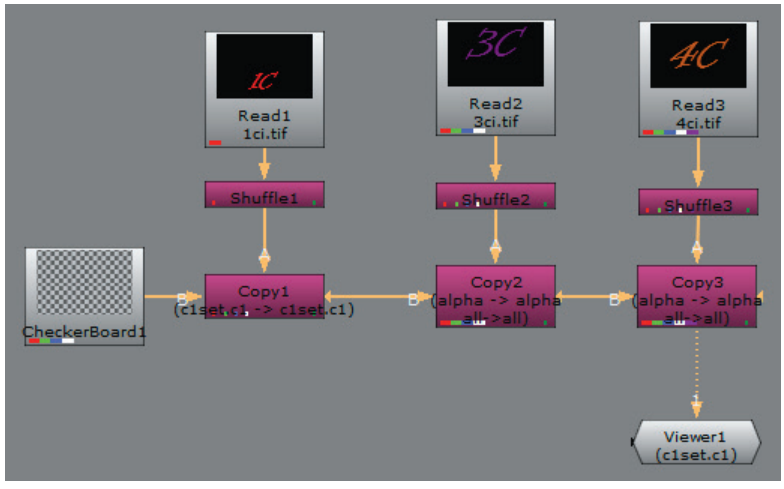

Figure 4-62 *The network of nodes used in the script*

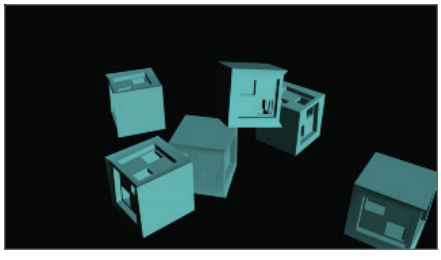

Figure 4-63 *The cubeDiffuse.#.tif 1-89 image sequence at frame 36*

Figure 4-64 *The cubeReflection.#.tif 1-89 image sequence at frame 36*

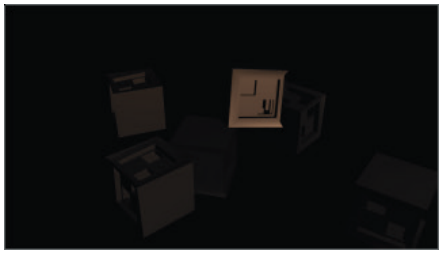

Figure 4-65 *The Specular.#.tif 1-89 image sequence at frame 36*

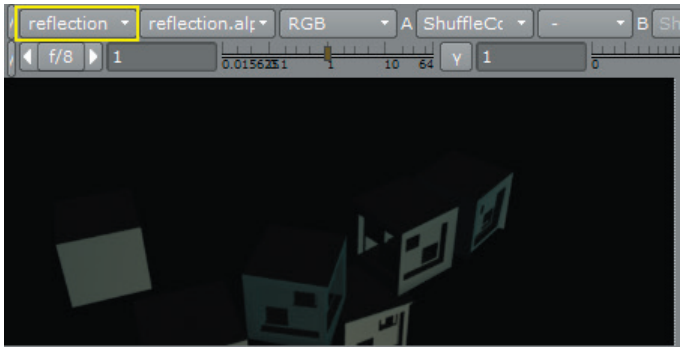

*Figure 4-66 The **reflection** channel set*

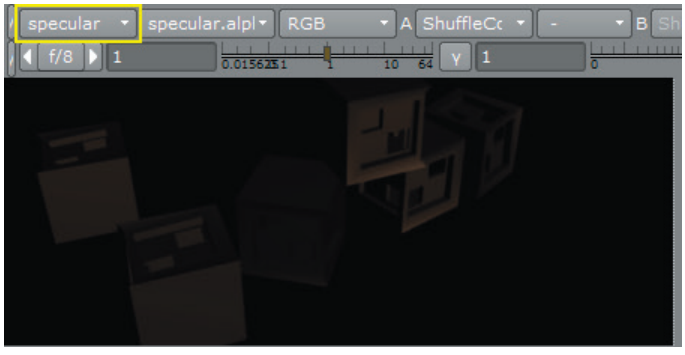

*Figure 4-67 The **specular** channel set*

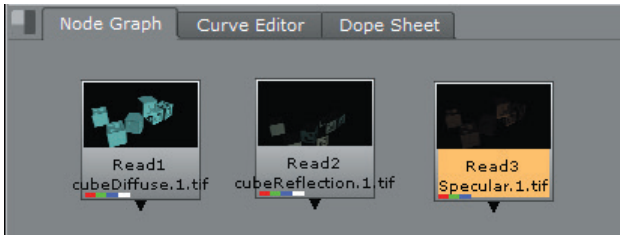

*Figure 4-68 The **Read1**, **Read2** and **Read3** nodes in the **Node Graph** panel*

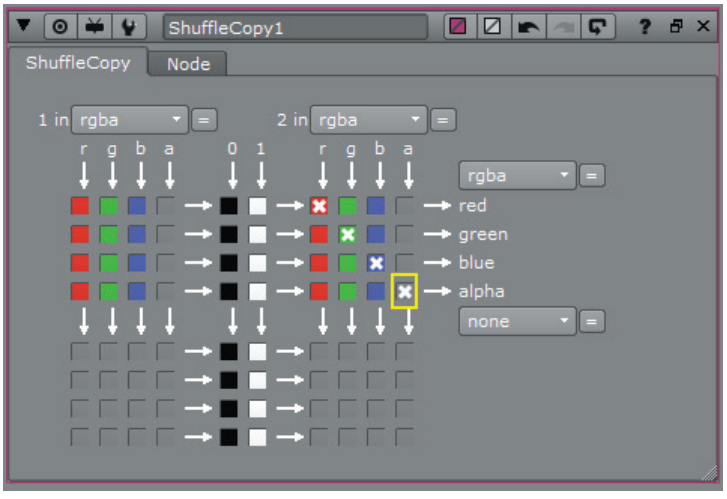

Figure 4-69 *The lowermost* ***a*** *check box selected in the upper* ***2 in*** *channel matrix*

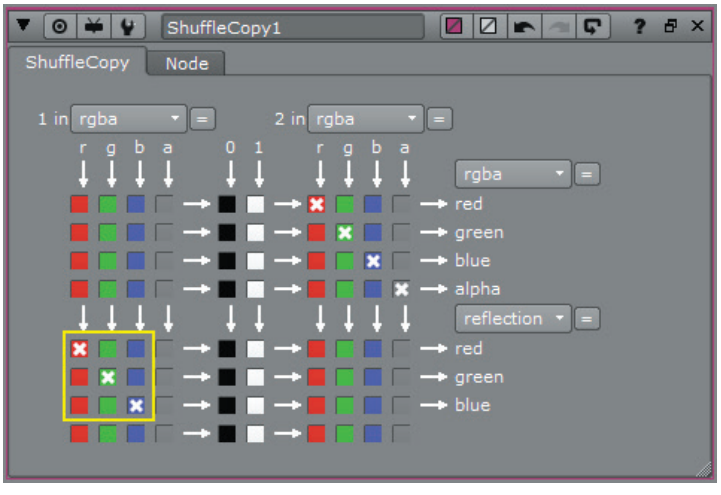

Figure 4-70 *The* ***reflection*** *channel set added in the lower output channel set*

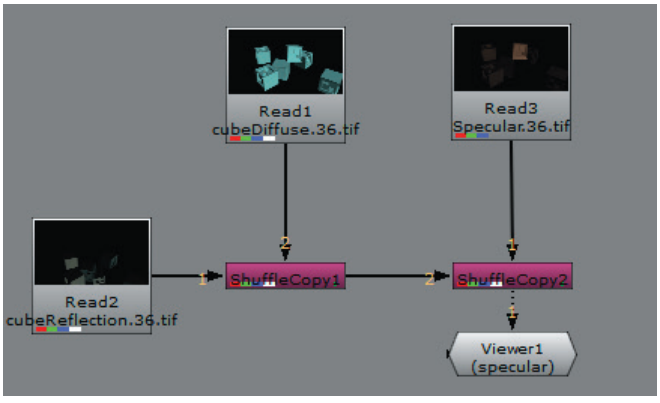

Figure 4-71 *Network of nodes used in the script*

Chapter 5

Working With Draw Nodes

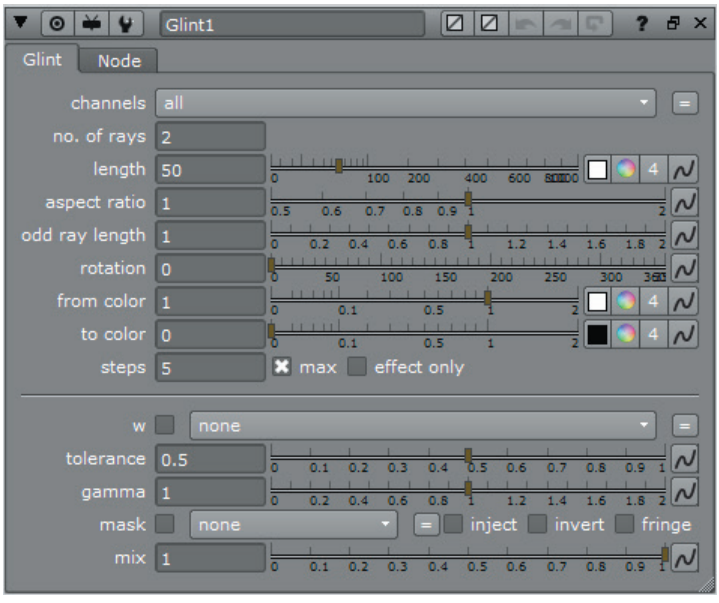

Figure 5-1 *The* ***Glint1*** *node properties panel*

Figure 5-2 *The input image*

Figure 5-3 *The image after applying the glint effect*

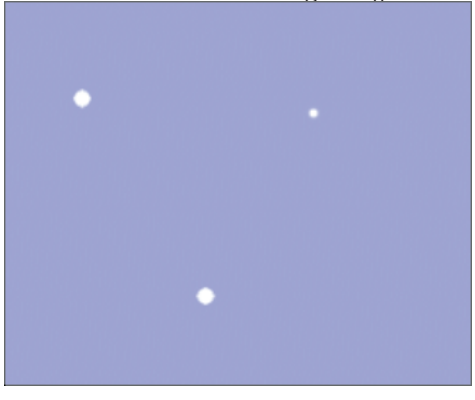

Figure 5-4 *The input image*

Figure 5-5 *The output of the* ***Glint#*** *node after setting the* ***no. of rays*** *parameter to 3*

Figure 5-6 *The output of the* ***Glint#*** *node after setting* ***no. of rays*** *parameter to 5*

Figure 5-7 *The output of the* ***Glint#*** *node after setting* ***odd ray length*** *parameter to* ***1***

Figure 5-8 *The output of the* ***Glint#*** *node after setting* ***odd ray length*** *parameter to* ***1.5***

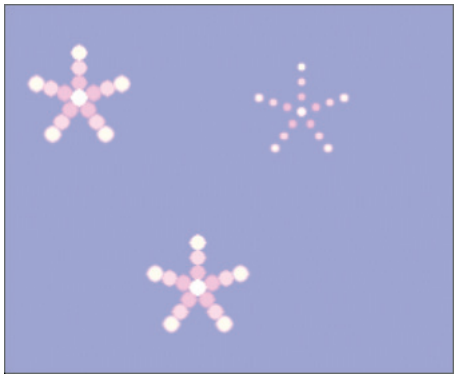

Figure 5-9 *The output of the* ***Glint#*** *node after setting* ***from color*** *parameter to red and* ***to color*** *parameter to yellow*

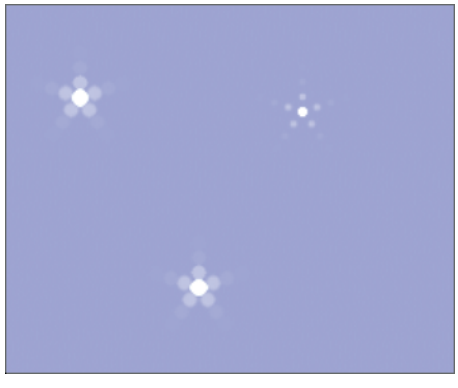

Figure 5-10 *The output of the* ***Glint#*** *node after setting* ***from color*** *parameter to white and* ***to color*** *parameter to black*

Figure 5-11 *The output of the* ***Glint#*** *node after the* ***steps*** *parameter set to* ***4***

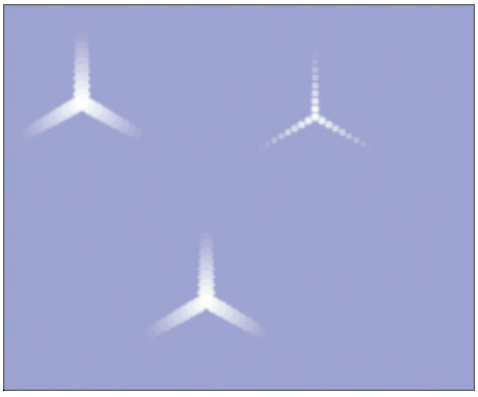

Figure 5-12 *The output of the* ***Glint#*** *node after the* ***steps*** *parameter set to* ***6***

Figure 5-13 *The output of the* ***Glint#*** *node with the input image*

Figure 5-14 *The output of the* ***Glint#*** *node without the input image*

Figure 5-15 *The output of the* ***Glint#*** *node after setting the* ***tolerance*** *parameter to* ***0.3***

Figure 5-16 *The output of the* ***Glint#*** *node after setting the* ***tolerance*** *parameter to* ***0.7***

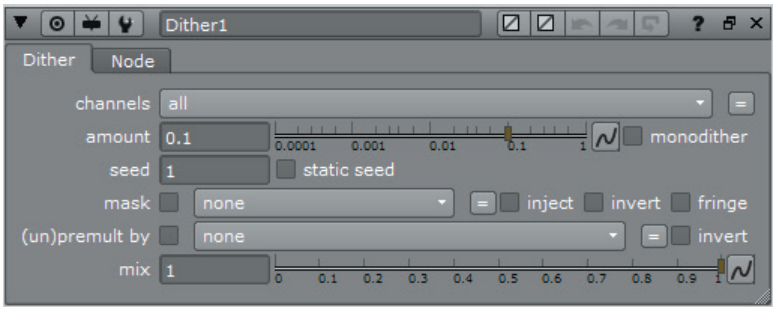

Figure 5-17 *The* ***Dither1*** *node properties panel*

Figure 5-18 *The input image*

Figure 5-19 *The output after applying the* ***Dither#*** *node*

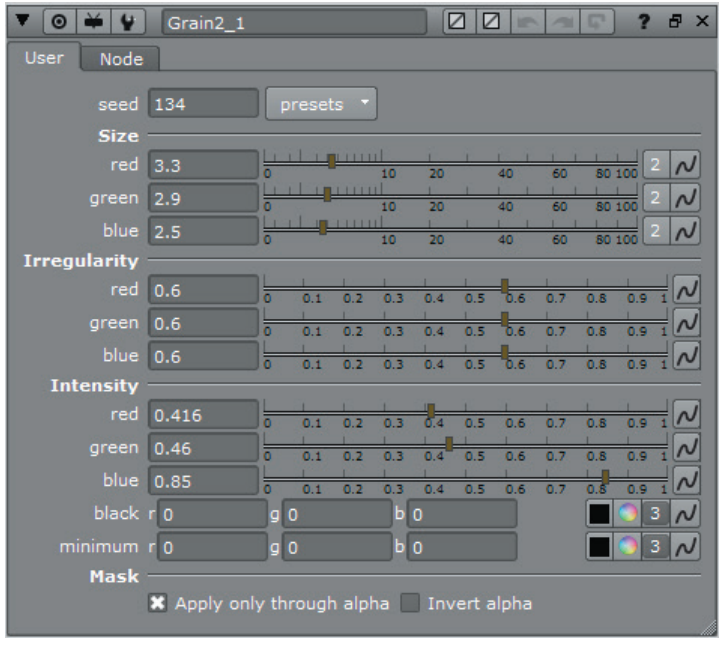

Figure 5-20 *The* ***Grain2_1*** *node properties panel*

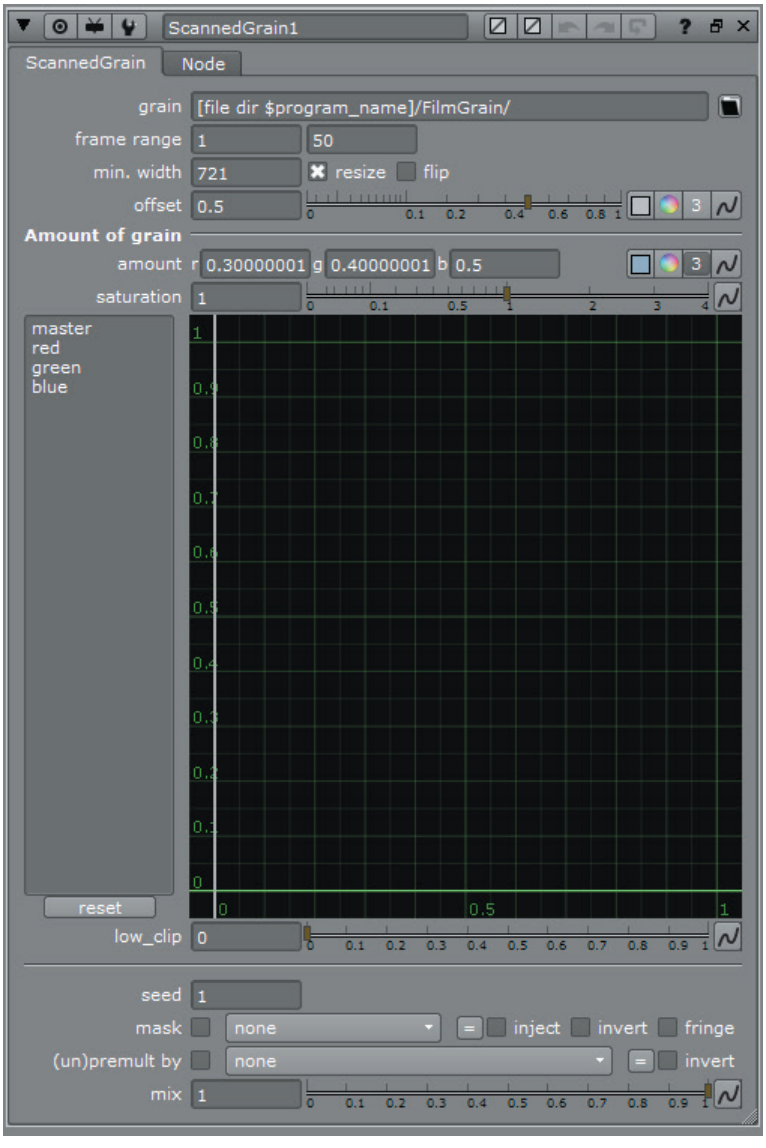

Figure 5-21 The ***ScannedGrain1*** *node properties panel*

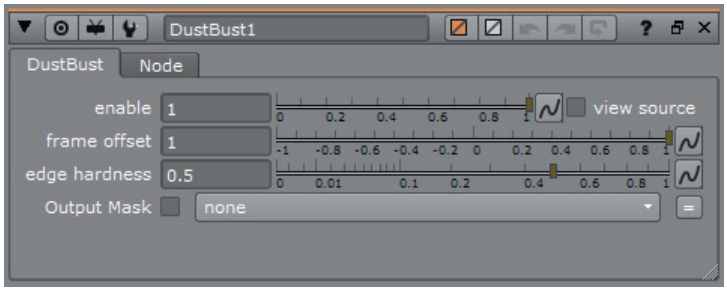

Figure 5-22 *The* ***DustBust1*** *node properties panel*

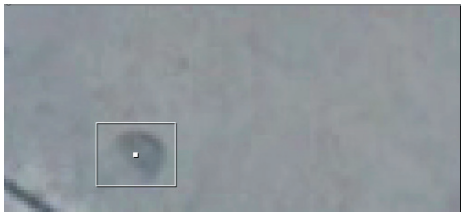

Figure 5-23 *A clone point displayed in the* ***Viewer#*** *panel*

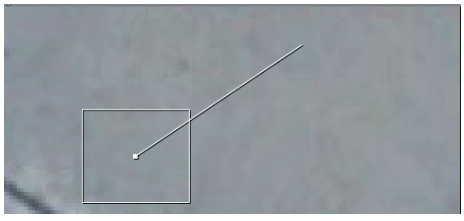

Figure 5-24 *The cleaned up destination*

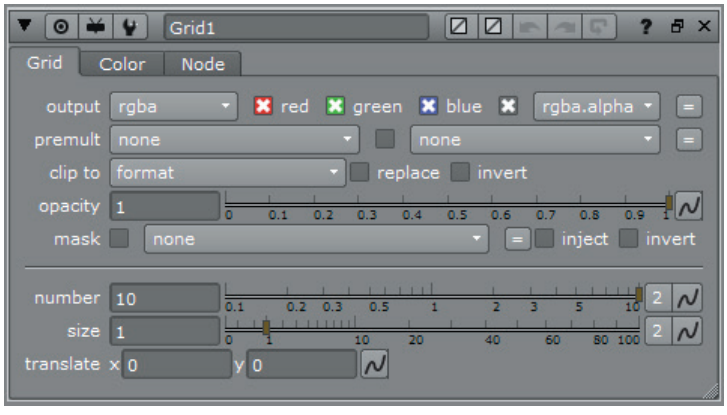

Figure 5-25 *The output of the* ***Grid1*** *node*

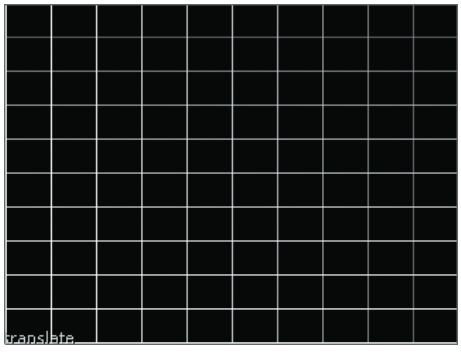

Figure 5-26 *The output of the* ***Grid#*** *node with default settings*

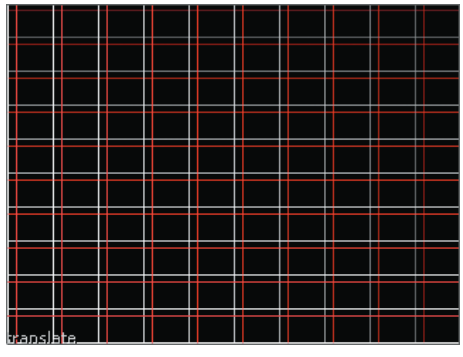

Figure 5-27 *The output after combining results of two* ***Grid*** *nodes*

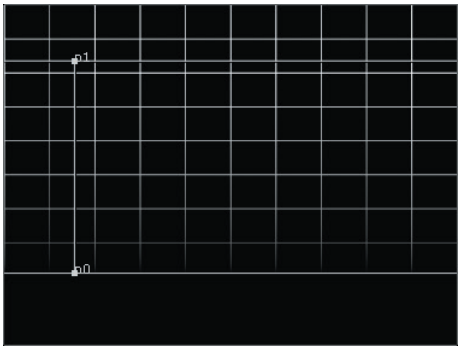

Figure 5-28 *Two points* ***p0*** *and* ***p1*** *displayed*

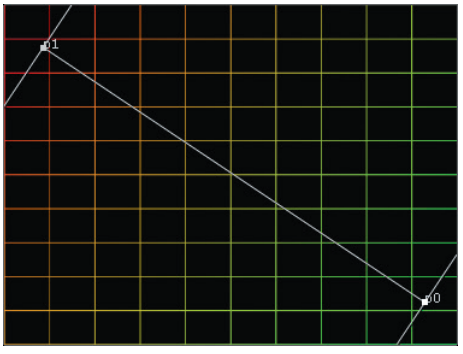

Figure 5-29 *The linear ramp changing from* ***p0*** *to* ***p1*** *(red to green)*

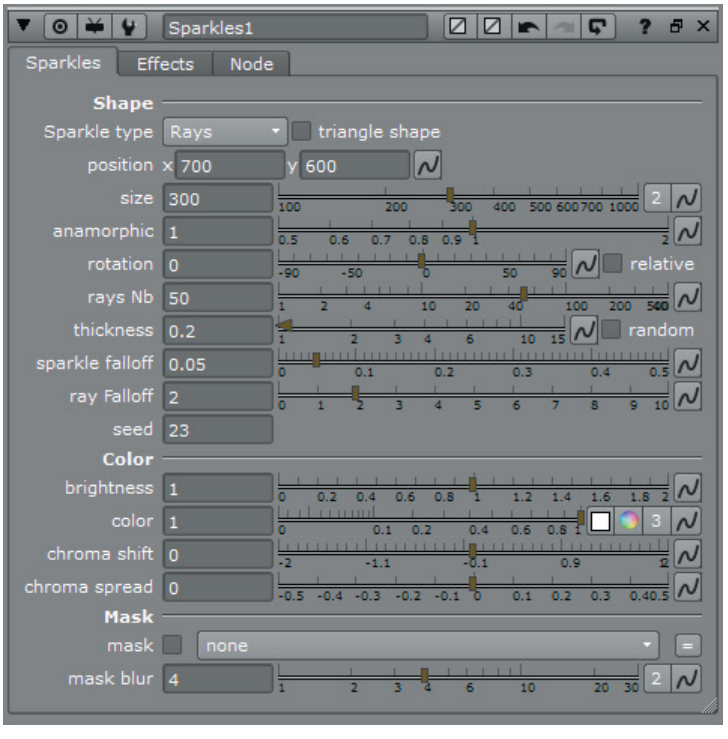

Figure 5-30 *The* ***Sparkles1*** *node properties panel*

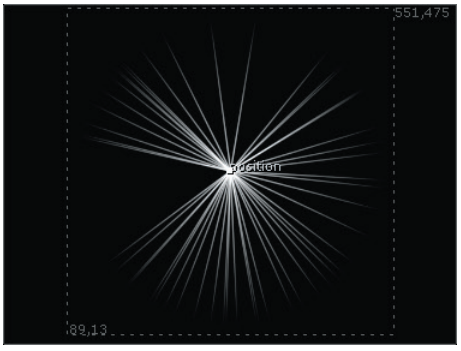

Figure 5-31 *The position indicator displayed in the* ***Viewer#*** *panel*

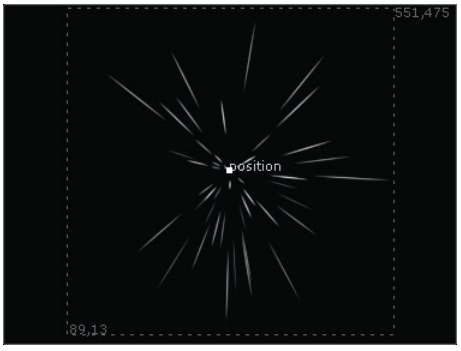

Figure 5-32 *The intermittent rays fading at both ends*

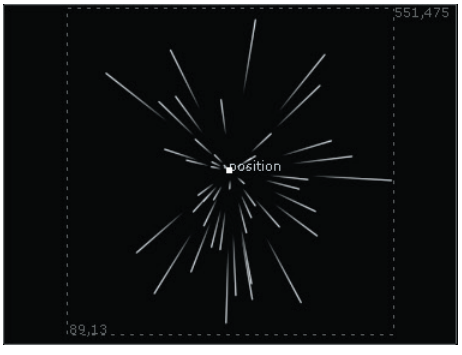

Figure 5-33 *Rays fading away from the origin*

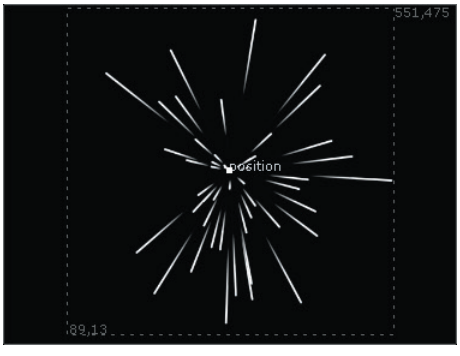

Figure 5-34 *The output after selecting the* ***triangle shape*** *check box*

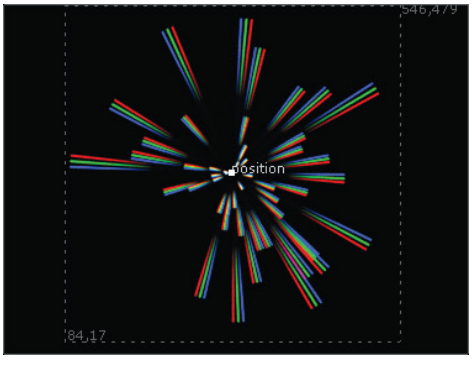

Figure 5-35 *The output of the* ***Sparkle#*** *node when* ***chroma shift=-2***

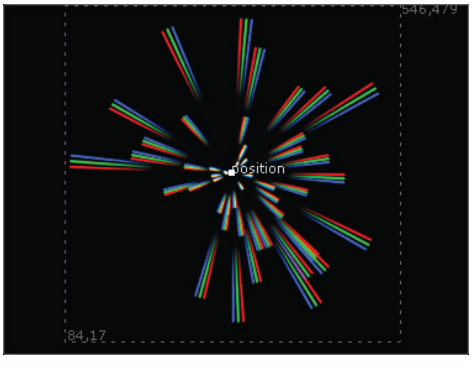

Figure 5-36 *The output of the* ***Sparkle#*** *node when* ***chroma shift=2***

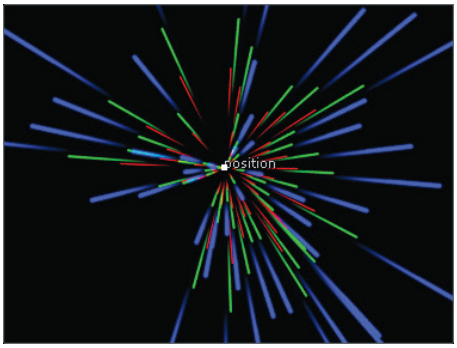

Figure 5-37 *The output of the* ***Sparkle#*** *node when* ***chroma spread=-0.5***

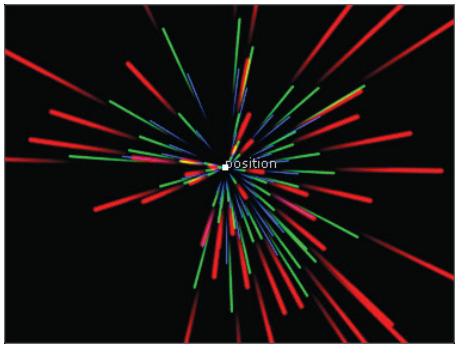

Figure 5-38 *The output of the* ***Sparkle#*** *node when* ***chroma spread=0.5***

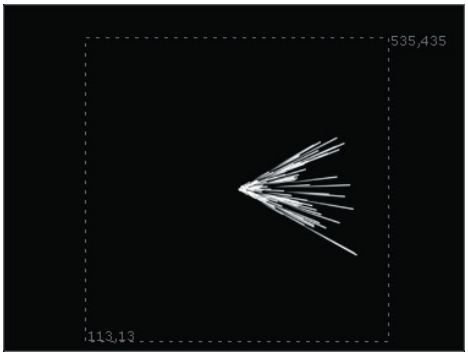

Figure 5-39 *The output of the* ***Sparkle#*** *node when* ***open angle=60***

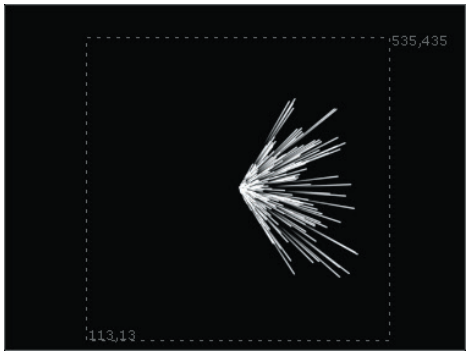

Figure 5-40 *The output of the* ***Sparkle#*** *node when* ***open angle=120***

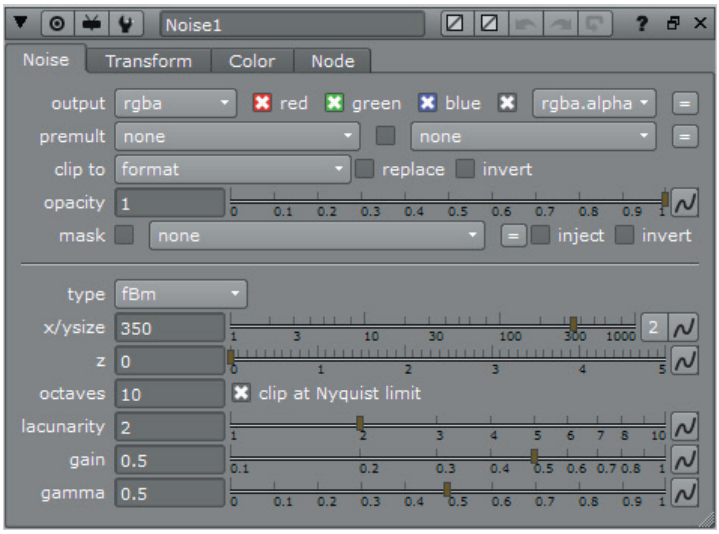

Figure 5-41 *The* ***Noise1*** *node properties panel*

Figure 5-42 *The output of the* ***Noise#*** *node when* ***x/ysize=300***

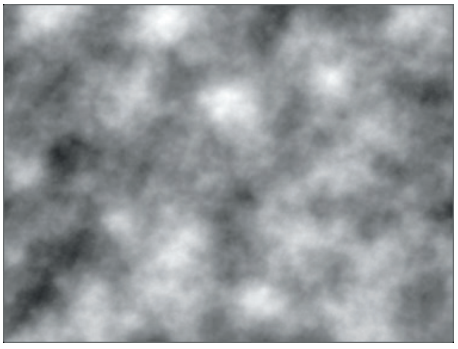

Figure 5-43 *The output of the* ***Noise#*** *node when* ***x/ysize=100***

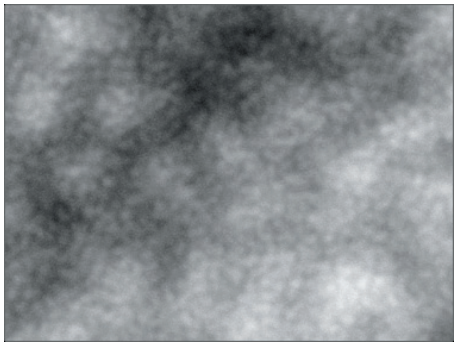

Figure 5-44 *The output of the* ***Noise#*** *node when* ***lacunarity=5***

Figure 5-45 *The output of the* ***Noise#*** *node when* ***lacunarity=2***

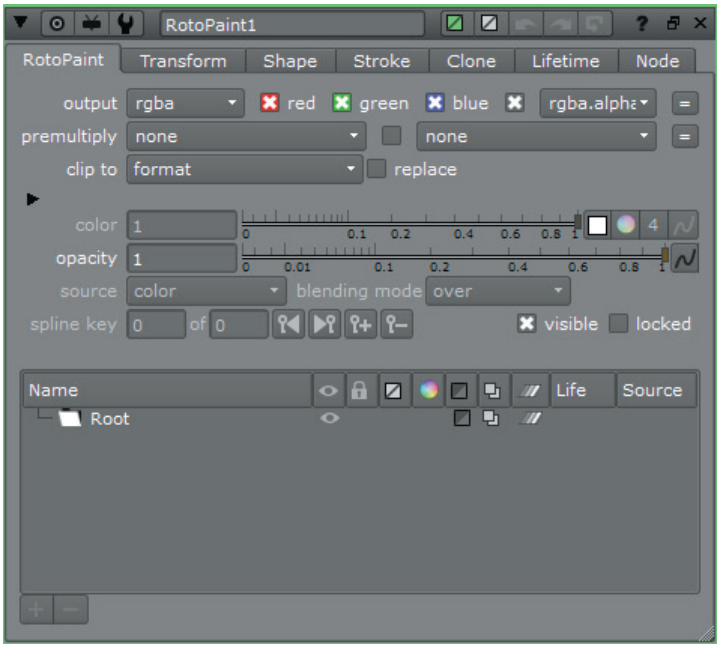

Figure 5-46 *The* ***RotoPaint1*** *node properties panel*

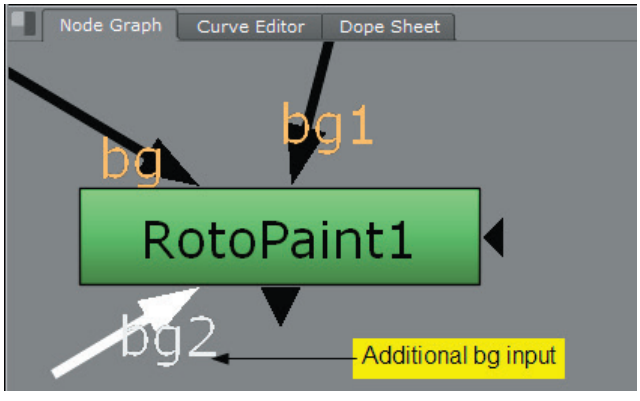

Figure 5-47 *The additional input on the* ***RotoPaint1*** *node*

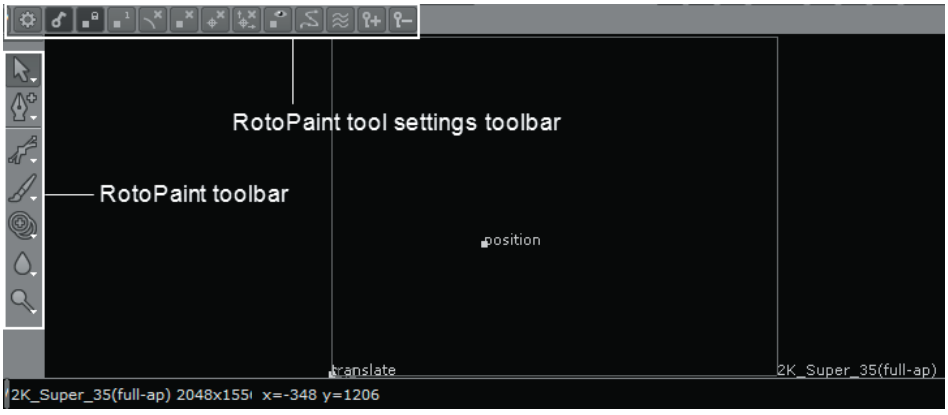

Figure 5-48 *The* ***RotoPaint*** *node toolbars*

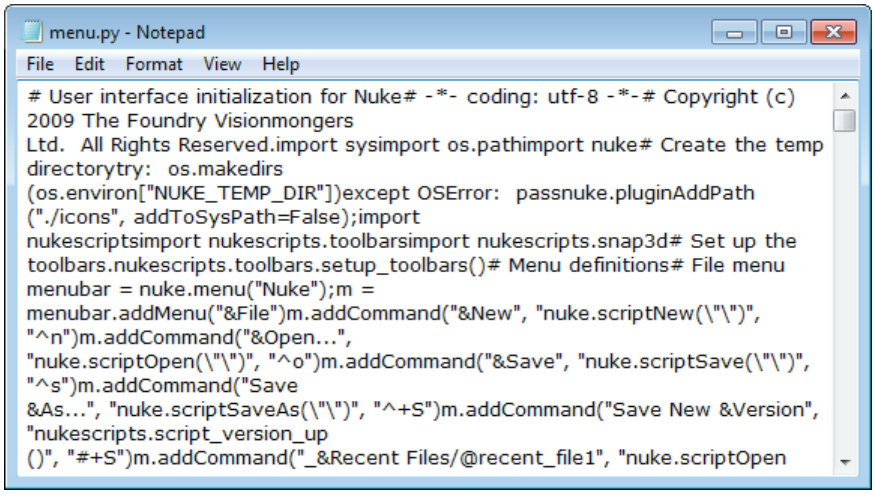

Figure 5-49 *The menu.py file opened in Notepad*

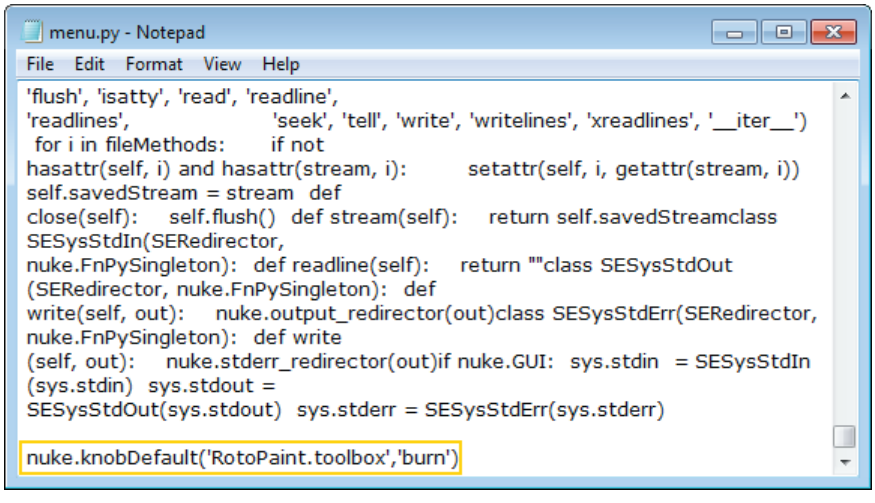

Figure 5-50 *The command entered in the menu.py file*

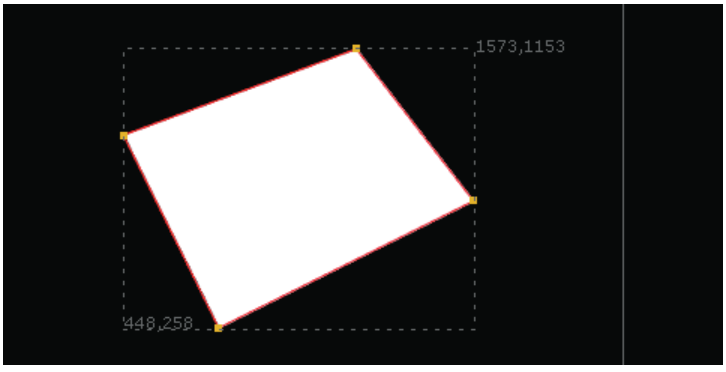

Figure 5-51 *The shape created in the* ***Viewer#*** *panel*

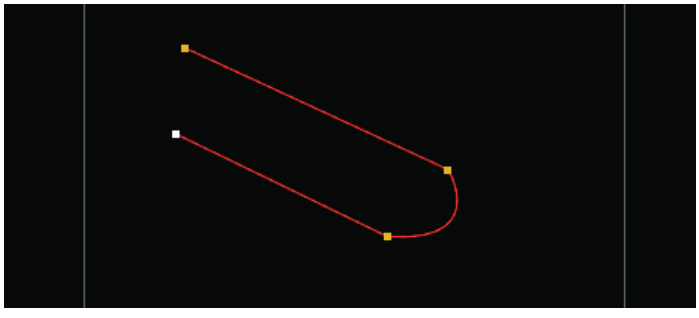

Figure 5-52 *A sharp exit point drawn*

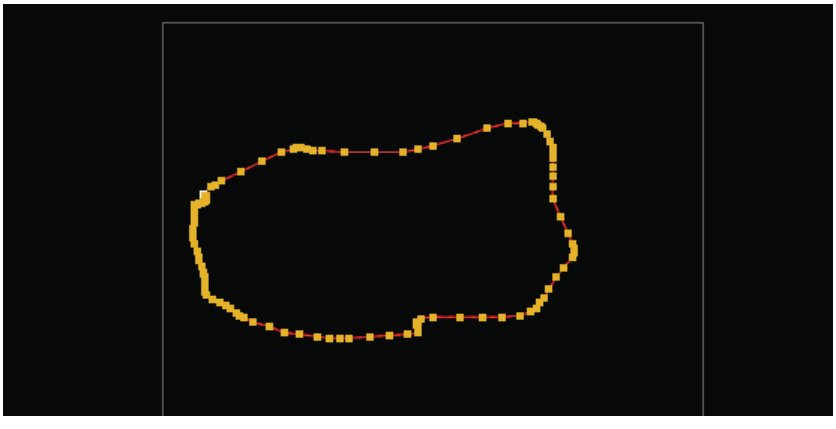

Figure 5-53 *The freehand shape*

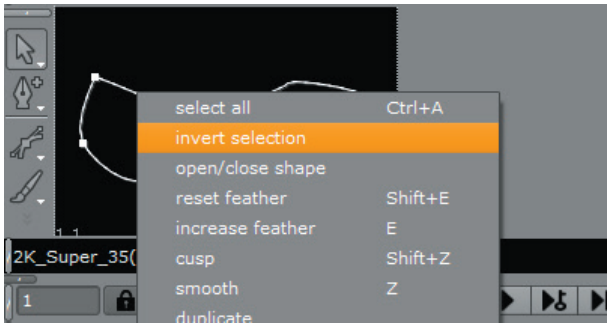

Figure 5-54 *The partial view of the shortcut menu*

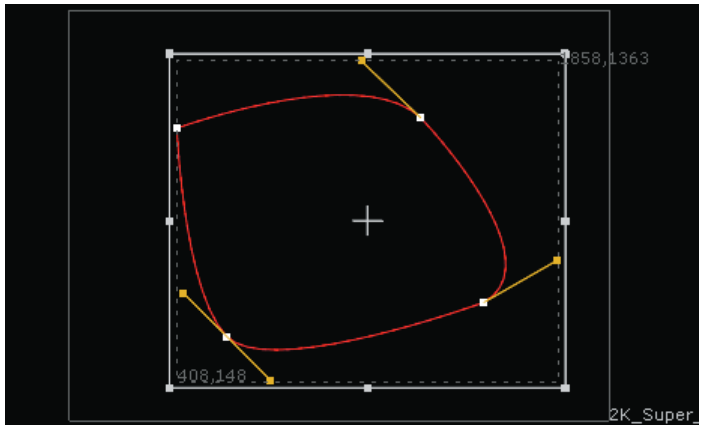

Figure 5-55 *The transform handle box*

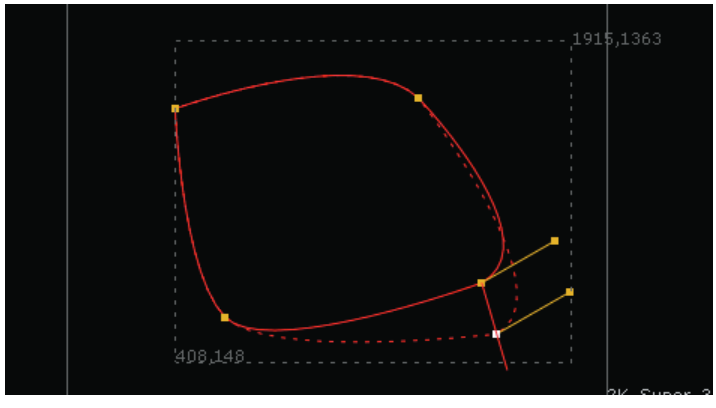

Figure 5-56 *Displaying the control point and feather point*

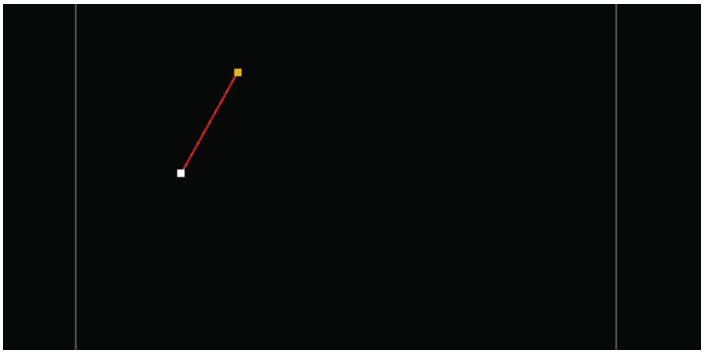

Figure 5-57 *Two points created in the* ***Viewer*** *panel*

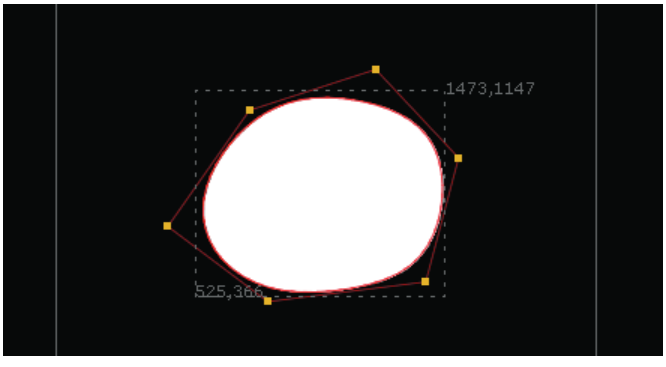

Figure 5-58 *The B-Spline shape*

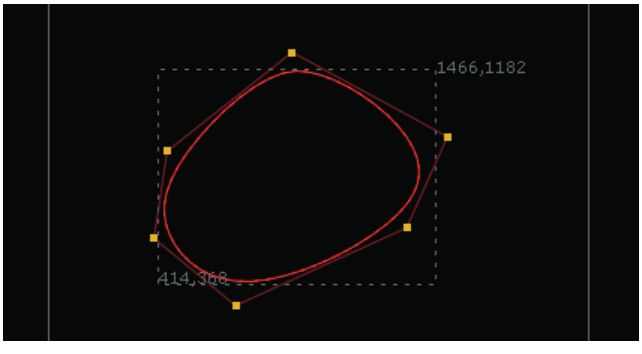

Figure 5-59 *The original B-Spline shape*

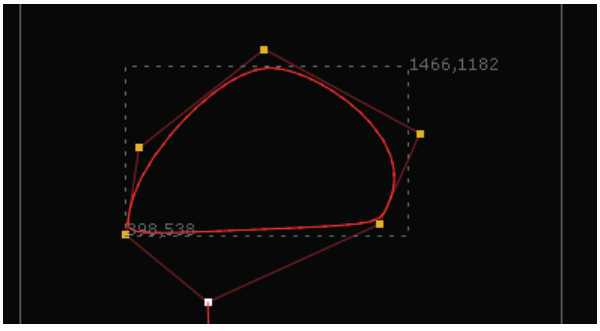

Figure 5-60 *Dragging the cursor to the left to decrease tension*

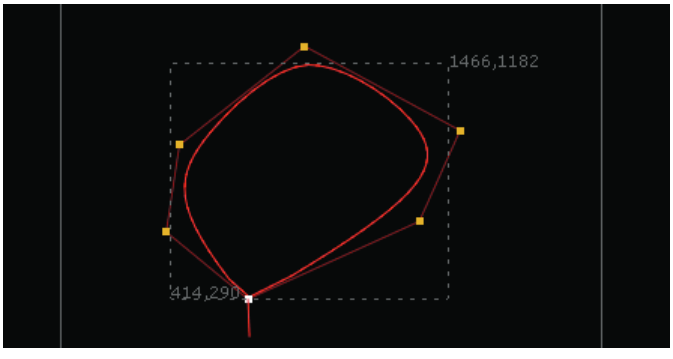

Figure 5-61 *Dragging the cursor to the right to increase tension*

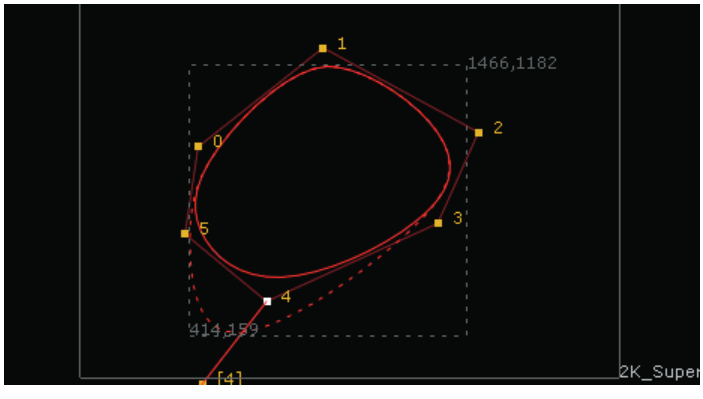

Figure 5-62 *The point numbers displayed*

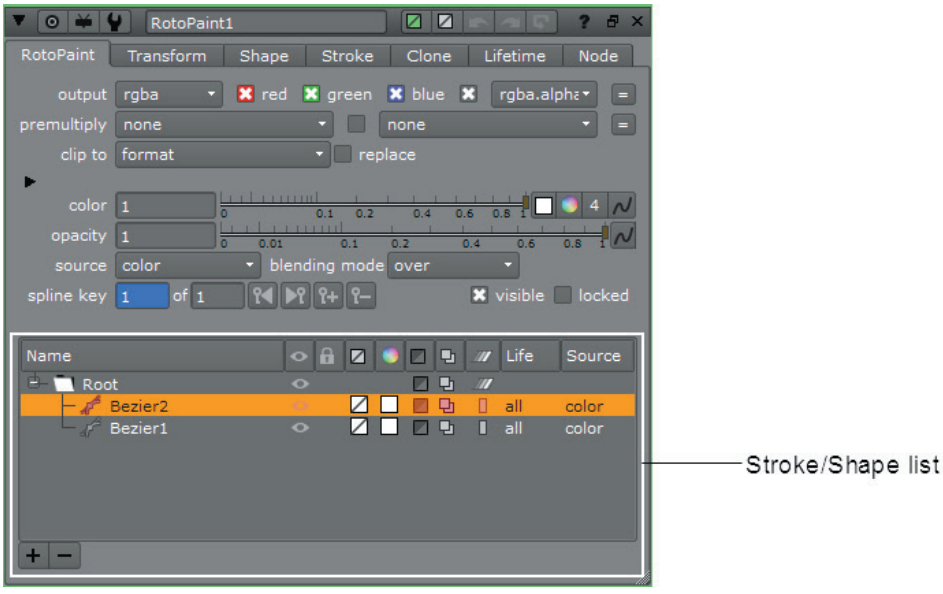

*Figure 5-63 The **RotoPaint1** node properties panel*

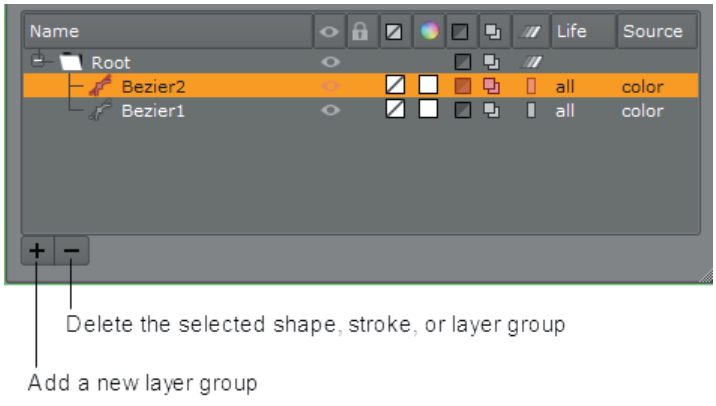

Figure 5-64 The new group created in the Stroke/Shape list

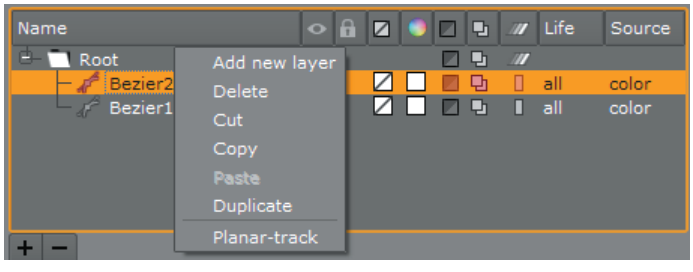

Figure 5-65 The shortcut menu displayed

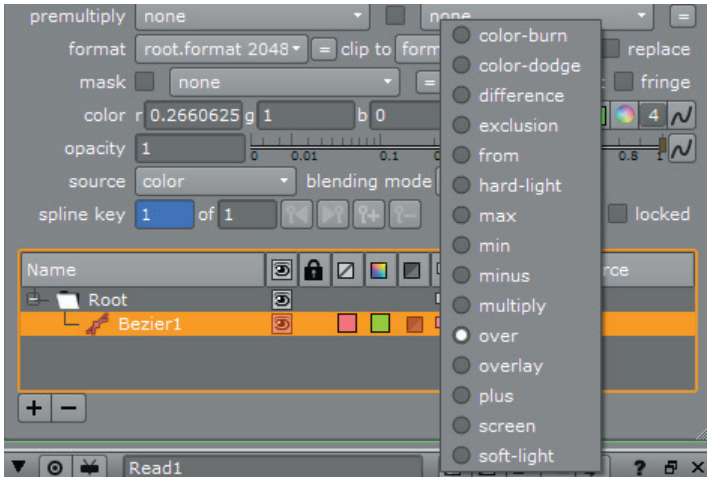

Figure 5-66 *The menu displayed after clicking the Blending Mode icon*

Figure 5-67 *The eye.jpg image*

Figure 5-68 *The final output*

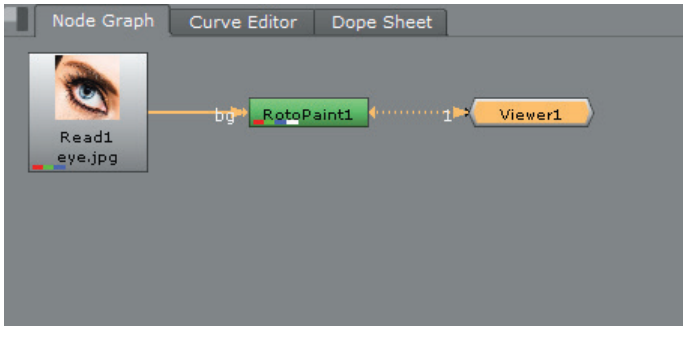

Figure 5-69 *The* ***RotoPaint1*** *node in the* ***Node Graph*** *panel*

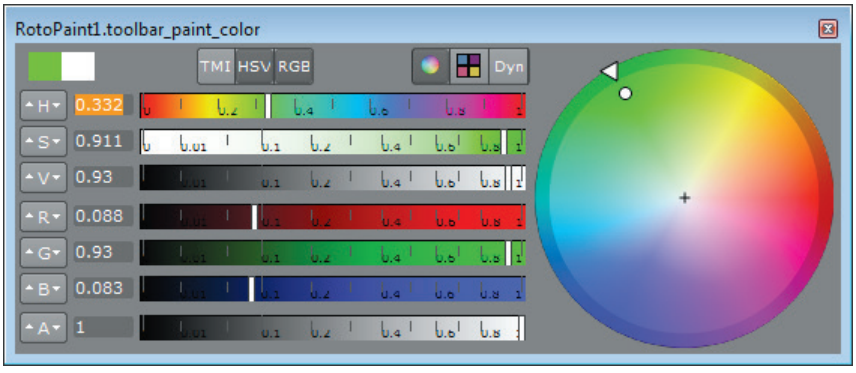

*Figure 5-70 The **RotoPaint1.toolbar_paint_color** dialog box*

*Figure 5-71 Brush stroke drawn in the **Viewer1** panel*

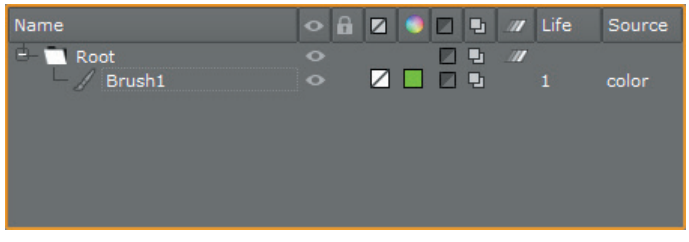

*Figure 5-72 The **Brush1** paint stroke added in Stroke/Shape list*

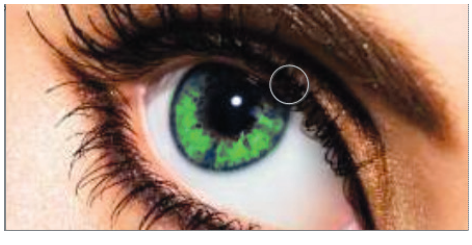

*Figure 5-73 The result of the **min** operation*

*Figure 5-74 The output after clearing the **red** check box*

Figure 5-75 *The alpha channel displayed*

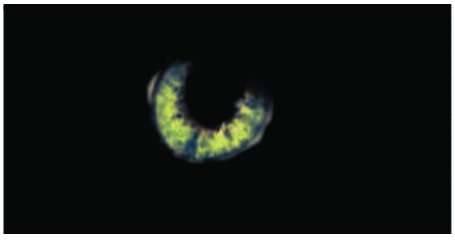

Figure 5-76 *The premultiplied image*

Figure 5-77 *The ladyBug.jpg image*

Figure 5-78 *The flower.jpg image*

Figure 5-79 *The final output*

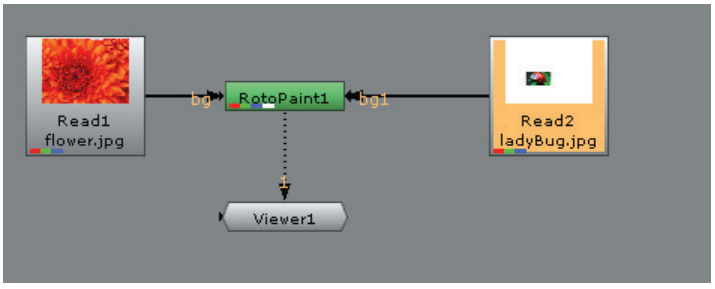

Figure 5-80 *The* ***Read2*** *node connected to* ***bg1*** *input*

Figure 5-81 *The source image overlaid on the destination image*

Figure 5-82 *The source painted over the destination*

Figure 5-83 *The blurred area*

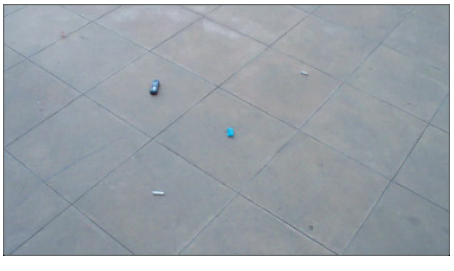

Figure 5-84 *The input image*

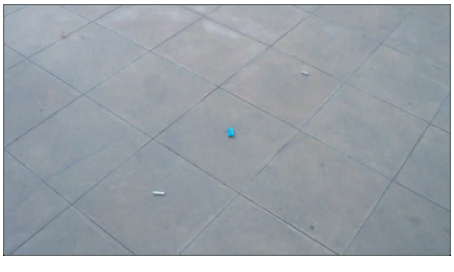

Figure 5-85 *The cleaned image*

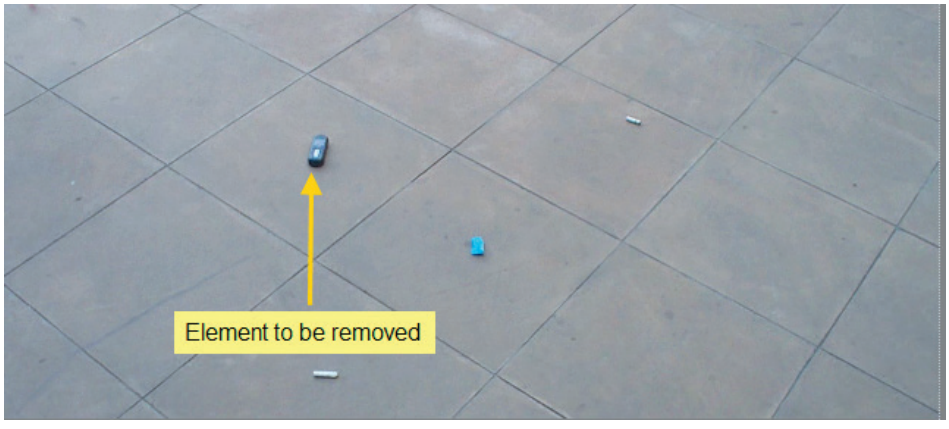

Figure 5-86 *The output of the* ***Read1*** *node*

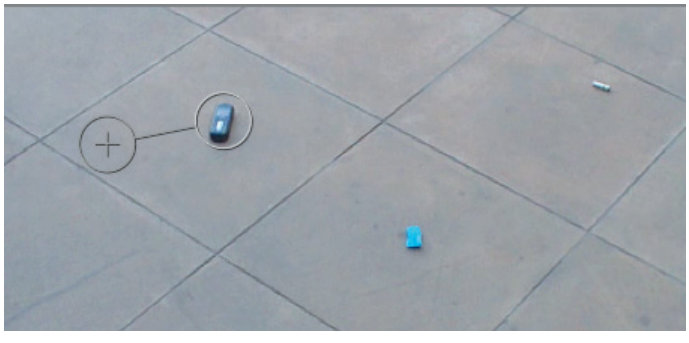

Figure 5-87 *Defining the source for the* ***Clone*** *tool*

Chapter 6

Working With Color

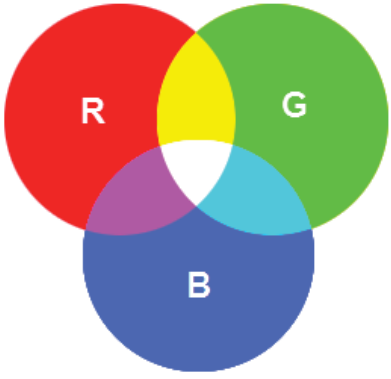

Figure 6-1 *The additive RGB color model*

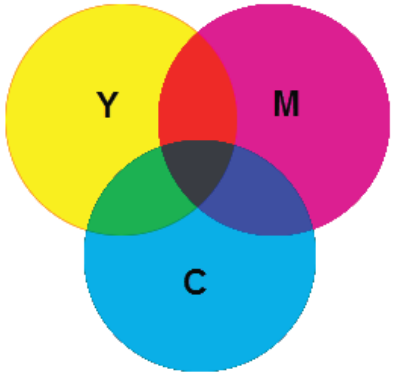

Figure 6-2 *The subtractive CMYK color model*

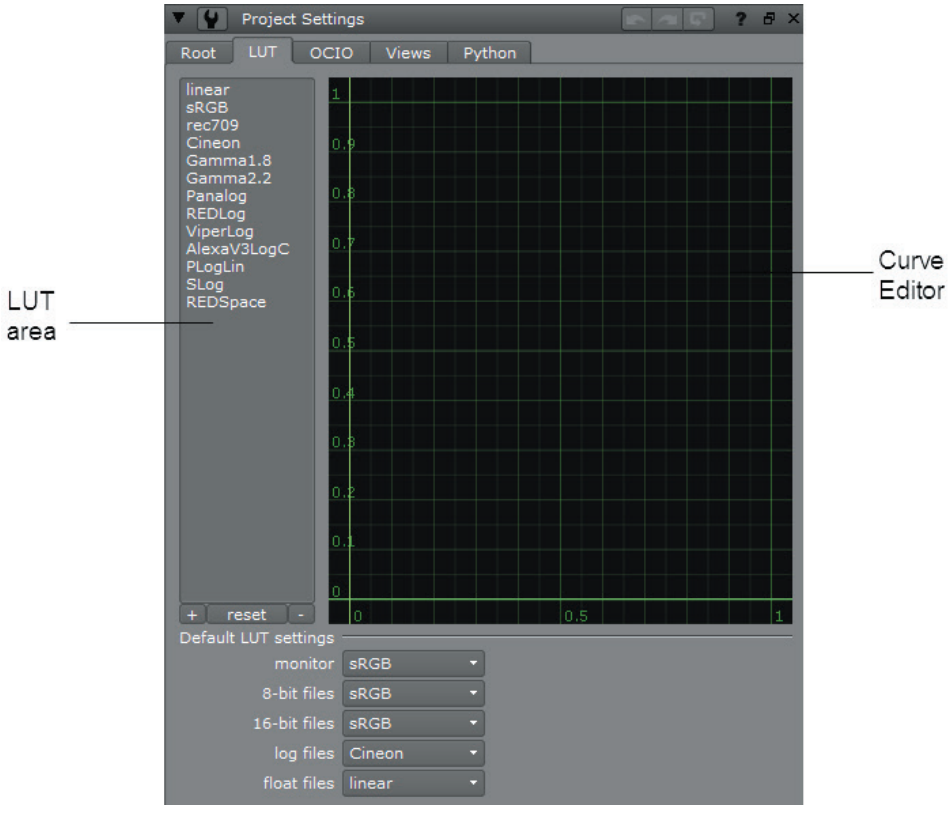

Figure 6-3 *The* ***Projects Settings*** *panel*

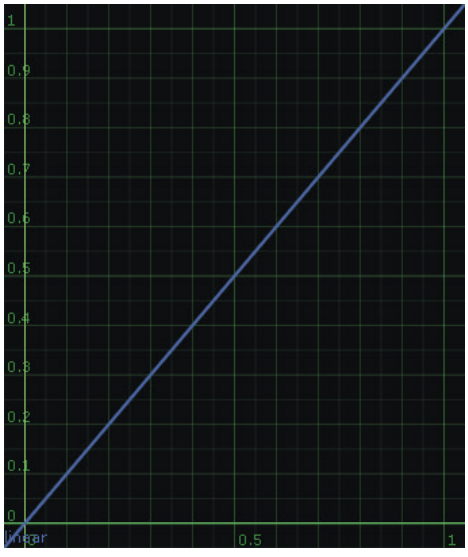

*Figure 6-4 The **linear** LUT*

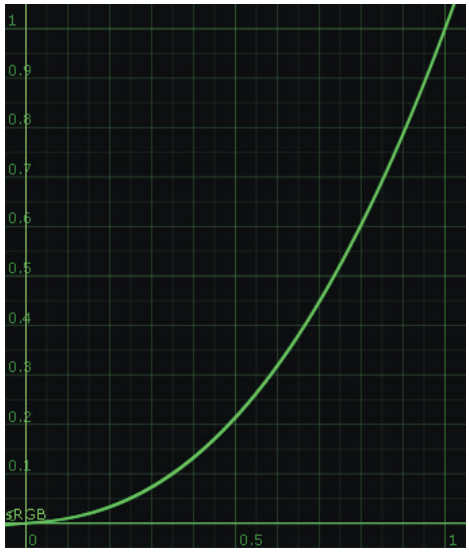

*Figure 6-5 The **sRGB** LUT*

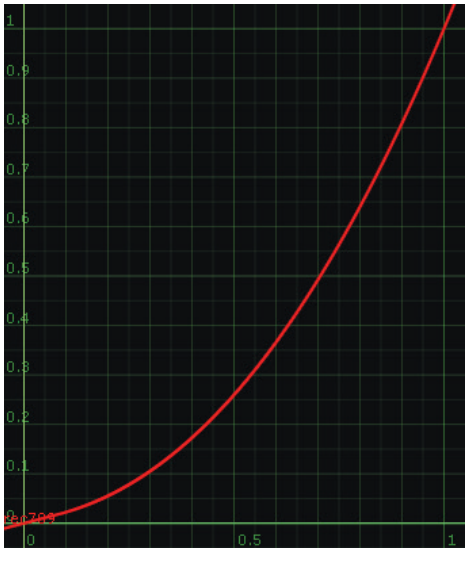

*Figure 6-6 The **rec709** LUT*

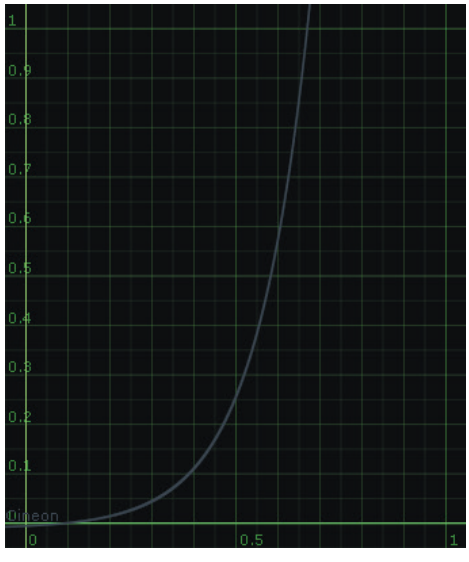

*Figure 6-7 The **Cineon** LUT*

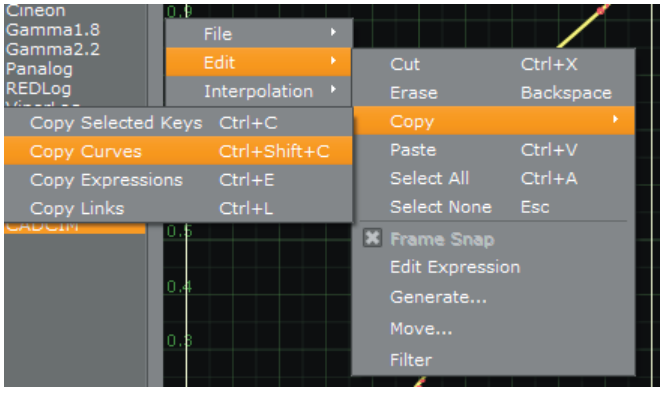

Figure 6-8 *The shortcut menu displayed on choosing* ***Copy Curves*** *from the cascading menu*

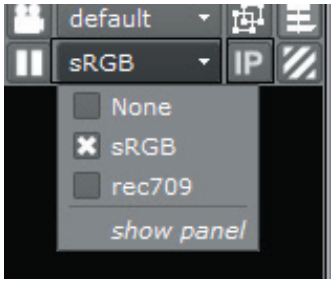

Figure 6-9 *The options in the* ***viewerProcess*** *drop-down*

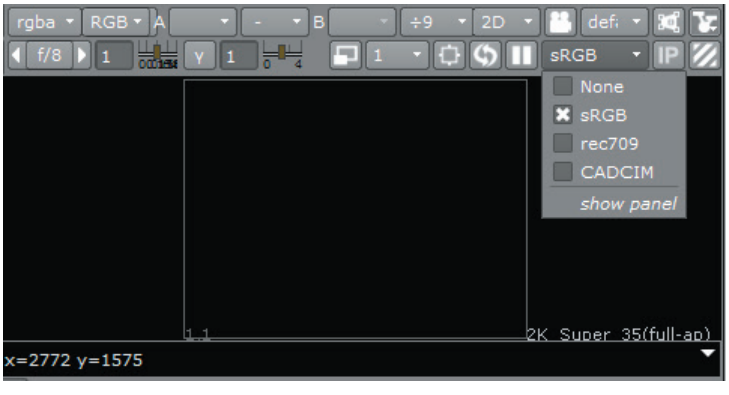

Figure 6-10 *The registered gizmo displayed in the* ***viewerProcess*** *drop-down*

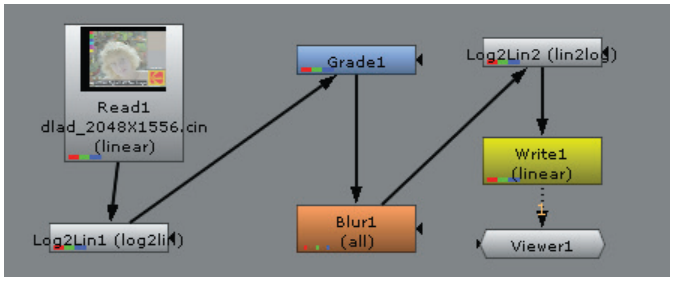

Figure 6-11 *The node network for overriding the automatic color space conversions*

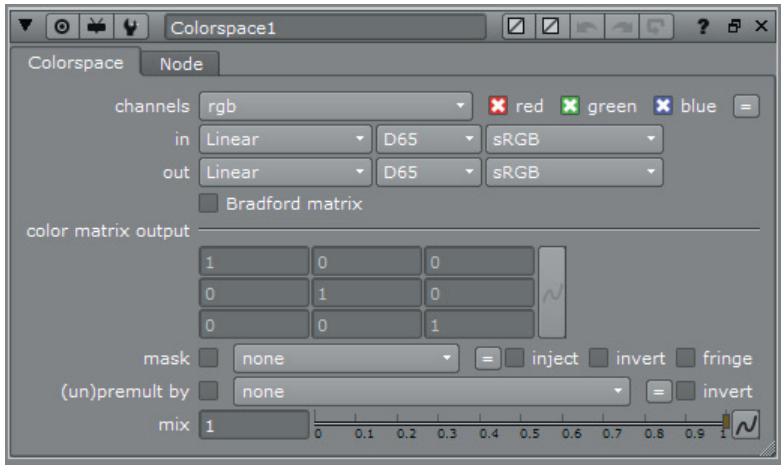

Figure 6-12 *The* ***Colorspace1*** *node properties panel*

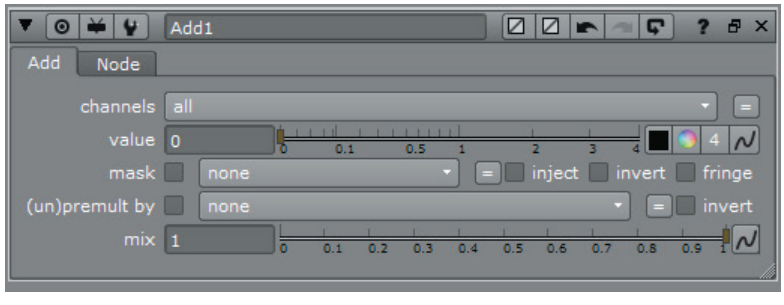

Figure 6-13 *The* ***Add1*** *node properties panel*

Figure 6-14 *The input image*

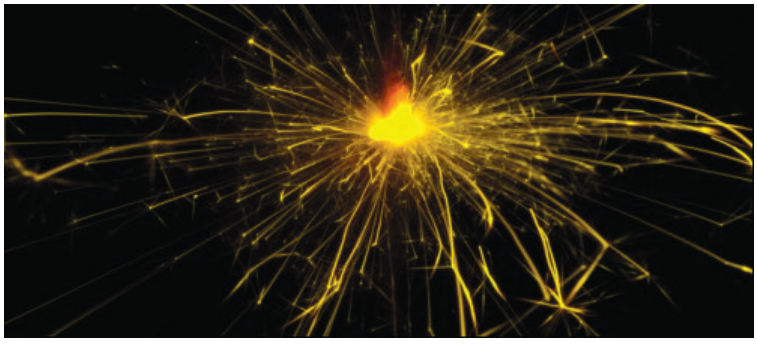

Figure 6-15 *The image after offsetting the* ***blue*** *channel*

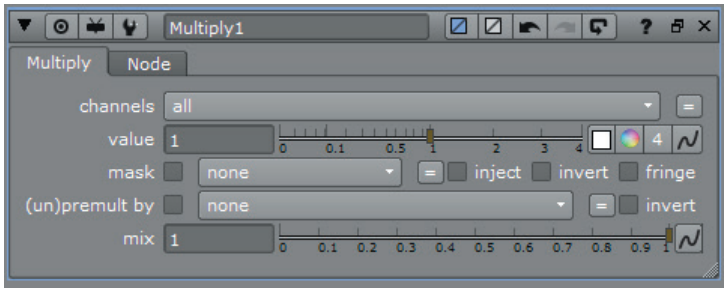

Figure 6-16 *The* ***Multiply1*** *node properties panel*

Figure 6-17 *The output after multiplying the* ***blue*** *channel by a factor of 4*

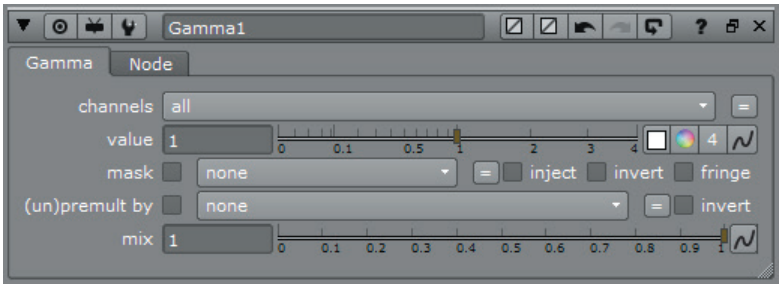

Figure 6-18 *The* ***Gamma1*** *node properties panel*

Figure 6-19 *The input image*

Figure 6-20 *The output of the* ***Gamma#*** *node after setting* ***value*** *to* ***0.52***

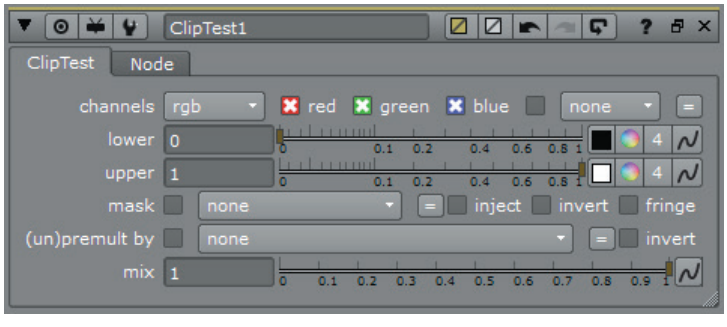

Figure 6-21 *The properties panel of the* ***ClipTest1*** *node*

Figure 6-22 *The output of the* ***ClipTest#*** *node showing zebra stripes in the* ***Viewer#*** *panel*

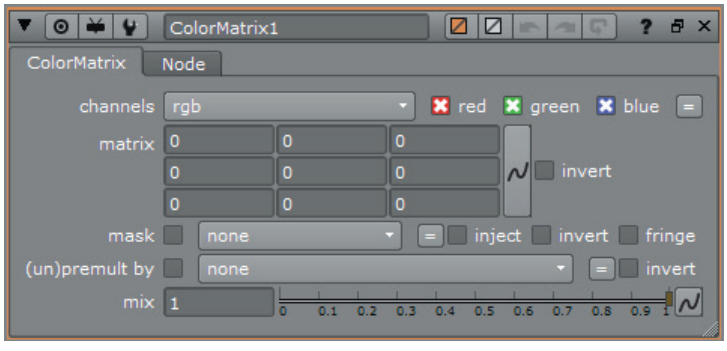

Figure 6-23 *The* ***ColorMatrix1*** *node properties panel*

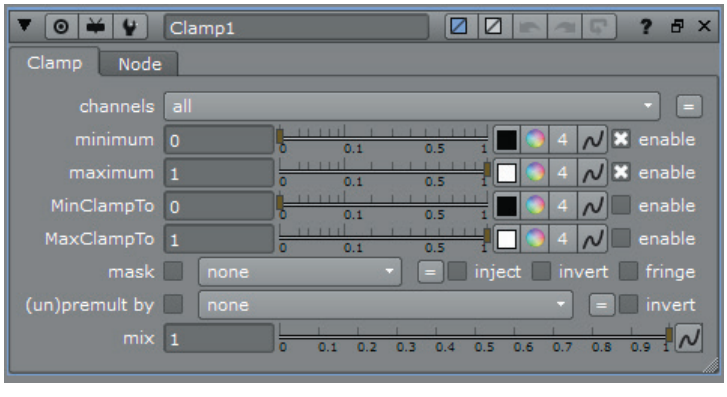

Figure 6-24 *The* ***Clamp1*** *node properties panel*

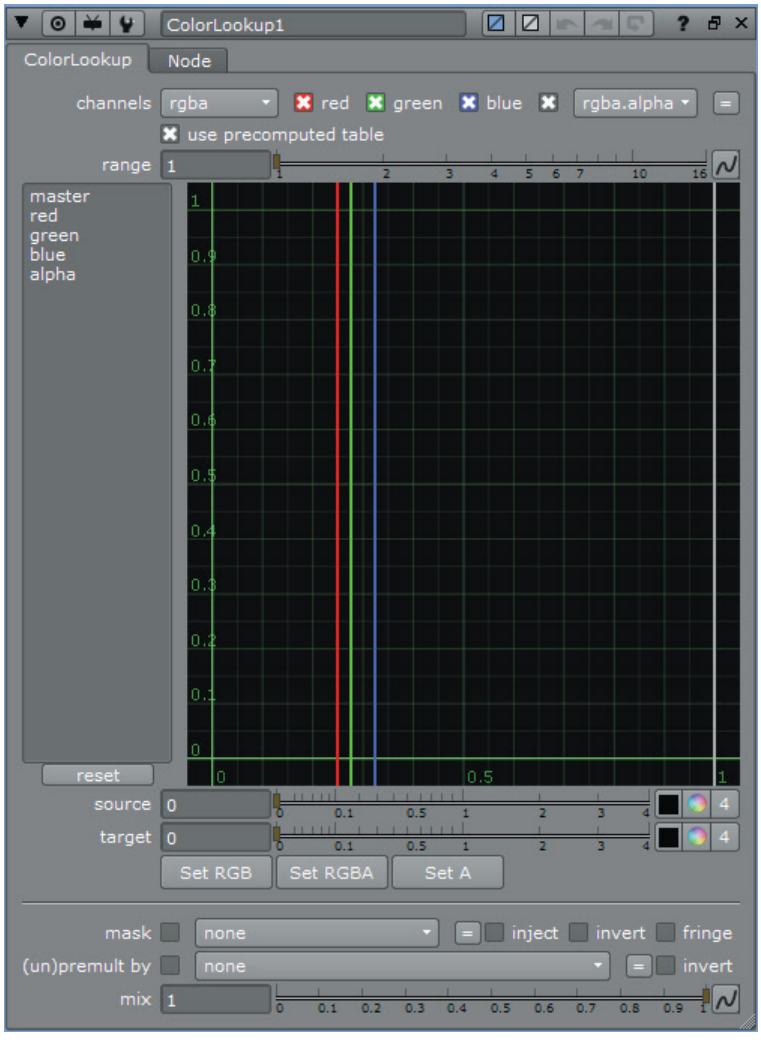

*Figure 6-25 The **ColorLookup1** node properties panel*

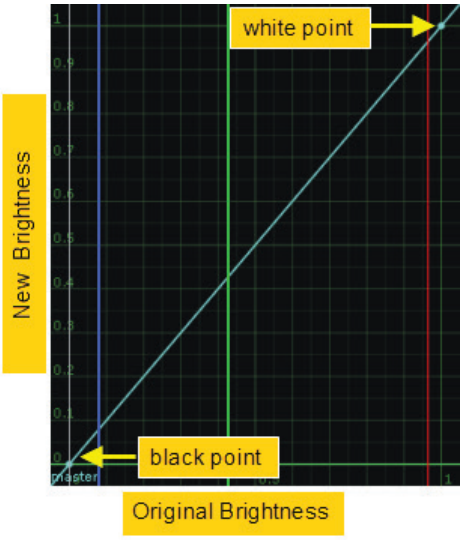

Figure 6-26 *The anatomy of the* ***ColorLookup*** *node graph*

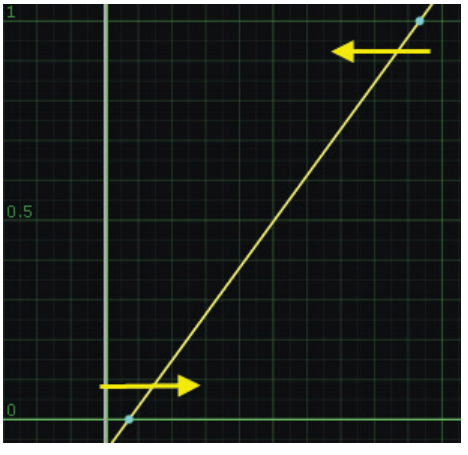

Figure 6-27 *The contrast boost*

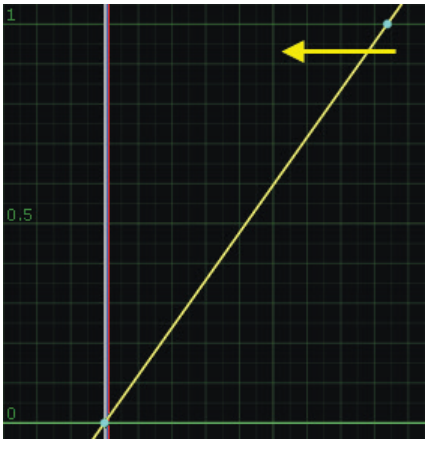

Figure 6-28 *The gain boost*

Figure 6-29 The gamma boost

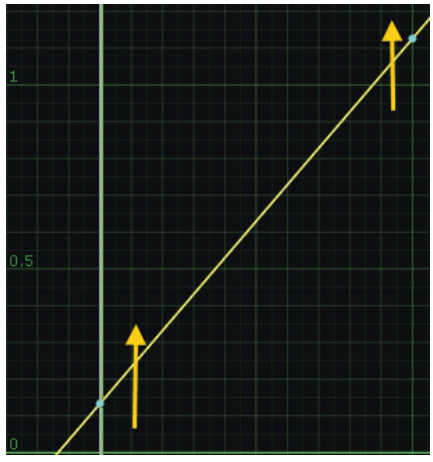

Figure 6-30 The offset boost

Figure 6-31 The input image

Figure 6-32 The contrast boost

Figure 6-33 The gain boost

Figure 6-34 The gamma boost

Figure 6-35 *The offset boost*

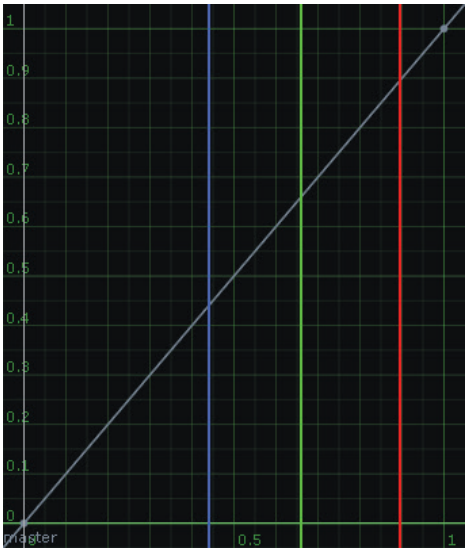

Figure 6-36 *Three lines intersecting the color curve*

Figure 6-37 *The image connected to the* ***A*** *input*

Figure 6-38 *The image connected to the* ***B*** *input*

Figure 6-39 *The output of the* ***ColorTransfer#*** *node*

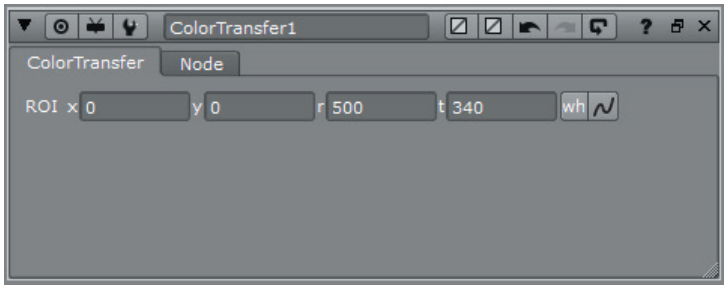

*Figure 6-40 The **ColorTransfer#** node properties panel*

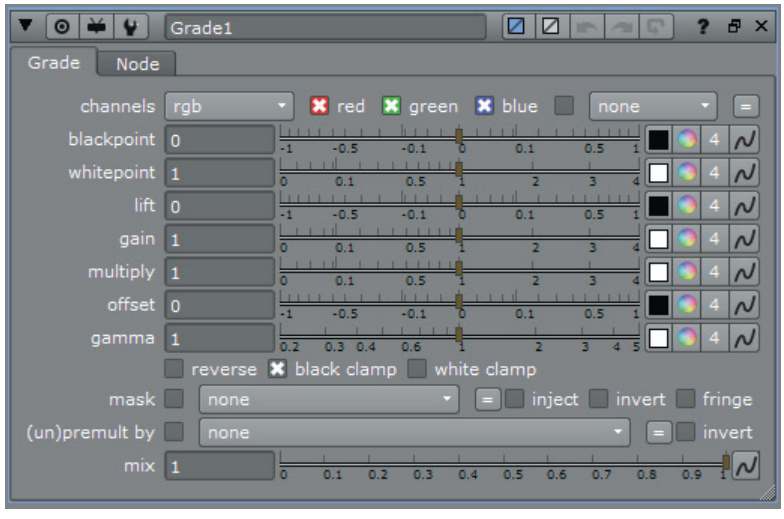

*Figure 6-41 The **Grade1** node properties panel*

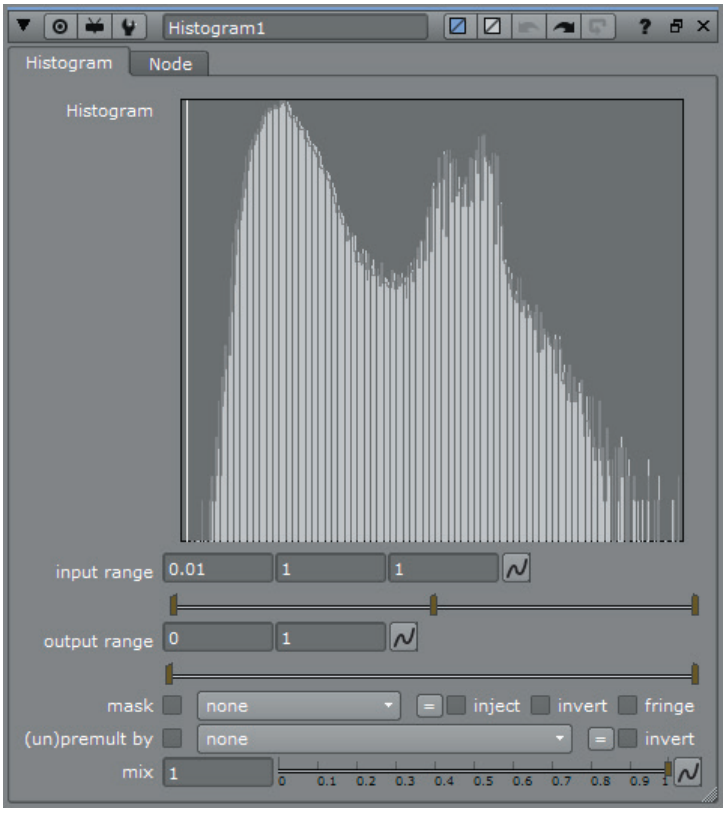

Figure 6-42 *The* ***Histogram1*** *node properties panel*

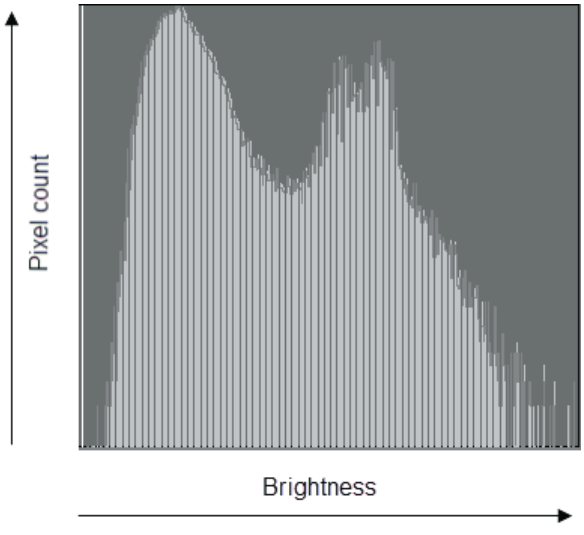

Figure 6-43 *The distribution of the tonal range*

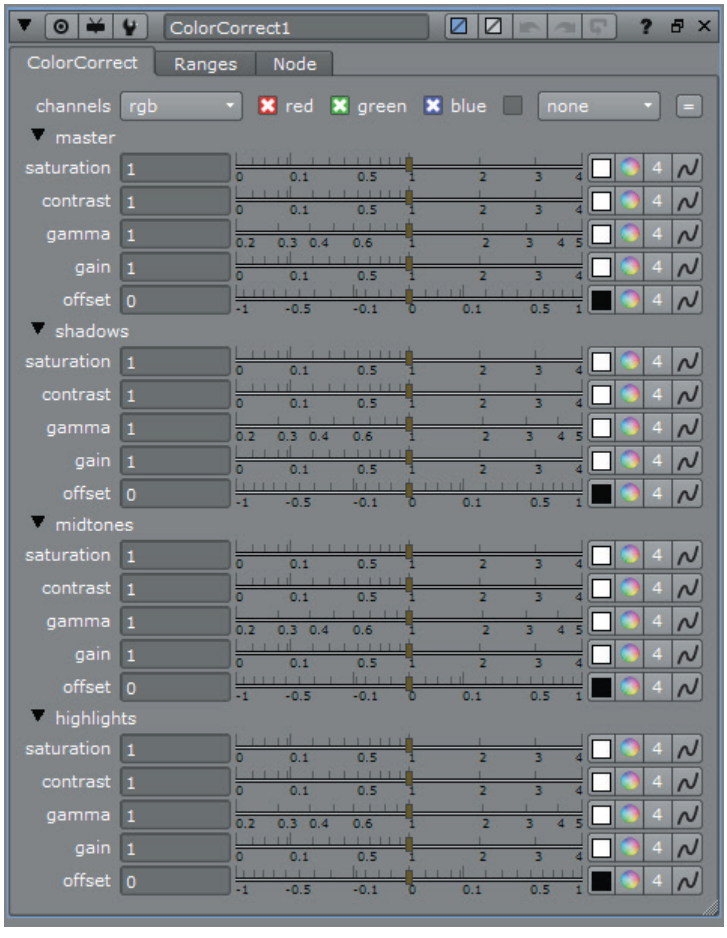

Figure 6-44 The ***ColorCorrect1*** *node properties panel*

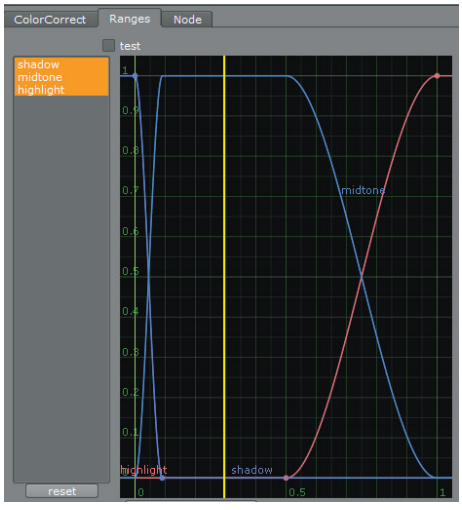

Figure 6-45 *The LUTs in the* ***Ranges*** *tab*

Figure 6-46 *The tonal range displayed*

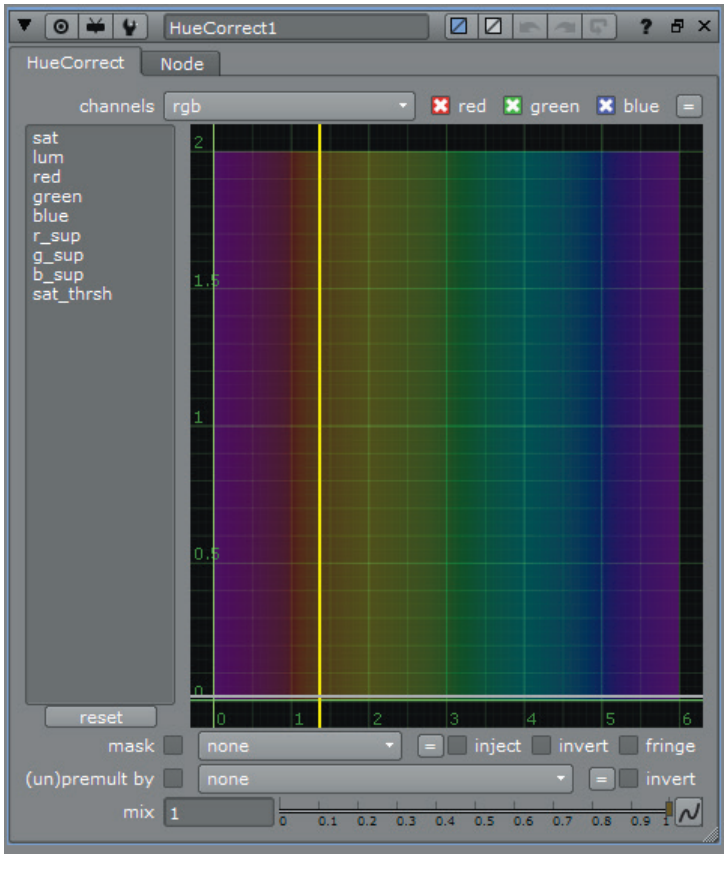

Figure 6-47 *The* ***HueCorrect1*** *node properties panel*

Figure 6-48 The input image

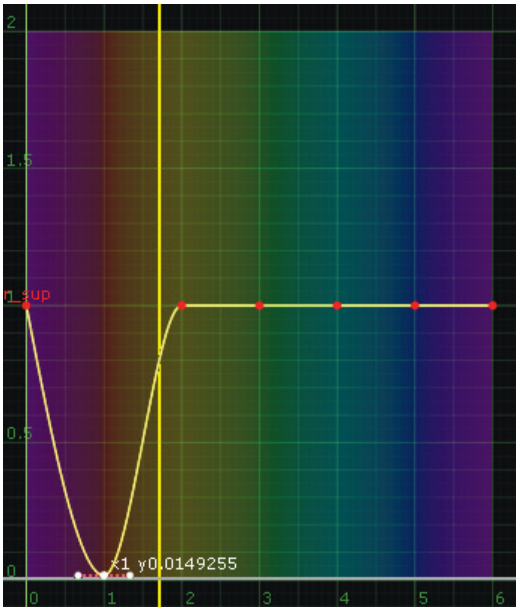

*Figure 6-49 The **r_sup** lut modified*

Figure 6-50 The output after suppressing red color

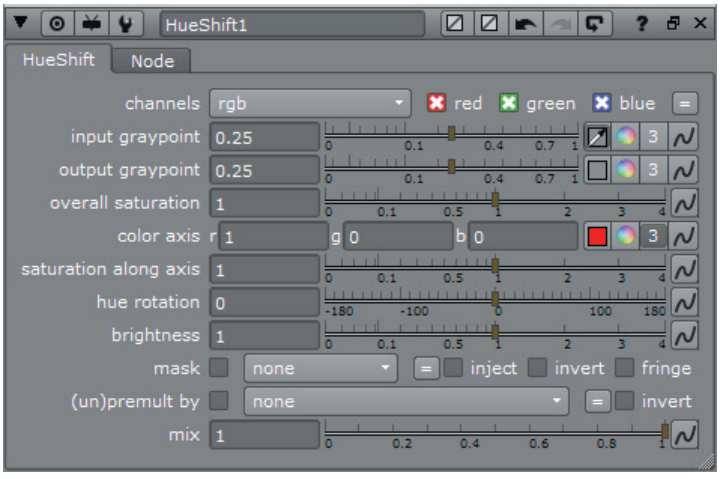

Figure 6-51 *The* ***HueShift1*** *node properties panel*

Figure 6-52 *The input image*

Figure 6-53 *The output of the* ***HueShift#*** *node*

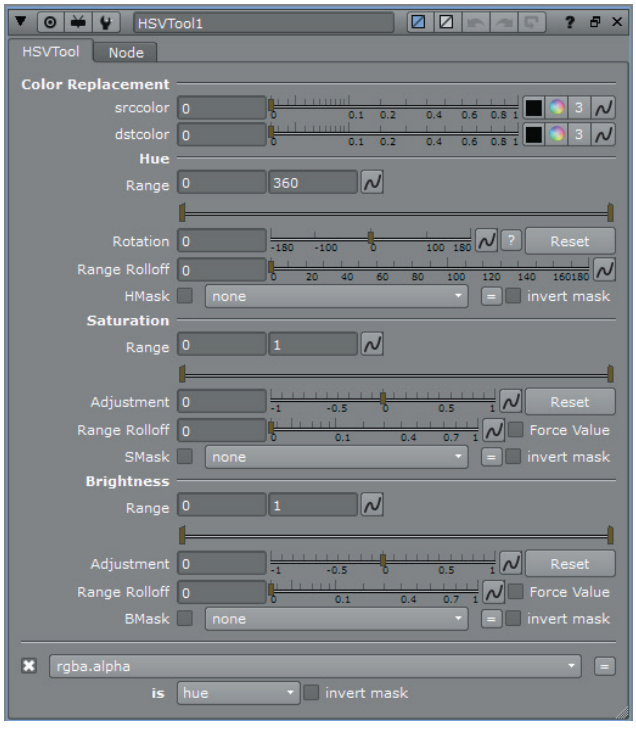

Figure 6-54 *The* ***HSVTool1*** *properties panel*

Figure 6-55 *The input image*

Figure 6-56 *The desaturated yellows*

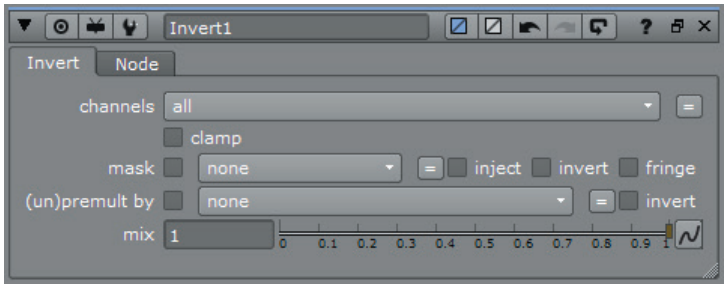

Figure 6-57 *The* ***Invert1*** *node properties panel*

Figure 6-58 *The input image*

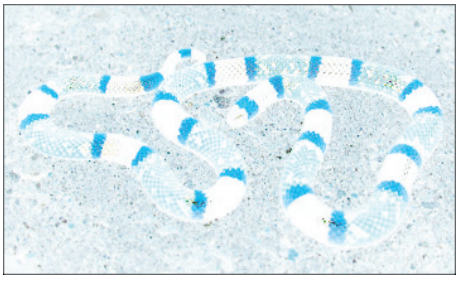

Figure 6-59 *The inverted input image*

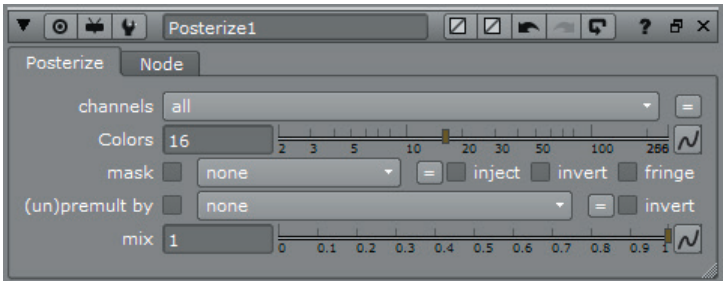

Figure 6-60 *The* ***Posterize1*** *node properties panel*

Figure 6-61 *The input image*

Figure 6-62 *The input image with the posterize effect*

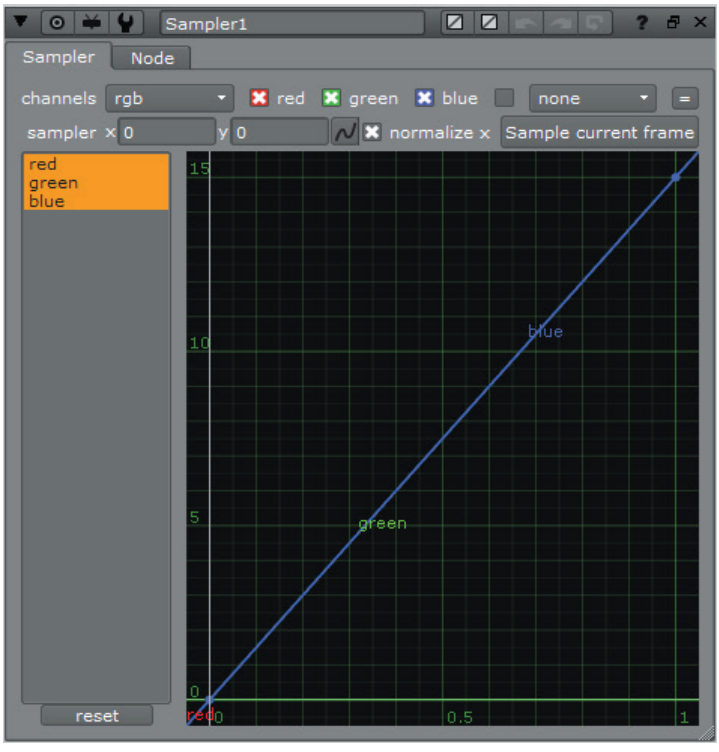

Figure 6-63 *The* ***Sampler#*** *node properties panel*

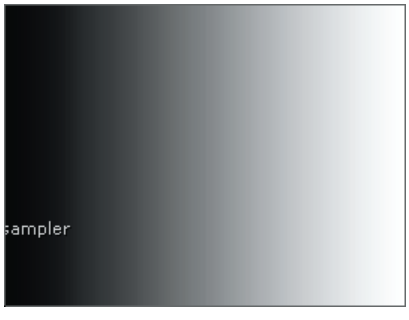

Figure 6-64 *The input image*

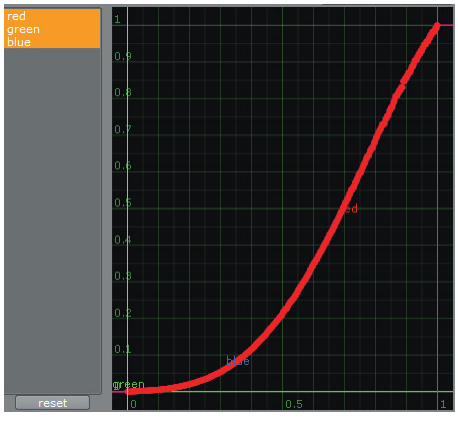

Figure 6-65 *The LUT displayed*

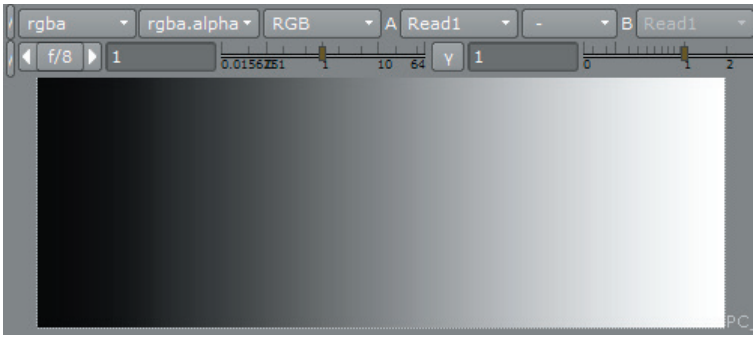

Figure 6-66 The output of the ***Read#*** *node*

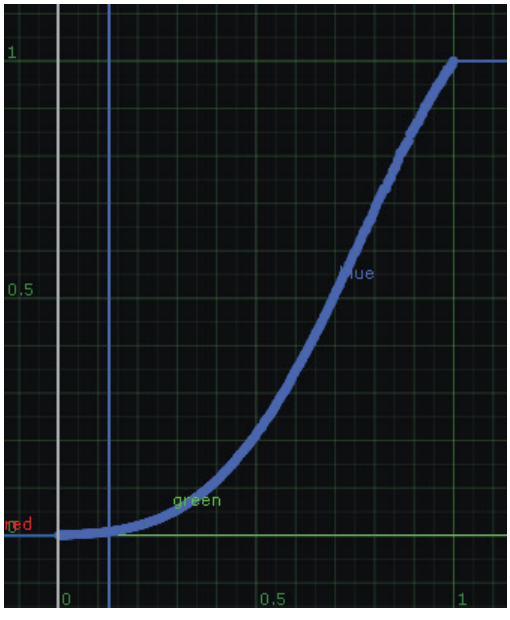

Figure 6-67 The lookup curve

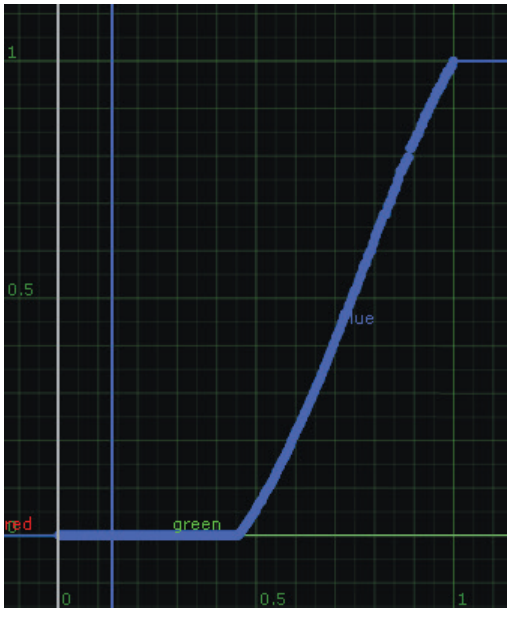

Figure 6-68 *The lookup curve with* ***lift*** *= -0.2*

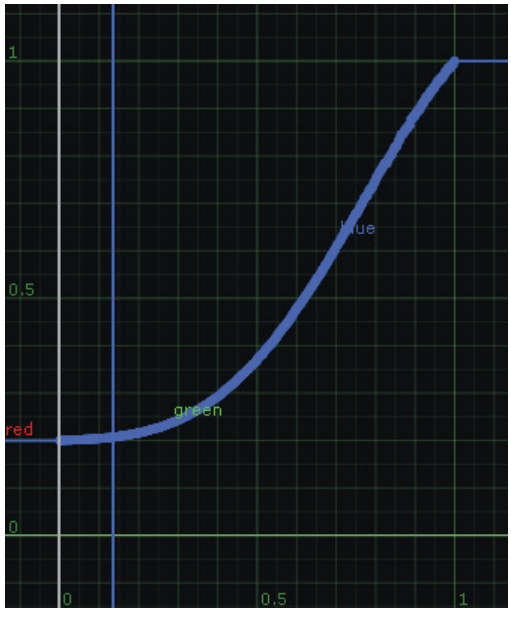

Figure 6-69 *The lookup curve with* ***lift*** *= 0.2*

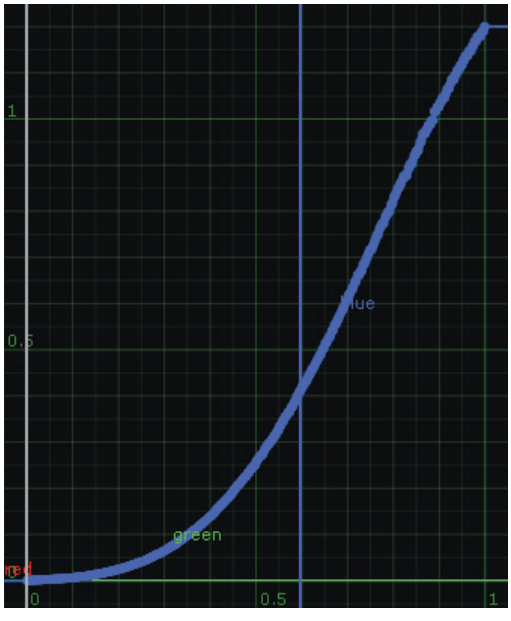

Figure 6-70 *The lookup curve with* ***gain*** *= 1.2*

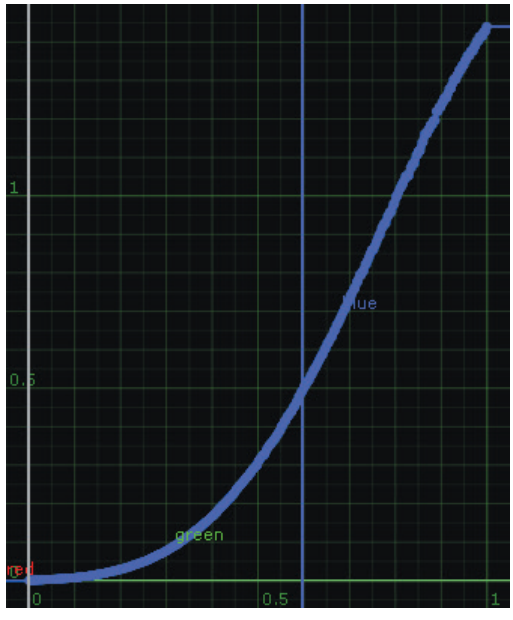

Figure 6-71 *The lookup curve with* ***multiply*** *= 1.2*

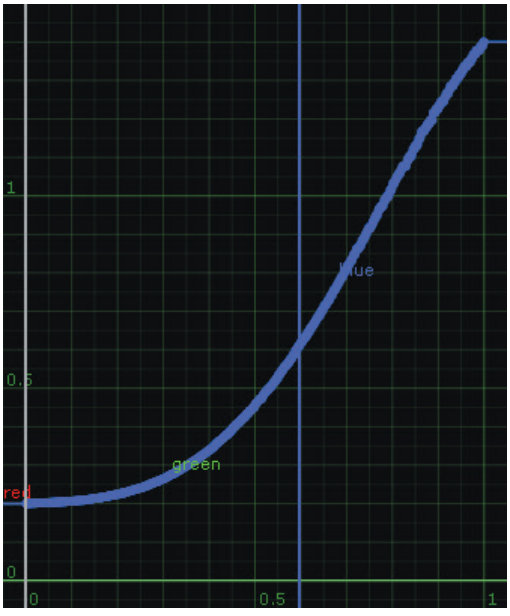

Figure 6-72 The lookup curve with ***offset*** *= 0.2*

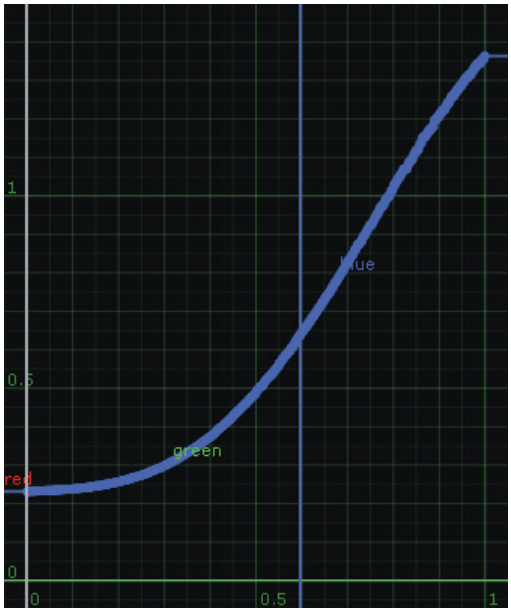

Figure 6-73 The lookup curve with ***gamma*** *= 1.1*

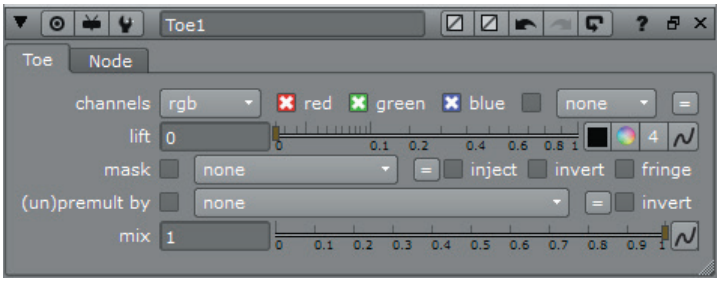

Figure 6-74 The ***Toe1*** *properties panel*

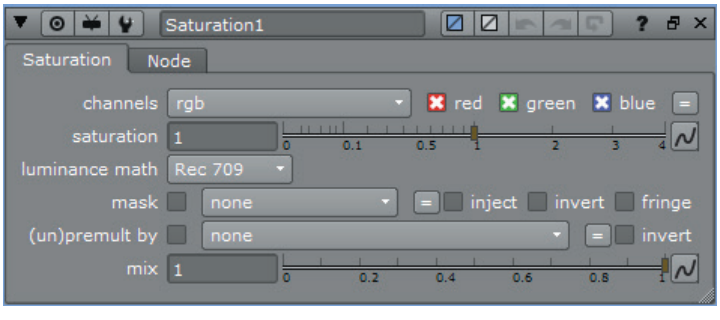

Figure 6-75 The ***Saturation1*** *node properties panel*

Figure 6-76 *The input image*

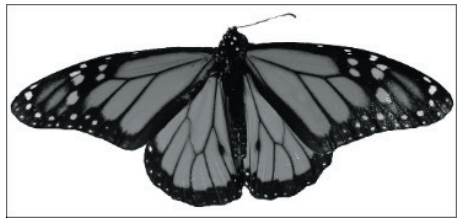

Figure 6-77 *The desaturated input image*

Figure 6-78 *The rose.jpg image*

Figure 6-79 *The final output*

Figure 6-80 *The output after setting the* ***input graypoint*** *field*

Figure 6-81 *The background tinted with the yellow color*

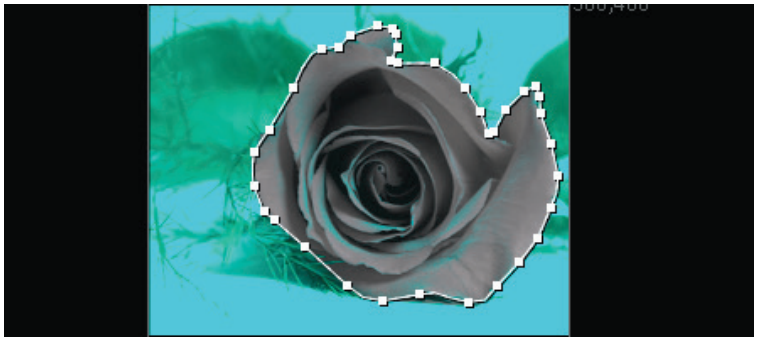

Figure 6-82 *The shape drawn using the* ***Bezier*** *tool*

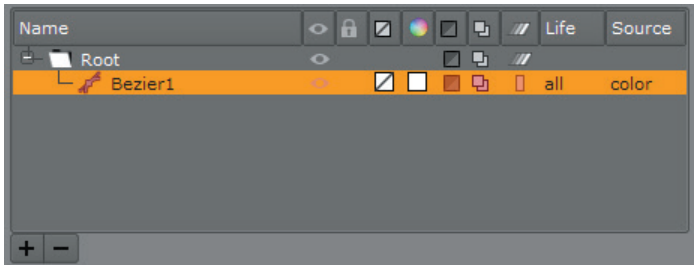

Figure 6-83 *The* ***Bezier1*** *stroke in the* ***Stoke/Shape*** *list*

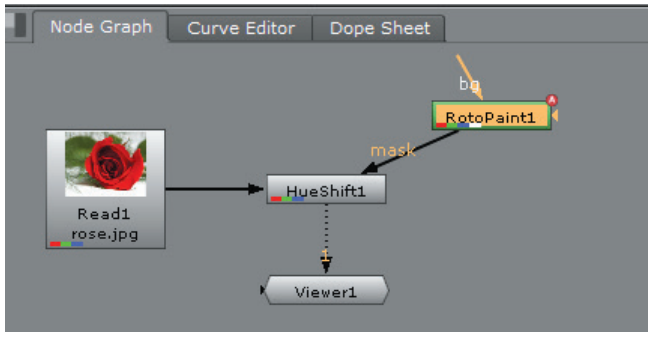

Figure 6-84 *The* ***RotoPaint1*** *node in the* ***Node Graph*** *panel*

Figure 6-85 The original image visible outside the mask

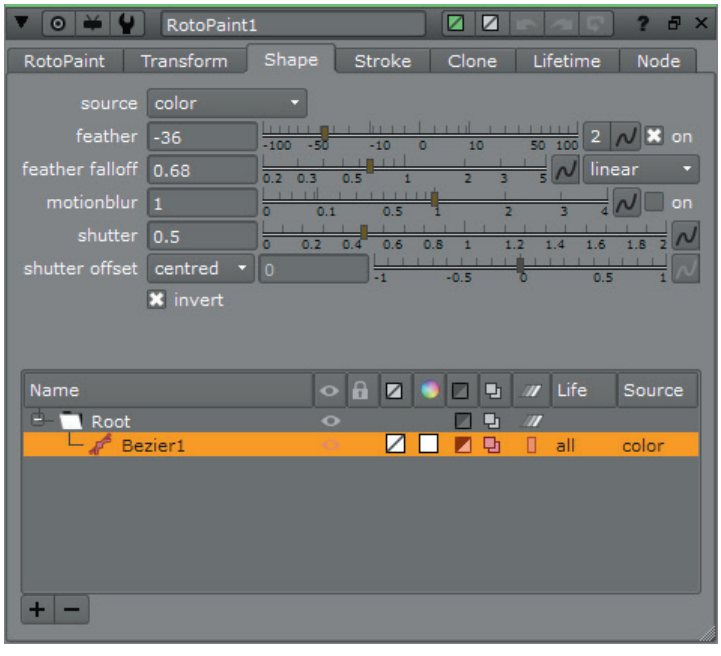

*Figure 6-86 The **RotoPaint1** node properties panel*

Figure 6-87 The street.jpg image

Figure 6-88 The final output

Figure 6-89 The output of the ***Grade1*** *node after setting its parameters*

Figure 6-90 The output of the ***ColorCorrect1*** *node*

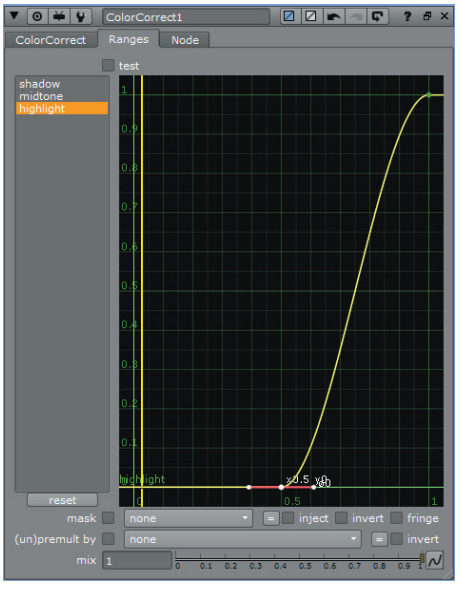

Figure 6-91 The ***highlight*** *LUT displayed in the Curve Editor*

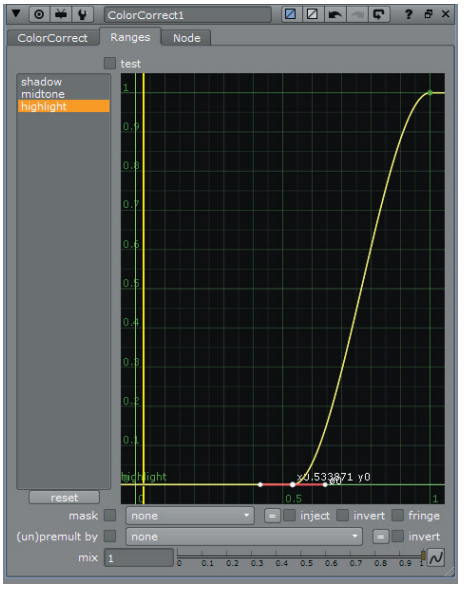

Figure 6-92 The bottom point of the ***highlight*** *LUT adjusted*

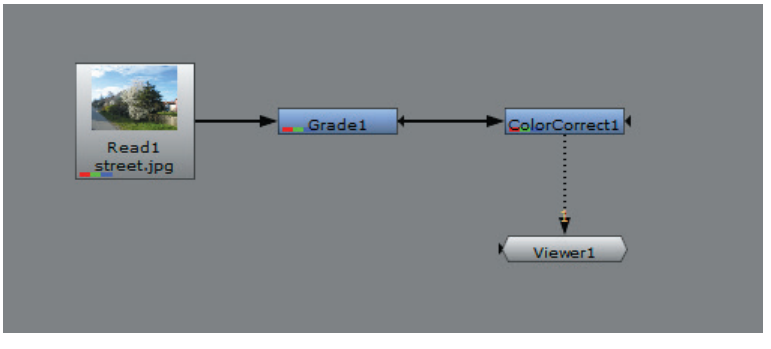

Figure 6-93 Node network used in the script displayed in the ***Node Graph*** *panel*

Figure 6-94 *The street1.jpg image*

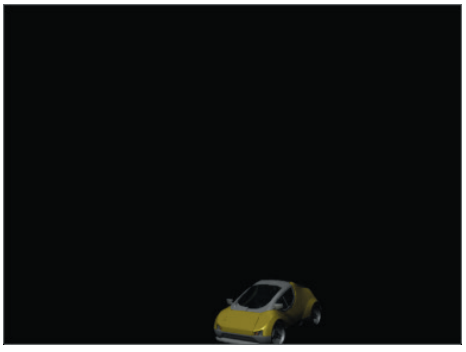

Figure 6-95 *The car.tif image*

Figure 6-96 *The final output*

Figure 6-97 *The output of the* ***Merge1*** *node*

Figure 6-98 *A Transform overlay displayed in the* ***Viewer1*** *panel*

Figure 6-99 *The car placed on the road*

Figure 6-100 *The output after setting the parameters of the* ***Grade1*** *node*

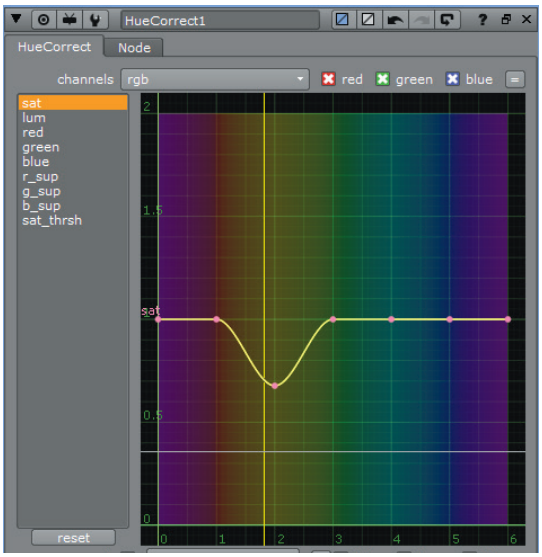

Figure 6-101 *The* ***sat*** *LUT in the Curve Editor*

Figure 6-102 *The saturation of the car reduced*

Figure 6-103 *The output after modifying parameters of the* ***ColorCorrect1*** *node*

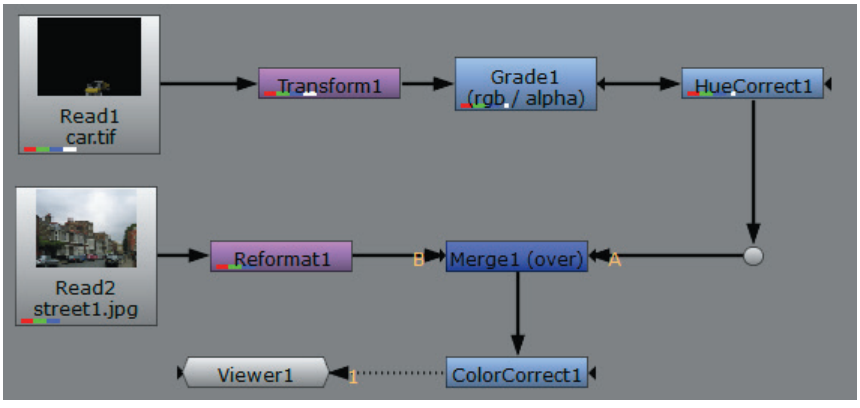

Figure 6-104 *The node network used in the script displayed in the* ***Node Graph*** *panel*

Chapter 7

Compositing Render Passes

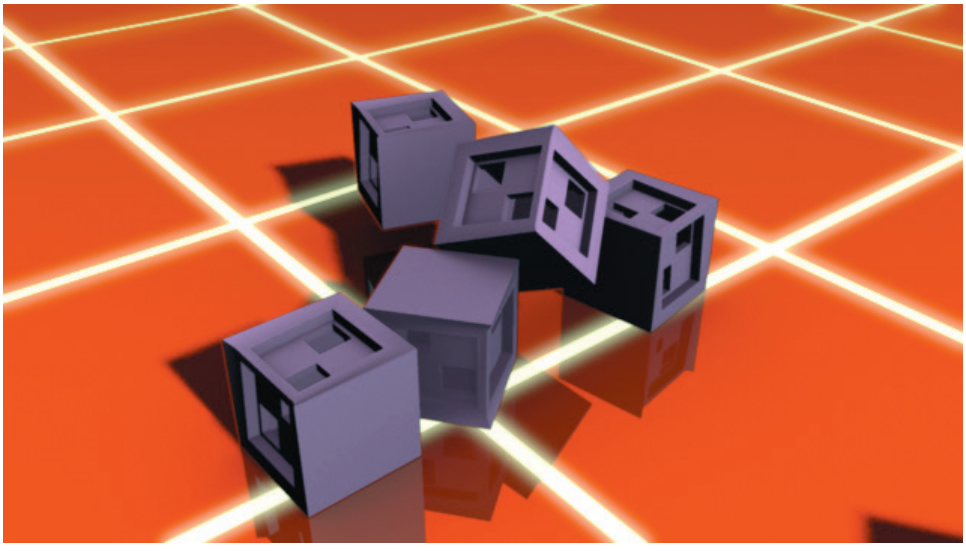

Figure 7-1 *The final output of the script*

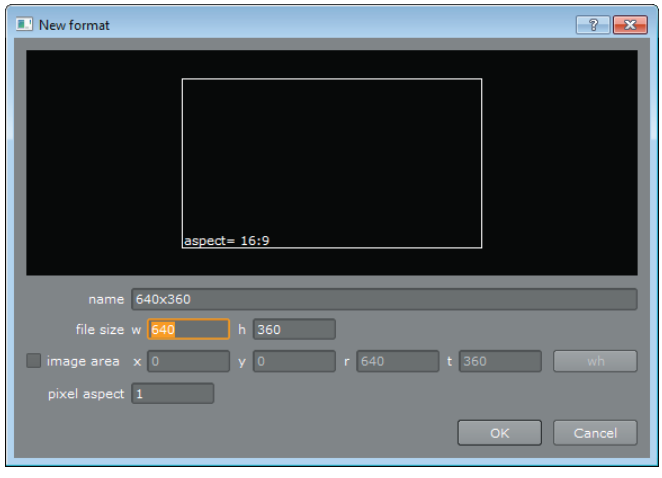

Figure 7-2 *The* ***New format*** *dialog box*

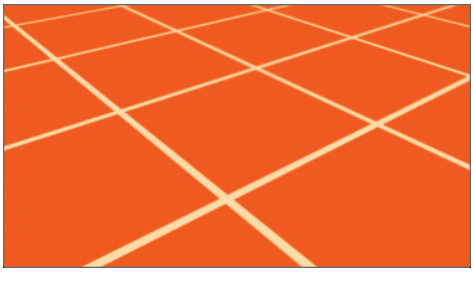

Figure 7-3 *The output of the* ***Read1*** *node*

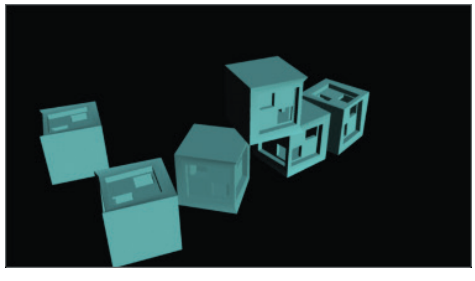

Figure 7-4 *The output of the* ***Read2*** *node*

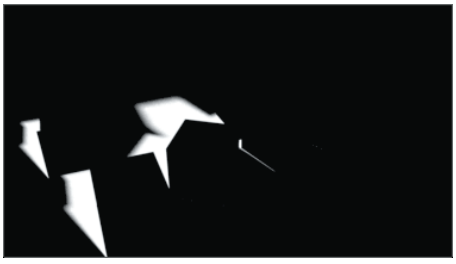

Figure 7-5 *The output of the* ***Read3*** *node*

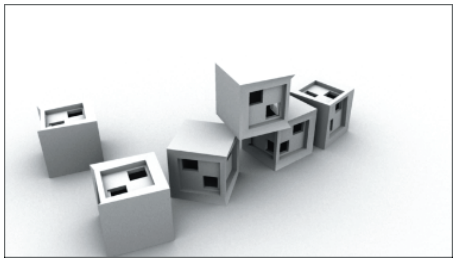

Figure 7-6 *The output of the* ***Read4*** *node*

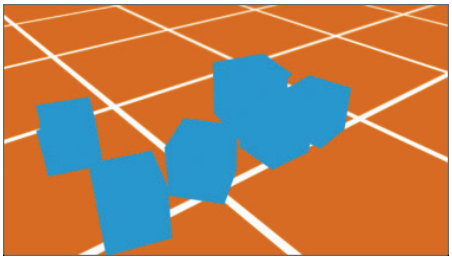

Figure 7-7 *The output of the* ***Read5*** *node*

Figure 7-8 *The output of the* ***Read6*** *node*

Figure 7-9 *The output of the* ***Read7*** *node*

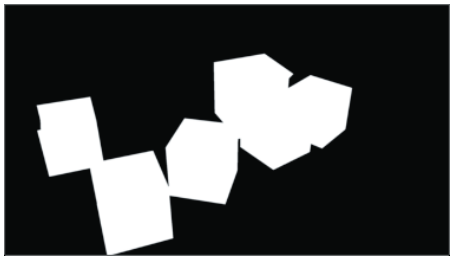

Figure 7-10 *The output of the* ***Read8*** *node*

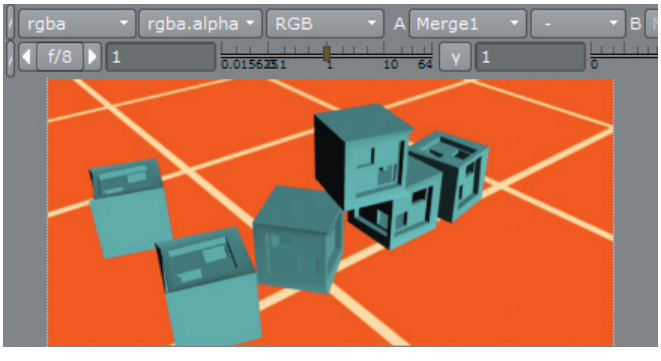

Figure 7-11 *The output of the* ***Merge1*** *node*

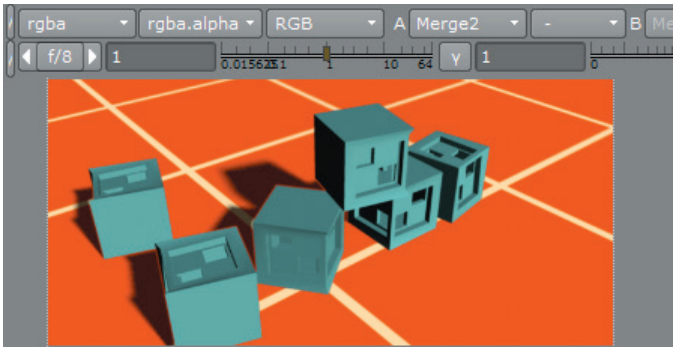

Figure 7-12 *The output after compositing shadow pass*

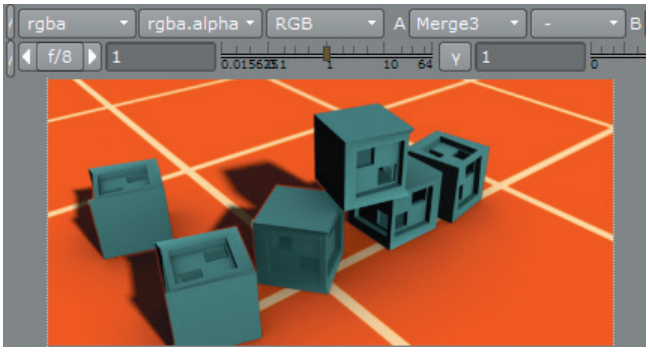

Figure 7-13 *The output after compositing occlusion pass*

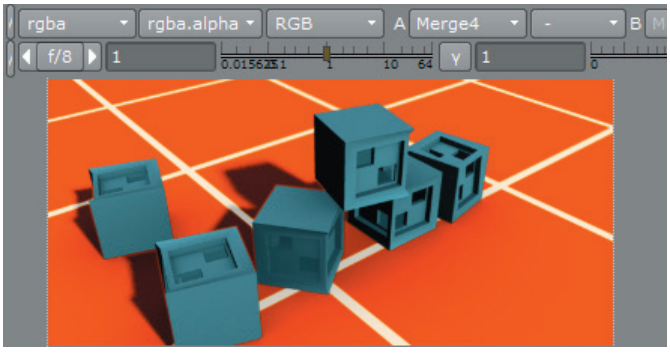

Figure 7-14 *The output after compositing ambient pass*

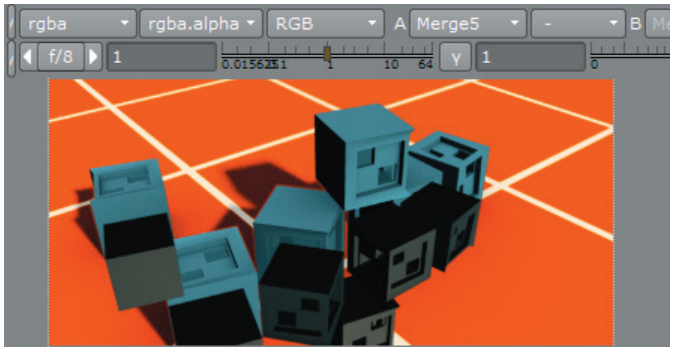

Figure 7-15 *The output after compositing reflection pass*

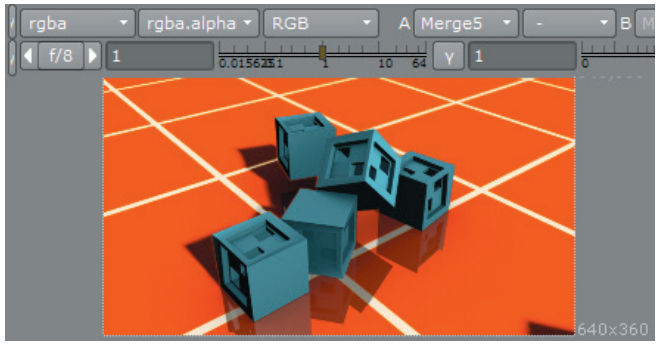

Figure 7-16 *The output of the* ***Merge5*** *node*

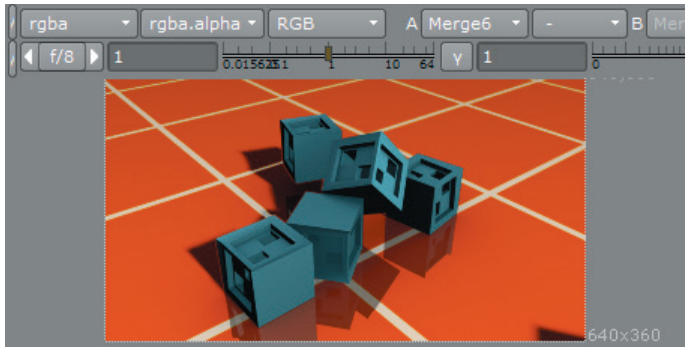

Figure 7-17 *The output after compositing luminance pass*

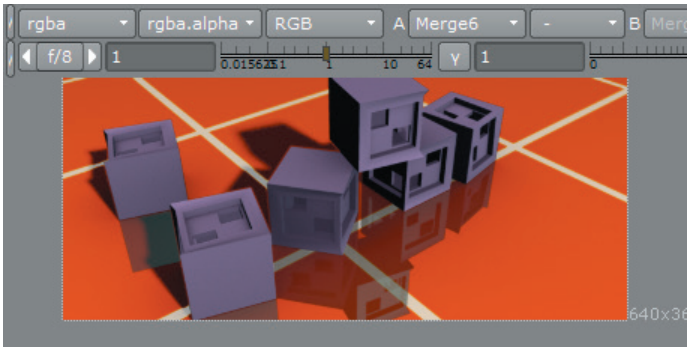

Figure 7-18 *The output after color-correction*

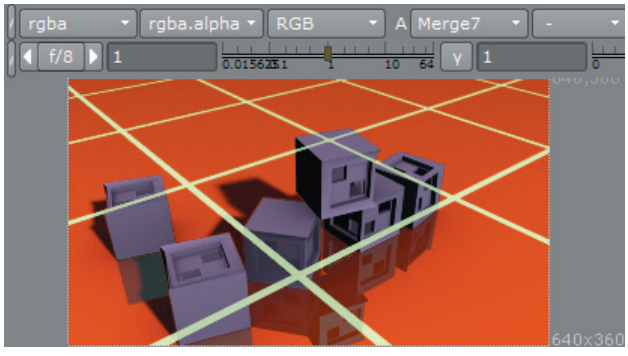

Figure 7-19 *The output after changing the* ***Keylight1*** *node values*

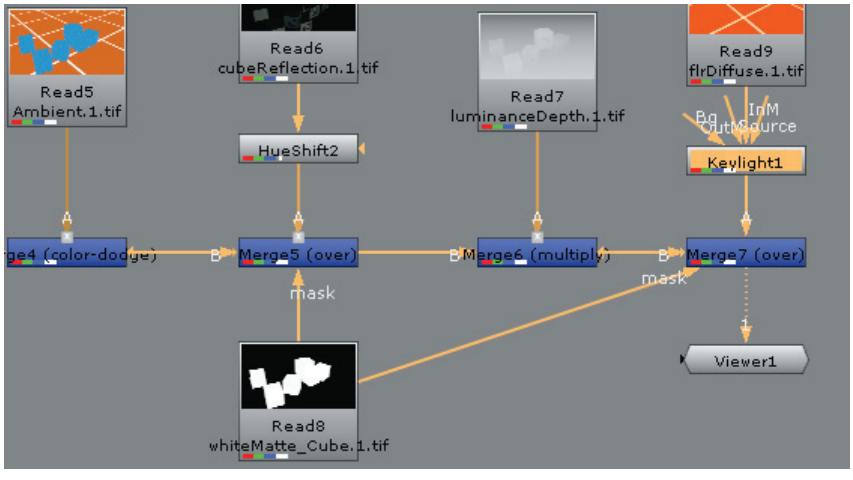

Figure 7-20 *The* ***mask*** *input connected to the* ***Read8*** *node*

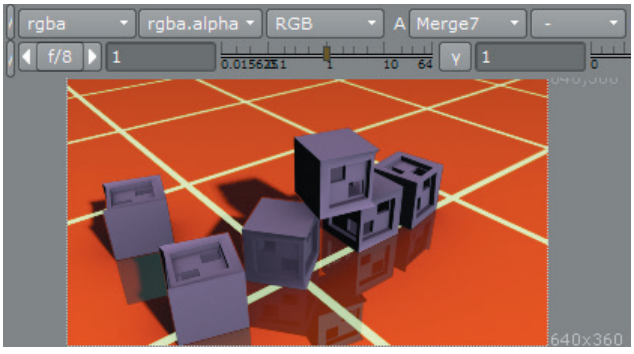

Figure 7-21 *The inverted mask channel*

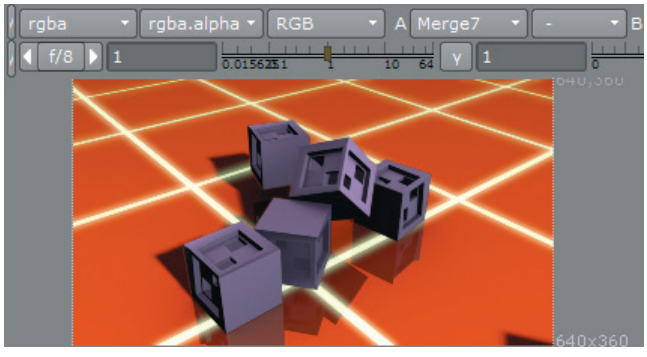

Figure 7-22 *Glow applied to the lines*

Figure 7-23 *The final output of the script*

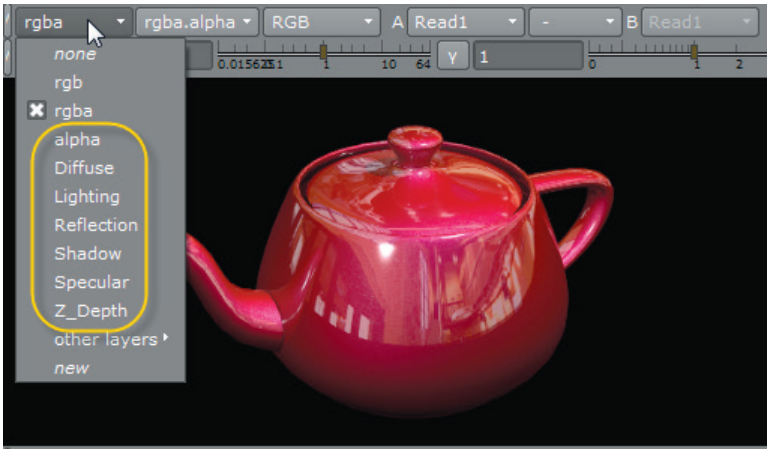

Figure 7-24 *The list of embedded channels displayed*

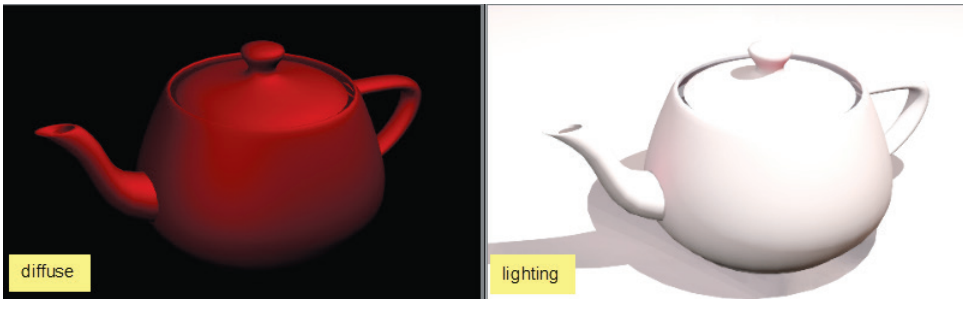

Figure 7-25 *The diffuse and lighting channels*

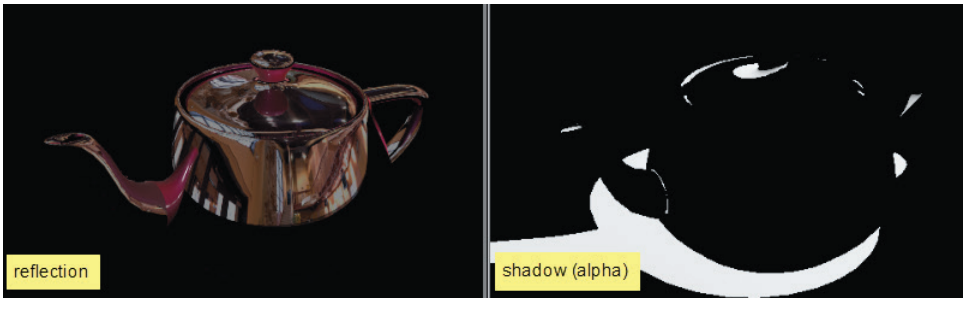

Figure 7-26 *The reflection and shadow (alpha) channels*

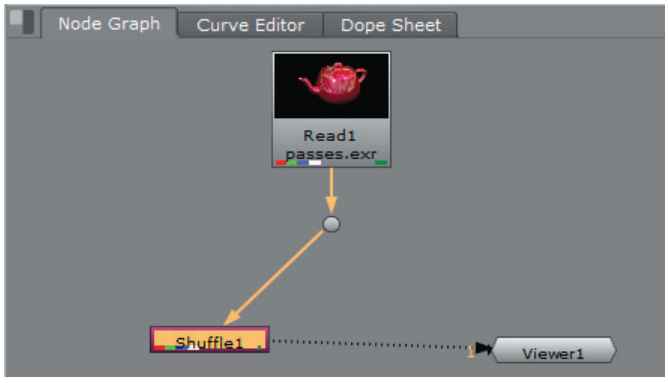

*Figure 7-27 The **Dot1** node in the **Node Graph** panel*

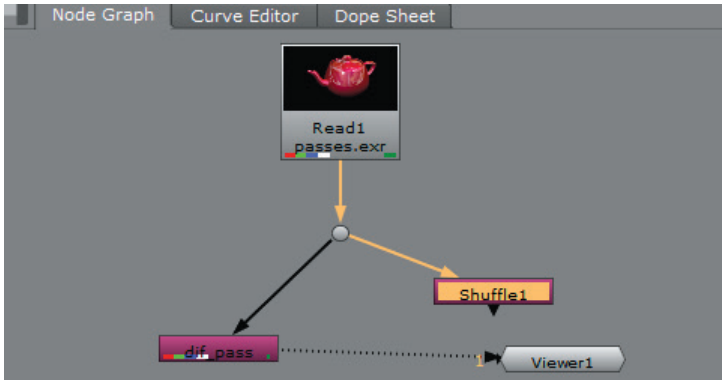

*Figure 7-28 The **Shuffle1** node in the **Node Graph** panel*

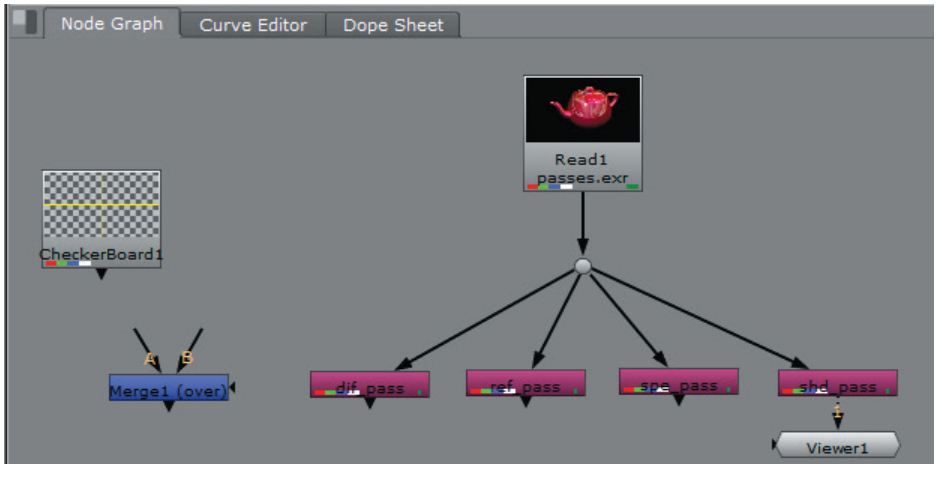

*Figure 7-29 The **CheckerBoard1** node in the **Node Graph** panel*

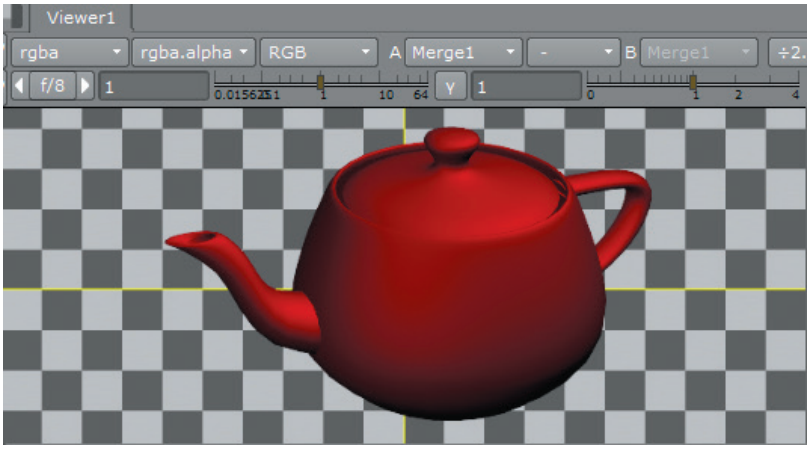

Figure 7-30 *The output of the* ***Merge1*** *node*

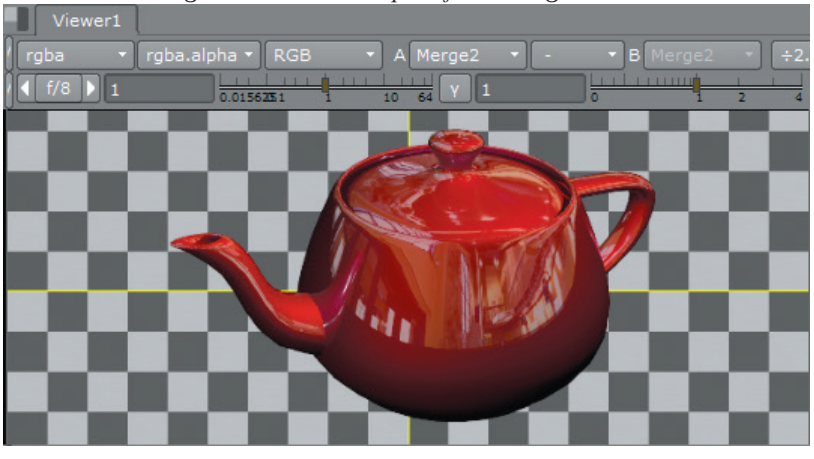

Figure 7-31 *The output of the* ***Merge2*** *node*

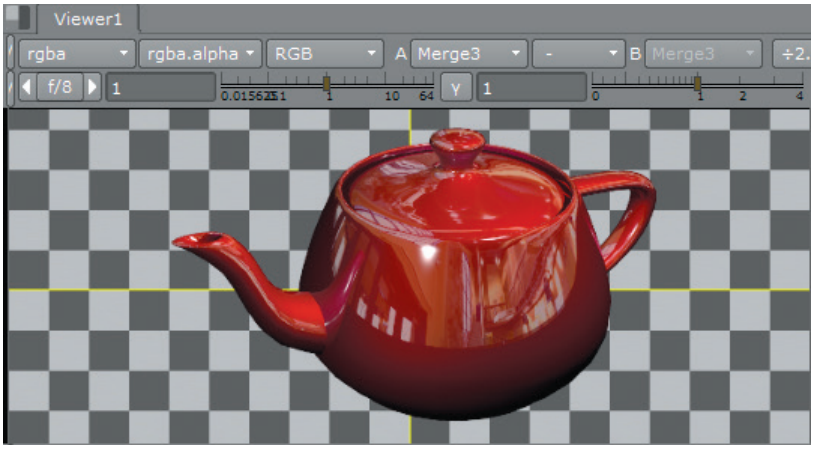

Figure 7-32 *The output of the* ***Merge3*** *node*

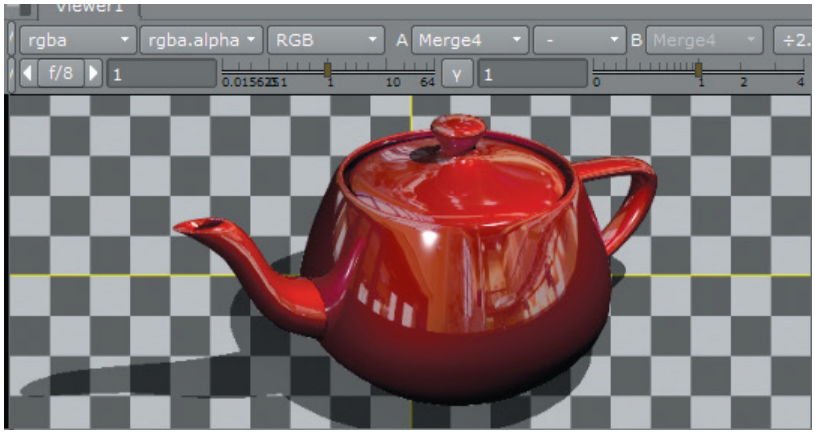

Figure 7-33 *The output of the* ***Merge4*** *node*

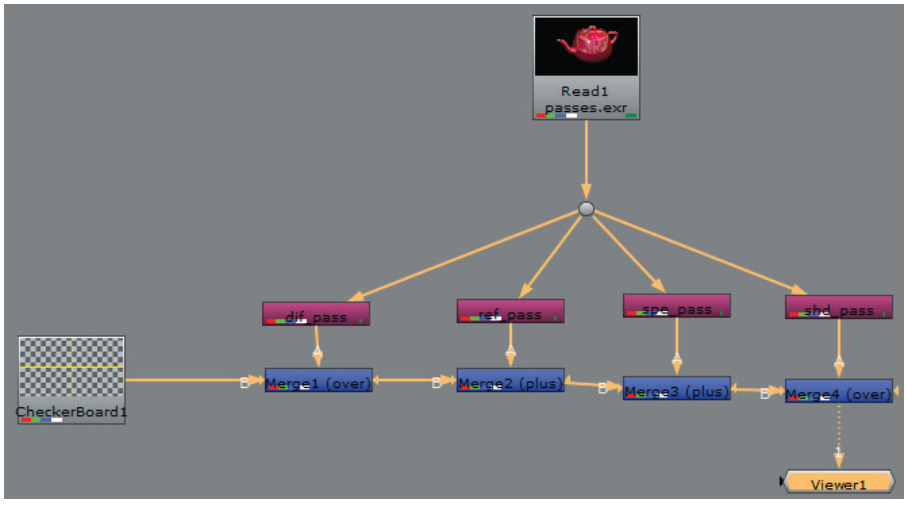

Figure 7-34 *The node network in the script*

Figure 7-35 *The final output of the script*

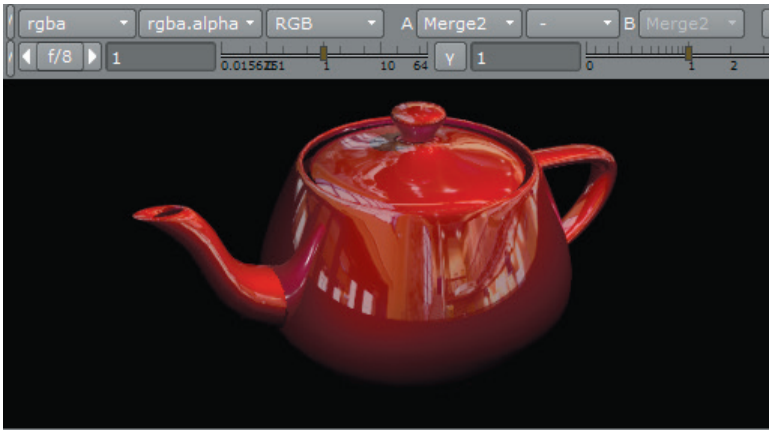

Figure 7-36 *The output after merging the reflection pass*

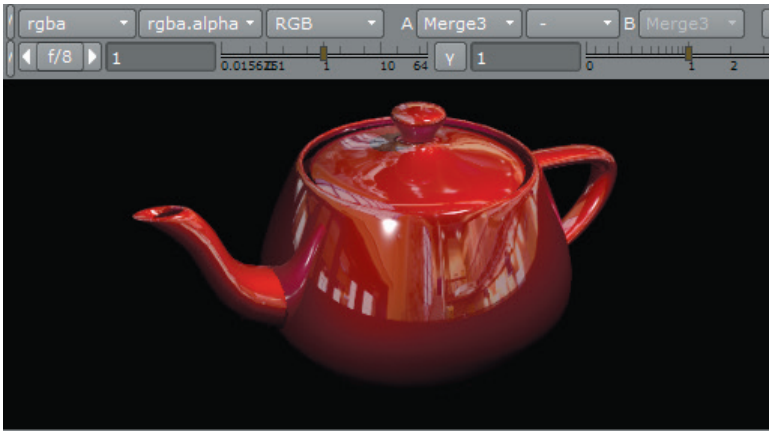

Figure 7-37 *The output after merging the specular pass*

Figure 7-38 *The output after merging the lighting pass*

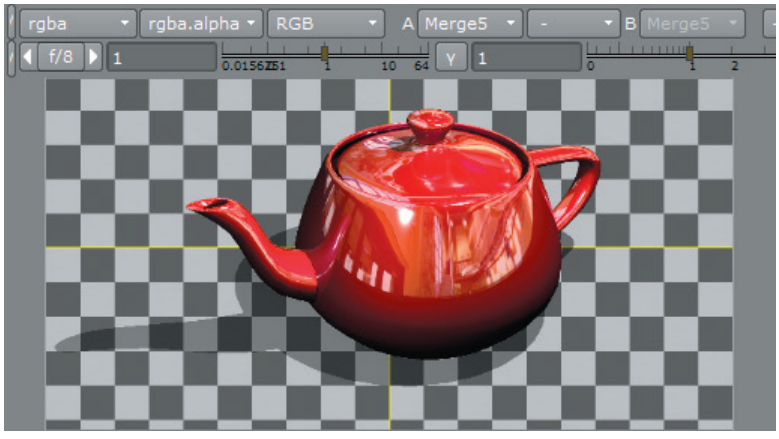

Figure 7-39 *The output of the* ***Merge5*** *node*

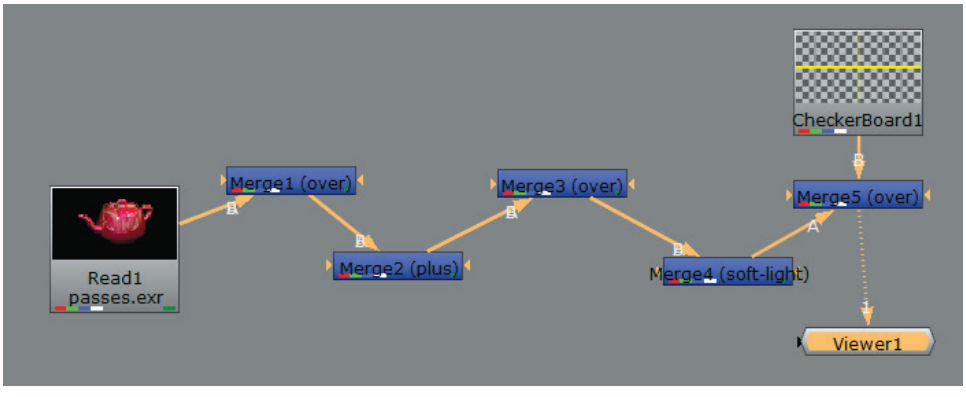

Figure 7-40 *The node network in the* ***Node Graph*** *panel*

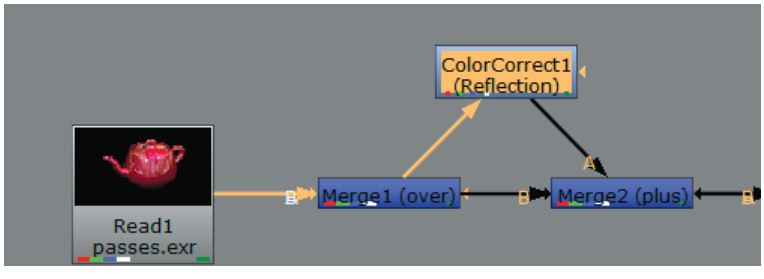

Figure 7-41 *The* ***ColorCorrect1*** *node connected with the* ***Merge1*** *and* ***Merge2*** *nodes*

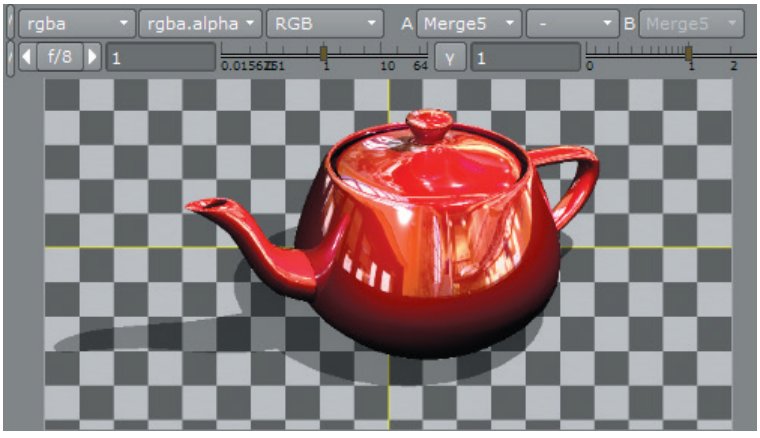

Figure 7-42 *The output after color-correcting the reflection pass*

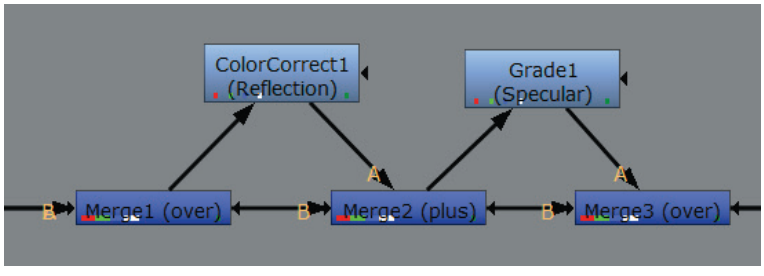

Figure 7-43 *The* ***Grade1*** *node is connected with the* ***Merge2*** *and* ***Merge3*** *nodes*

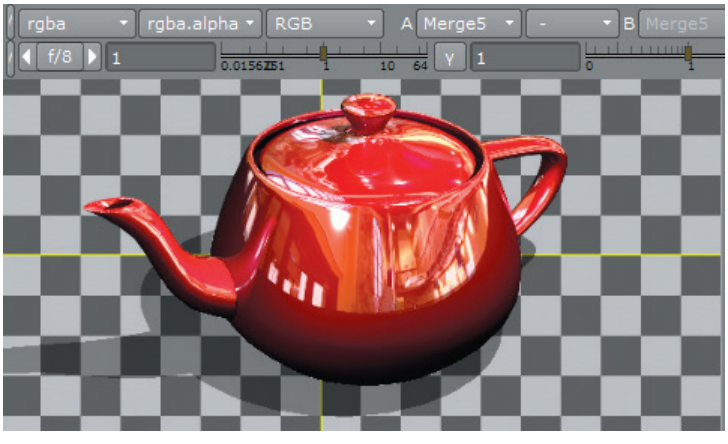

Figure 7-44 *The output after color-correcting the specular pass*

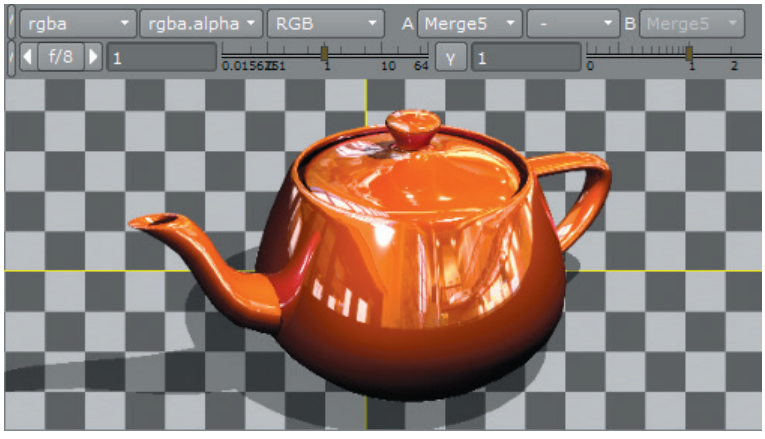

Figure 7-45 *The output after color-correcting the diffuse pass*

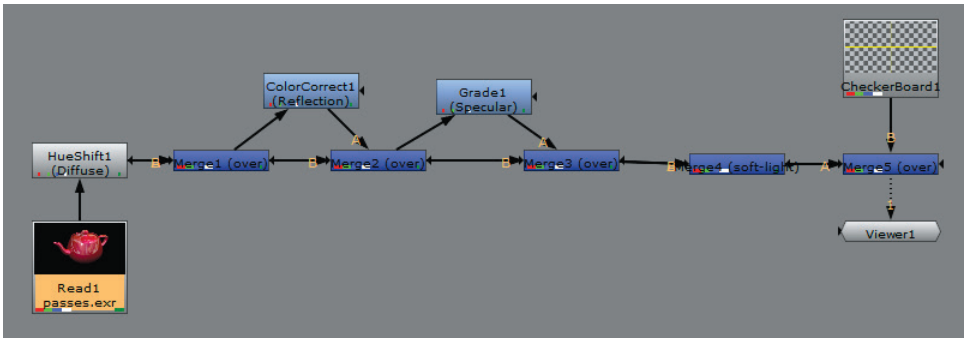

Figure 7-46 *The network of nodes used in the script*

Chapter 8

2D Tracking

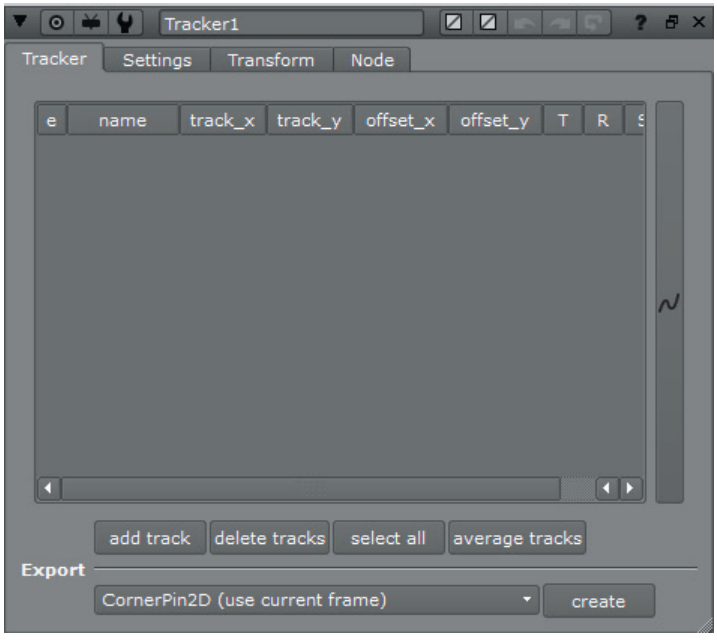

Figure 8-1 *The* ***Tracker1*** *node properties panel*

Figure 8-2 *The Tracker node toolbar*

Figure 8-3 *The anchored zoom window with the pattern and search areas displayed*

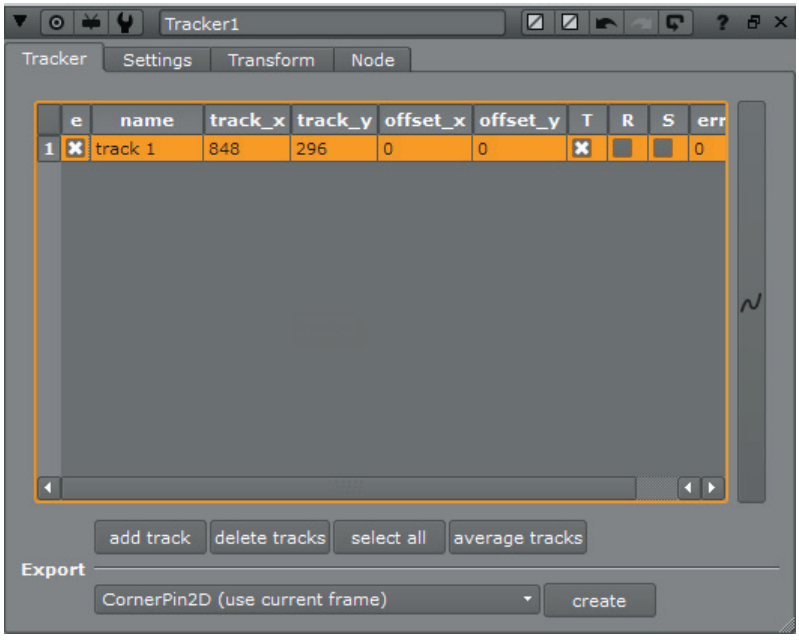

Figure 8-4 *The* ***track1*** *track added to the* ***Tracker1*** *node properties panel*

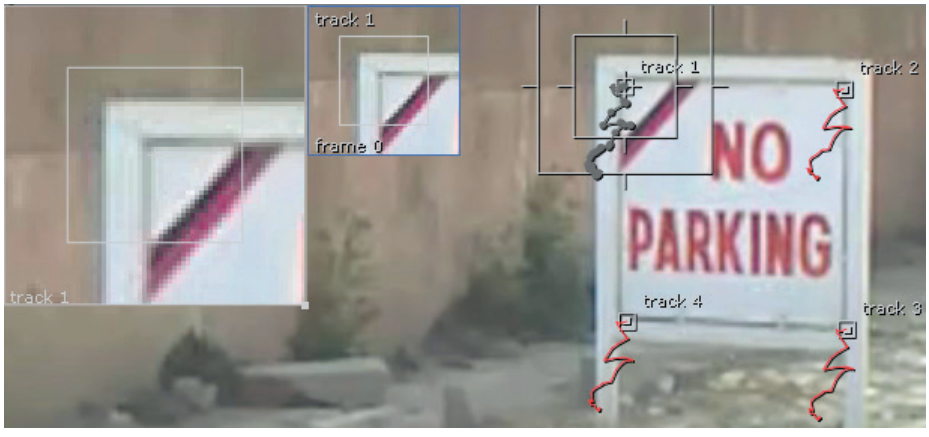

Figure 8-5 *The tracking paths displayed in the* ***Viewer#*** *panel*

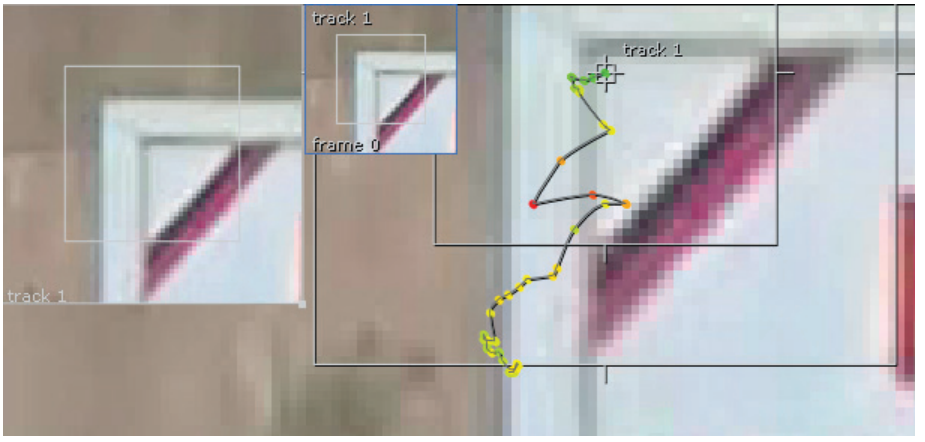

Figure 8-6 *The colored keyframes displayed*

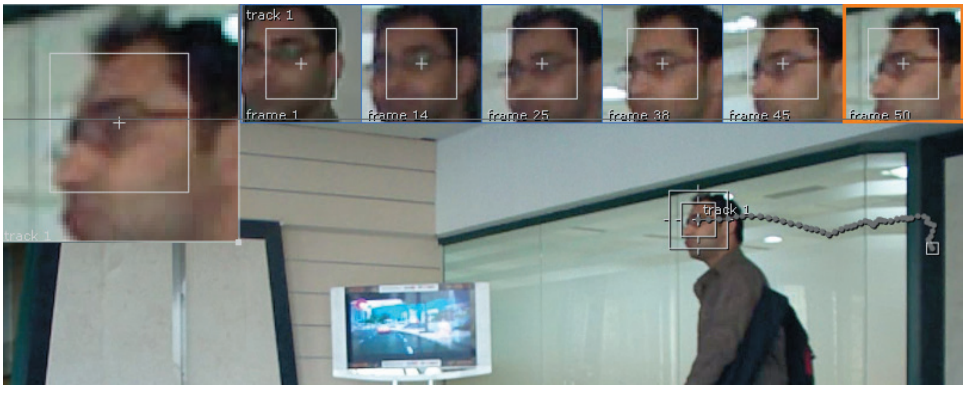

Figure 8-7 *Keyframe windows for each frame displayed*

Figure 8-8 *The output at frame 68*

Figure 8-9 *The output at frame 95*

Figure 8-10 *The output of the* ***Read1*** *node*

Figure 8-11 *The output of the* ***Read2*** *node*

Figure 8-12 *The output of the* ***Read3*** *node*

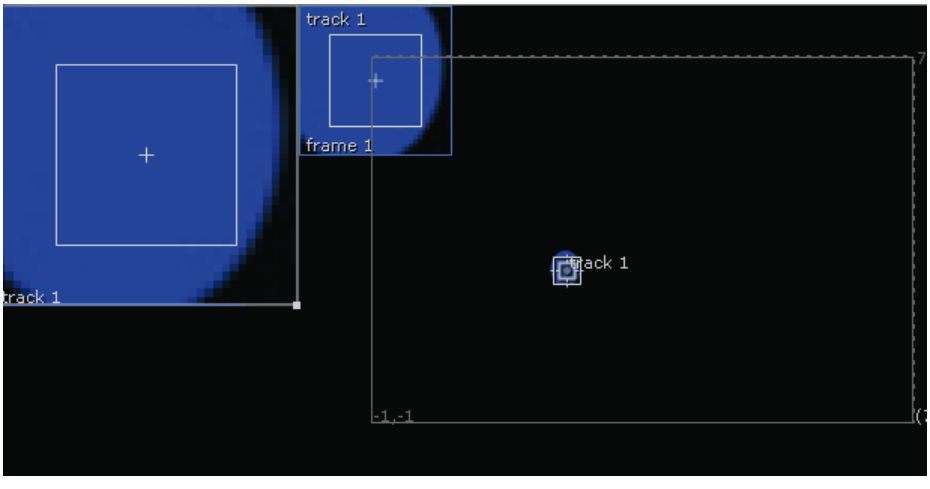

Figure 8-13 *The track point displayed in the* ***Viewer1*** *panel*

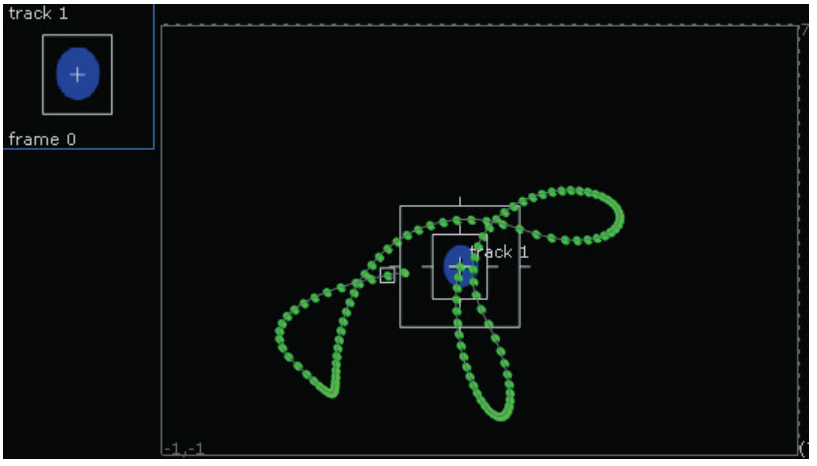

Figure 8-14 *The tracking path displayed*

Figure 8-15 *The output of the* ***Transform1*** *node*

Figure 8-16 *The output of the* ***GodRays1*** *node*

Figure 8-17 *The output after inverting the* ***GodRays1*** *node mask*

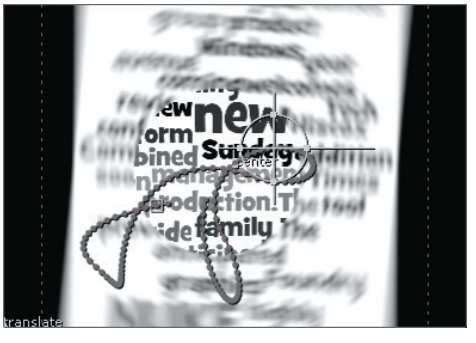

Figure 8-18 *The output after inverting the* ***Blur1*** *node mask*

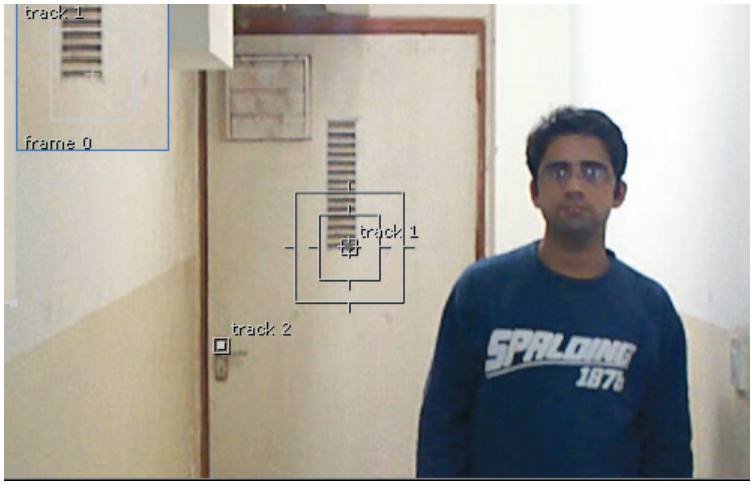

Figure 8-19 *Two Tracker overlays displayed*

Figure 8-20 *The original signboard*

Figure 8-21 *The replaced signboard*

Figure 8-22 *The track path displayed in the* ***Viewer1*** *panel*

Figure 8-23 *The output of the* ***Merge1*** *node*

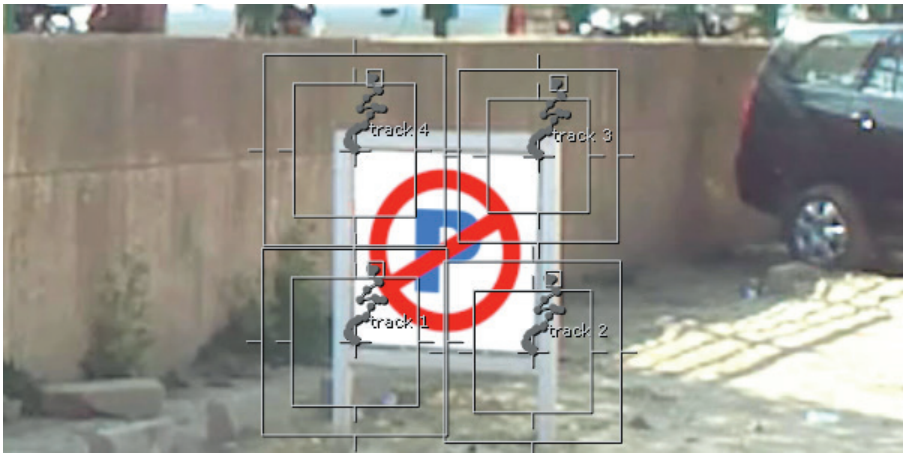

Figure 8-24 *The replaced "no parking" sign*

Chapter 9

Planar Tracking

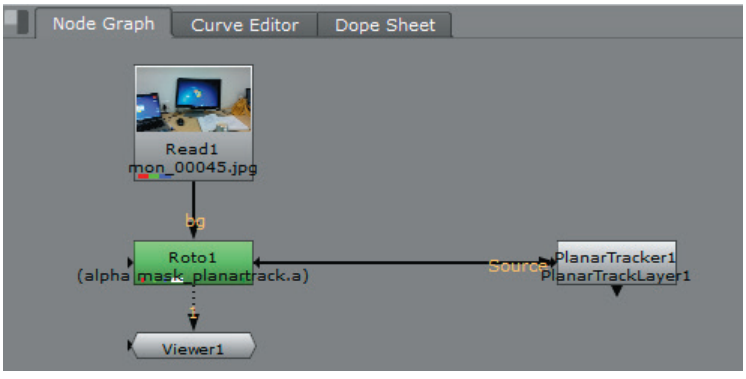

Figure 9-1 *The* ***Roto1*** *node connected with the* ***Read1*** *and* ***PlanarTracker1*** *nodes in the* ***Node Graph*** *panel*

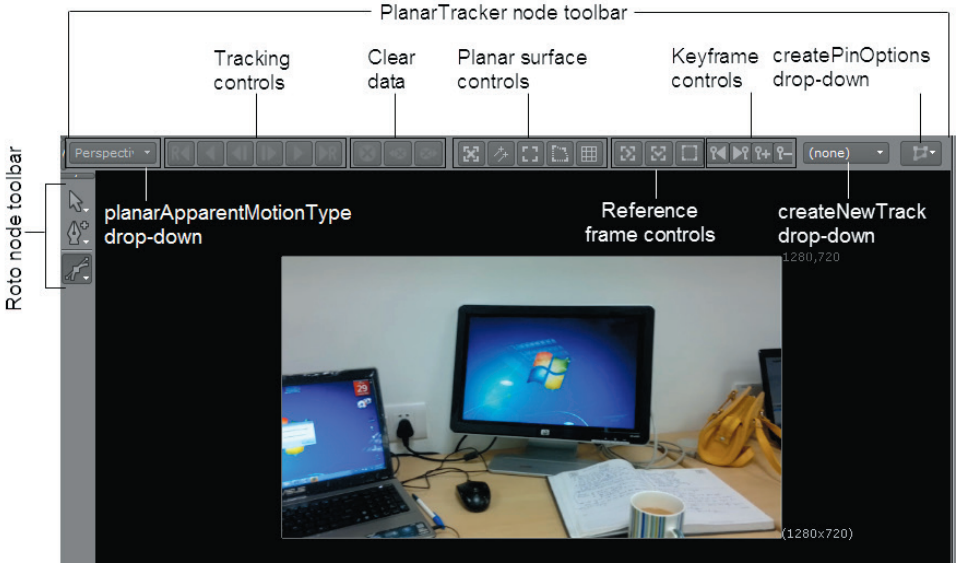

Figure 9-2 *The PlanarTracker and Roto node toolbars*

Figure 9-3 *The planar bezier shape drawn on the screen using the* ***Roto#*** *node*

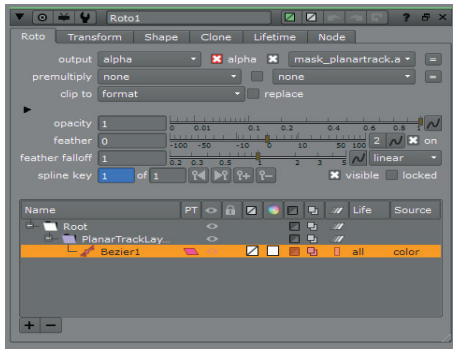

Figure 9-4 *The* ***Bezier1*** *shape added to the* ***PlanarTrackLayer1*** *layer*

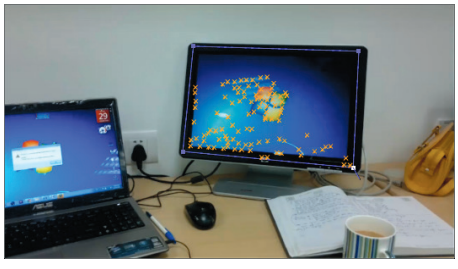

Figure 9-5 *The tracks visible in the* ***Viewer1*** *panel*

Figure 9-6 *The planar surface visible in the* ***Viewer1*** *panel*

Figure 9-7 *The aligned corners of the rectangle*

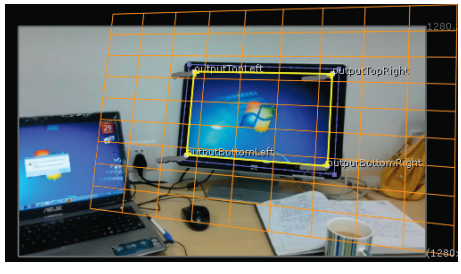

Figure 9-8 *The grid lines associated with the plane displayed*

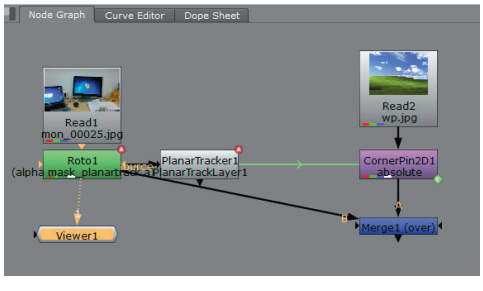

Figure 9-9 *The* ***Merge1*** *node connected with the* ***Roto1*** *and* ***CornerPin2D1*** *nodes*

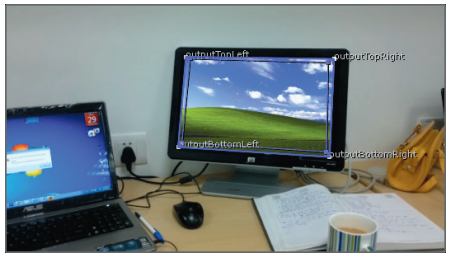

Figure 9-10 *The image placed on the tracked area*

Figure 9-11 *The ws_#####.jpg 0-80 image at frame 20*

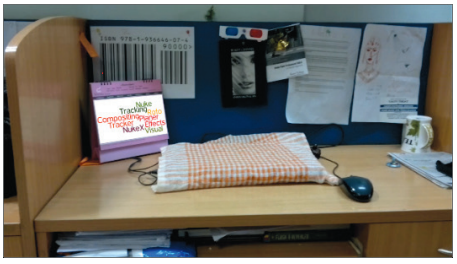

Figure 9-12 *The final output of the script at frame 20*

Figure 9-13 *The bezier shape drawn in the* ***Viewer1*** *panel*

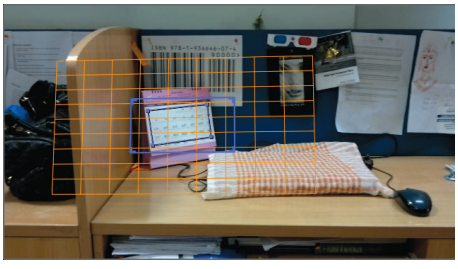

Figure 9-14 *The planar surface and grid visible in the* ***Viewer1*** *panel*

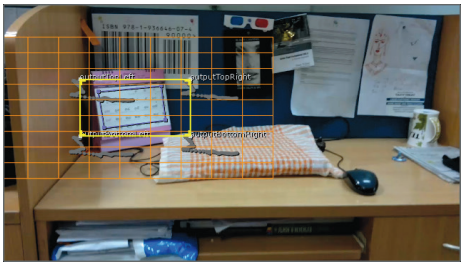

Figure 9-15 *The current plane at frame 0 in the* ***Viewer1*** *panel*

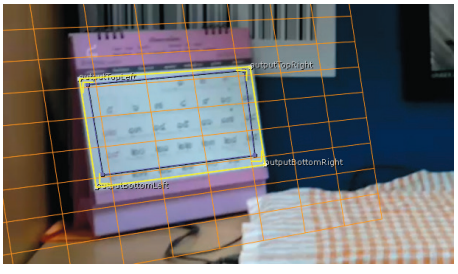

Figure 9-16 *The adjusted current plane in the* ***Viewer1*** *panel*

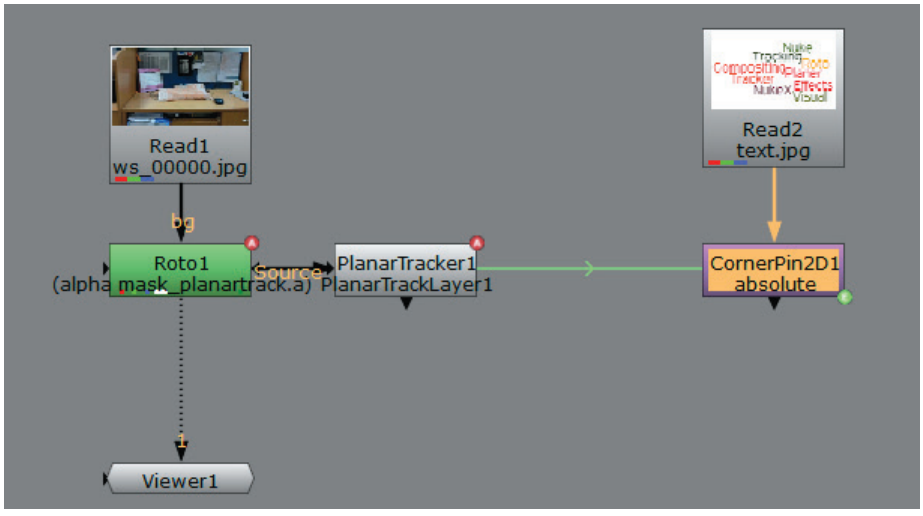

Figure 9-17 *The node network in the* ***Node Graph*** *panel*

Figure 9-18 *The hcw_laptop_green.####.png 0-218 image at frame 30*

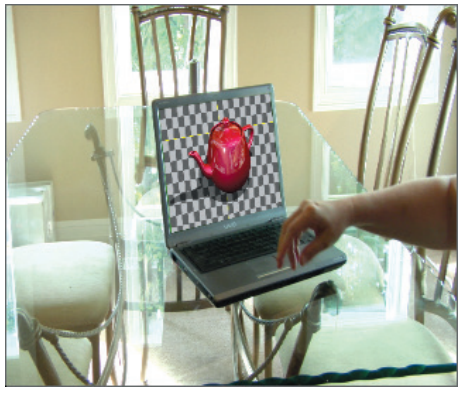

Figure 9-19 *The final output of the script at frame 30*

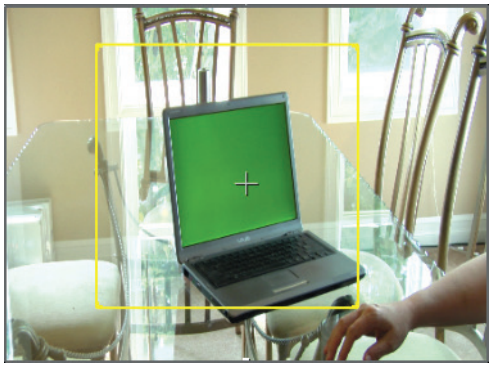

Figure 9-20 *The planar surface displayed in the* ***Viewer1*** *panel*

Figure 9-21 *The position of the plane adjusted in the* ***Viewer1*** *panel*

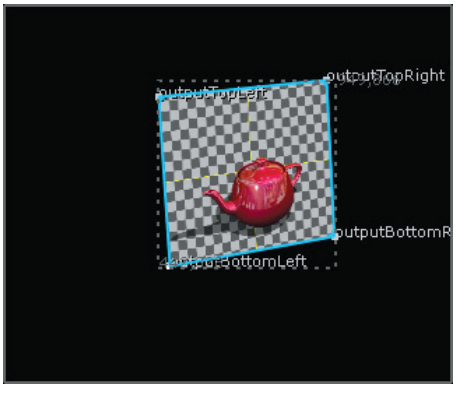

Figure 9-22 *The output of the* ***CornerPin2D1*** *node*

Figure 9-23 *The output of the* ***Merge2*** *node*

Figure 9-24 *The hand of the actor behind the plane at frame 51*

Figure 9-25 *The output of the* ***Merge2*** *node at frame 51*

Chapter 10

Transformations, Temporal Operations, and Filters

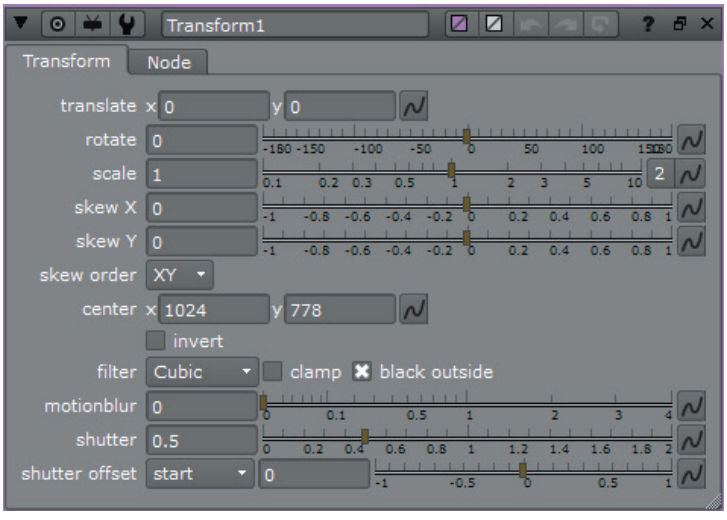

Figure 10-1 *The* ***Transform1*** *node properties panel*

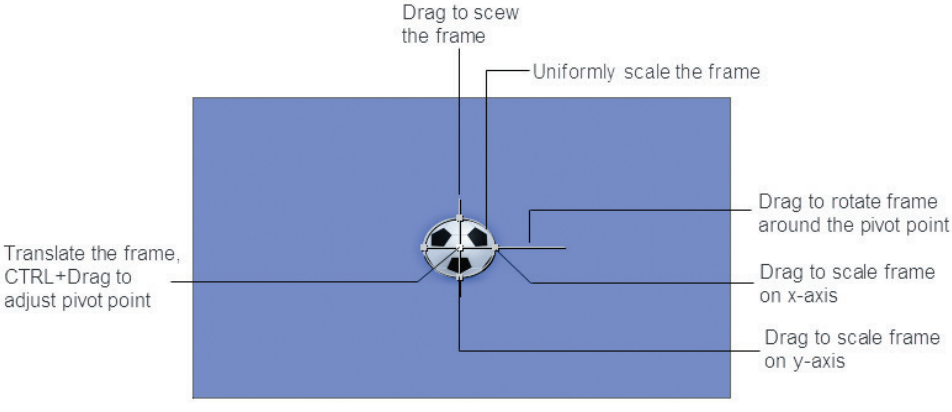

Figure 10-2 *A Transform overlay displayed in the* ***Viewer#*** *panel*

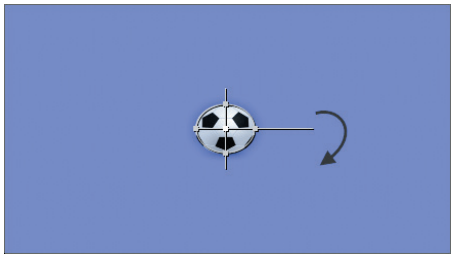

Figure 10-3 *Dragging the rotate handle clockwise*

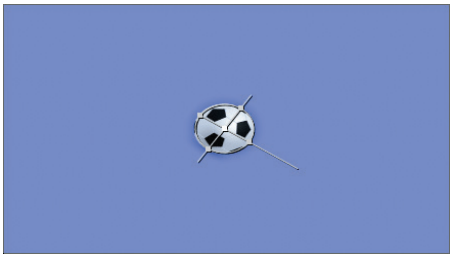

Figure 10-4 *The result of the rotation transformation*

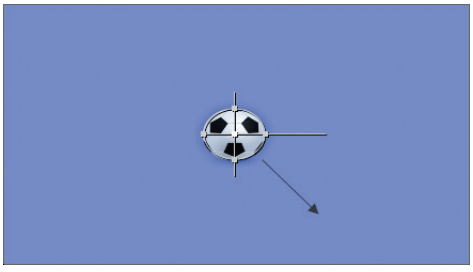

Figure 10-5 *Dragging the scale handle*

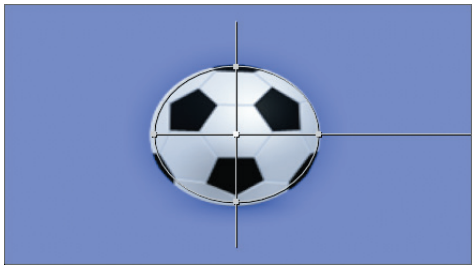

Figure 10-6 *The scaled element*

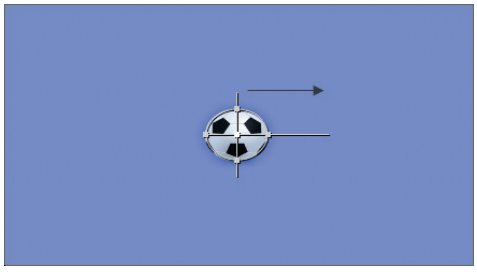

Figure 10-7 *Dragging the skew handle*

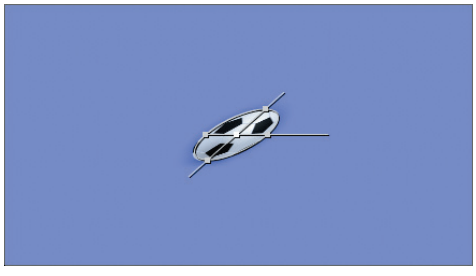

Figure 10-8 *The skewed element*

Figure 10-9 *The* ***Impulse*** *algorithm*

Figure 10-10 *The* ***Cubic*** *algorithm*

Figure 10-11 *The* ***Keys*** *algorithm*

Figure 10-12 *The* ***Simon*** *algorithm*

Figure 10-13 *The* ***Rifman*** *algorithm*

Figure 10-14 *The* ***Mitchell*** *algorithm*

Figure 10-15 *The* ***Parzen*** *algorithm*

Figure 10-16 *The* ***Notch*** *algorithm*

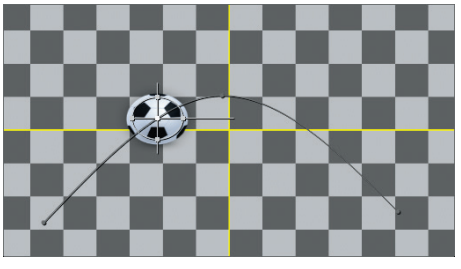

Figure 10-17 *The element before applying motion blur*

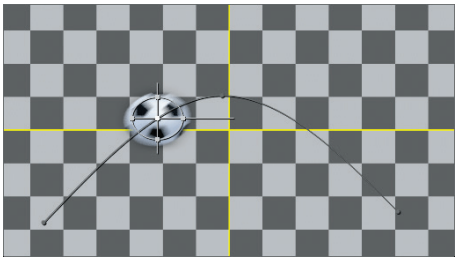

Figure 10-18 *The element after applying motion blur*

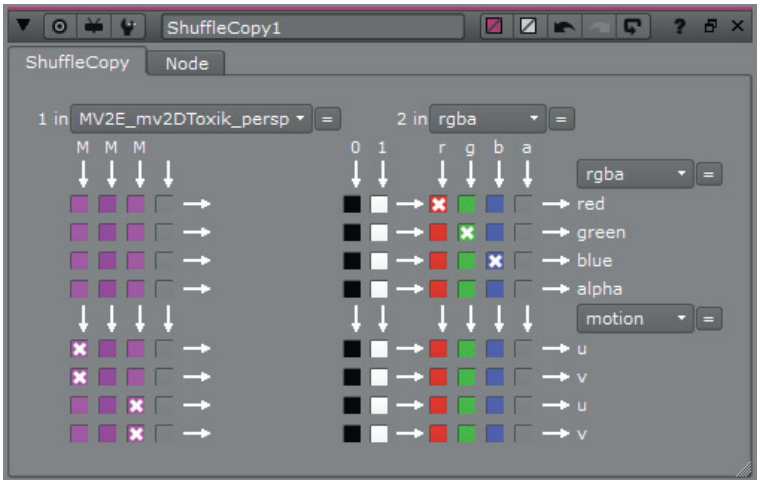

Figure 10-19 *The* ***ShuffleCopy1*** *node properties panel*

Figure 10-20 *The input image, motion vectors, and motion blur at a frame*

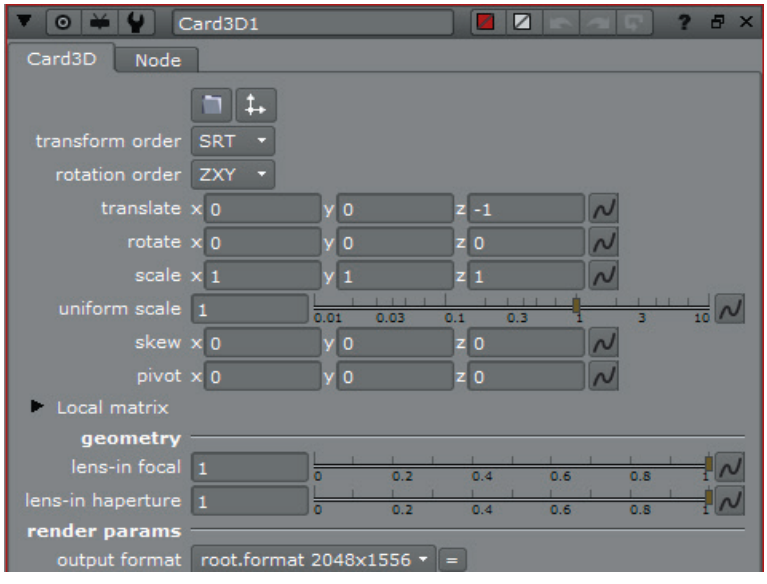

Figure 10-21 *Partial view of the* ***Card3D1*** *node properties panel*

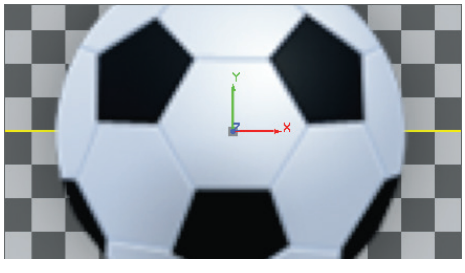

Figure 10-22 *The Card3D overlay*

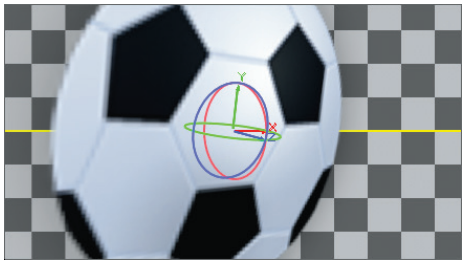

Figure 10-23 *The rotated element*

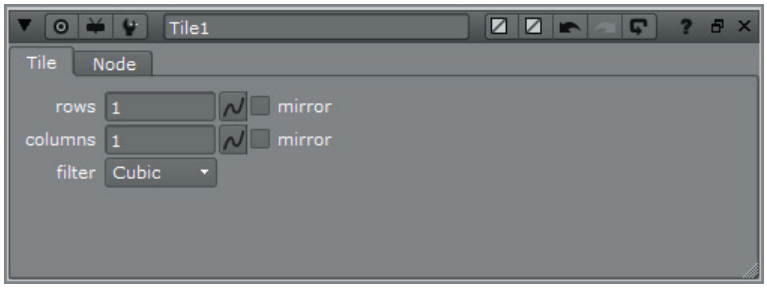

Figure 10-24 *The* ***Tile1*** *node properties panel*

Figure 10-25 *The input image*

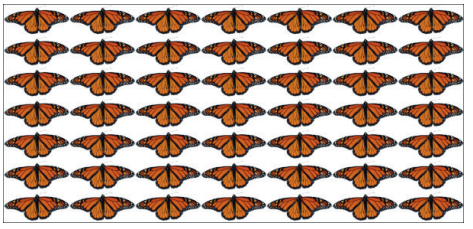

Figure 10-26 *The replicated image*

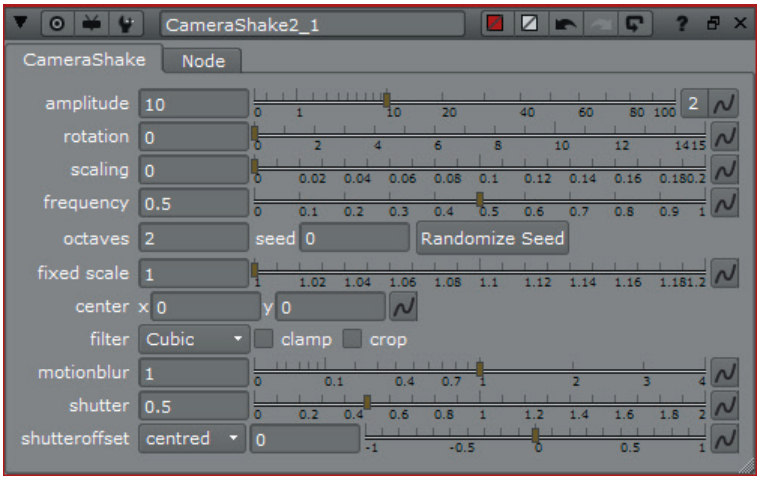

Figure 10-27 *The* ***CameraShake2_1*** *node properties panel*

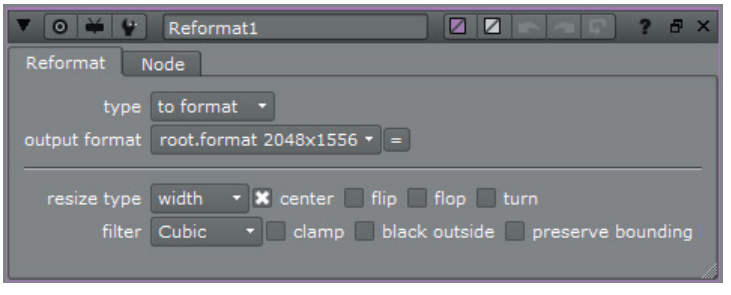

Figure 10-28 *The* ***Reformat1*** *node properties panel*

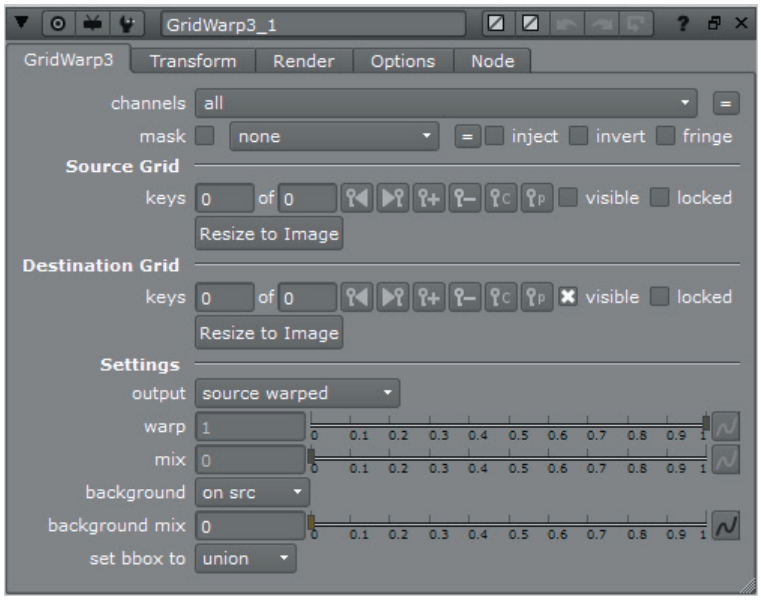

Figure 10-29 *The* ***GridWarp3_1*** *node properties panel*

Figure 10-30 *The GridWarp3_# node toolbars*

Figure 10-31 *The destination grid visible in the* ***Viewer#*** *panel*

Figure 10-32 *The four tangent handles displayed around the selected point*

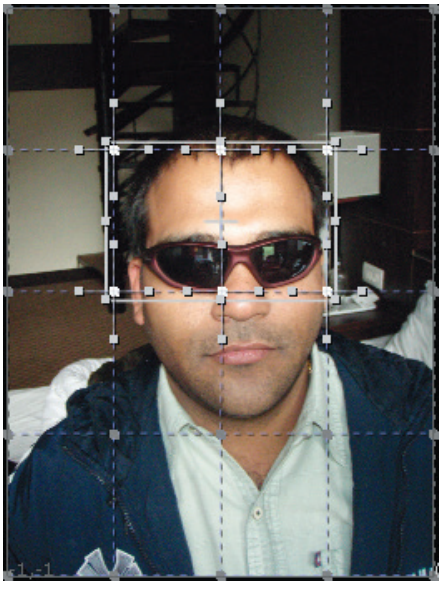

Figure 10-33 *The Transform overlay displayed*

Figure 10-34 *The red overlay displayed*

Figure 10-35 *The user defined grid*

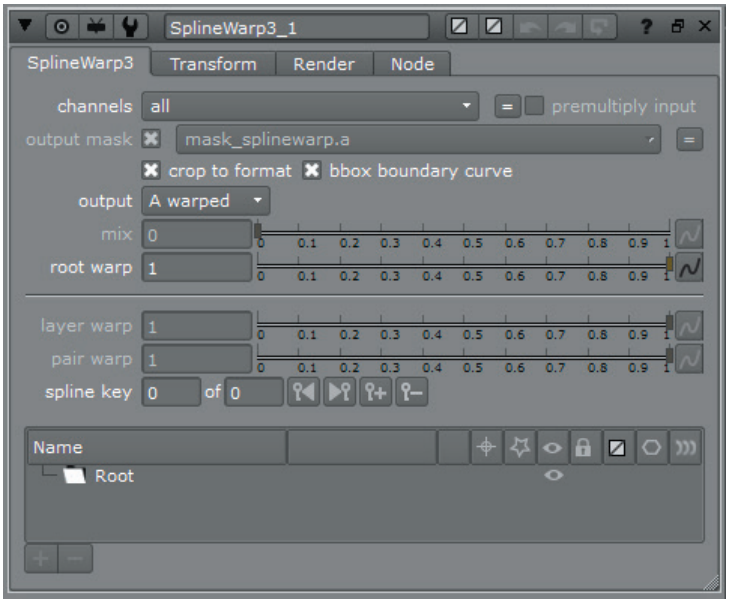

Figure 10-36 *The* ***SplineWarp3_1*** *node properties panel*

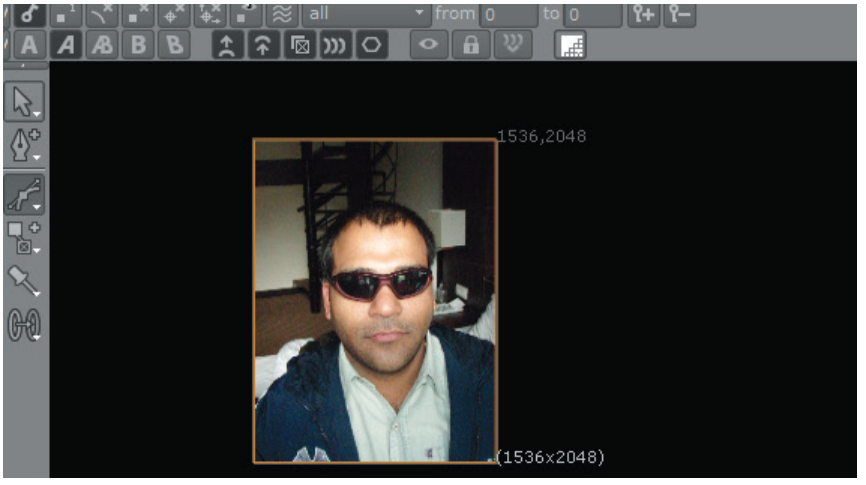

Figure 10-37 *The SplineWarp3_1 node toolbars displayed*

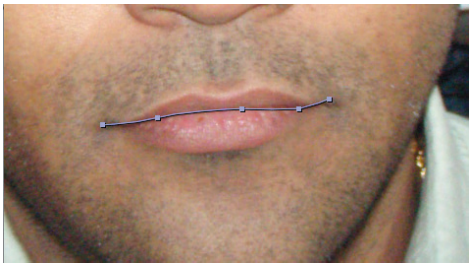

Figure 10-38 *The curve created in the* ***Viewer#*** *panel*

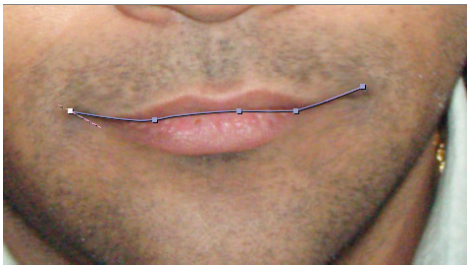

Figure 10-39 *The position of the points changed*

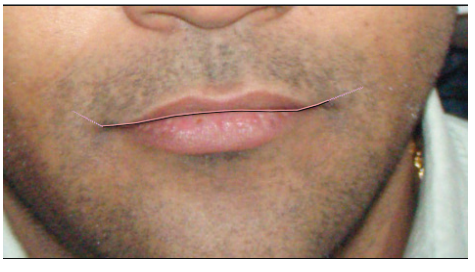

Figure 10-40 *The source curve displayed*

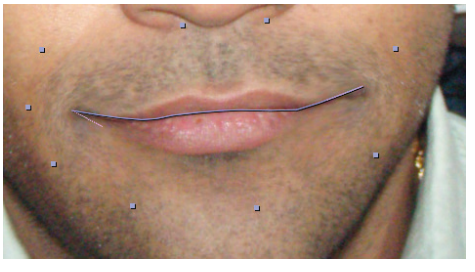

Figure 10-41 *The warp effect restricted inside the area defined using the* ***Pin*** *tool*

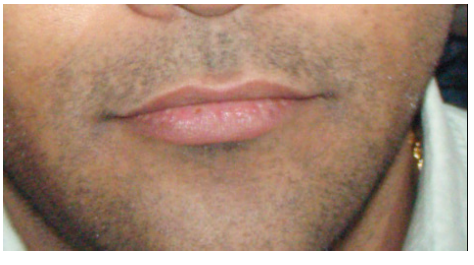

Figure 10-42 *The input image*

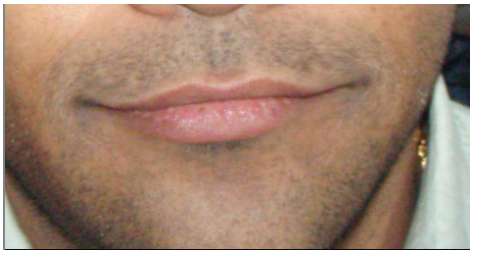

Figure 10-43 *The warped image*

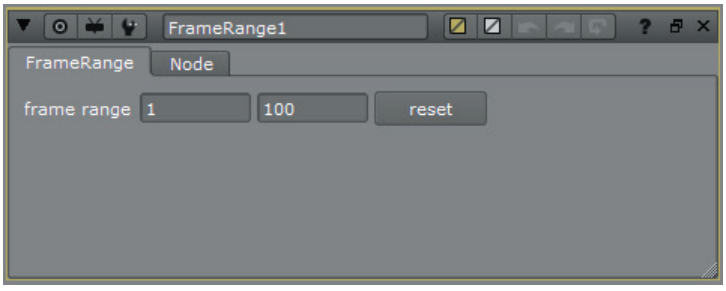

Figure 10-44 *The* ***FrameRange#*** *node properties panel*

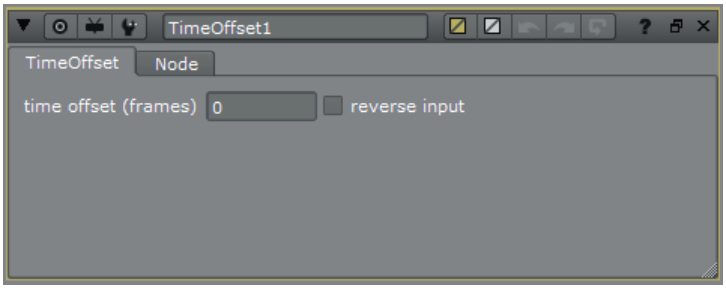

Figure 10-45 *The* ***TimeOffset1*** *node properties panel*

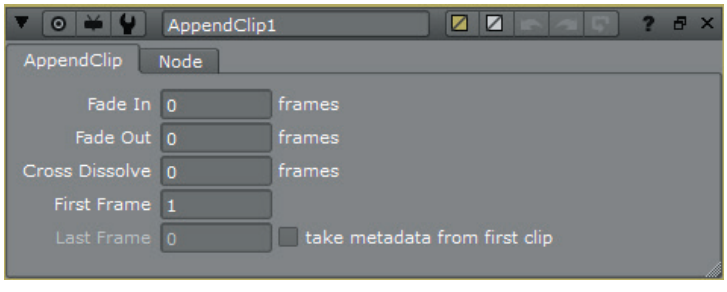

Figure 10-46 *The* ***AppendClip1*** *node properties panel*

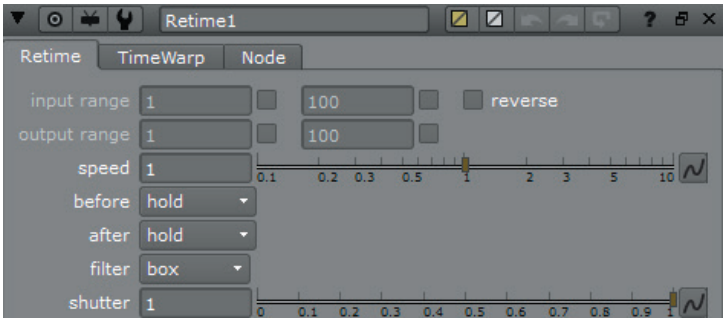

Figure 10-47 *The* ***Retime1*** *node properties panel*

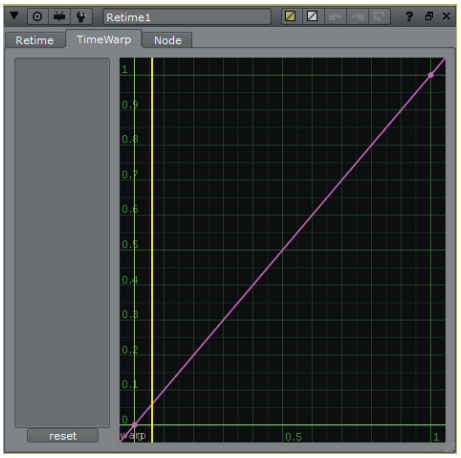

Figure 10-48 *The TimeWarp curve*

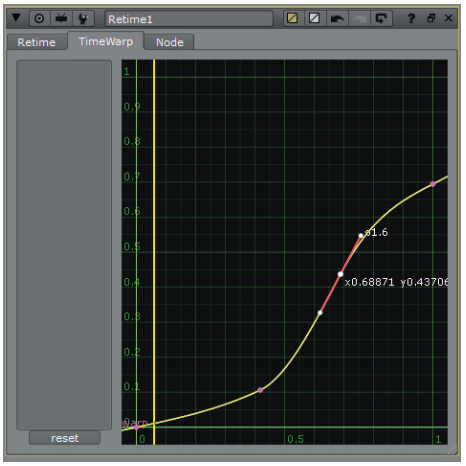

Figure 10-49 *The modified TimeWarp curve*

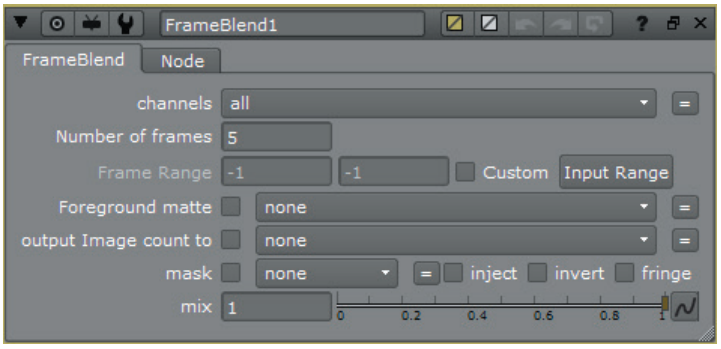

Figure 10-50 *The* ***FrameBlend1*** *node properties panel*

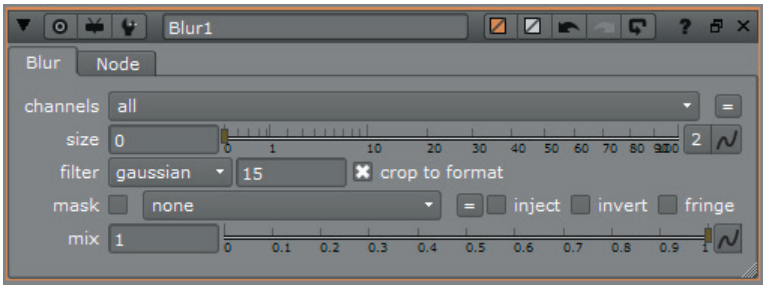

Figure 10-51 *The* ***Blur1*** *node properties panel*

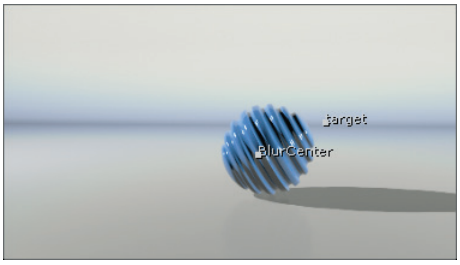

Figure 10-52 *The input image*

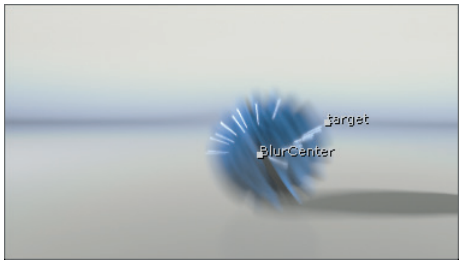

Figure 10-53 *The* ***zoom*** *blur type applied*

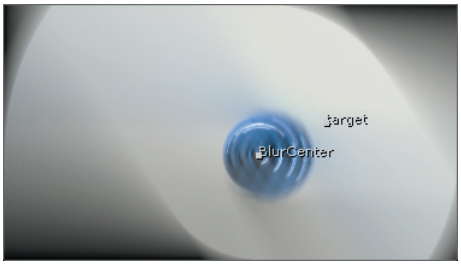

Figure 10-54 *The* ***radial*** *blur type applied*

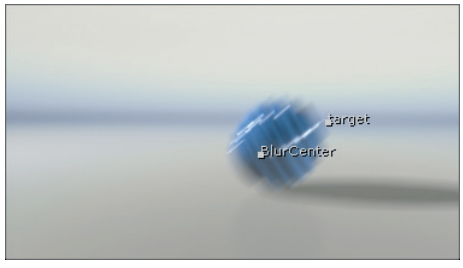

Figure 10-55 *The* ***linear*** *blur type applied*

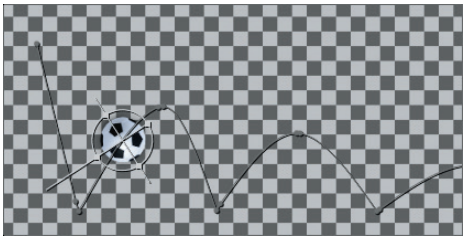

Figure 10-56 *The soccer ball animation at frame 11*

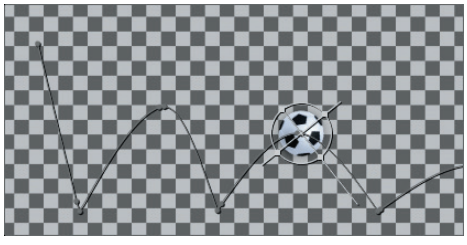

Figure 10-57 *The soccer ball animation at frame 29*

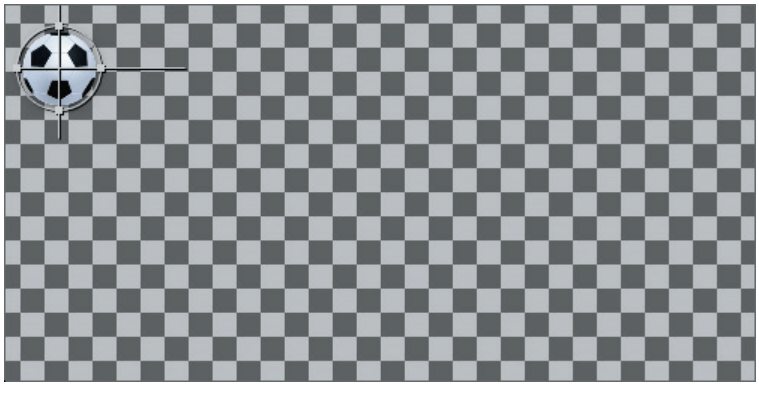

Figure 10-58 *The position of the ball at frame 1*

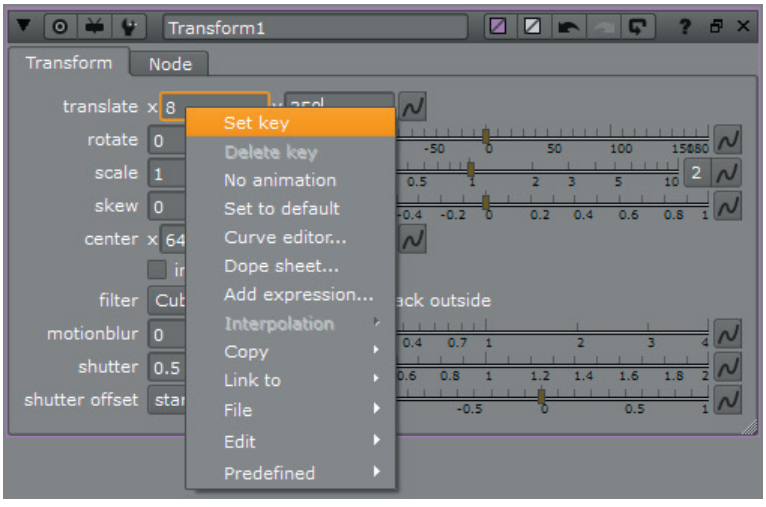

Figure 10-59 *A shortcut menu displayed on right-clicking on the* ***x*** *field corresponding to the* ***translate*** *parameter*

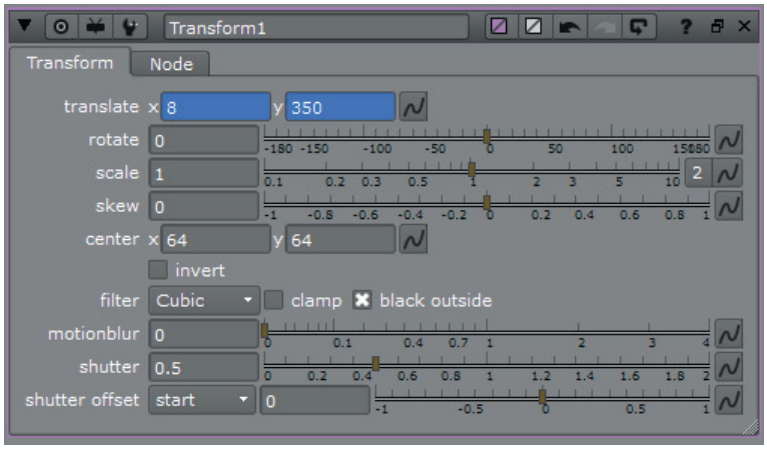

Figure 10-60 *The background color of* ***x*** *and* ***y*** *fields changed to blue*

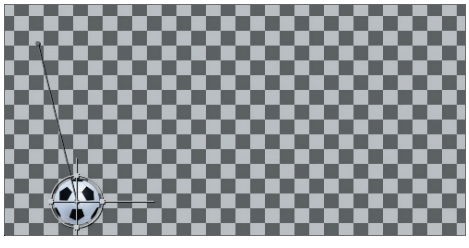

Figure 10-61 *The position of ball at frame 7*

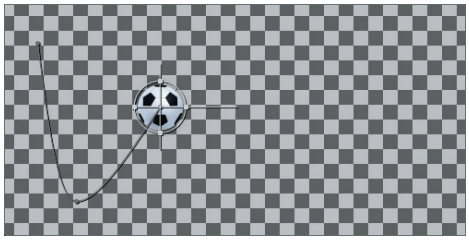

Figure 10-62 *The position of ball at frame 14*

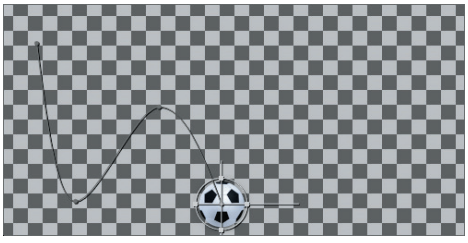

Figure 10-63 *The position of ball at frame 22*

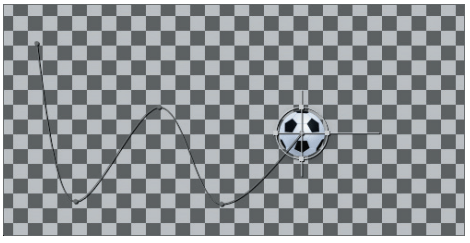

Figure 10-64 *The position of ball at frame 29*

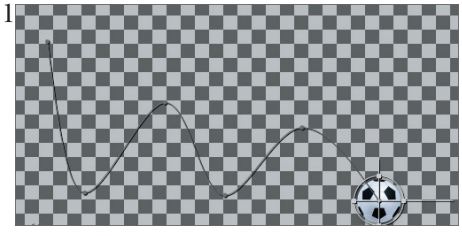

Figure 10-65 *The position of ball at frame 36*

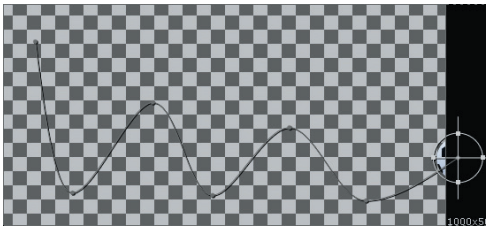

Figure 10-66 *The position of ball at frame 43*

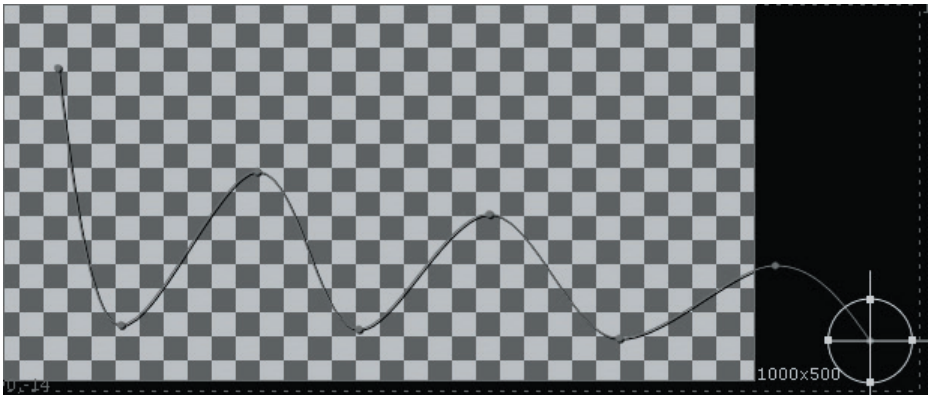

Figure 10-67 *The position of ball at frame 50*

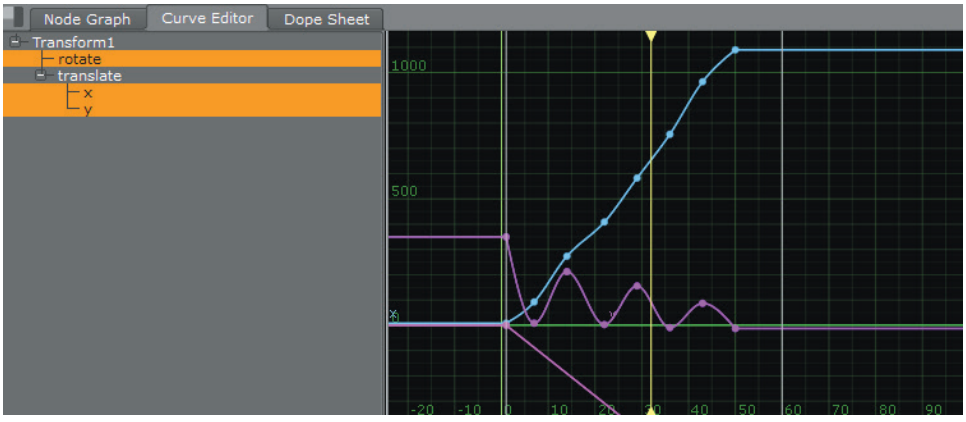

Figure 10-68 *Animation curves displayed in the* ***Curve Editor*** *panel*

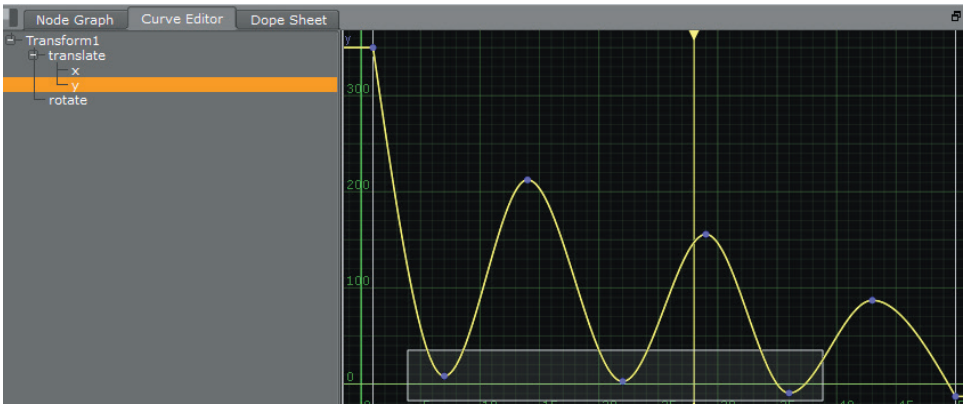

Figure 10-69 *The bottom keyframes selected*

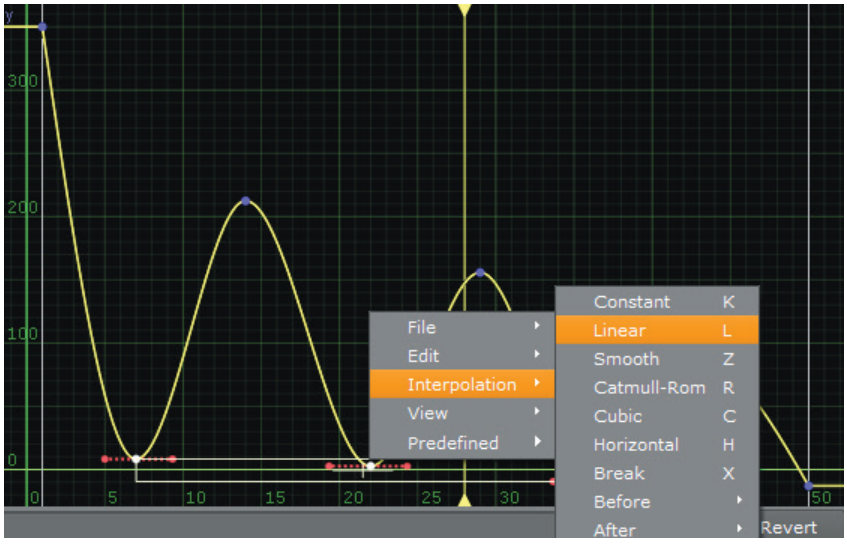

Figure 10-70 *A shortcut menu displayed on right-clicking on the selection*

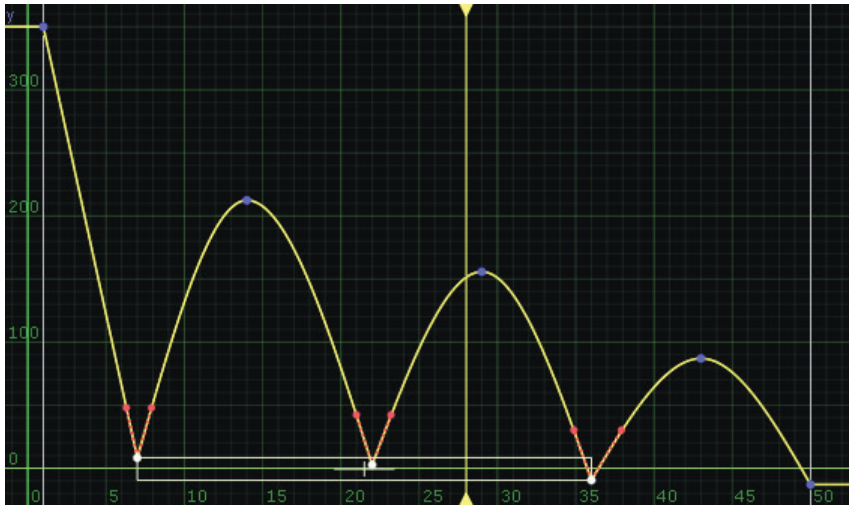

Figure 10-71 *The changed shape of the curve*

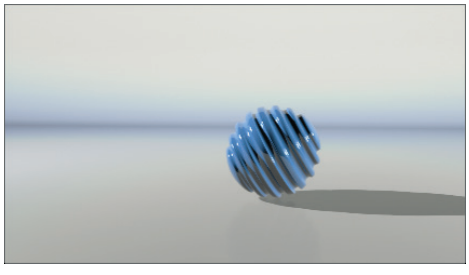

Figure 10-72 *The input image at frame 14*

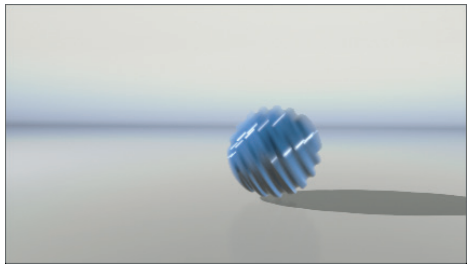

Figure 10-73 *The motion blur applied to the element at frame 14*

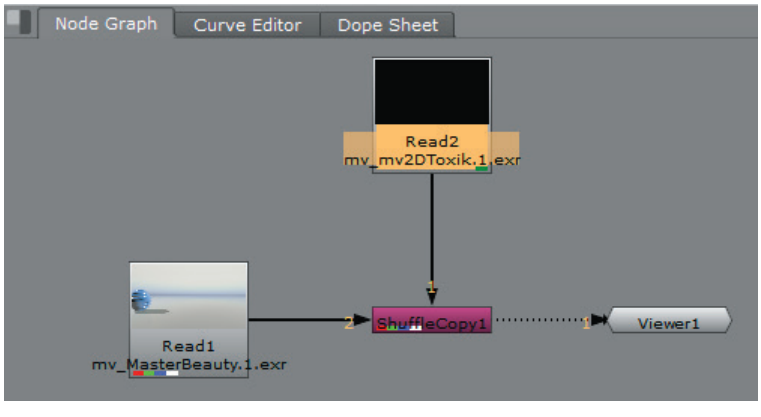

Figure 10-74 *The* ***ShuffleCopy1*** *node connected to the* ***Read1*** *and* ***Read2*** *nodes*

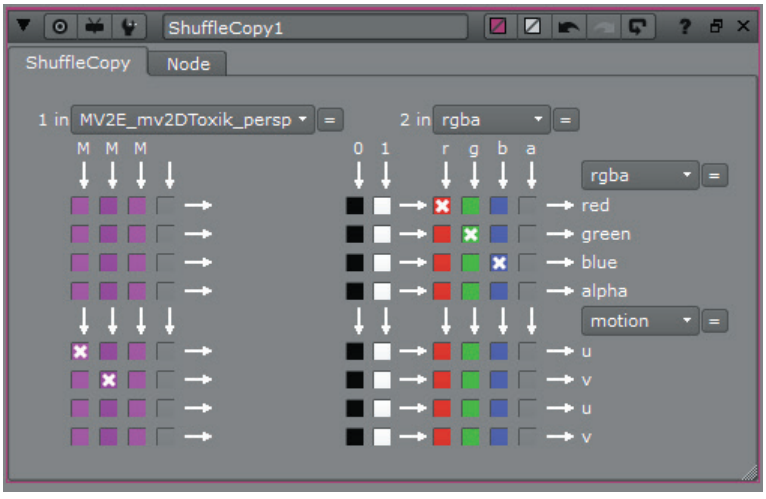

*Figure 10-75 The **ShuffleCopy1** node properties panel*

Chapter 11

Keying

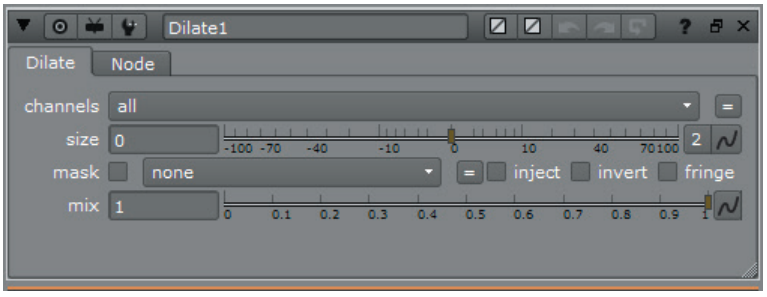

Figure 11-1 The ***Dilate1*** *node properties panel*

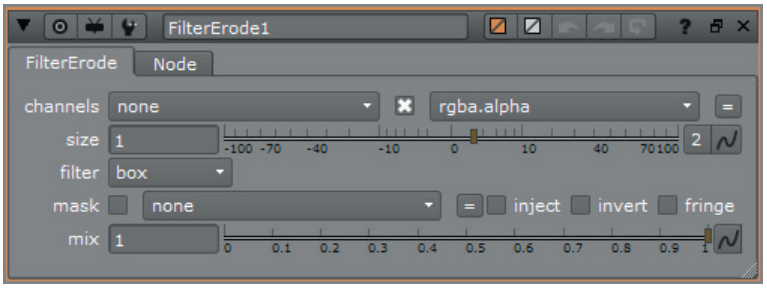

Figure 11-2 The ***FilterErode1*** *node properties panel*

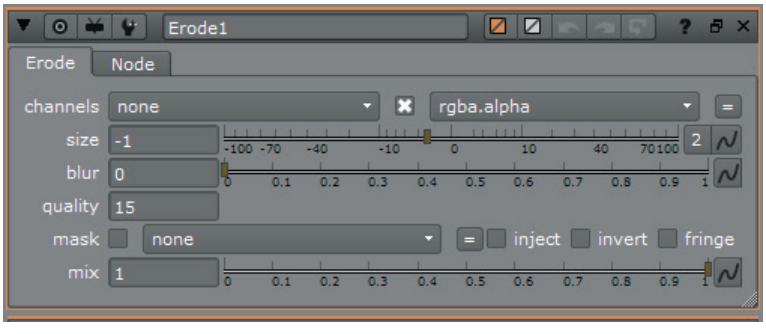

Figure 11-3 The ***Erode1*** *node properties panel*

Figure 11-4 The final composite

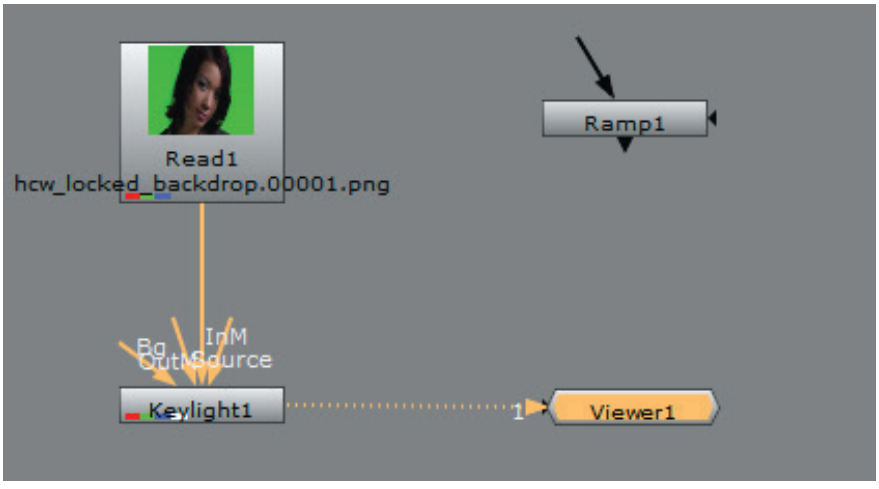

Figure 11-5 *The* ***Keylight1*** *node connected to the* ***Read1*** *and the* ***Viewer1*** *nodes*

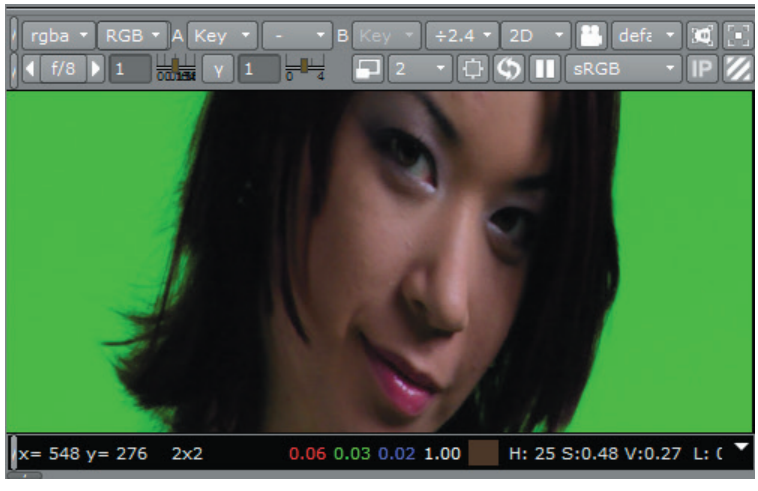

Figure 11-6 *The output of the* ***Keylight1*** *node*

3

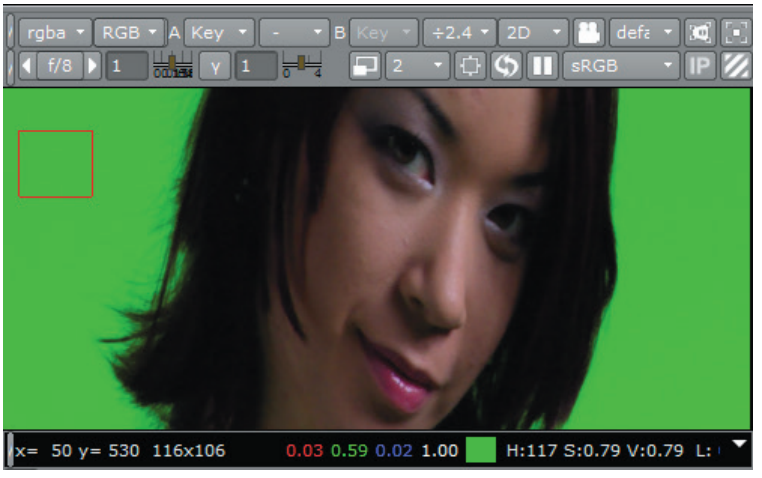

Figure 11-7 *The sample rectangle*

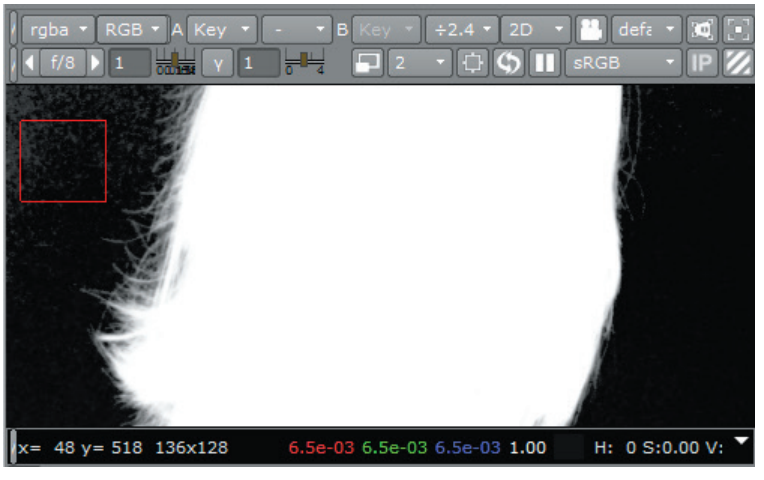

Figure 11-8 *The* ***Screen Matte*** *displayed in the* ***Viewer1*** *panel*

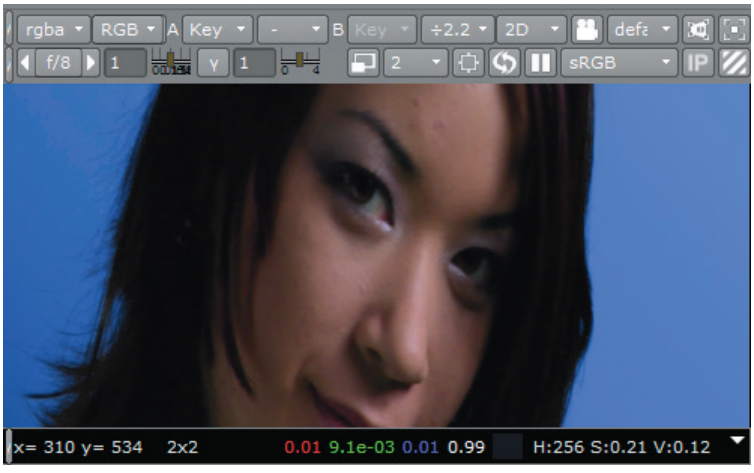

Figure 11-9 *The foreground image composited over the background*

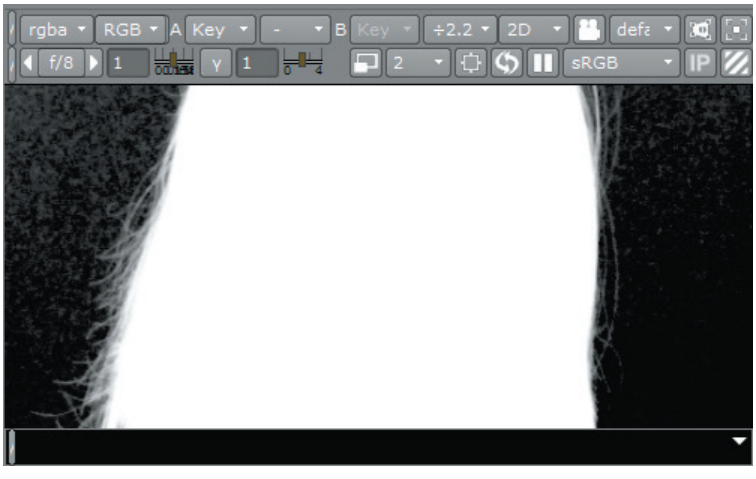

Figure 11-10 *Displaying the matte in the* ***Viewer1*** *panel*

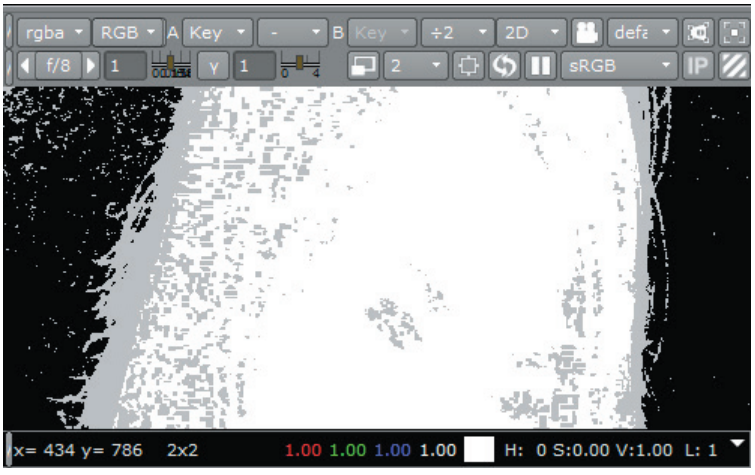

Figure 11-11 *The output after selecting the* ***Status*** *option*

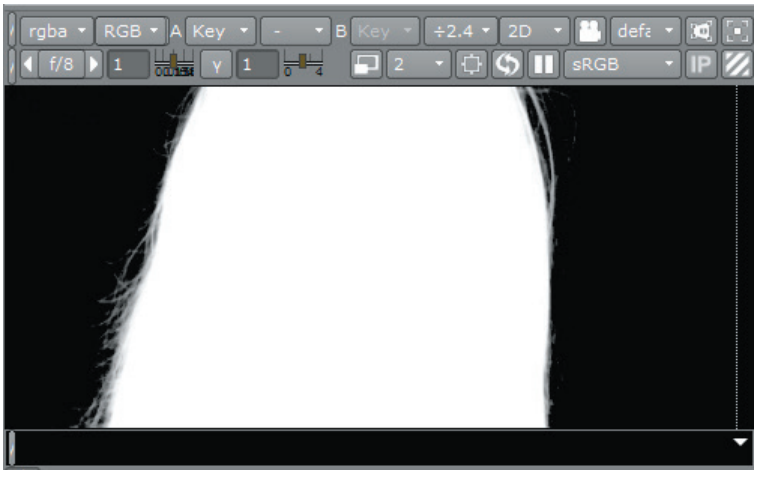

Figure 11-12 *The refined matte*

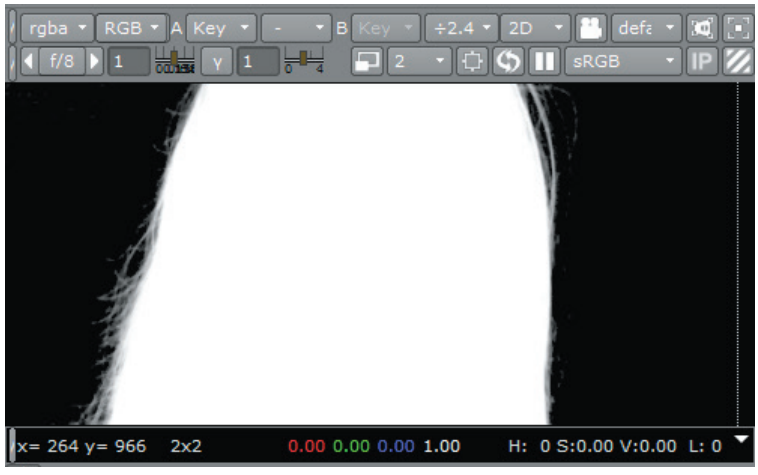

Figure 11-13 *The restored matte edges*

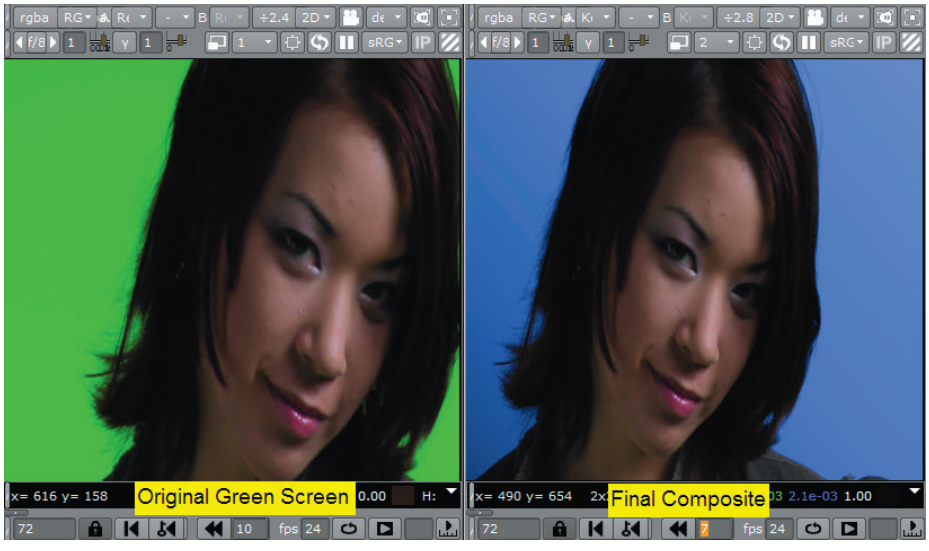

Figure 11-14 *The original input image and the final composite*

6

Figure 11-15 *The final composite*

Figure 11-16 *The output of the* ***Keylight1*** *node*

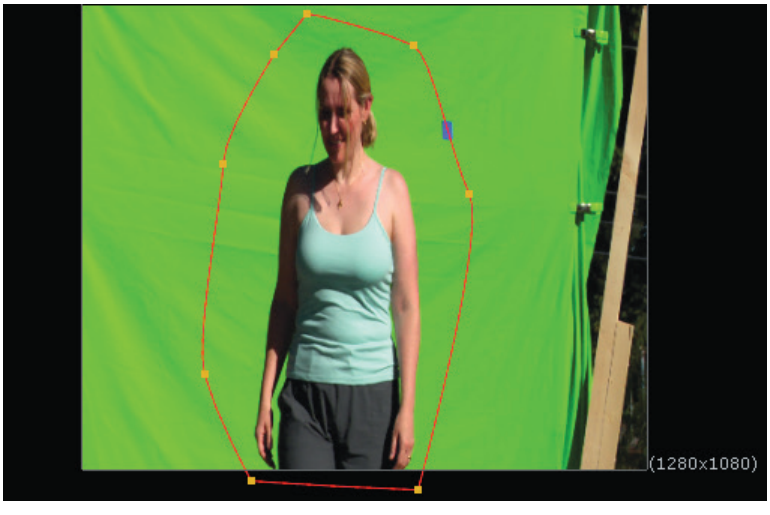

Figure 11-17 *The garbage matte shape drawn*

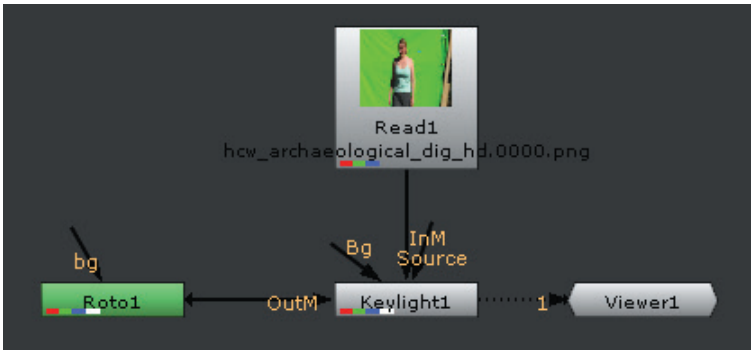

Figure 11-18 *The* ***Roto1*** *node connected to the* ***Keylight1*** *node*

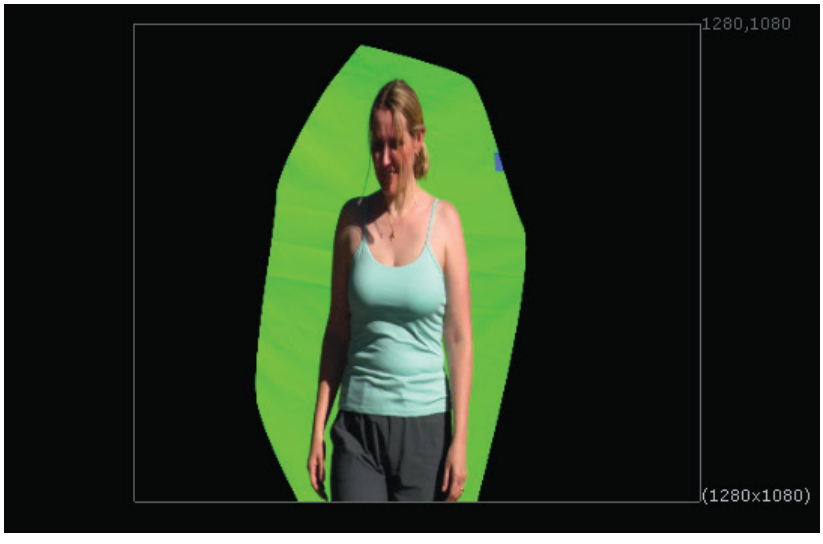

Figure 11-19 *The garbage removed from the image*

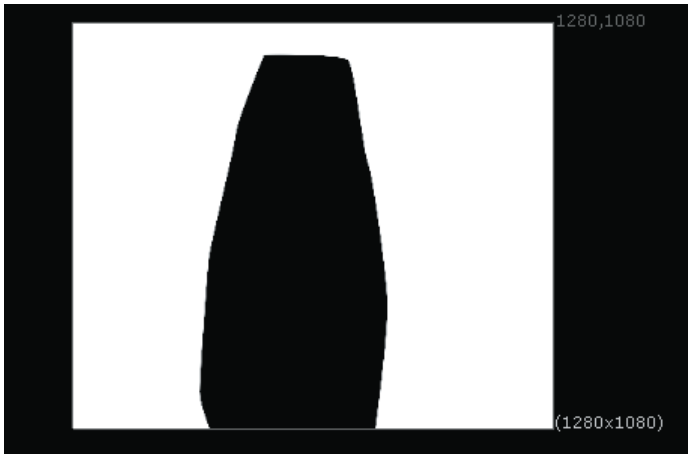

Figure 11-20 *The outside mask displayed*

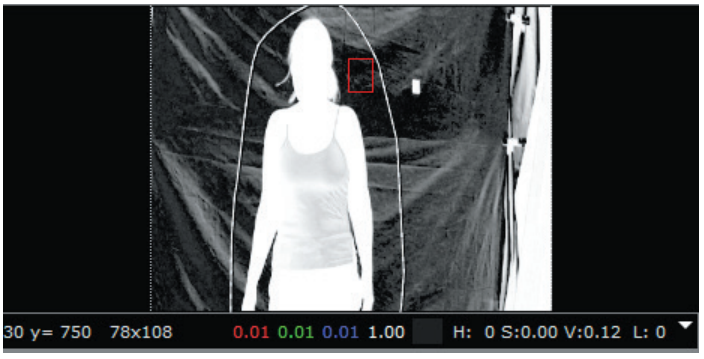

Figure 11-21 *The* ***Screen Matte*** *displayed*

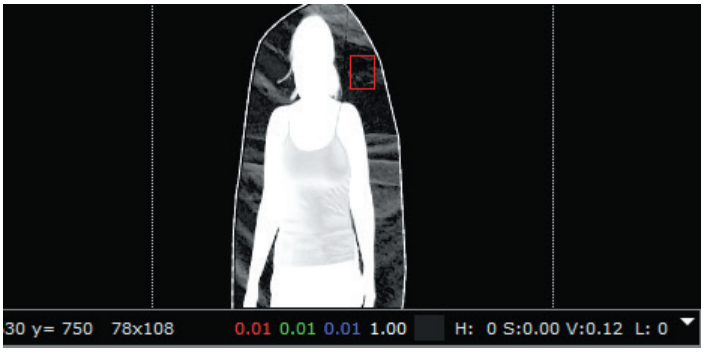

Figure 11-22 *Garbage removed from the* ***Screen Matte***

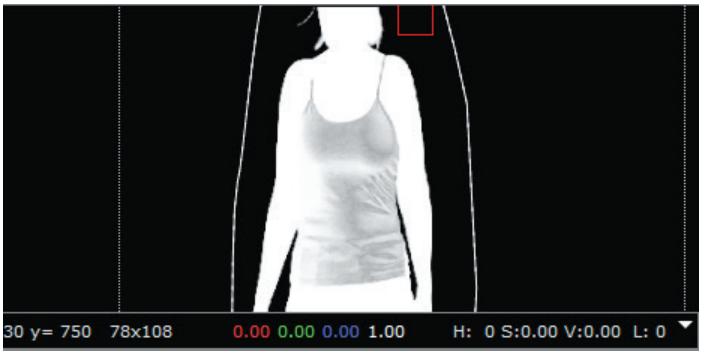

Figure 11-23 *Semi-transparent pixels on the character*

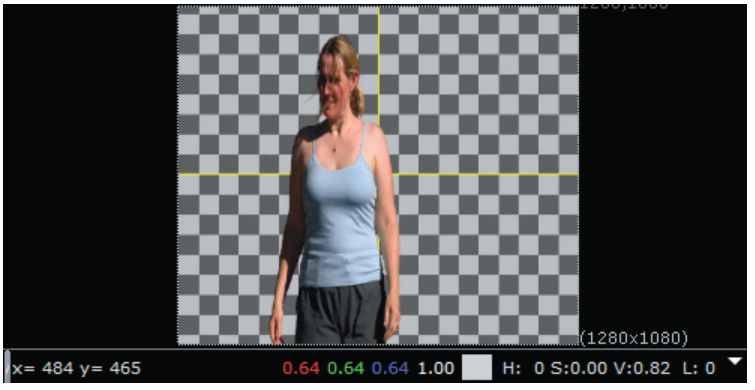

Figure 11-24 *The final composite*

Figure 11-25 *The input image*

Figure 11-26 *The final composite*

Figure 11-27 *The output of the* ***IBKColourV3_1*** *node*

Figure 11-28 *The output after setting values of the* ***darks*** *and* ***lights*** *parameters*

Figure 11-29 *The clean plate created*

Figure 11-30 *The alpha channel displayed*

Chapter 12

3D Compositing

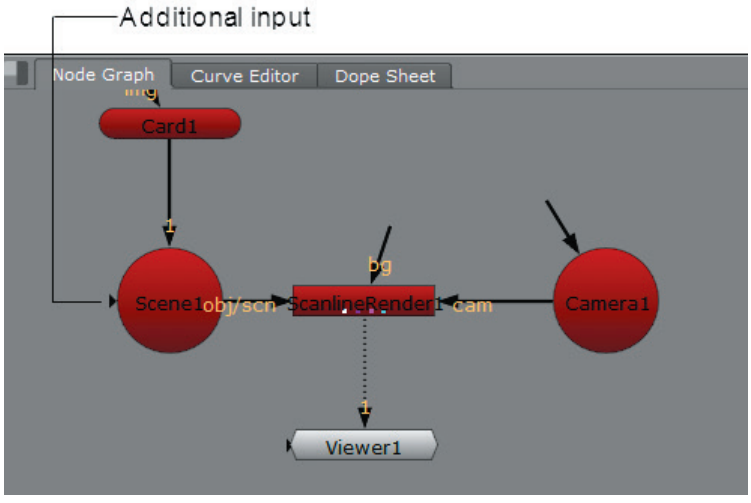

Figure 12-1 The main nodes used for setting up a 3D scene

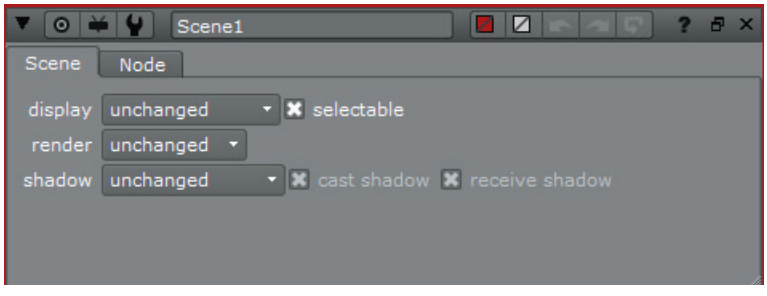

*Figure 12-2 The **Scene1** node properties panel*

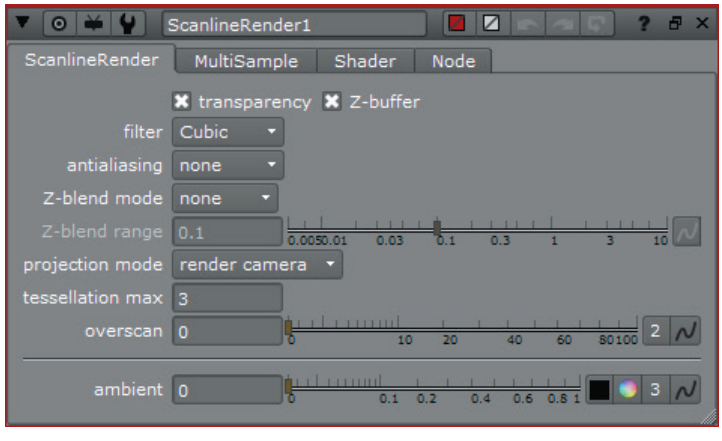

*Figure 12-3 The **ScanlineRender1** node properties panel*

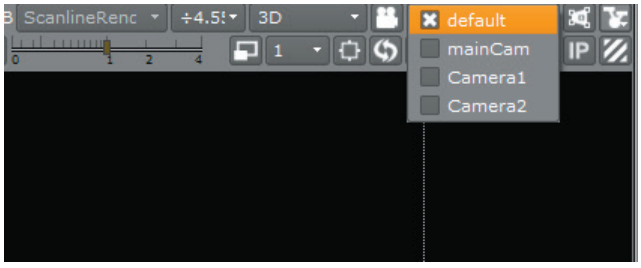

Figure 12-4 *The Camera/light drop-down in the* ***Viewer#*** *panel*

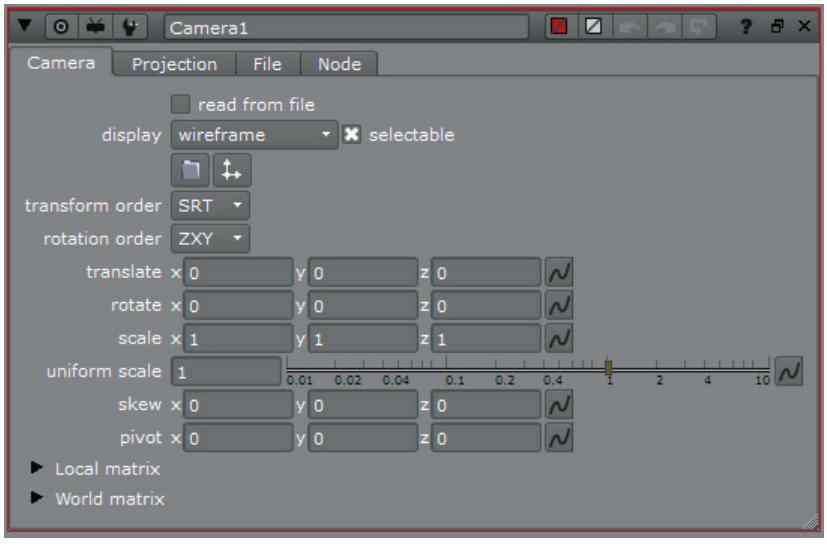

Figure 12-5 *The* ***Camera1*** *node properties panel*

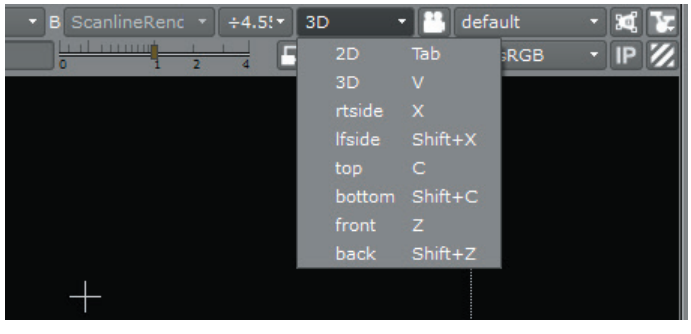

Figure 12-6 *The* ***View selection*** *drop-down in the* ***Viewer#*** *panel*

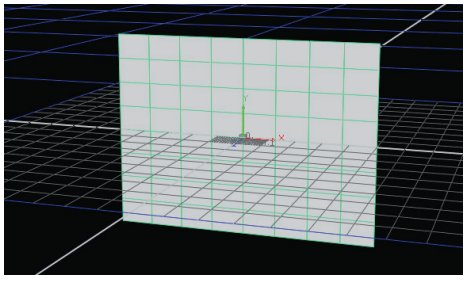

Figure 12-7 *The card object*

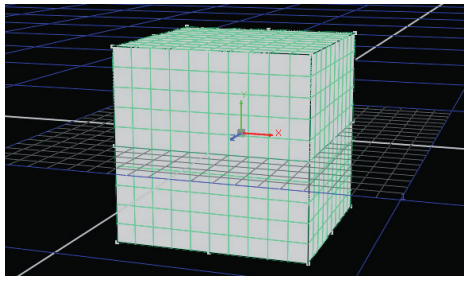

Figure 12-8 *The cube object*

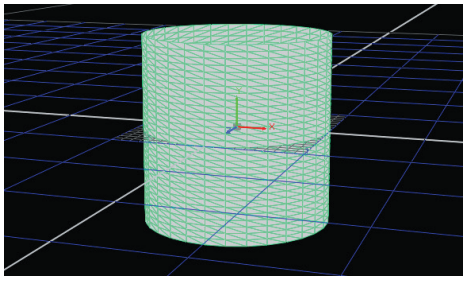

Figure 12-9 *The cylindrical object*

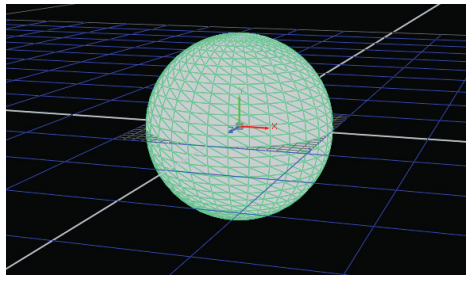

Figure 12-10 *The spherical object*

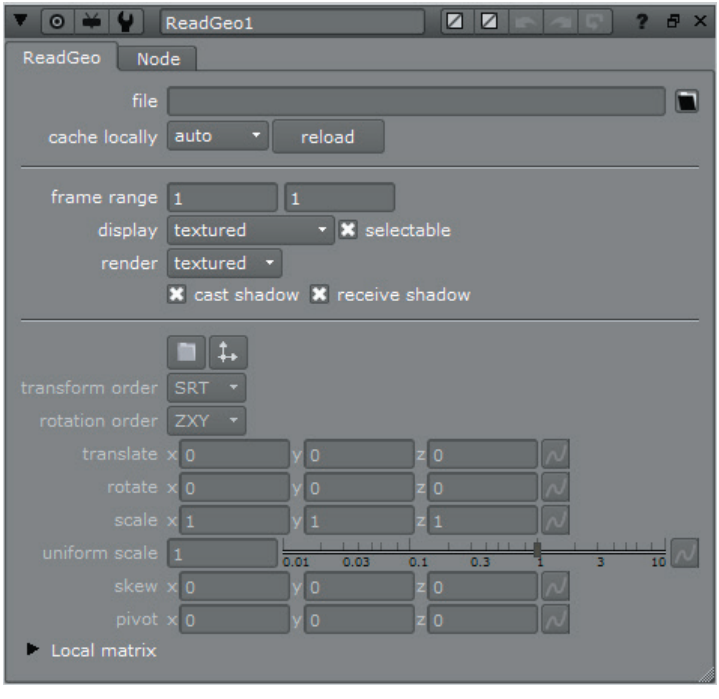

Figure 12-11 *The* ***ReadGeo1*** *node properties panel*

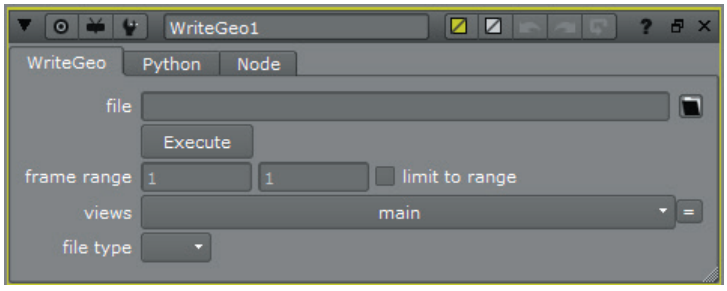

Figure 12-12 *The* ***WriteGeo1*** *node properties panel*

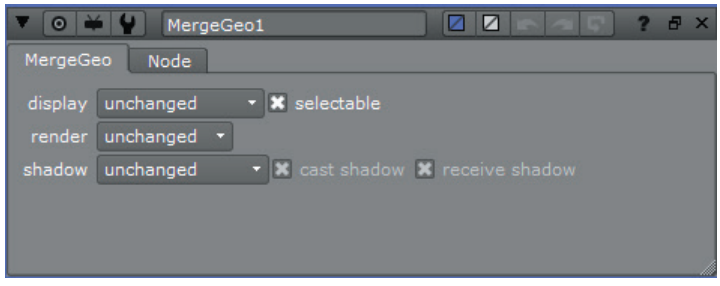

Figure 12-13 *The* ***MergeGeo1*** *node properties panel*

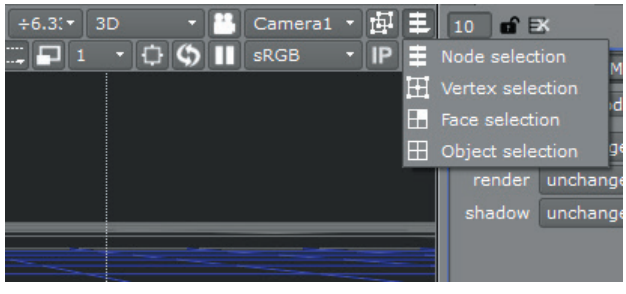

Figure 12-14 *Various selection tools displayed*

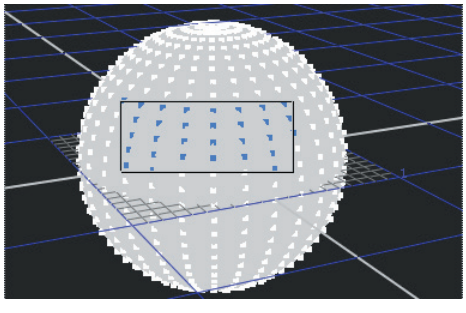

Figure 12-15 *A marquee displayed to select vertices*

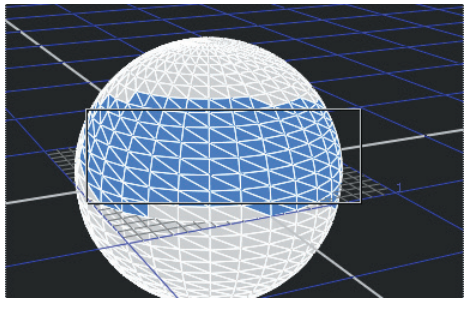

Figure 12-16 *A marquee displayed to select faces*

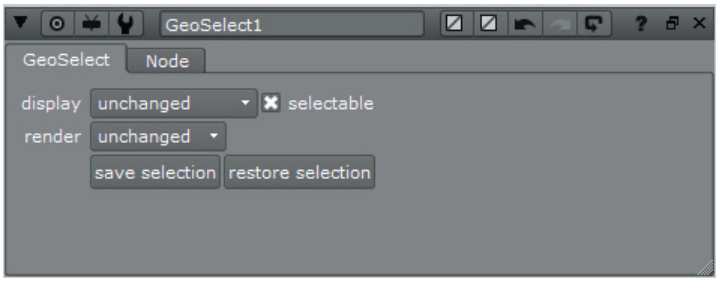

Figure 12-17 *The* ***GeoSelect#*** *node properties panel*

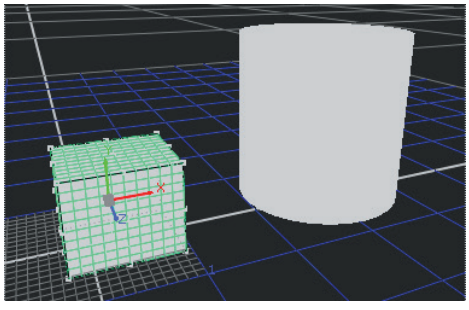

Figure 12-18 *The transform handles displayed*

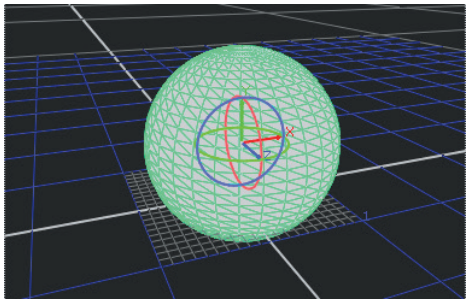

Figure 12-19 *The rotation handles displayed*

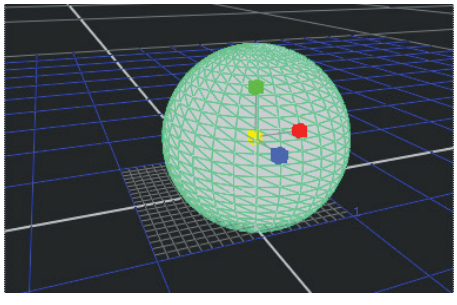

Figure 12-20 *The scale transformation handles displayed*

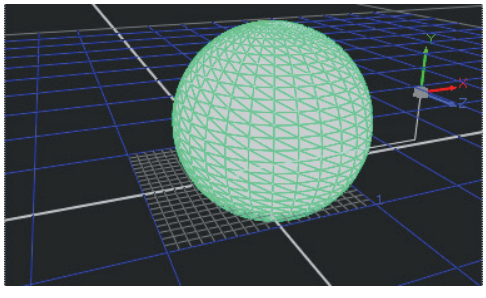

Figure 12-21 *The changed pivot displayed*

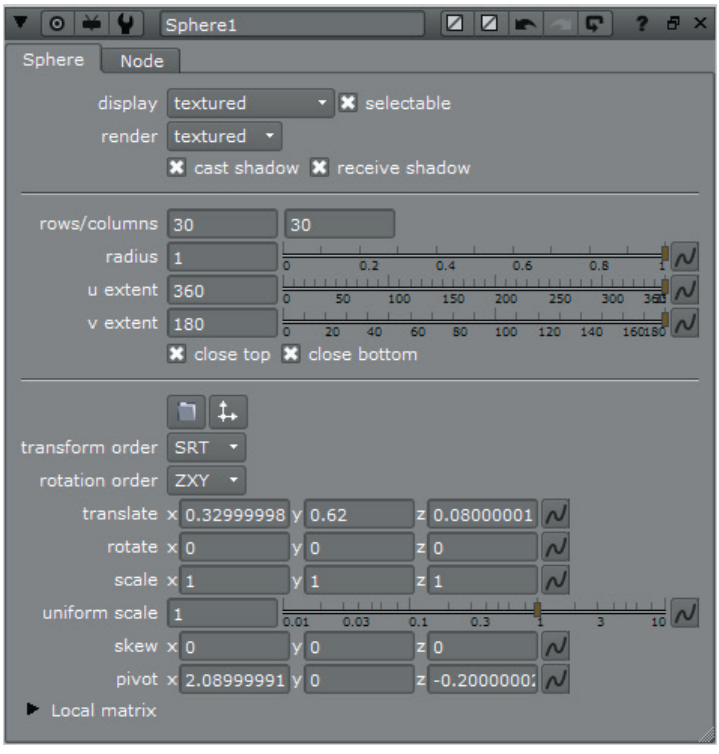

Figure 12-22 *The* ***Sphere1*** *node properties panel*

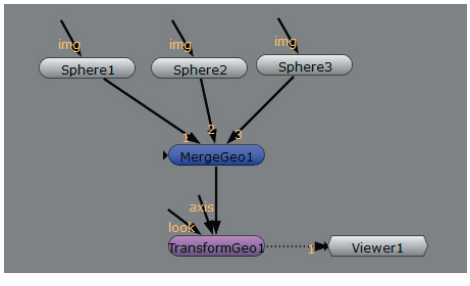

Figure 12-23 *The* ***MergeGeo1*** *node connected with the* ***TransformGeo1*** *node*

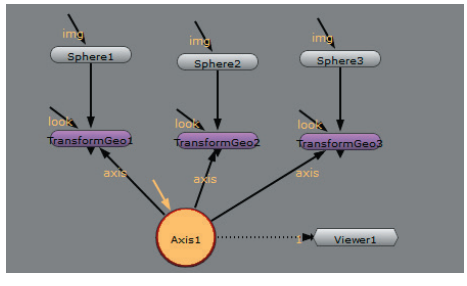

Figure 12-24 *The* ***TransformGeo*** *nodes connected with the* ***Axis1*** *node*

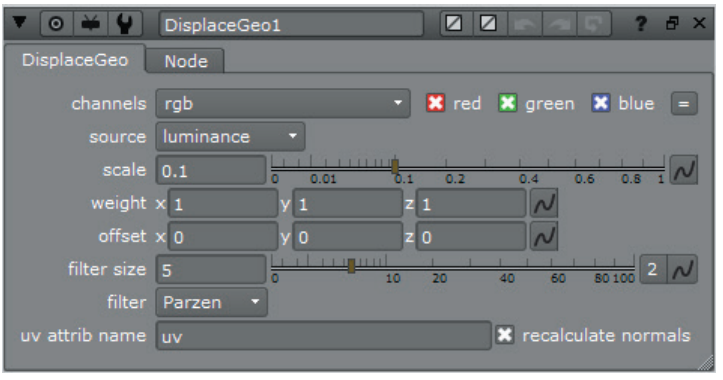

*Figure 12-25 The **DisplaceGeo1** node properties panel*

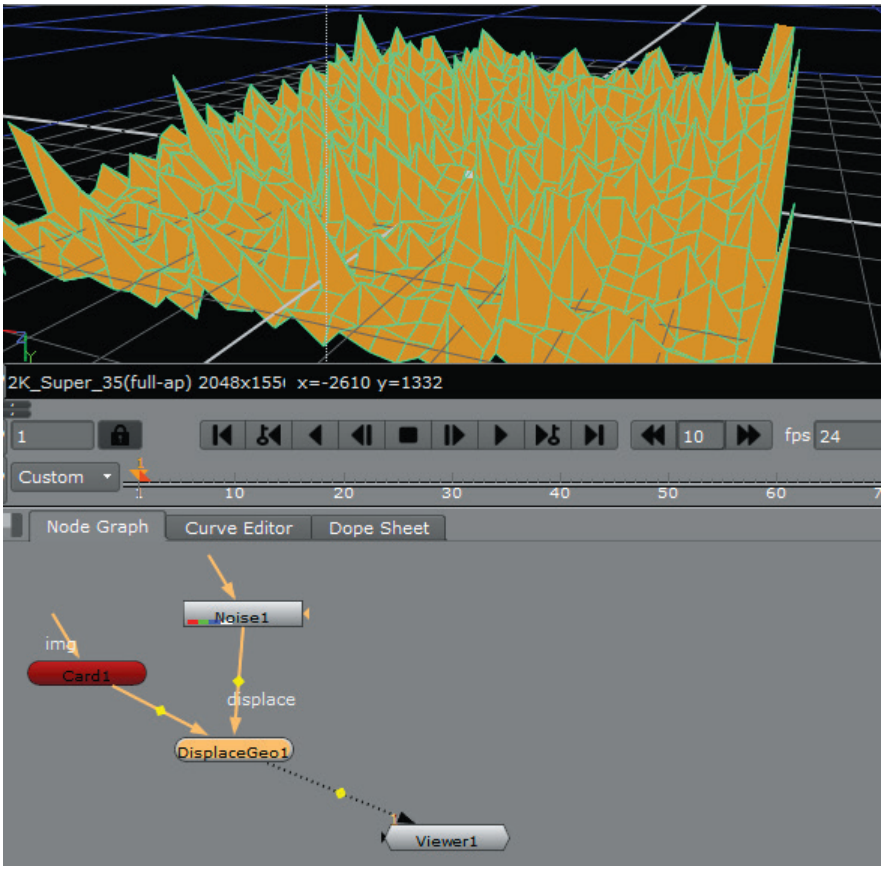

*Figure 12-26 The **Card#** object displaced using the **Noise** node*

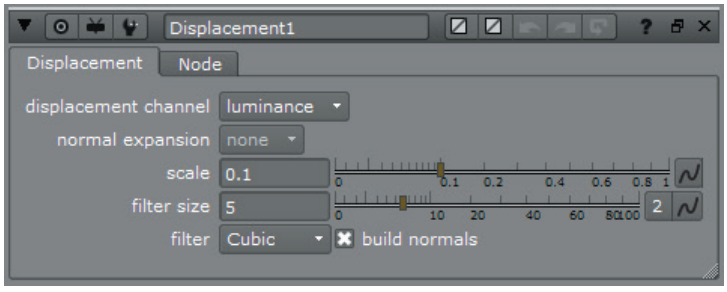

Figure 12-27 *The* ***Displacement1*** *node properties panel*

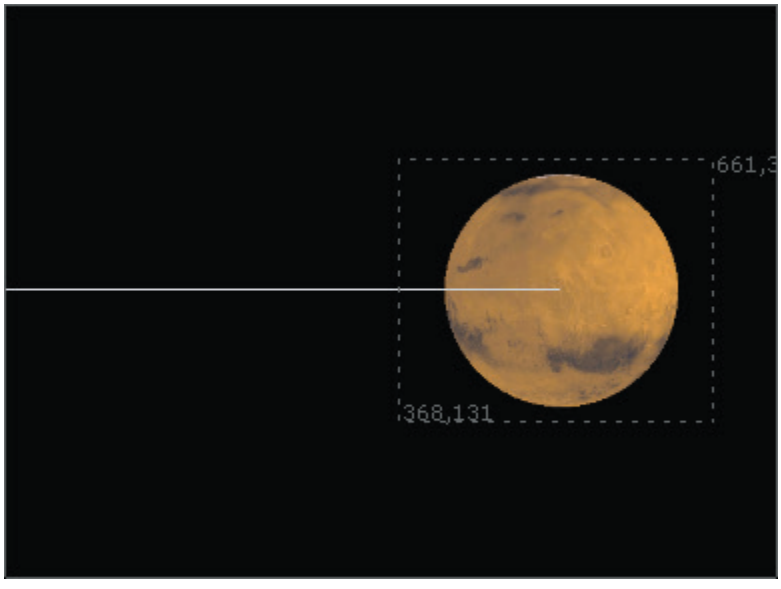

Figure 12-28 *The rendered output at frame 20*

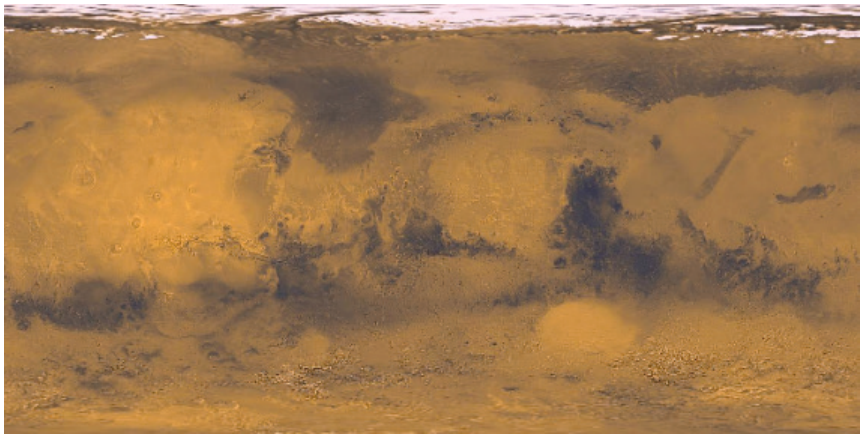

Figure 12-29 *The output of the* ***Read1*** *node*

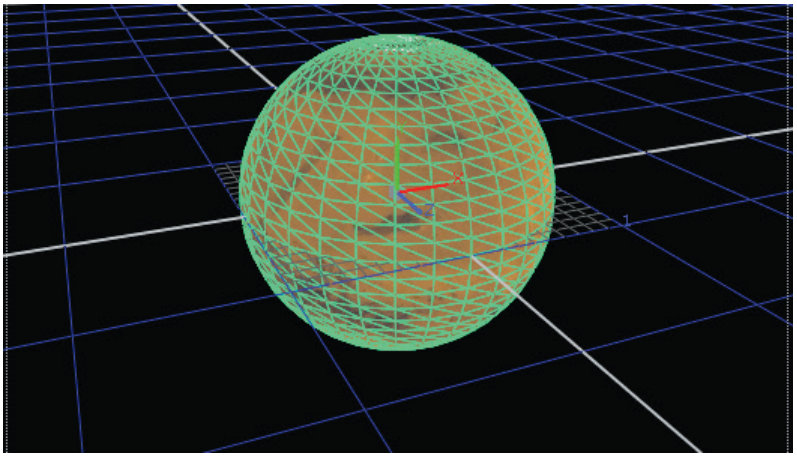

Figure 12-30 *The 3D view in the* ***Viewer1*** *panel*

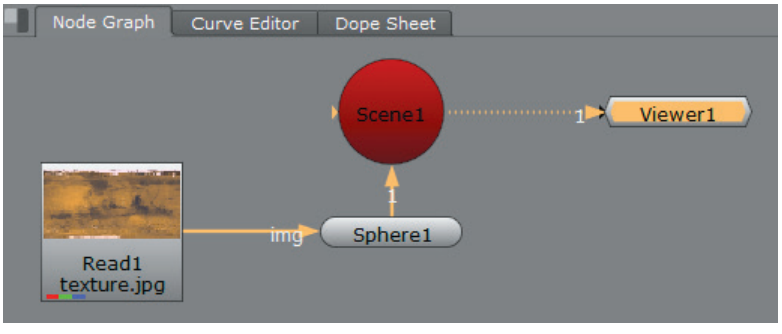

Figure 12-31 *The* ***Scene1*** *node connected to the* ***Sphere1*** *node*

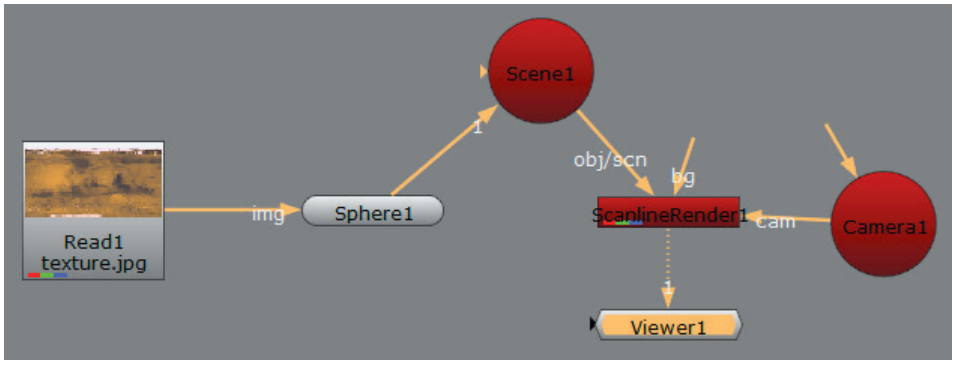

Figure 12-32 *The* ***Camera1*** *node added in the* ***Node Graph*** *panel*

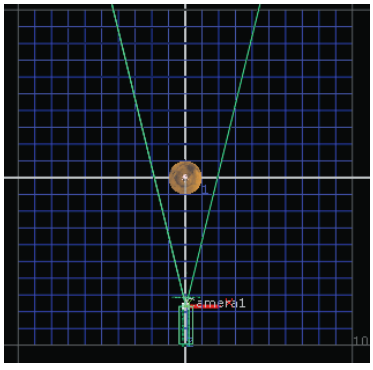

Figure 12-33 *Camera in the top viewport*

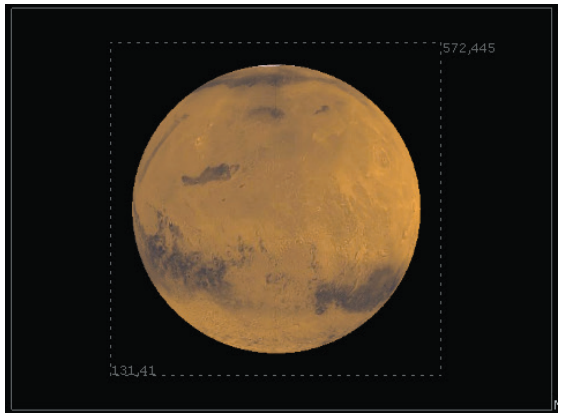

Figure 12-34 *The sphere at the center of the frame*

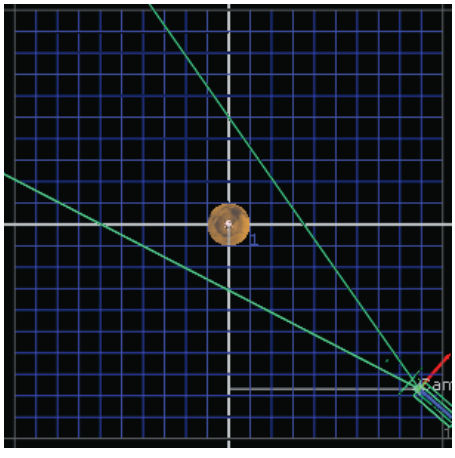

Figure 12-35 *The camera position at frame 1*

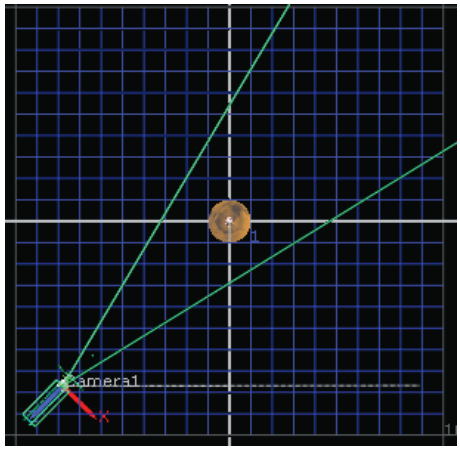

Figure 12-36 *The camera position at frame 100*

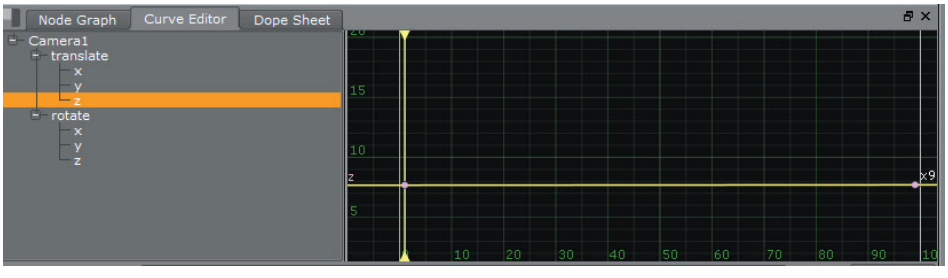

Figure 12-37 *The z curve displayed in the graph area*

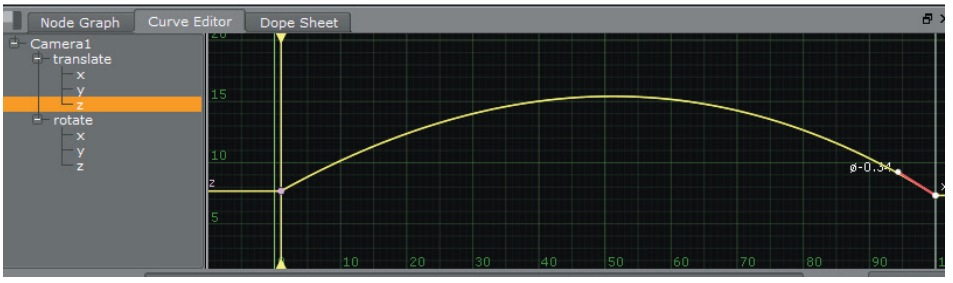

Figure 12-38 The modified z translate curve

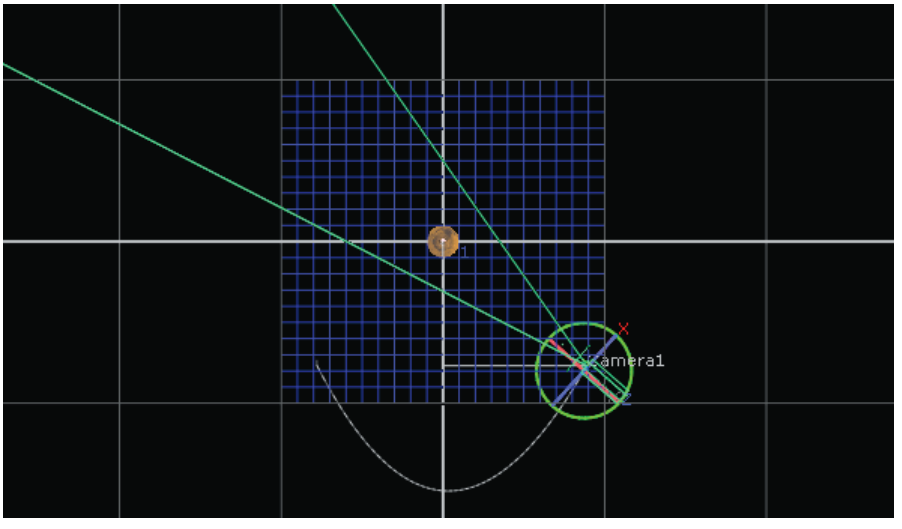

Figure 12-39 The changed animation path in the top view

Figure 12-40 The final rendered output

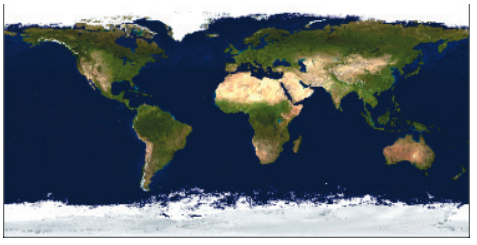

Figure 12-41 *The output of the* ***Read1*** *node*

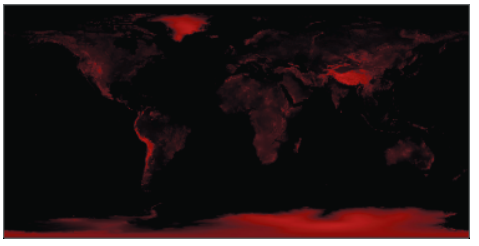

Figure 12-42 *The output of the* ***Read2*** *node*

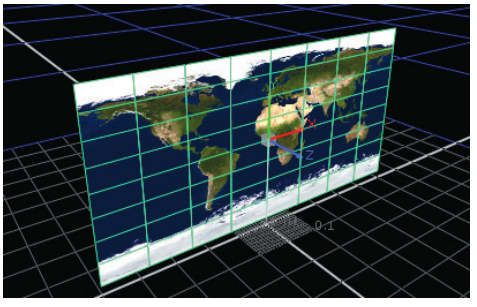

Figure 12-43 *The* ***Card1*** *geometry placed on the grid*

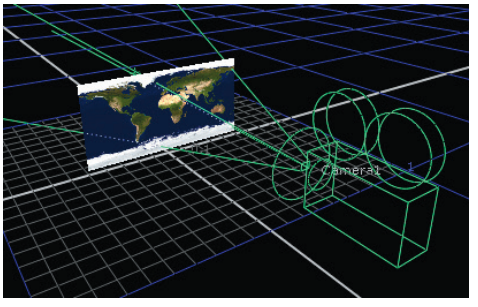

Figure 12-44 *The camera position in the 3D view*

Figure 12-45 *The displacement displayed in the* ***Viewer1*** *panel*

Project

Integrating CINEMA 4D and NukeX

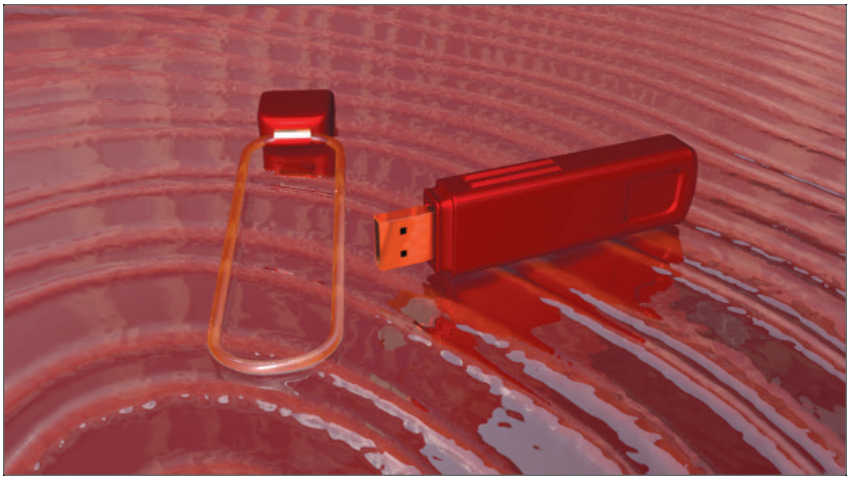

Figure P1-1 *The final output of the project*

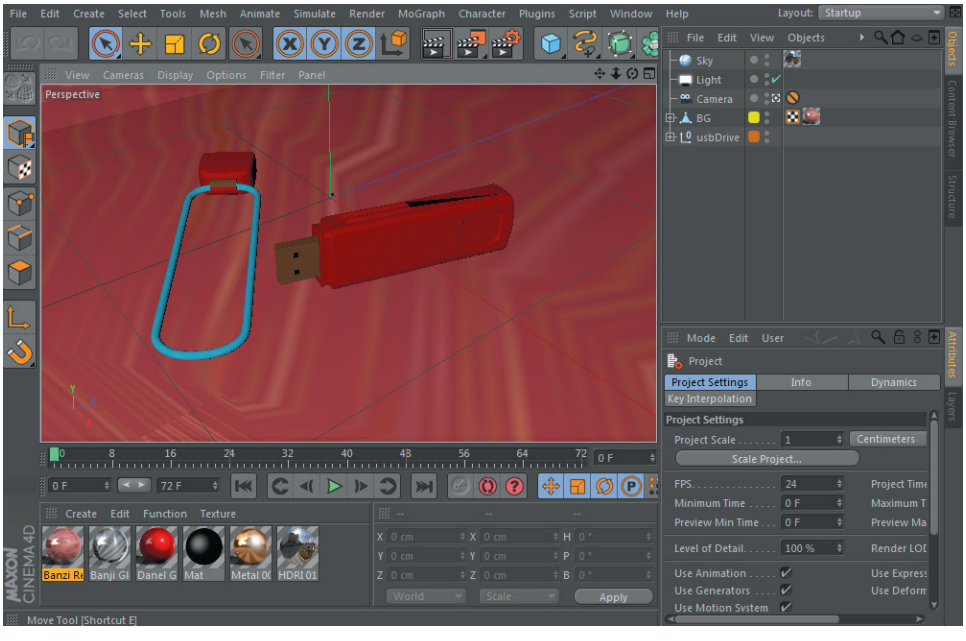

Figure P1-2 *The prj_01_start file displayed*

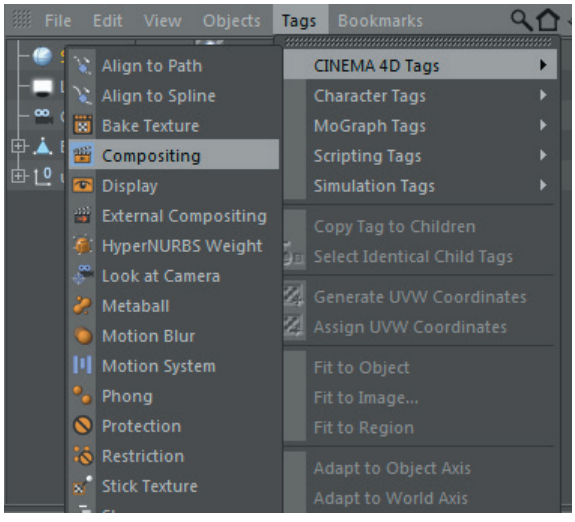

Figure P1-3 *Choosing* ***Compositing*** *from the Object Manager menu bar*

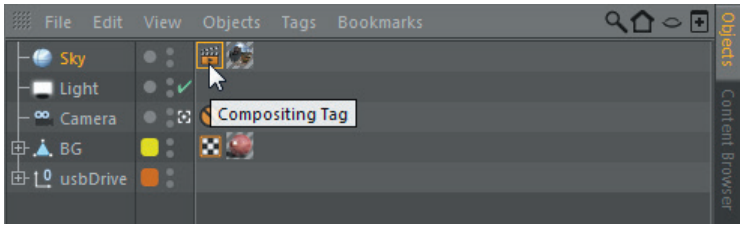

Figure P1-4 *The* ***Compositing Tag*** *added to the Object Manager*

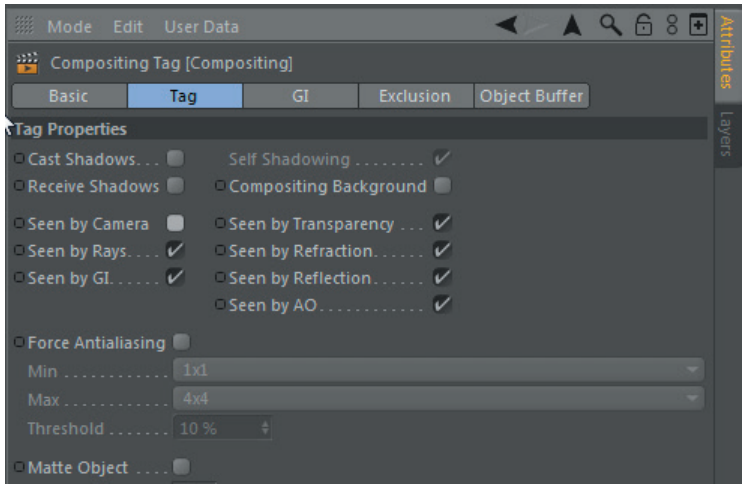

Figure P1-5 *The* ***Tag Properties*** *area in the Attribute Manager*

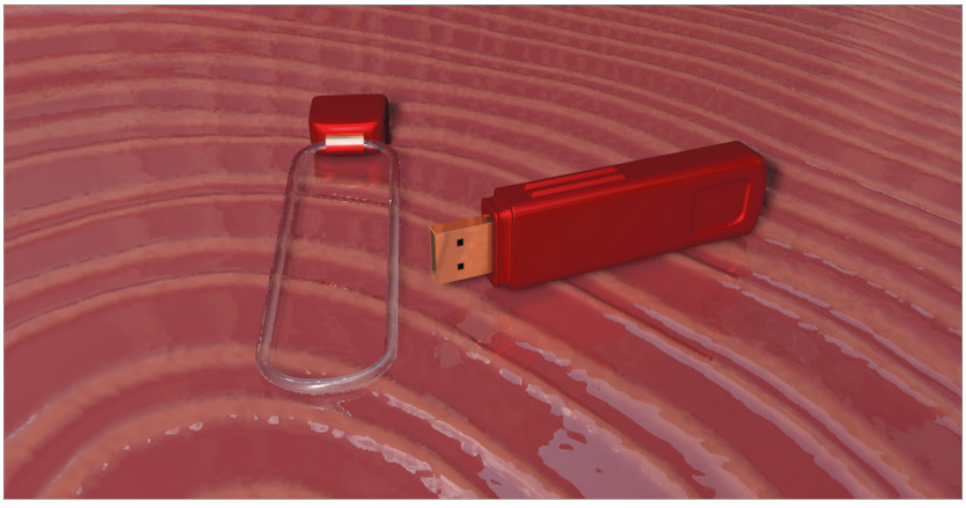

Figure P1-6 *The rendered output*

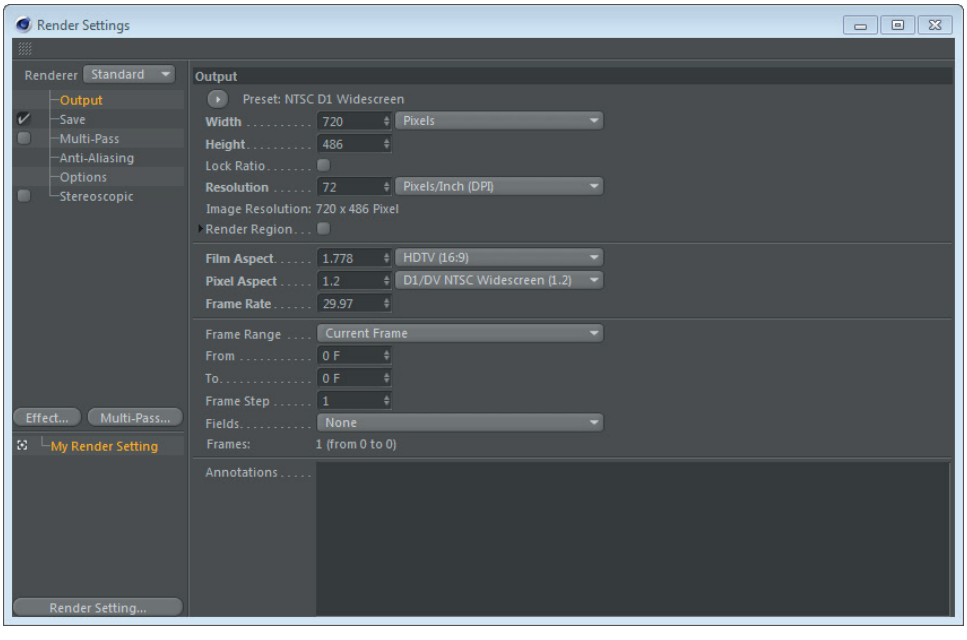

Figure P1-7 *The* ***Render Settings*** *dialog box*

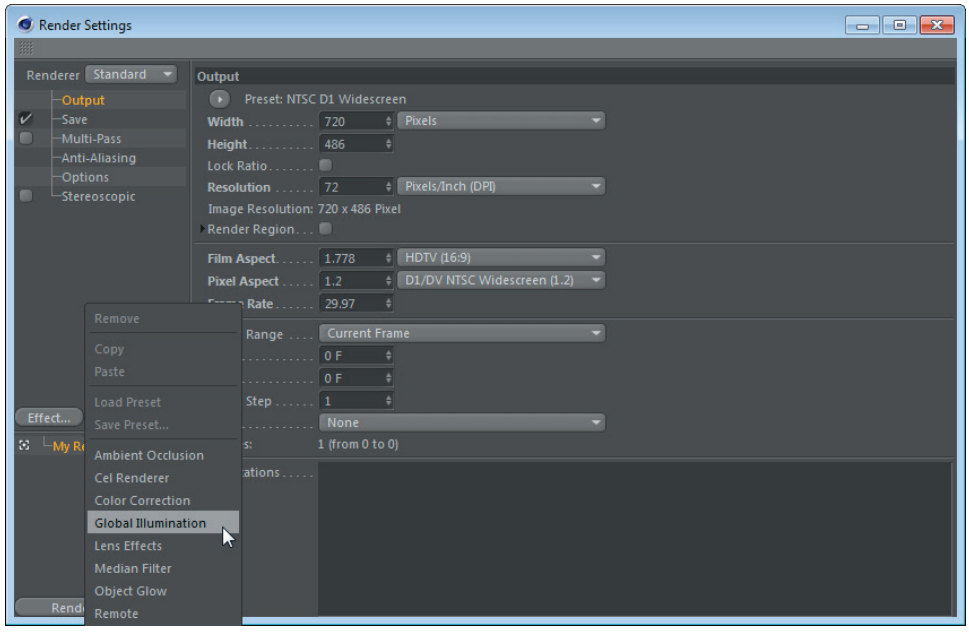

Figure P1-8 *Choosing* ***Global Illumination*** *from the flyout*

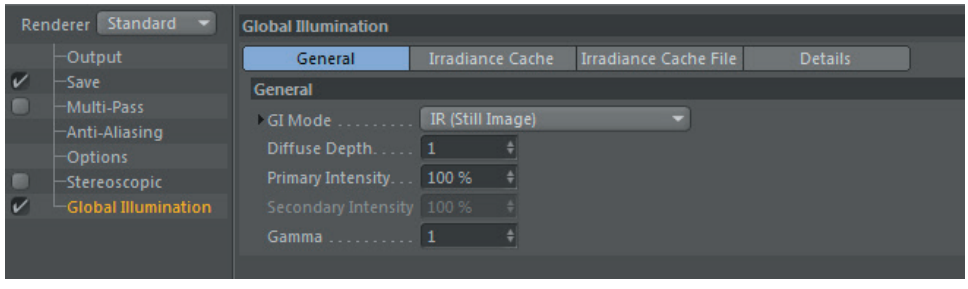

Figure P1-9 *The* ***Global Illumination*** *area*

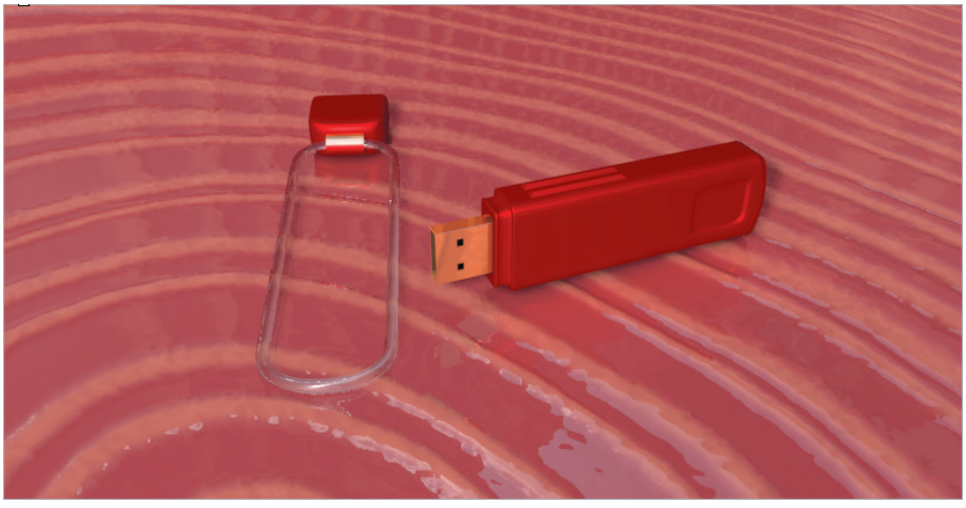

Figure P1-10 *The rendered output*

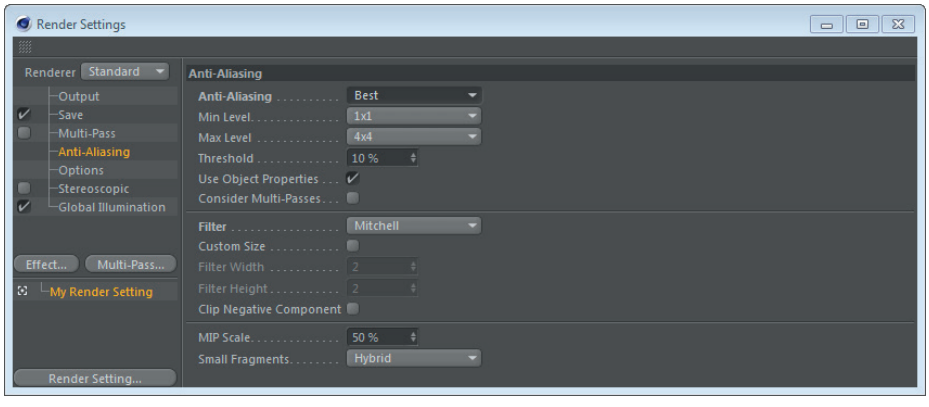

Figure P1-11 *The* ***Anti-Aliasing*** *area*

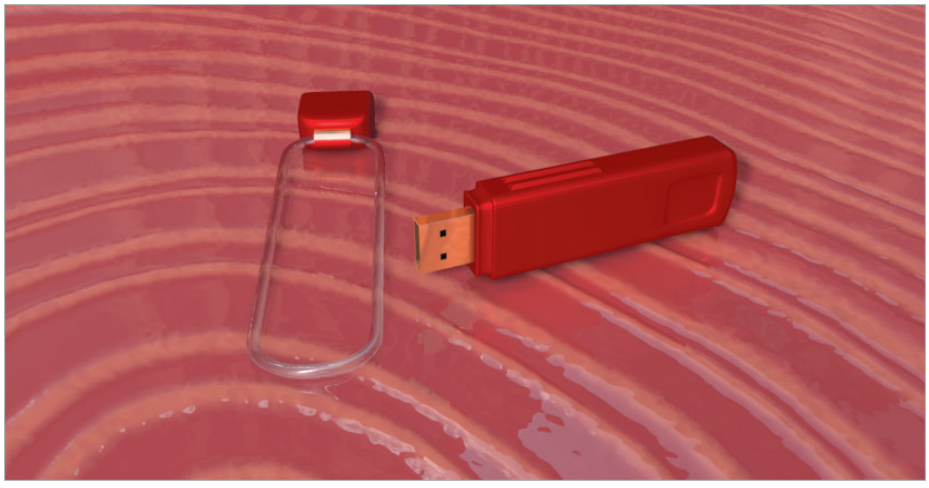

Figure P1-12 *The rendered output*

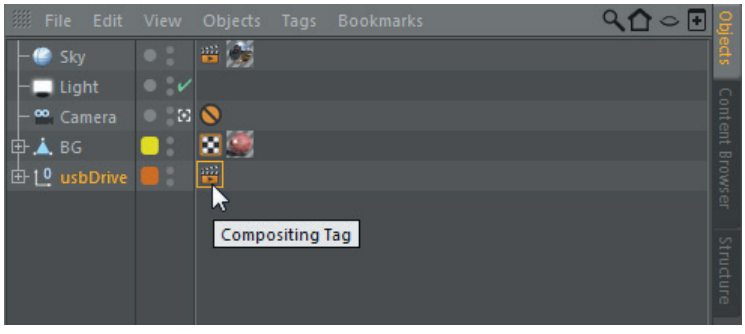

Figure P1-13 *The* ***Compositing Tag*** *added to the usbDrive object*

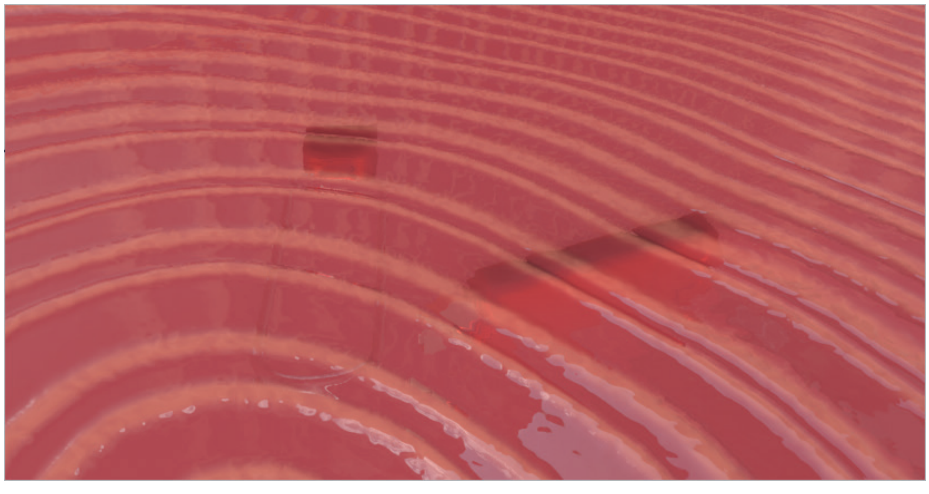

Figure P1-14 *The rendered output*

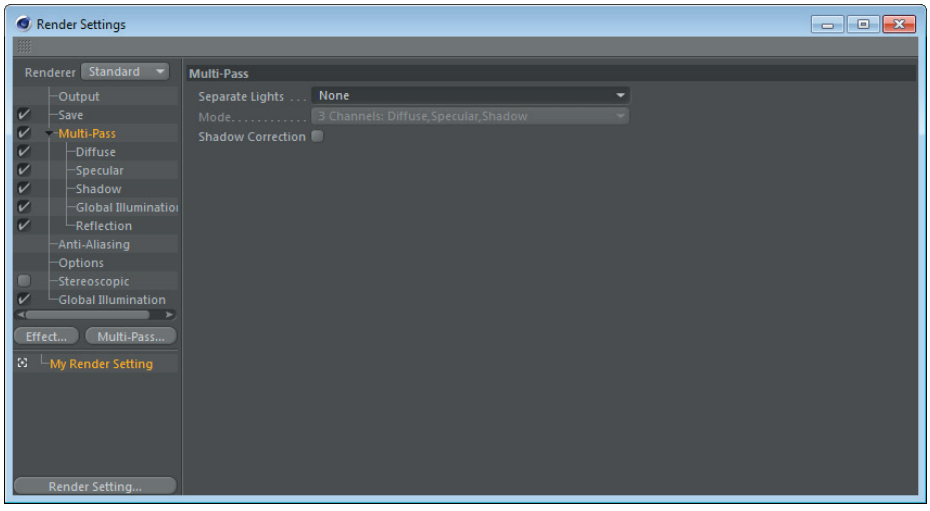

Figure P1-15 *Various passes added to the Multi-Pass hierarchy*

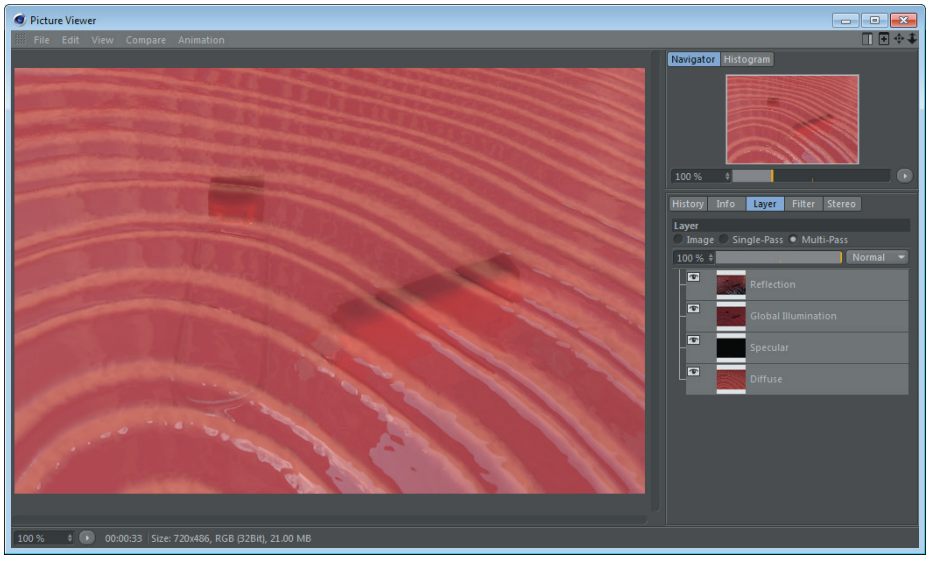

Figure P1-16 *The render passes in the* ***Picture Viewer*** *window*

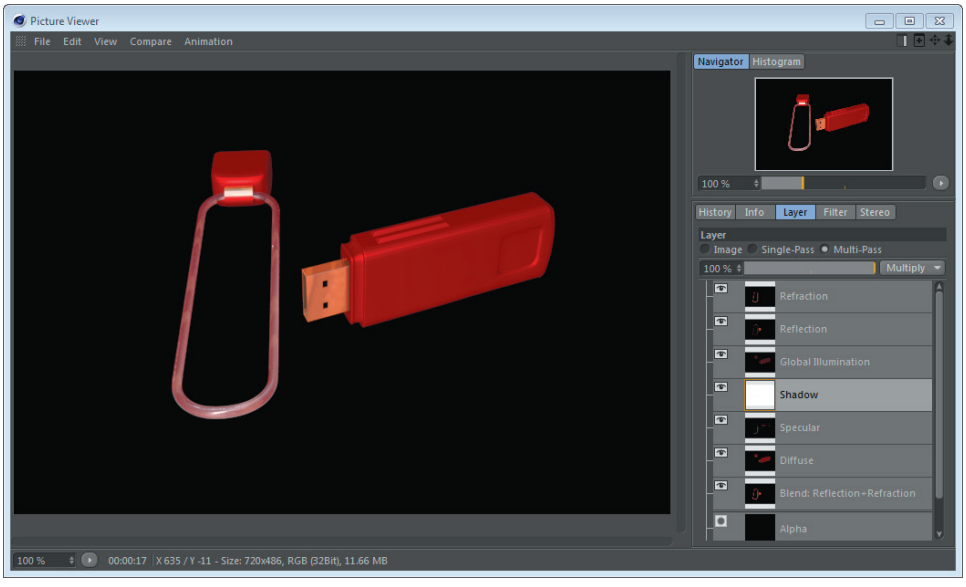

Figure P1-17 *The* ***Picture Viewer*** *window*

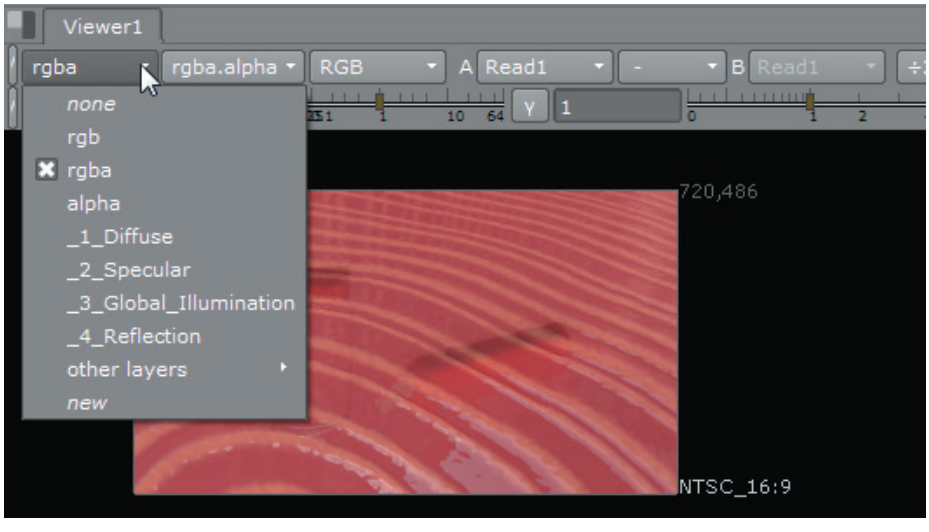

Figure P1-18 *All render pass layers displayed as Channel Sets*

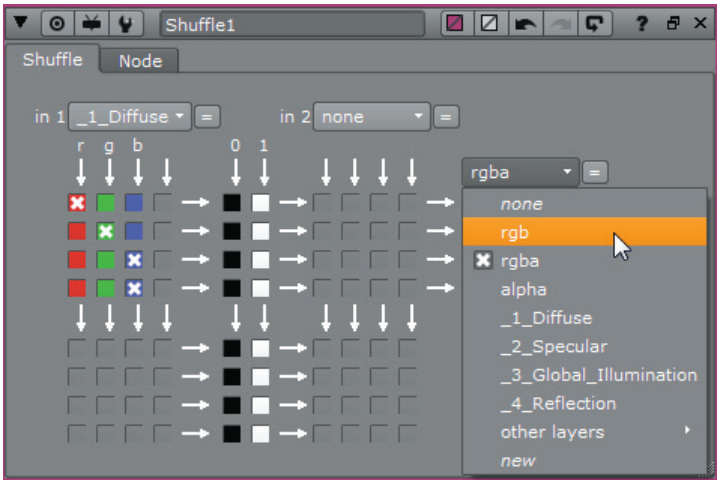

Figure P1-19 *The* ***Shuffle1*** *node properties panel*

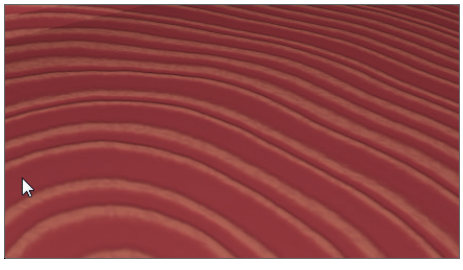

Figure P1-20 *The diffuse pass*

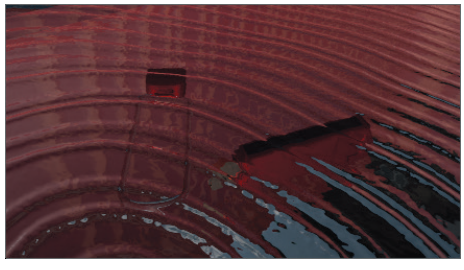

Figure P1-21 *The reflection pass*

Figure P1-22 *The specular pass*

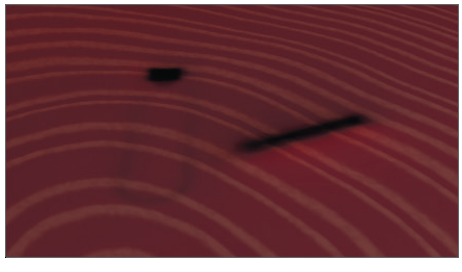

Figure P1-23 *The global illumination pass*

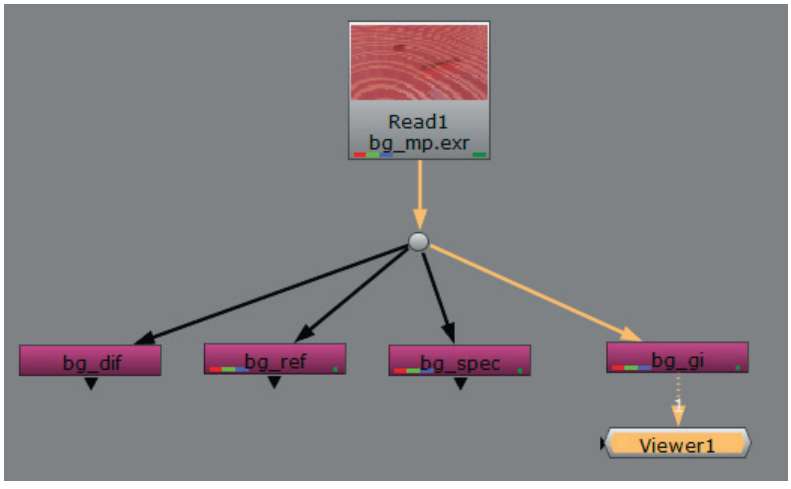

Figure P1-24 *The network of nodes in the* ***Node Graph*** *panel*

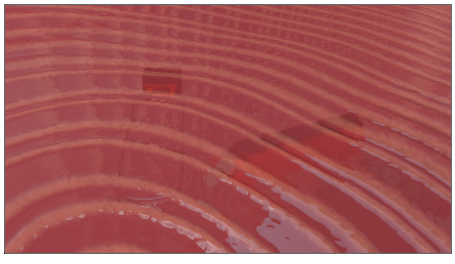

Figure P1-25 *The output after compositing the diffuse and reflection passes*

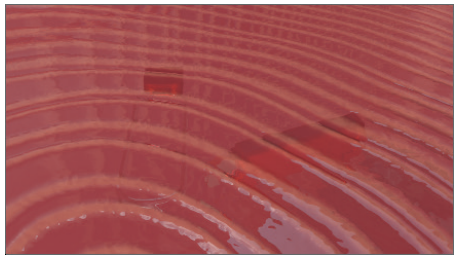

Figure P1-26 *The output after specular pass is composited with the output of the* ***Merge1*** *node*

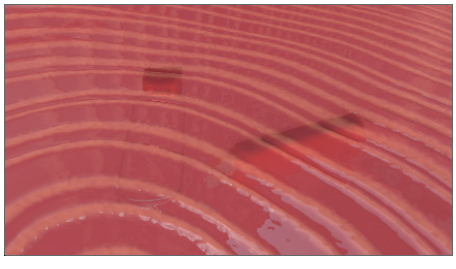

Figure P1-27 *The global illumination pass composited with the output of the* ***Merge2*** *node*

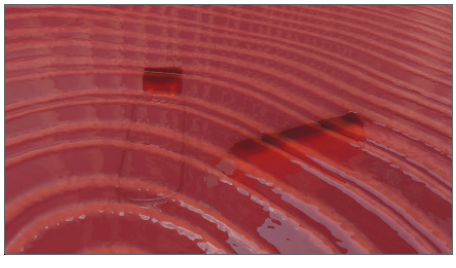

Figure P1-28 *The output after color-correcting the diffuse pass*

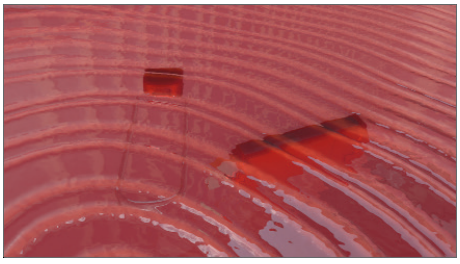

Figure P1-29 *The output after color correcting the reflection pass*

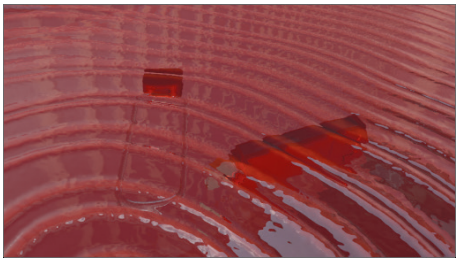

Figure P1-30 *The output after color correcting the global illumination pass*

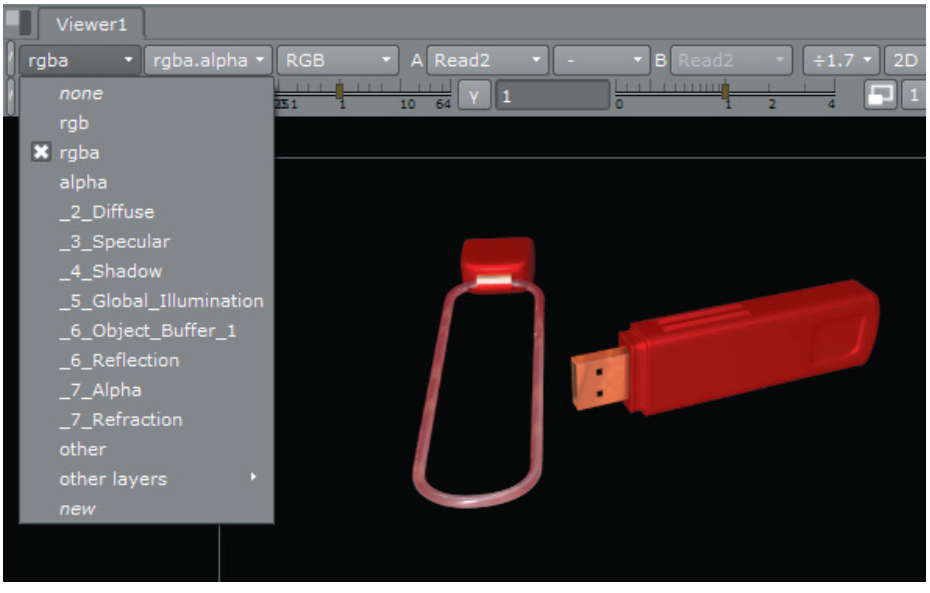

Figure P1-31 *The passes displayed as channel sets in the Channel Sets drop-down*

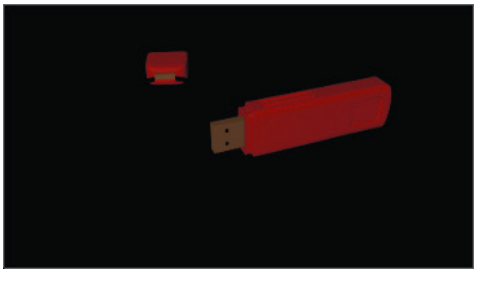

Figure P1-32 *The diffuse foreground pass*

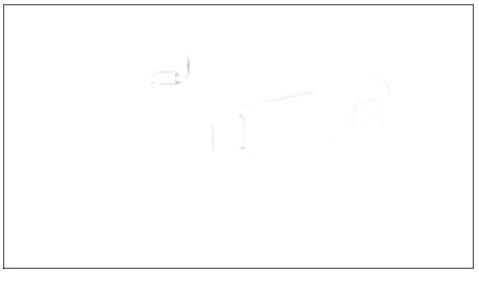

Figure P1-33 *The shadow foreground pass*

Figure P1-34 *The reflection foreground pass*

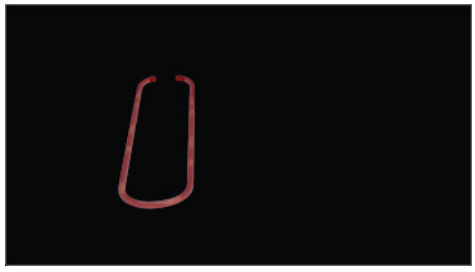

Figure P1-35 *The refraction foreground pass*

Figure P1-36 *The specular foreground pass*

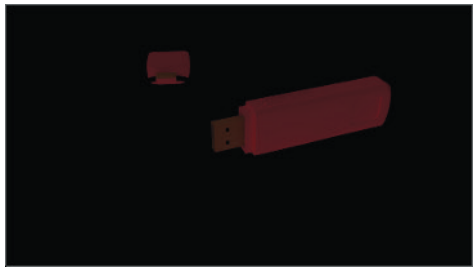

Figure P1-37 *The global illumination foreground pass*

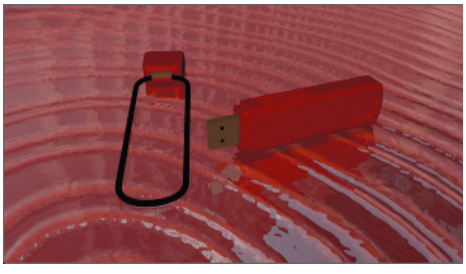

Figure P1-38 *The output of the* ***Merge4*** *node*

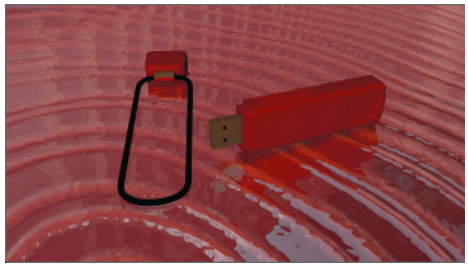

Figure P1-39 *The output of the* ***Merge5*** *node*

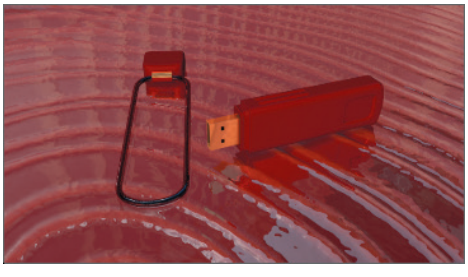

Figure P1-40 *The output of the* ***Merge6*** *node*

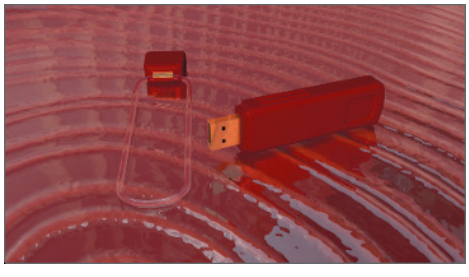

Figure P1-41 *The output of the* ***Merge7*** *node*

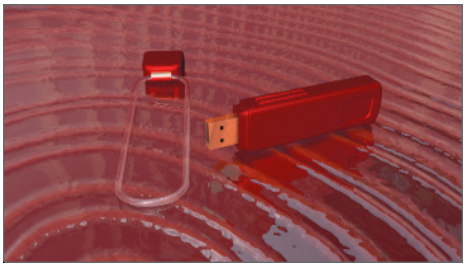

Figure P1-42 *The output of the* ***Merge8*** *node*

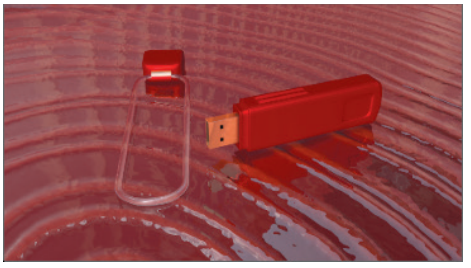

Figure P1-43 *The output of the* ***Merge9*** *node*

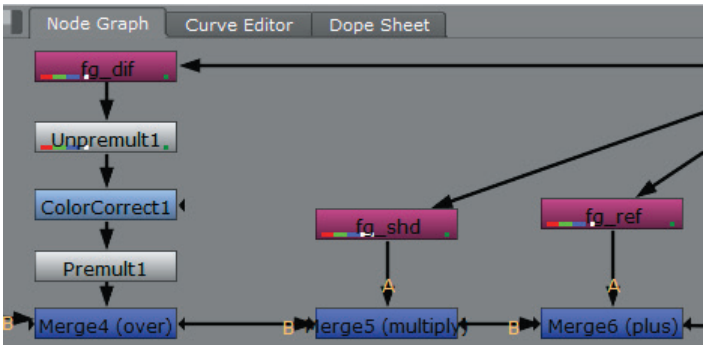

Figure P1-44 *The* ***Unpremult1****,* ***ColorCorrect1****, and* ***Premult1*** *nodes in the* ***Node Graph*** *panel*

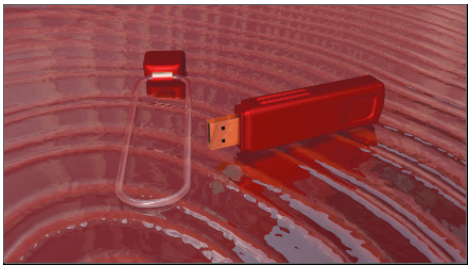

Figure P1-45 *The output after color-correcting the diffuse pass*

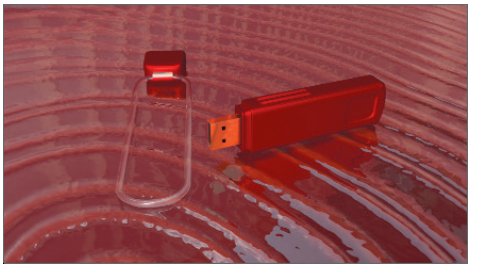

Figure P1-46 *The output after color-correcting the reflection pass*

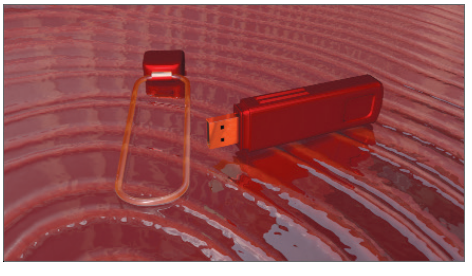

Figure P1-47 *The output after color-correcting the refraction pass*

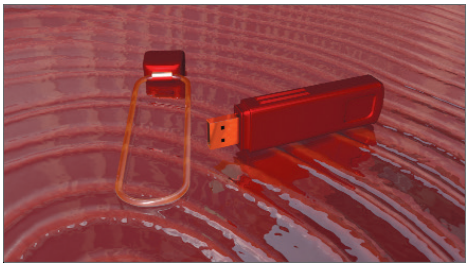

Figure P1-48 *The output after color-correcting the specular pass*

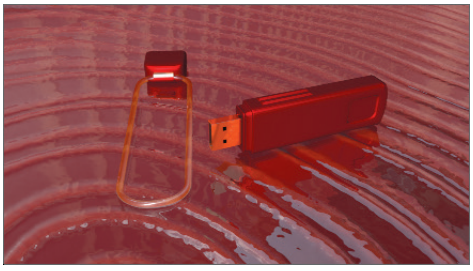

Figure P1-49 *The output of the* ***Merge9*** *node*

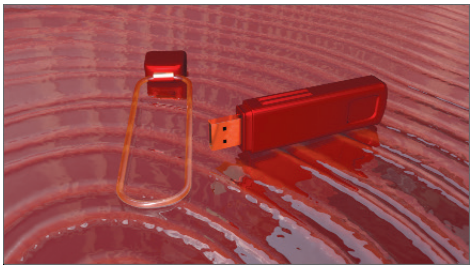

Figure P1-50 *The output of the* ***ColorCorrect2*** *node*