

# Chapter 2

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## Exploring Viewer Nodes

### Learning Objectives

**After completing this chapter, you will be able to:**

- *Work with the Viewer panel*
- *Navigate in the Viewer panel*
- *Add a Viewer node to the Node Graph panel*
- *Connect a process node to a Viewer node*
- *Display multiple channels in the Viewer panel*
- *Work with timeline controls*

## INTRODUCTION

In this chapter, you will learn about the **Viewer** nodes. The **Viewer** nodes are used to display the output of the process nodes as well as to generate the display data stream. Unlike the process nodes, these nodes do not alter the input data stream. You can place as many nodes as you want in the NukeX script. Also, you can use multiple **Viewer** nodes to view the output of different process nodes. You can connect up to ten process nodes to a single **Viewer** node. This feature can be used to generate the output before and after data processing and then compare and analyze them.

In this chapter, you need to download the *c02\_nuke\_7\_prt.zip* file from *www.cadcim.com* as the concepts have been explained using the files contained in it. The path of the zip file is as follows: *Textbooks > Animation and Visual Effects > NukeX > The Foundry NukeX 7 for Compositors*. Next, you need to extract the contents of the zipped file to *\Documents\Nuke\_Projects*.

## ADDING AND CONNECTING VIEWER NODES

You can add a **Viewer** node to the **Node Graph** panel by using any one of the following two methods:

1. Choose **File > New** from the menu bar; a new script will be displayed in the NukeX interface. By default, the **Viewer1** node will be displayed in the **Node Graph** panel. Select the **Viewer1** node in the **Node Graph** panel and then press DEL to remove this node. Next, choose **Viewer > Create New Viewer** from the menu bar or press CTRL+I; the **Viewer1** node will be inserted in the **Node Graph** panel.
2. Choose the **Image** button from the **Nodes** toolbar; the **Image** menu will be displayed. Next, choose **Viewer** from the menu, refer to Figure 2-1; the **Viewer2** node will be inserted in the **Node Graph** panel.

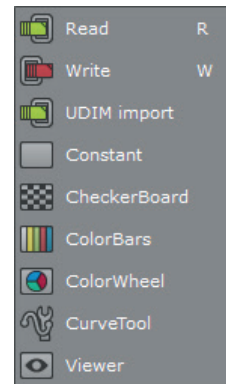
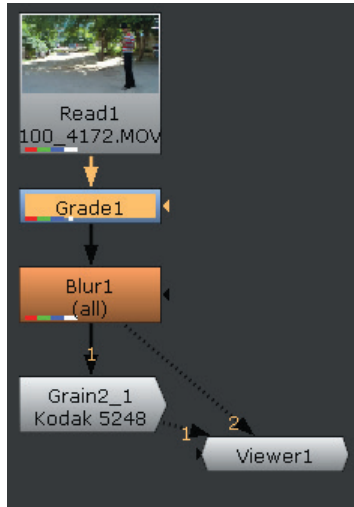


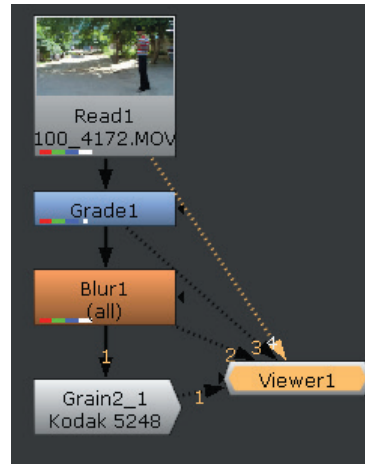
Figure 2-1 The **Image** menu

Once the **Viewer** node has been added to the **Node Graph** panel, you can quickly connect up to ten process nodes to different ports available on this node. To do so, you need to follow the steps given below:

1. Choose **File > Open** from the menu bar; the **Script to open** dialog box will be displayed. Now, choose **Home > Documents > Nuke\_Projects > c02\_prt > c02\_prt\_01.nk** from the dialog box. Next, choose the **Open** button; the script file will be displayed in the NukeX window with the **Grain2\_1** node connected to the **Viewer1** node.
2. Select the **Blur1** node in the **Node Graph** panel and then press 2; the **Blur1** node will be connected to the port number 2 of the **Viewer1** node, as shown in Figure 2-2.
3. To connect the **Grade1** node to the **Viewer1** node, select the **Grade1** node in the **Node Graph** panel and then press 3. Similarly, to connect the **Read1** node to the **Viewer1** node, press 4, refer to Figure 2-3.



**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

To cycle through the views, place the cursor on the **Viewer** panel. Next, press the UP or DOWN arrow to quickly cycle through the views. Alternatively, you can press the numbers (0, 1-9) corresponding to the port number of the **Viewer#** node to cycle through the viewers.



#### Note

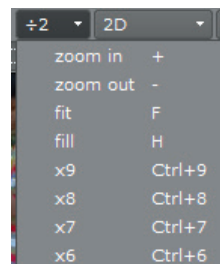
To connect a process node to the 10th port of the **Viewer#** node, press 0.

## NAVIGATING IN THE VIEWER PANEL

In this section, you will learn about the navigational controls used in NukeX. You can navigate in the **Viewer** panel in the following ways:

1. Press and hold the middle mouse button and then drag the cursor over the **Viewer** panel to pan the frame. Alternatively, press and hold ALT and drag the cursor over the **Viewer** panel.
2. Press the middle mouse button or press F to recenter the frame in the **Viewer** panel.
3. Place the cursor over that area of the frame which you want to zoom in and then press + (PLUS) to increase the zoom level. You can keep on pressing this symbol until the desired zoom level is achieved. Alternatively, select the desired zoom level from the Zoom drop-down located at the top right corner of the **Viewer** panel, refer to Figure 2-4.
4. Place the cursor over that area of the frame which you want to zoom out, and then press - (MINUS) to decrease the zoom level. You can keep on pressing this symbol until the desired zoom level is achieved. Alternatively, choose the desired scale factor from the Zoom drop-down located at the top right corner of the **Viewer** panel, as shown in Figure 2-4.

5. Press CTRL+1 to restore the zoom factor to full resolution.
6. Press H to fill the **Viewer** panel with a frame.
7. Press accent (`) to toggle the visibility of the floating **Viewer** panel.



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



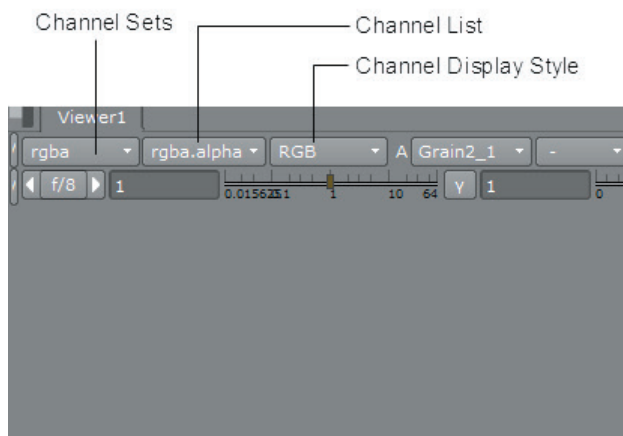
**Tip:** You can also zoom in or zoom out the **Viewer** panel by pressing and holding ALT+MMB and then dragging the cursor to the right or left.

## WORKING WITH VIEWER CONTROLS

The Viewer controls are used to navigate in the timeline, select channels, adjust the zoom scale factor, toggle proxy mode, adjust gamma and gain of the display, choose camera, create wipes, and set the Viewer process methods. Some of the Viewer controls are discussed next.

### Channel Sets, Channel List, and Channel Display Style

The options in the Channel Sets drop-down are used to define a set of color channels to be displayed in the **Viewer** panel. By default, rgba is selected in this drop-down, refer to Figure 2-5. The options in the Channel List drop-down are used to define the channel that will be displayed when the A key is pressed. By default, NukeX displays the alpha channel (rgba.alpha) when the A key is pressed. However, you can select any of the available channels from the Channel List drop-down. The options in the Channel Display Style drop-down, located next to the Channel List drop-down, are used to set the style of the selected channel of the node.

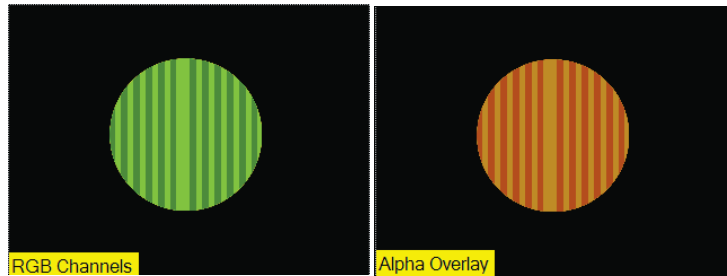


*Figure 2-5 The Channel Sets, Channel List, and Channel Display Style drop-downs*

The alpha channel can be displayed as the red overlay at the top of the RGB channels. To do so, you need to follow the steps given below:

1. Choose **File > Open** from the menu bar; the **Script to open** dialog box will be displayed. Next, choose **Home > Documents > Nuke\_Projects > c02\_prt > c02\_prt\_02.nk** and then choose the **Open** button; the script file will be displayed in the NukeX window.
2. Select **Matte overlay** from the Channel Display Style drop-down. Alternatively, hover the cursor over the **Viewer1** panel and then press M; the alpha channel will be displayed as a red overlay on the top of the RGB channels, as shown in Figure 2-6.

By default, RGB is selected in the Channel Display Style drop-down. You can select the **R**, **G**, **B** or **A** option from this drop-down to display the red, green, blue, or alpha channel, respectively. To display a single channel, click on the Channel Display Style drop-down and select channels to be displayed. Alternatively, you can hover the cursor on the **Viewer** panel and then press R, G, B, or A to display the red, green, blue, or alpha channels, respectively in the **Viewer** panel.



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

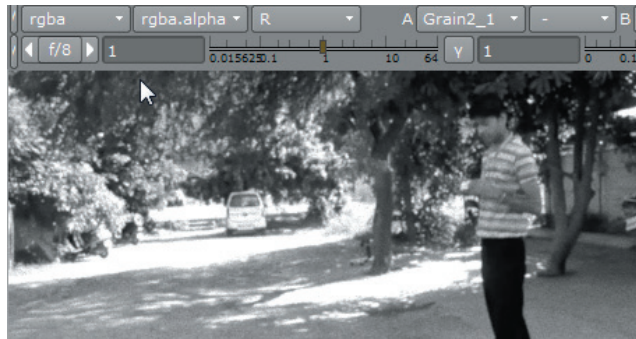
To display multiple channels from different inputs of the **Viewer** panel, follow the steps given below:

1. Choose **File > Open** from the menu bar; the **Script to open** dialog box will be displayed. Choose **Home > Documents > Nuke\_Projects > c02\_prt > c02\_prt\_03.nk** from the dialog box and then choose the **Open** button; the script file will be displayed in the NukeX window.
2. Select the **Grain2\_1** node from the **Node Graph** panel and then press 1; the **Grain2\_1** node will be connected to port number 1 of the **Viewer1** node and its output will be displayed in the **Viewer1** panel. Next, press and hold SHIFT and select **R** from the Channel Display Style drop-down, refer to Figure 2-7; the **Viewer1** panel will display the red channel.
3. Select the **Blur1** node in the **Node Graph** panel and then press 2; the **Blur1** node will be connected to the port number 2 of the **Viewer1** node and its output will be displayed in the **Viewer1** panel. Next, press SHIFT and select **B** from the Channels Display Style drop-down, refer to Figure 2-7; the **Viewer1** panel will display the blue channel.

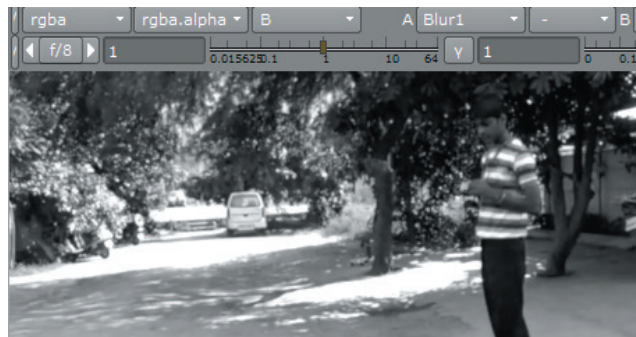


*Figure 2-7 Selecting **R** (red) and **B** (blue) channels from the Channel Display Style drop-down*

- Now, to toggle between the **Viewer1** node inputs, click in the empty area of the **Node Graph** panel and then press 1 and 2 repeatedly. You will notice that the **Viewer1** panel displays the red and blue channels, respectively, as shown in Figures 2-8 and 2-9.



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



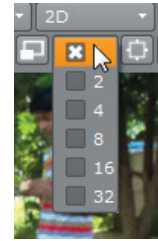
*Figure 2-9 The blue channel displayed in the **Viewer1** panel*

## downrez

Every **Viewer** panel has a **downrez** drop-down, refer to Figure 2-10. The options in the **downrez** drop-down are used to reduce the resolution of the **Viewer** panel. This helps in switching between various lower display resolutions for faster display calculations. Reducing display resolution of the **Viewer** panel results in faster display of high resolution sequences, without affecting the actual rendered output.

To lower the display resolution of the **Viewer** panel, you need to follow the steps given next.

1. Choose **File > Close** from the menu bar to close the active script.
2. Choose **File > Open** from the menu bar; the **Script to open** dialog box will be displayed. Choose **Home > Documents > Nuke\_Projects > c02\_prt > c02\_prt\_03.nk** and then choose the **Open** button; the script file will be displayed in the NukeX window.
3. Select the **Grain2\_1** node in the **Node Graph** panel and press 1; the **Grain2\_1** node will be connected to port number 1 of the **Viewer1** node and its output will be displayed in the **Viewer1** panel.
4. Select **8** from the **downrez** drop-down; the resolution of the display will change to 1/8th of the active resolution, refer to Figure 2-11.



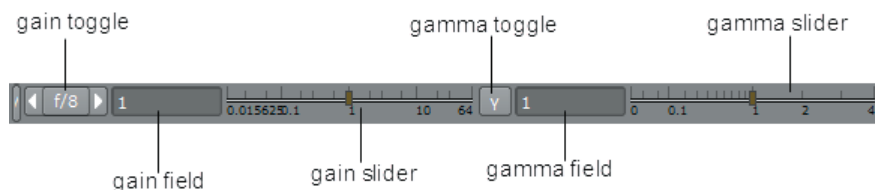
**Figure 2-10**  
*The downrez drop-down*



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

## gamma and gain

The **gamma** and **gain** sliders are used to adjust the gamma and gain of the displayed image in the **Viewer** panel, refer to Figure 2-12. You can alter the display data stream without affecting the rendered output by changing values on these sliders. Generally, these controls are used to fill holes in mattes. The gain toggle and gamma toggle buttons are used to switch between the default values of the sliders (1) and the last adjustment made.



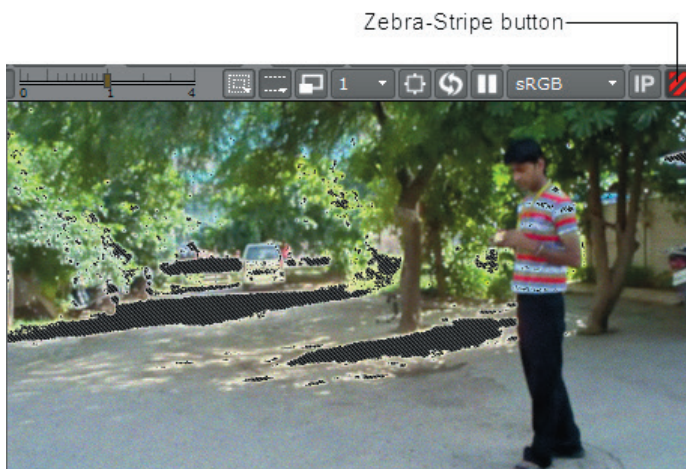
**Figure 2-12** *The gamma and gain sliders*

Figure 2-13 shows an image with the gain and gamma field values set to 0.6 and 1.6, respectively. The Zebra-Stripe button located on the top right corner of the **Viewer** panel is used to apply stripes to all the pixels that lie beyond the 0 to 1 range, as shown in Figure 2-14.





**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

## Pause

The Pause button is used to stop the **Viewer** panel from updating each time the changes are made to a NukeX script. If this button is active, the **Viewer** panel displays the last rendered frame. To activate the auto updating, choose this button again. Alternatively, press P to toggle automatic updates on and off. The button which is located on immediate left of the Pause button is used to force NukeX to recalculate the image. Alternatively, you can press U to recalculate the image.



## Timeline

Timeline controls are used to play back image sequences, set frame range, set playback speed, jump to a specific frame, and generate flipbook previews, refer to Figure 2-15. The timeline also displays the keyframes that are created during animation. The **Viewer** panel shows the frame range defined in the **Project Settings** panel. If no frame range is defined, NukeX sets the frame range of the first image sequence that it reads.



## Navigating in the Timeline

You can also pan and zoom in the timeline just as in the **Viewer#** panel. To do so, hold ALT+LMB and then drag the timeline; the option in the **Timeline range** drop-down will change to **Custom**, refer to Figure 2-16. To change the zoom scale of the timeline, hold ALT+MMB and then drag the cursor to the left or the right. Alternatively, you can use the mouse wheel to change the zoom scale of the timeline.

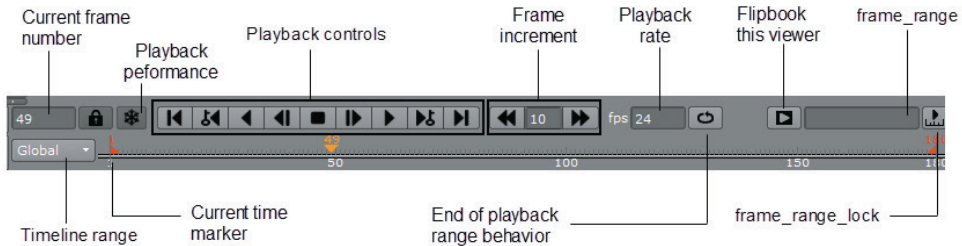


Figure 2-15 The timeline controls



Figure 2-16 The scaled timeline

## Adjusting the Playback Range

You can adjust the playback range of the **Viewer** panel. To do so, press CTRL and then drag the orange playback range markers on the timeline to define the first and last frames of the footage. The **frame\_range\_lock** button located on the extreme right of the timeline is used to toggle between the new playback range and the visible timeline range, refer to Figure 2-17.

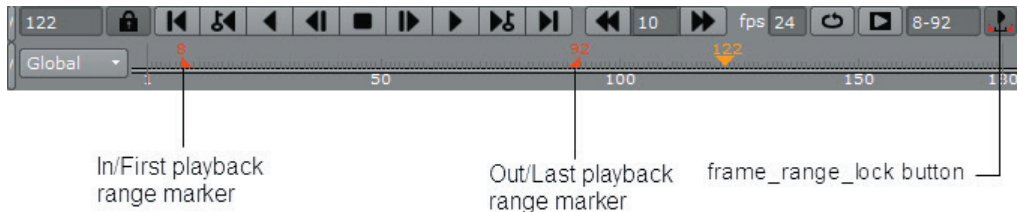


Figure 2-17 The playback range




The **fps** field displays the playback speed as specified in the project settings. NukeX attempts to maintain this speed, however, it might vary depending on the resolution of the footage and hardware configuration.

## Jumping to a Specific Frame

You can also jump to a specific frame. To do so, choose **File > Goto Frame** from the menu bar; the **Goto Frame** dialog box will be displayed. Alternatively, press ALT+G to invoke the **Goto Frame** dialog box. Next, enter the desired frame number in the **Frame** field and then choose the **OK** button.

## Setting the Playback Mode

You can set the playback mode by using the End of playback range behavior button located next to the Playback rate field, refer to Figure 2-15. It is a toggle button which is used to switch between the three modes: **Loop**, **Stop**, and **Bounce**. These modes define the behavior of the playback when the time marker reaches the end of the timeline.

-  **Loop:** By default, this button is active. As a result, the sequence is looped.
-  **Stop:** This button is used to play the sequence to the head or tail of the playback range.
-  **Bounce:** This button is used to play the sequence repeatedly back and forth.

## Synchronizing Viewport Playback

The Lock/Unlock button is used to toggle the synchronized playback of the **Viewer#** panel. By default, all **Viewer** panels are locked. Therefore, if you change the current frame in a **Viewer** panel, all other **Viewer** panels will display the changed current frame number.



## Creating Flipbook Previews

The **Flipbook this viewer** button is used to generate the flipbook preview of the selected time range. On choosing this button; the **Flipbook** dialog box will be displayed, as shown in Figure 2-18. Next, specify the values as required in this dialog box and then choose the **OK** button; the **Progress** dialog box will be displayed, refer to Figure 2-19. This dialog box will disappear once the progress percentage reaches 100 and then the **FrameCycler** window will be displayed, refer to Figure 2-20. Next, preview the sequence in the **FrameCycler** window.

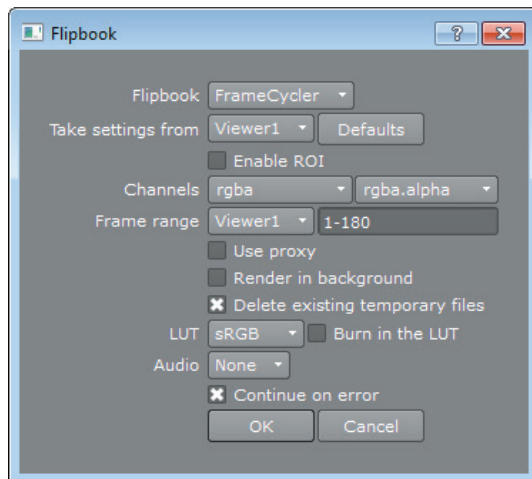


Figure 2-18 The **Flipbook** dialog box

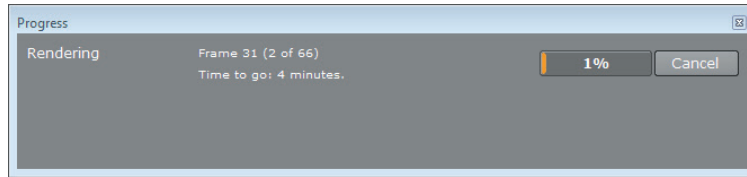


Figure 2-19 The *Progress* dialog box

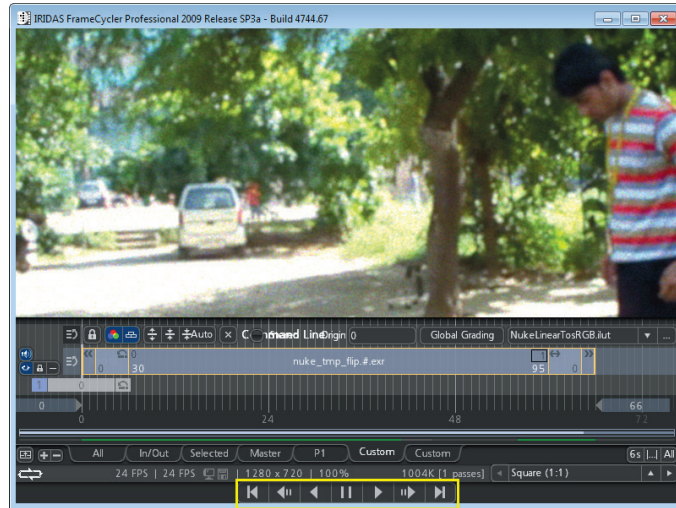


Figure 2-20 The *FrameCycler* window

## Playback performance

The Playback performance button, refer to Figure 2-15, is used to stop redrawing GUI every frame during the Viewer playback. As a result, frames playback rate is optimized when playing from the RAM cache. It stops redrawing of all knobs, postage stamps, autolabels, **Curve Editor**, and **Dope Sheet**. On choosing this button again, NukeX updates the GUI to the current frame.

You can also toggle this button by selecting the **optimize Viewer during playback** check box from the **Viewer** tab of the **Viewer#** node properties panel. You can view the **Viewer#** node properties panel by hovering the cursor over the **Viewer#** panel and then pressing S. You can make this feature default for all the **Viewer** panels. To do so, choose **Edit > Preferences** from the menu bar; the **Preferences** dialog box will be displayed. In this dialog box, select the **optimize Viewer during playback** check box from the **Viewers** tab.

## DISPLAYING IMAGE PIXELS INFORMATION

The pixel value indicator is located at the bottom of the **Viewer** panel, as shown in Figure 2-21. It displays information about the pixel on which the cursor is placed. You can follow the methods given next to sample a single pixel or a range of pixels:

- Press and hold CTRL and click on the **Viewer** panel to sample a single pixel from the **Viewer** panel.
- Press and hold CTRL+SHIFT and then drag the cursor to the **Viewer** panel to sample a region; a red rectangle will be drawn on the **Viewer** panel and pixels will be sampled within that region.
- Press and hold CTRL+ALT and then click on the **Viewer** panel to sample a single pixel from the node's input.
- Press and hold CTRL+ALT+SHIFT and then drag on the **Viewer** panel to sample a region from the node's input.



*Figure 2-21 The pixel value indicator*

## Self-Evaluation Test

Answer the following questions and then compare them to those given at the end of this chapter:

1. Which of the following combinations of shortcut keys is used to add a **Viewer** node to the **Node Graph** panel?
  - (a) CTRL+I
  - (b) CTRL+S
  - (c) ALT+P
  - (d) CTRL+K

2. Which of the following shortcut keys is used to toggle viewer automatic updates on and off?
- (a) P (b) L  
(c) L (d) Y
3. Which of the following shortcut keys is used to toggle the visibility of the floating **Viewer** panel?
- (a) Accent (`) (b) Comma (,)  
(c) V (d) CTRL+V
4. Which of the following drop-downs are used to define a set of color channels to be displayed in the **Viewer** panel?
- (a) Channel List (b) Channel Sets  
(c) Channel Display Style (d) Viewer
5. You can quickly cycle through the views by placing the cursor on the **Viewer** panel and then pressing the \_\_\_\_\_ or \_\_\_\_\_ arrow key.
6. The options in the \_\_\_\_\_ drop-down are used to select the zoom level of the **Viewer#** panel.
7. You can reset the timeline zoom/pan changes by clicking the middle mouse button. (T/F)
8. You can connect up to 9 process nodes to the ports of the **Viewer** node. (T/F)
9. The **downrez** drop-down in the Viewer controls is used to scale down the resolution of the **Viewer#** panel. (T/F)

## Review Questions

Answer the following questions:

1. Which of the following shortcut keys is used to superimpose the alpha channel over the RGB channels?
- (a) M (b) K  
(c) G (d) H
2. Which of the following shortcut keys is used to fill the **Viewer** panel with a frame?
- (a) H (b) L  
(c) P (d) CTRL+P

3. You can zoom in or zoom out in the **Viewer#** panel by pressing and holding ALT+MMB and then dragging the cursor to the \_\_\_\_\_ or \_\_\_\_\_.
4. The options in the \_\_\_\_\_ drop-down are used to set channel to be displayed when the A key is pressed.
5. You can change the zoom scale of the timeline by pressing and holding \_\_\_\_\_ and the middle mouse button and then dragging the cursor to the left or the right.
6. You can jump to a specific frame by choosing \_\_\_\_\_ from the menu bar or by pressing \_\_\_\_\_.
7. The U key is used to recalculate the viewer display. (T/F)

**Answers to Self-Evaluation Test**

1. a, 2. a, 3. a, 4. b, 5. UP, DOWN, 6. downrez, 7. T, 8. F, 9. T