CTP Pro

Training Guide

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Creating an animated production

This self-training guide will show you how to set up an animated production using CTP. It complements the information in the User's guide, describing all the steps in which you use CTP during the production process.

Starting a new scene

When you start up CTP, a dialog box appears that lets you create new scenes or open existing scenes:

• To open an existing scene, select Open existing scene, select a scene from the list, then press OK.

• To create a new scene, select Create a new scene then enter a scene name in the text box at the bottom of the dialog box. Now press OK.
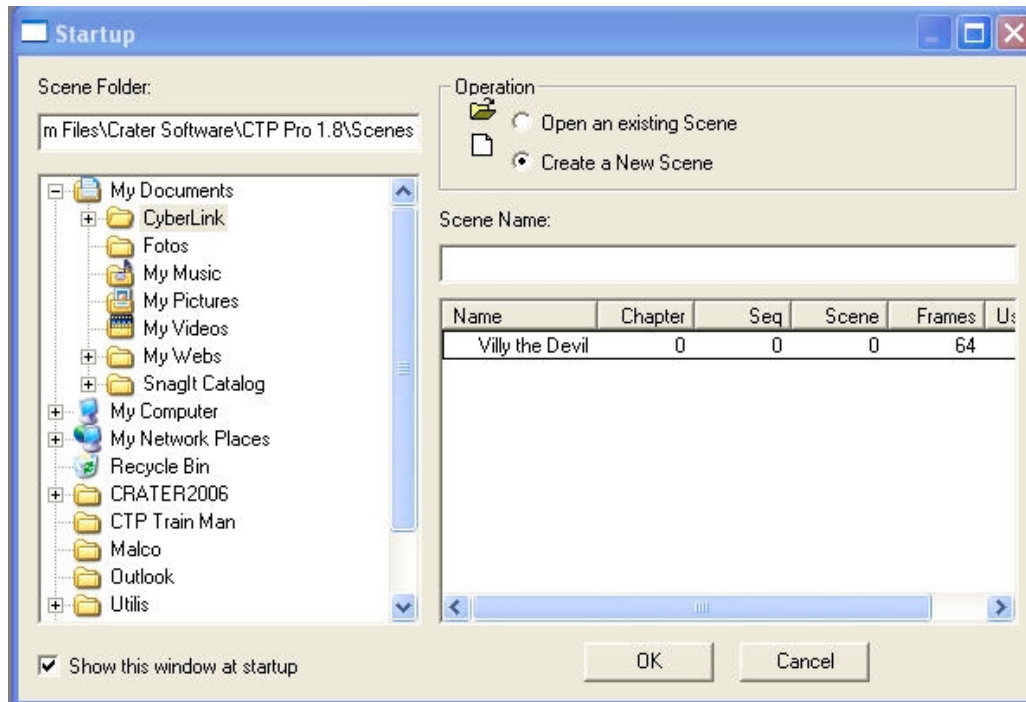
Importing artwork

There are three ways in which you can import images and drawings into CTP: using a scanner, using video capture, or by importing computer-generated images.

Using a scanner

The Import image from scanner button opens the scanner input dialog. You can also access the input dialog by clicking on the Insert menu and selecting the Image from scanner option. This command lets you import images using scanners that apply to the TWAIN standard.

Setting up the scanner

This is a list of options that appear in the Scanner tab in the Import image from scanner dialog:

• **Source**: Displays the scanner type. If you are running CTP for the first time, press the Select File button (the one that contains three dots "..."). Now choose your scanner type from the list that appears. Press the Preview button and scan the first image in your sequence of drawings. This image will serve as a guide for you to make further adjustments to the scanner settings.

• **Page size**: Defines the maximum scanning area. You can increase the viewable area by clicking the lower-right corner of the dialog box and dragging to resize it.

• **Resolution**: This feature optimizes the resolution of the scanned image, depending on how much you plan to zoom into the image with the camera. Enter a field size that corresponds to the maximum zoom (in fields) that you think you will need to perform on your image. The optimum resolution for the scanned image is set automatically, depending on the field number you enter. This feature ensures that the lines on your scanned image will not become aliased (i.e. look like a bunch of little squares) and remain smooth, even on a tight zoom.

Note: the smaller the field size you set, the greater the resolution of the scanned image, and therefore the greater the file size for each scanned image.

Tip: the disk-space indicator on the taskbar will tell you if you have adequate disk space available to store high-resolution images.

• **Automatic feeder**: Select this option if your scanner is equipped with an automatic sheet feeder attachment.

• **Multiple pages**: In conjunction with the automatic feeder option, select this option to scan multiple pages sequentially.

Selecting the destination layer in the storage sheet

Select the Sheet tab in the Import image from scanner dialog. The following options appear:

• **Frame resolution**: shows the current scene's frame resolution. To change the resolution, select the **Scanner** tab, and enter a new field value in the Resolution box (see Resolution in Setting up the scanner above).

• **Cell Code**: lets you enter the code of the first image manually. Remember that the code number for each successive image to be scanned will be increased incrementally from whatever number you assign to the first scanned image.

• **Image layer**: selects the storage sheet layer in which you want to store the imported images.

• **Shadow layer**: selects the storage sheet layer in which you want to store the shadow images. This option is available only if the Shadow Lines option in the Image tab has been selected.

Choosing the type of art to be scanned

In the Import image from scanner dialog, select the Image tab. You can select from a series of options depending on what kind of artwork you want to capture:

Capturing pencil drawings

Select the Line image option to import black and white line art images.

Capturing shadow images

Select the Shadow lines option to input shadow lines. This process will detect bright color lines (red, green, blue, etc.) on your drawings, and separate them from the dark pencil lines to mark the shadow areas. When the image is scanned, two sets of images will be placed in the storage sheet: one that contains the line art and another with the corresponding shadow line.

Capturing color overlays

Select the Transparent color option to scan color overlays. It will treat all the white areas on a color image as transparent areas, letting the other layers in the background show through.

Capturing color backgrounds

Select the Color image option to import color images like painted backgrounds. This option is usually the default option.

Adjusting the filters

These are the filter options (Note: These filters can only be applied to line drawings):

• **None**: No filter is applied, and the image is scanned in exactly at the scanner's default settings.

• **Artistic**: This filter will apply basic modifications to the highlights and shadows of an image, but will respect any type of artistic application to the lines in your drawing. In other words, choose the Artistic filter if you are using a calligraphic drawing style, or are drawing with lines of varying thickness, or any time you want to preserve the artistic integrity of the line in your drawing.

• **Camera**: This filter works wonders on low-contrast images (usually those obtained through camera input, but can also be used with a scanner). This is the recommended filter for camera line-test grabbing.

• **Scanner**: This filter is intended for images obtained from a high-resolution input source (usually from a scanner).

• **Opaque lines**: This option, only available with the scanner filter, will guarantee that the line is always totally opaque at its center. This means that no matter how thin the line becomes, it will remain solid, so that when you are painting the image later, the color won't spill into other areas.

• **Shadows**: Modifies the darkness of the lines on the image.

• **Highlights**: Modifies the whiteness of the areas surrounding the lines.

• **Sensitivity**: Adjusts the threshold that distinguishes the lines from the background (the contrast between the dark lines and the white areas).

• **Softness**: Applies a soft blur to the lines to help avoid rough edges.

Scanner Dialog Utilities

There are ten buttons inside the scanner input dialog that help you to preview and input your artwork:

Show Real Size

Displays images in the display area at their actual size (pixel accurate).

Fit to window

Adjusts the image size to fit the display area of the dialog box.

Show transparency

When you click on this button, all the pure white areas on the image you are scanning are displayed in red. Wherever you see red, those areas are considered to be transparent by the CTP software. It is these transparent areas that will be painted in later.

The red areas provide a visual reference, letting you see exactly which areas of your drawing are truly white, and which ones are gray or off-white. Any part of your drawing that is not pure white will be considered as part of a line or as an opaque area by the software.

The image transparency button is very useful in conjunction with the filter options, because it lets you see the contrast between the lines and the white areas on the drawing very easily. You can then use the filters to adjust the thickness, softness, and opacity of the lines, while simultaneously making sure that the "fill" areas of your drawing remain pristine.

Move image selection

After you preview the first image to be scanned, press this button to adjust the dimensions of the scanning area, which is defined by the red rectangle in the display area. Select the corners or the lines of the red rectangle and drag them to the optimum size to surround the area representing your drawing.

Show Field Chart

When you press the Show Field Chart button, a field chart is displayed over the previewed image in the display area of the Scanner input dialog. You can drag the field guide over any part of the display area. The field chart lets you register images that are scanned individually. In other words, if you are not using automatic peg detection (see below) the center of the field chart represents the center of the scanned image.

Pegs

This button lets you access the peg bar detection tools, which are used to help CTP register your drawings precisely.

Lock peg bar

This button locks and unlocks the peg bar placement you have chosen using the Horizontal pegs and Vertical pegs buttons (see below).

Horizontal pegs and Vertical pegs buttons

When you activate the Automatic peg detection function in the Image tab of the scanner input dialog, the peg holes are detected by CTP and are used to register the sequence of scanned drawings. When you preview the first scanned image, press the Pegs button to display an outline of an ACME peg bar in the viewing area.

• Press **Horizontal pegs** if the peg holes on your drawing are oriented horizontally on the scanner's flat glass bed.

• Press **Vertical pegs** if the peg holes on your drawing are oriented vertically on the scanner's flat glass bed.

You can then drag the outline of the peg bar over the preview image's peg holes. This will allow CTP to narrow the search for thee peg holes to a specific area on the scanned images that will follow, speeding up the scanning process and ensuring that all the drawings are registered properly.

Note: If you cannot access the Horizontal pegs or Vertical pegs functions, press the Lock peg bar button to activate the controls.

Performing the scan

Click on the Scan button. The image is placed into the storage sheet layer you specified earlier. If you are using a scanner equipped with an auto-feed attachment, the images will be scanned one at a time, then placed sequentially into the storage sheet layer.

Using video capture

The Import image from video button lets you capture images using a video camera and transfers them into the storage sheet. When you click on the Import image from video button, the video input dialog appears. You can also access the input dialog by clicking on the Insert menu and dragging down to the Image from video input option.

Selecting the destination layer in the storage sheet

Select the Sheet tab in the Import image from video dialog. The following options appear:

• **Frame resolution**: shows the current scene's frame resolution. To change the resolution, press the format button in the Capture Driver tab. The video format dialog appears where you can change the image dimensions.

• **Cell Code**: lets you enter the code of the first image manually. Remember that the code number for each successive image to be scanned will be increased incrementally from whatever number you assign to the first scanned image.

• **Image layer**: selects the storage sheet layer in which you want to store the imported images.

• **Shadow layer**: selects the storage sheet layer in which you want to store the shadow images. This option is available only if the Shadow Lines option in the Image tab has been selected.

Establishing the capture settings

In the Import image from video dialog, select the Image tab. You can select from a series of options depending on what kind of artwork you want to capture:

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Capturing pencil drawings

Select the Line image option to import black and white line art images. If this option is grayed out (i.e. the software won't let you select it), then click on the Adjust filters button in the Import image from video dialog.

Capturing shadow images

Select the Shadow lines option to input shadow lines. This process will detect bright color lines (red, green, blue, etc.) on your drawings, and separate them from the dark pencil lines to mark the shadow areas. When the image is scanned, two sets of images will be placed in the storage sheet: one that contains the line art and another with the corresponding shadow line.

Capturing color overlays

You can then drag the outline of the peg bar over the preview image's peg holes. This will allow CTP to narrow the search for thee peg holes to a specific area on the scanned images that will follow, speeding up the scanning process and ensuring that all the drawings are registered properly.

Note: If you cannot access the Horizontal pegs or Vertical pegs functions, press the Lock peg bar button to activate the controls.

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• **Frame resolution**: shows the current scene's frame resolution. To change the resolution, press the format button in the Capture Driver tab. The video format dialog appears where you can change the image dimensions.

• **Cell Code**: lets you enter the code of the first image manually. Remember that the code number for each successive image to be scanned will be increased incrementally from whatever number you assign to the first scanned image.

• **Image layer**: selects the storage sheet layer in which you want to store the imported images.

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Select the Transparent color option to input color overlays. It will treat all the white areas on a color image as transparent areas, letting the other layers in the background show through.

Capturing color backgrounds

Select the Color image option to input color images like painted backgrounds. This option is usually the default option.

Adjusting the filters

To adjust the filters, click on the Adjust filters button in the Import image from video dialog. These are the filter options (Note: These filters can only be applied to line drawings):

• **None**: No filter is applied, and the image is scanned in exactly at the scanner's default settings.

• **Artistic**: This filter will apply basic modifications to the highlights and shadows of an image, but will respect any type of artistic application to the lines in your drawing. In other words, choose the Artistic filter if you are using a calligraphic drawing style, or are drawing with lines of varying thickness, or any time you want to preserve the artistic integrity of the line in your drawing.

• **Camera**: This filter works wonders on low-contrast images (usually those obtained through camera input, but can also be used with a scanner). This is the recommended filter for camera line-test grabbing.

• **Scanner**: This filter is intended for images obtained from a high-resolution input source (usually from a scanner, but can also be used with video input).

• **Opaque lines**: This option, only available with the scanner filter, will guarantee that the line is always totally opaque at its center. This means that no matter how thin the line becomes, it will remain solid, so that when you are painting the image later, the color won't spill into other areas.

• **Shadows**: Modifies the darkness of the lines on the image.

• **Highlights**: Modifies the whiteness of the areas surrounding the lines.

• **Sensitivity**: Adjusts the threshold that distinguishes the lines from the background (the contrast between the dark lines and the white areas).

• **Softness**: Applies a soft blur to the lines to help avoid rough edges.

Video Input Dialog Utilities

There are ten buttons inside the video input dialog that help you preview your artwork:

Show Real Size

Displays images in the display area at their actual size (pixel accurate).

Fit to window

Adjusts the image size to fit the display area of the dialog box.

Show transparency

When you click on this button, all the pure white areas on the image you are capturing are displayed in red. Wherever you see red, those areas are considered to be transparent by the CTP software. It is these transparent areas that will be painted in later.

The red areas provide a visual reference, letting you see exactly which areas of your drawing are truly white, and which ones are gray or off-white. Any part of your drawing that is not pure white will be considered as part of a line or as an opaque area by the software.

The image transparency button is very useful in conjunction with the filter options, because it lets you see the contrast between the lines and the white areas on the drawing very easily. You can then use the filters to adjust the thickness, softness, and opacity of the lines, while simultaneously making sure that the "fill" areas of your drawing remain pristine.

Move image selection

Press this button to adjust the dimensions of the scanning area, which is defined by the red rectangle in the display area. Select the corners or the lines of the red rectangle and drag them to the optimum size to surround the area representing your drawing.

Show Field Chart

When you press the Show Field Chart button, a field chart is displayed over the previewed image in the display area of the Scanner input dialog. You can drag the field guide over any part of the display area.

Important: When capturing an image from video, the center of the field chart represents the center of the captured image. You should always set the field guide in place over the previewed image to make sure it is centered properly once the image has been captured.

Pegs, Lock peg bar, Horizontal pegs and Vertical pegs buttons

These buttons let you access the peg bar detection tools, which function best with a scanner. For more information on the peg bar detection tools, see page 7.

Performing the video capture

Click on the Snapshot button. The image is placed into the storage sheet layer you specified in the Sheet tab of the video input dialog.

Importing computer-generated artwork

Selecting the image files

The Import image from file button opens the file input dialog. You can also access the input dialog by clicking on the Insert menu and dragging down to the Image from file option. The following options appear:

• **Folder**: Indicates the folder (directory) where the files to be imported are located. To find files in a different location, press the "..." button. A file browser opens, letting you navigate through your file system until you find the files you are looking for.

• **Name**: Indicates the name of the files to be imported. Type in the # sign (press the Shift key then the number 3 on your keyboard) to indicate what part of the files' names the sequence numbers should appear.

• **First**: The sequence number of the first file to be imported.

• **Last**: The sequence number of the last file to be imported.

• **Step**: The step value of the frames to be imported. Use this option if the sequence numbers of the images you want to import are not consecutive (002, 004, 006, etc.).

• **Current**: Use this option to preview any file within the range of selected files.

• **Sequence**: Activate this option if you want to import an entire sequence of images, or deactivate it if you want to import just one image.

Selecting the destination layer in the storage sheet

Select the Sheet tab in the Import image from video dialog. The following options appear:

• **Frame resolution**: Shows the current scene's frame resolution. To change the resolution, press the format button in the Capture Driver tab. The video format dialog appears where you can change the image dimensions.

• **Cell Code**: Lets you enter the code of the first image manually. Remember that the code number for each successive image to be captured will be increased incrementally from whatever number you assign to the first captured image.

• **Image layer**: Lets you select the storage sheet layer where you want to store the imported images.

• **Shadow layer**: Lets you select the storage sheet layer in which you want to store the shadow images. This option is available only if the Shadow Lines option in the Image tab has been selected.

• **Sound layer**: If you are importing a QuickTime movie or an AVI movie that contains audio, the sound layer option appears, which layer lets you select the storage sheet layer in which you want to store the sounds from the movie. CTP automatically converts the movie files into individual frames, letting you place the images into an image layer, and the sounds into a sound layer in the storage sheet.

Adjusting the filters

To adjust the filters, click on the Adjust filters button in the Import image from video dialog. These are the filter options (Note: These filters can only be applied to line drawings):

• **None**: No filter is applied, and the image is scanned in exactly at the scanner's default settings.

• **Artistic**: This filter will apply basic modifications to the highlights and shadows of an image, but will respect any type of artistic application to the lines in your drawing. In other words, choose the Artistic filter if you are using a calligraphic drawing style, or are drawing with lines of varying thickness, or any time you want to preserve the artistic integrity of the line in your drawing.

• **Camera**: This filter works wonders on low-contrast images (usually those obtained through camera input, but can also be used with a scanner). This is the recommended filter for camera line-test grabbing.

• **Scanner**: This filter is intended for images obtained from a high-resolution input source (usually from a scanner, but can also be used with video input).

• **Opaque lines**: This option, only available with the scanner filter, will guarantee that the line is always totally opaque at its center. This means that no matter how thin the line becomes, it will remain solid, so that when you are painting the image later, the color won't spill into other areas.

• **Shadows**: Modifies the darkness of the lines on the image.

• **Highlights**: Modifies the whiteness of the areas surrounding the lines.

• **Sensitivity**: Adjusts the threshold that distinguishes the lines from the background (the contrast between the dark lines and the white areas).

• **Softness**: Applies a soft blur to the lines to smooth out rough edges.

Working on images

Storage sheet

The Storage sheet is where CTP warehouses all the original artwork and sounds that you captured or imported:

• Very few operations can be carried out in the storage sheet because we want to keep the original material intact. If you select material in the storage sheet, the only operation you can perform is to delete (erase) the data to discard obsolete material.

• If you add new artwork or sounds to any storage sheet layers that already contain material, the new artwork or sounds will always be placed after the existing material.

• There are two types of storage sheet layers: image and audio. The cells in the image layers have an orange tint, and the cells in the audio layers have a blue tint.

Moving images from the storage sheet to the exposure sheet

To actually perform any work on the material you placed in the storage sheet (such as inking and painting, creating camera moves, etc.) you must drag the raw material from the storage sheet and drop it into the exposure sheet.

1. Select groups of cells, entire layers, or individual frames in the storage sheet:
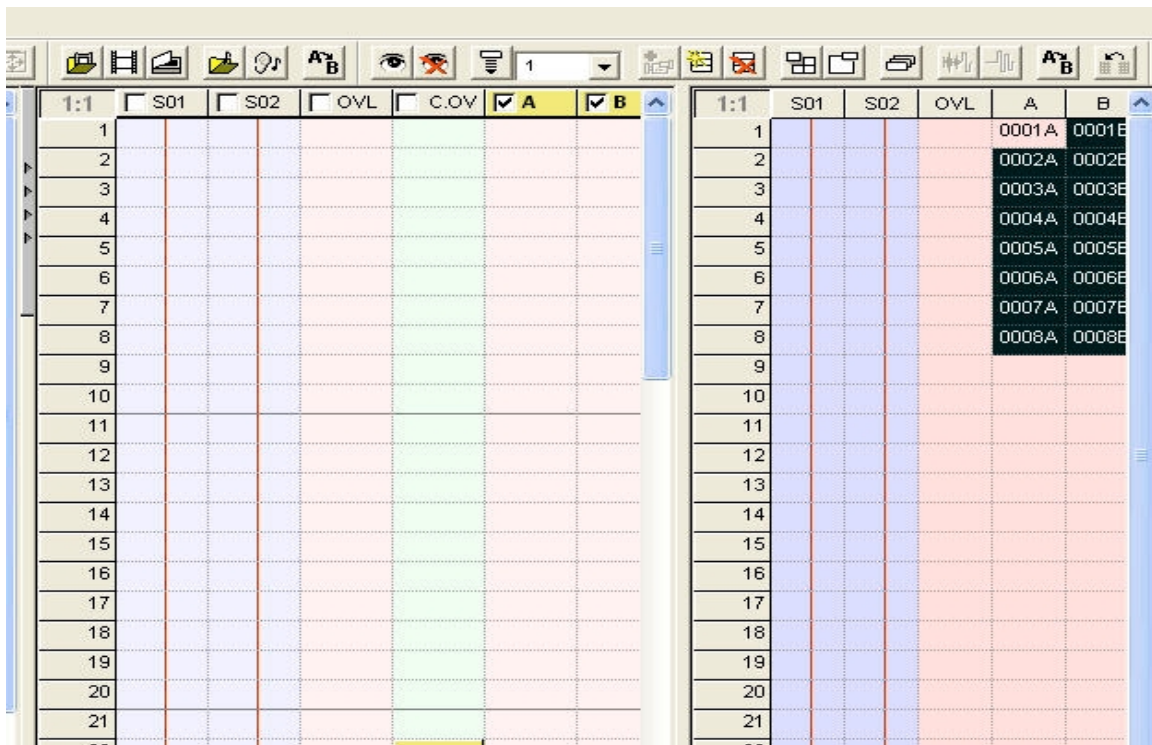

To select a cell, simply click on it. To select a group of cells, click and drag the cursor over a range of cells. To select an entire layer, click on the rectangle at the top of the layer. The selected cells are darkened, and a little rectangle appears next to the arrow cursor, indicating that your selection has been made.

2. Click on your selection again, then drag it over a layer in the exposure sheet:
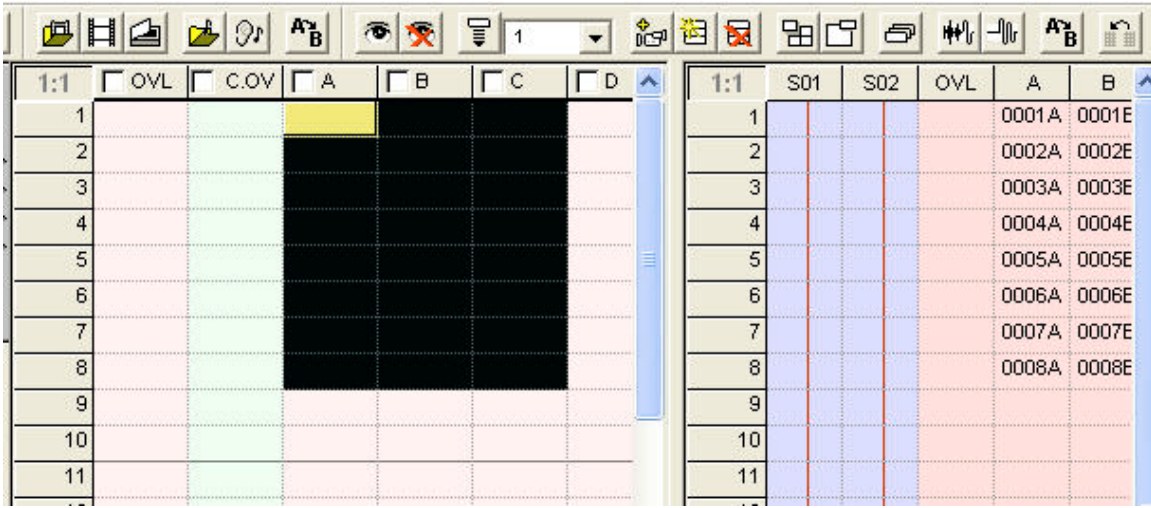
3. When you let go of the selection, it is placed in the exposure sheet:
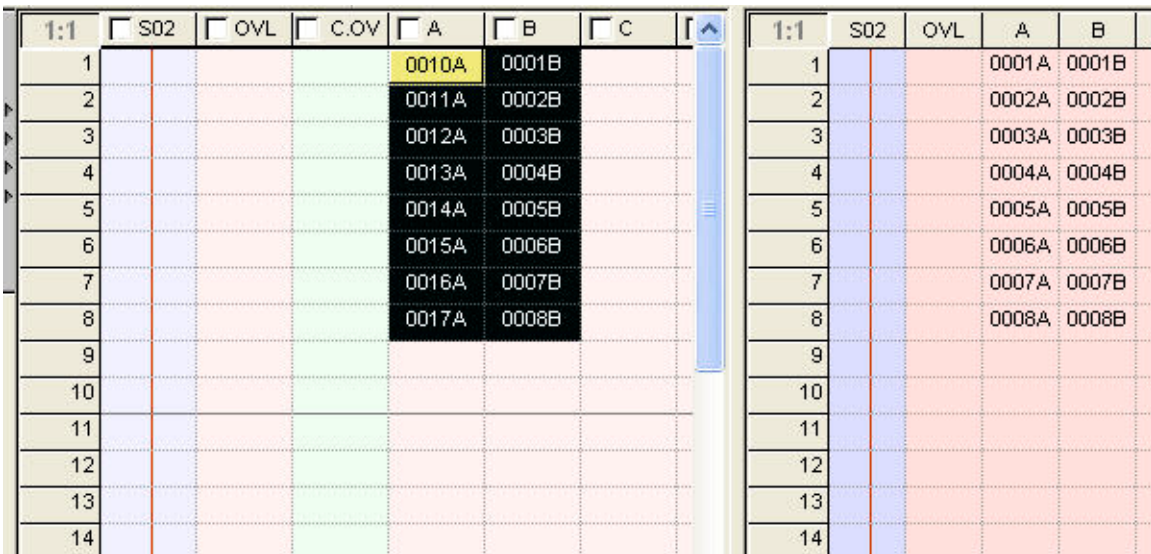
Note: You can also copy the material in the storage sheet and paste it into the exposure sheet if you prefer, using the copy and paste commands in the edit menu.

Important: when dragging data from one sheet to another, the type of data in the storage sheet must match the type of data in the exposure sheet layer. In other words, you can't place a sequence of line drawings into an audio layer, for example.

Sheet Settings

To activate the delete and drag & drop options, go to the Tools menu, and select Options. Now click on the Sheet Settings tab in the dialog box that appears. The following options are available:
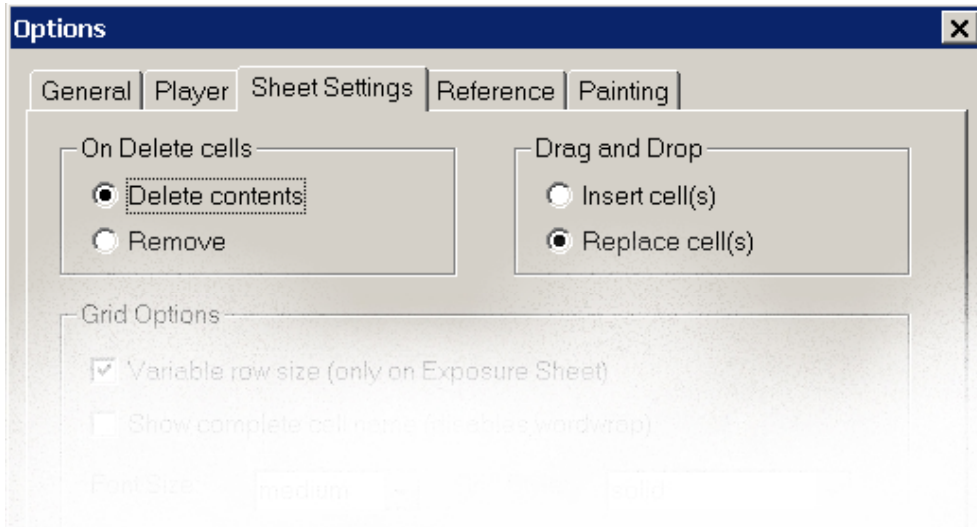
• **Delete contents**: Activate this option if,when deleting cells selected from the exposure sheet, you want the sheet to remain exactly the way it was and the deleted cells replaced by empty cells.

• **Remove**: Activate this option if you want the deleted cells to be replaced by successive cells of the same layer. All cells below will be moved upwards to fill in the empty spaces.

• **Insert**: Activate this option if, when dragging a group of cells over another, you want to insert it where the cursor is located, moving the current one so as to fit the new ones in.

• **Replace**: Activate this option if, when dragging a group of cells over another, you want the new ones to replace the current ones.

Note: The insert and replace options can be interchanged by pressing the Shift key while dragging the cells.

Exposure sheet

The exposure sheet area resembles a traditional director's exposure sheet. Here are the basic characteristics of the exposure sheet:

• The exposure sheet always has an Active frame, a frame or a cell that is highlighted in yellow. The contents of the active frame are displayed in the viewing area, so that you can perform operations on them (i.e. paint a character, add a camera movement, etc.):
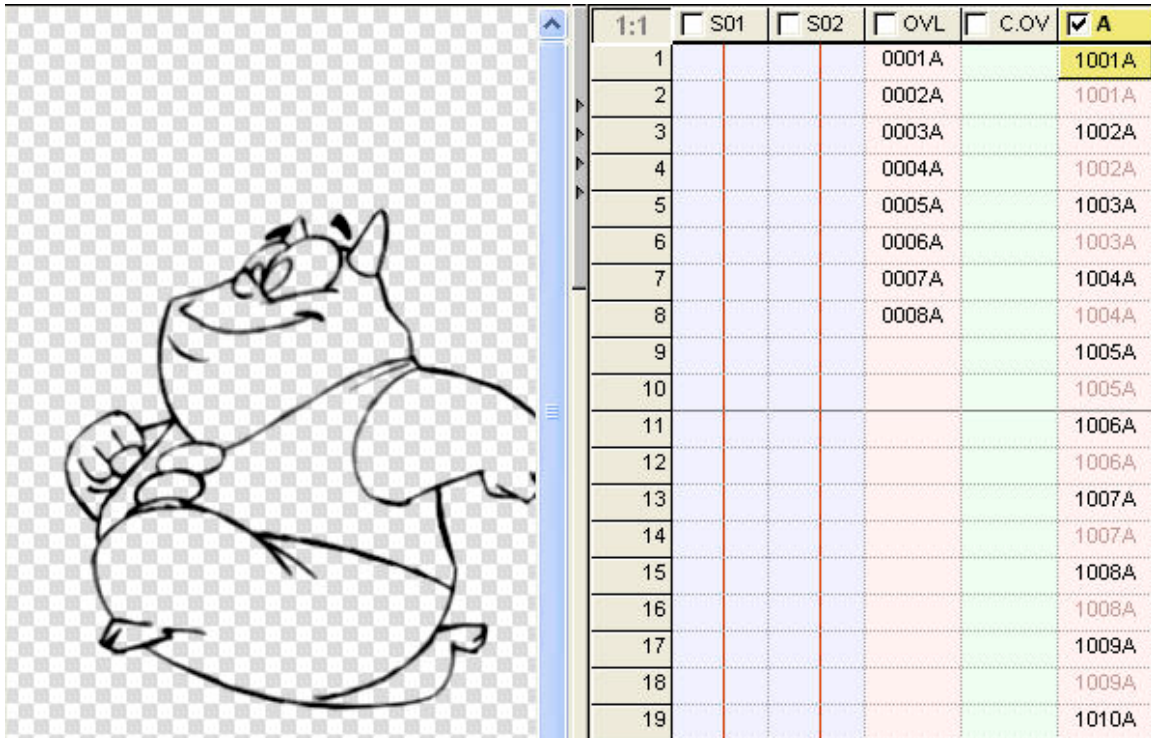
Note: If the active selection is a frame of audio, a neutral image (purely decorative) will appear in the viewing area.

• When you select multiple frames or entire layers in the exposure sheet, the first frame is the active one, and all the subsequent frames are darkened:

1:1	☐ S01	☐ S02	☐ OVL	☐ C.OV	☑ A
1			0001A		1001A
2			0002A		1001A
3			0003A		1002A
4			0004A		1002A
5			0005A		1003A
6			0006A		1003A
7			0007A		1004A
8			0008A		1004A
9					1005A
10					1005A
11					1006A
12					1006A
13					1007A
14					1007A
15					1008A
16					1008A
17					1009A
18					1009A
19					1010A
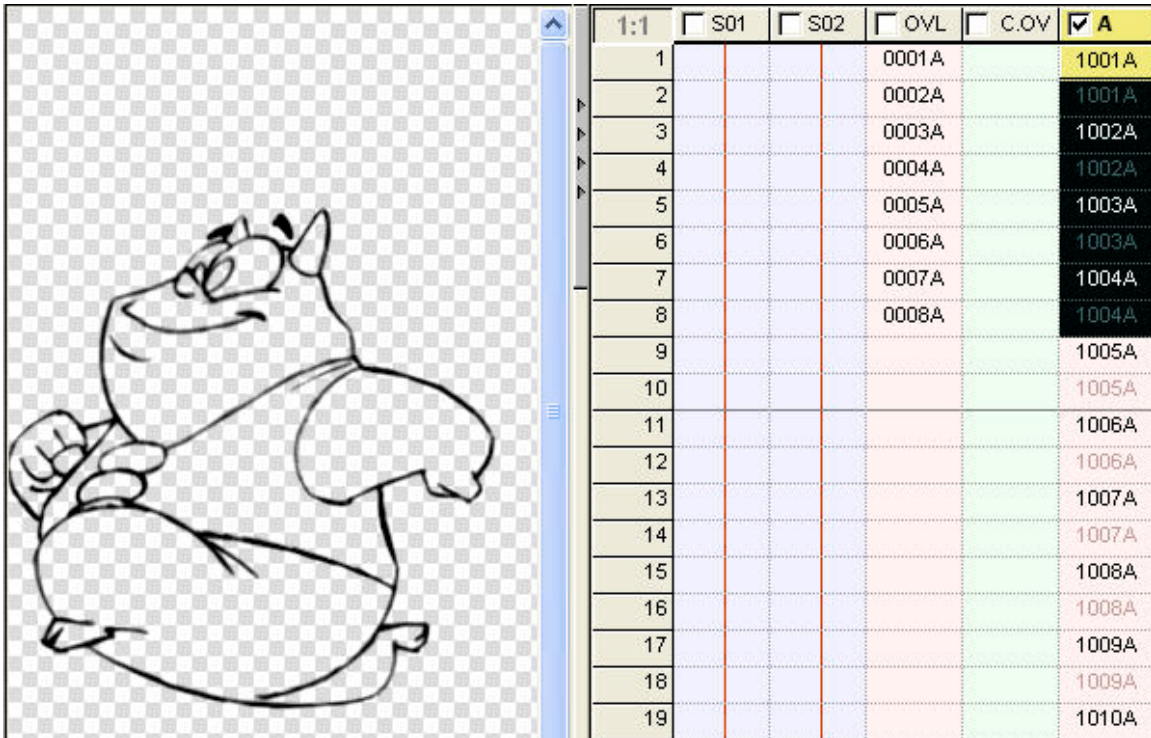
• There are three types of exposure sheet layers: **image**, **audio**, and **camera animation**. Image layers have an orange tint, audio layers have a blue tint, and camera animation layers have a green tint.

• The camera animation layer will affect all the active image layers on its left side, up until the next camera animation layer, which will affect all the active layers on its left, and so on.

Activating and de-activating layers

Each image, sound, and camera layer can be made Active or Inactive. When you preview or output a scene in CTP, only the active layers are processed. This means that you can preview individual layers one at a time or groups of layers, or all of your layers.

Activate the layer by clicking on the check box at the top of the layer. De-activate the layer by clicking on the checked box at the top of the layer again.

☐ OVL	☐ C.OV	☑ A
0001A		1001A
0002A		1001A
0003A		1002A
0004A		1002A
0005A		1003A
0006A		1003A
0007A		1004A
0008A		1004A
		1005A
		1005A

• The top of an active layer is displayed in bright yellow with a check mark in the check box. The top of an inactive layer is displayed in gray, with an empty check box.

Setting repetitions

1. Select a range of cells in a layer, then click on the triangle to the right of the Repeat selected cells button, and drag down to the repetition number you want. You can also type a number directly in the number field next to the triangle.
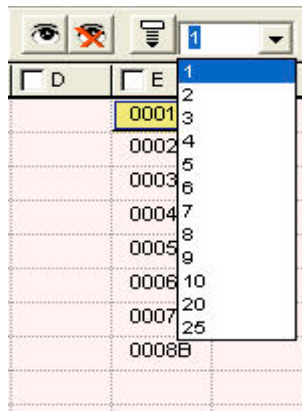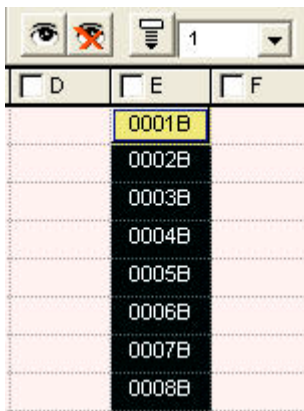
2. Press the Repeat selected cells button, or hit the Enter key on your keyboard. The cell code numbers in the repeated cells are displayed in gray:

3. Important: You can also set repetitions by selecting a frame in the exposure sheet and pressing the "+" key on the keypad of you keyboard to add repetitions after the frame, and the "—" key to remove repetitions after the frame.

Performing a line test

1. Activate the layer or layers you want to test by clicking on the check box at the top of the layer. If you want to perform the test on a single layer, deactivate any other layers. If you want to perform the test on multiple layers, activate the appropriate layers.

2. If you only want to play back a portion of the animation, select a range of cells. It doesn't matter if you select cells in other layers, because only the active layers will be played back. If you want to play back all of the contents of the active layers, you don't need to select the cells — proceed to step 3.

The active layers will be played back in sequence. If you have selected a specific range of cells, all the selected frames in all the active layers will be played back.

Reference Layers and Reference Frames (Onion Skinning)

To activate the Onion Skinning or the Reference Layers features, click on the Reference button above the viewing controls:

2. To change the Onion Skinning and Reference Layers options, go to the Tools menu and select **Options**. Now click on the Reference tab in the dialog box that appears:
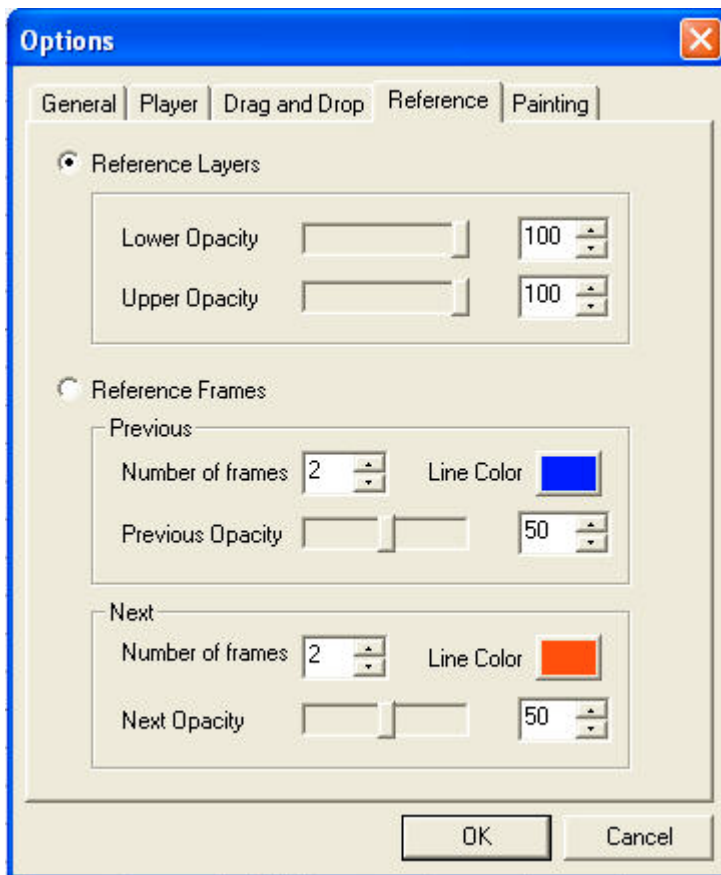
3. The Reference tab contains the following controls:

• **Reference layers**: When you activate this option, whenever you select the Reference button in the View controls, all the images in all the active layers for that particular frame number are displayed. For example, let's say you have an image in layer A and another next to it in layer B, and both layers are active. If you activate Reference layers, and you select frame 15 in layer A, the image at frame 15 in layer B will also be displayed.

• **Lower opacity**: The images in the previous layers (the cells in the layers to the left of the selected layer's cell) can be displayed as semi-transparent. You adjust the opacity (transparency) using the slider or by typing a percentage value in the box on the right.

• **Upper opacity**: The images in the subsequent layers (the cells in the layers to the right of the selected layer's cell) can be displayed as semi-transparent. You adjust the opacity (transparency) using the slider or by typing a percentage value in the box on the right.

• **Reference frames**: This is the Onion Skinning feature. When you activate this option, whenever you select the Reference button in the View controls, the images in the frames before and after the selected cell are displayed.

• Number of frames: Specifies the number of previous and subsequent frames in a layer that are displayed when the Reference Frames feature is activated.

• **Previous opacity**: The images in the cells that precede the selected cell (the cells above the selected cell) can be displayed as semi-transparent. You adjust the opacity (transparency) using the slider or by typing a percentage value in the box on the right.

• **Next opacity**: The images in the cells that follow the selected cell (the cells below the selected cell) can be displayed as semi-transparent. You adjust the opacity (transparency) using the slider or by typing a percentage value in the box on the right.

Inking and painting

Using the ink and paint tools

Selector

Use this tool to select any color, either from the display area or from the color model archive area (for more information on color model archives, see page 23). The color is inserted in the current color box, and becomes the active color that is used by the Fill, Paintbrush, Airbrush, and Line tools.

Fill

The fill tool lets you change the color of any line art, or fill closed areas in a drawing.

• To change the color of line art, you should be in **line** mode, and click on any part of the line art. The color change will be extended to all the lines that are interconnected.

• If you click on a line while pressing the **Shift** key, the color change will be carried out on all the lines throughout the entire drawing. It doesn't matter where on the drawing you click; the color will be applied to the entire cell. If you are satisfied with the color change, press the ok! button. If you have selected multiple cells, the color change will be extended to all the selected cells.

• To fill a drawing, you should be in **Show line & color** mode. Click on a closed area (that is, a part of the drawing that is completely enclosed by lines) and the color will fill the entire area. If you click on an area that is already filled, the old color will be replaced by the current color you are using.

• You can also adjust the sensitivity of the fill (i.e. how thoroughly the paint fills the closed area). To change the fill sensitivity, go to the **Tools** menu, and select **Options**. Now click on the **Painting** options tab in the dialog box that appears. In the **Fill Color** section, there is a check box labeled **Sensitive by default**. If this check box is active, then the fill tool will automatically try to fill in the area as thoroughly as possible, even between lines that are very close together. You can toggle between sensitive fill and standard fill at any time by pressing the Shift button while clicking on the part of the drawing you want to paint.

• The box fill feature is used to fill several closed areas at the same time. To perform a box fill, select the **fill** tool, press the **Ctrl** key and drag the cursor over the artwork.

Eraser

This tool lets you erase painted areas or lines.

• If you are in **Show line & color** mode, keep in mind that only the painted areas of the images will be erased, not the line art.

• If you are in Show line mode, only the line art will be erased.

• When you are in **Show line & color** mode, you can erase all the painted areas of the cell by pressing the **Shift** button on your keyboard and clicking the eraser anywhere in the viewing area. If you have selected multiple cells, the color erase will be extended to all the selected cells once you press the *ok!* button.

• When you are in **Show line** mode, you can erase all the line art in the cell by pressing the **Shift** button on your keyboard and clicking the eraser anywhere in the viewing area. If you have selected multiple cells, the line erase will be extended to all the selected cells once you press the *ok!* button.

Paintbrush

Selects the paintbrush tool. You can adjust the following parameters:

• **Size**: To adjust the size of the paintbrush, click on the brush size button and drag up or down in the brush parameters' viewing area.

• **Smoothness**: To adjust the sharpness or blur around the edges of the brush, click on the smoothness button and drag up or down in the brush parameters' viewing area.

• **Opacity**: To adjust the transparency of the color, click on the opacity button and drag up or down in the brush parameters' viewing area.

Airbrush

Selects the airbrush tool.

• The airbrush uses the same formats as the paintbrush (size, smoothness, and opacity) but applies the paint in a pressure-sensitive manner just like a real airbrush.

• If you are in **Show line** mode, you can use the airbrush to selectively change the color of the lines.

Line

Selects the line-drawing tool. The line tool uses the same formats as the paintbrush (size, smoothness, and opacity) to determine the kind of line that will be drawn. To draw a line, click at the starting point and drag in the direction you want the line to be drawn.

Drag image

This feature is used in conjunction with the Compose cells button to create composite images (that is, two images that are placed together to create one larger image). This is useful for stitching together two or more background images to create one large background. To use the Compose cells and Drag image commands, do the following:

1. Drag the two images you want to stitch together from the storage sheet into the exposure sheet.

2. Select one of the cells.

3. Press the Compose cells button.

4. Select the other cell. The Drag image button is activated automatically, and the second image is superimposed over the first image. The second image appears semi-transparent.

5. Click on the semi-transparent image and drag it to align roughly with the first image.

6. Use the arrow keys to align the pixels of the two images exactly.

7. Press the ok! button. The two images are now combined into one seamless image.

Note: If you are scanning a large background in several parts, because it is too large to be scanned in one

pass, always make each image overlap with the other a little bit. It makes it easier to align the pixels later.

Brush Size

To adjust the size of the paintbrush, click on the width button and drag up or down in the brush parameters' viewing area.

Brush Smoothness

To adjust the sharpness or blur around the edges of the brush, click on the blur button and drag up or down in the brush parameters' viewing area.

Brush Opacity

To adjust the transparency of the color, click on the opacity button and drag up or down in the brush parameters' viewing area.

Current Color and Previous Color boxes

• The upper color box displays the current color that will be applied by the paint tools.

• The lower color box displays the previously selected color. Clicking on the lower box will swap the contents of the previous color with the current color.

User palette

The user palette stores a series of colors that you can define.

• To select any one of the colors, simply click on one of the boxes in the palette. The contents of the current color box will change to match the color you just selected.

• To change the color of any of the boxes in the user palette, first select the color box to be changed, then use the color selector to choose the color you want (see Color Selector below). The new color appears in the current color box. Now double-click on the current color box. The contents of the palette box will change to match the current color.

• Whenever you use the same set of colors repeatedly, it can be a bit tiresome to return to the palette and select new colors. To speed up the color selection process, you can set up the palette to use the keyboard to shuffle through the colors you use the most:

1. Click on a color box while pressing the **Shift** key to select colors individually. The selected color boxes contain a check mark.

2. To select a row of adjacent color boxes, click on the leftmost color box while pressing the Shift key, then drag towards the right until you reach the last color box in the row. Each color box in the row will contain a check mark.

3. Once you have selected the colors, use the **Q** and **W** keys to cycle between the color boxes. The **Q** key will select the colors from right to left, and the **W** key will select the colors from left to right.

4. To de-select any of the color boxes, click on the color box while pressing the **Shift** key.

Painting with color model archives (reference images)

Creating a color model archive

1. To create a new color model archive (or CMA for short) go to the **File** menu and scroll down to **New CMA**. A blank area will appear under the exposure sheet.

2. Select any imported color image or colored frame from the exposure sheet or the storage sheet

3. Drag the color image or colored frame into the column on the left-hand side of the **color model archive** area. You can drag as many images into the archive area as you like.

4. Select a cell in the exposure sheet that you want to paint.

5. Select the fill tool (the little bucket), and drag it over the color model archive. Notice that the little bucket icon turns into the eyedropper-shaped color selector.

6. Click on any colored area on the color model archive. The color is matched and placed into the current color box above the user palette.

7. Press the Save CMA button to save the changes you make to your color model archive.

Importing a color model archive (reference image)

1. Press the Open color model archive button, and select an existing color models archive using the browser. A reference image appears under the exposure sheet.

2. Select a cell in the exposure sheet that you want to paint.

3. Select the fill tool (the little bucket), and drag it over the color model archive. Notice that the little bucket icon turns into the eyedropper-shaped color selector.

4. Click on any colored area on the color model archive. The color is matched and placed in the current color area above the user palette.

Replacing colors on an entire painted layer

The Color Replace button lets you substitute colors on a selected range of cells:

1. In the exposure sheet, select a range of cells on a layer you painted already. Make sure you are in Show Line + Color viewing mode.

2. Using the color selector (the little eyedropper-shaped tool), select the color on the painted cell that you want to replace. The color will appear in the current color box.

3. Select the new color you want to substitute for the old color from the palette or from a color model archive. This new color is now set as the current color, and the first color you selected from your original painted cell appears in the previous color box.

4. Press the color replace button. The color in the current color box is applied to the cell, replacing the original color throughout the cell.

5. If you are happy with the color substitution, press the *ok!* button. A dialog box will appear asking you if you want to perform the color substitution on all the selected cells. Select **Yes**. Wherever the original color appears on all the selected cells, it is substituted for the new color.

Animating with camera moves

Once you have input your images, colored them, and set their timing, you can add camera moves. Camera moves in CTP are similar to the controls on a traditional animation camera stand, letting you recreate the equivalent of peg bar moves and rotations, and camera zooms.

Understanding the concept of camera keyframes

In computer animation, the concept of a camera keyframe is somewhat different from the definition of a traditional animation keyframe (or key, or key drawing). Traditionally, "keys" are drawings that represent extreme positions of a character's movement, and "in-between" drawings are made to fill in the transition frames between each keyframe.

In CTP, a camera keyframe represents the extreme position (pan, zoom, or rotation) of a layer on a "virtual" camera stand at a given frame number.

A traditional camera operator must take a picture at every frame, each time either sliding or rotating the peg bars that the layers are attached to, or zooming the camera into or away from the artwork on a frame-by- frame basis.

In CTP, you only have to set the value of the pan, zoom, or rotation at the frame numbers where the camera movement is at its most extreme. The computer then calculates the position of the camera between the camera keyframes automatically.

So, instead of having to set up the camera at each frame, you only set up the camera at the beginning and at the end of the camera move — the computer does the rest. The use of camera keyframes speeds up production times immensely when compared to the traditional camera stand method.

Adding a camera animation layer

To add a camera layer to the exposure sheet, do the following:

1. Activate the image layer by clicking on the check box at the top of the layer.

2. Select the entire image layer by clicking on the top part of the column next to the check box.

3. Click on the Insert camera layer button. A camera layer appears. The animation you apply to the camera layer will affect all the active image layers to the left of the camera layer, until another active camera layer is detected.

4. Activate the camera layer by clicking on the check box at the top of the layer.

5.   Select a cell in the active camera layer. The animation controls appear.

6.   There are four camera parameter buttons that can be animated in CTP:

•   **X Pan**: Sets a value for a horizontal camera pan.

•   **Y Pan**: Sets a value for a vertical camera pan.

•   **Zoom**: Sets a zoom value for the camera.

•   **Rotate**: Sets a rotation value for the camera.

Animating the camera

Once you have selected the animation parameter for the camera, there are three ways in which you can animate that parameter:

Interactively animating the camera

1. Select a cell in an active camera layer.

2. Select an animation parameter button (X Pan, Y Pan, Zoom, or Rotate).

3. Click and drag on the image or images in the viewing area. This is what happens, depending on what animation parameter you selected:

• If you selected **X Pan** or **Y Pan**, the image will change positions on the screen. Wherever you stop dragging the image, a camera keyframe is set automatically, and the letter K appears in the cell of the camera layer.

• If you selected **Zoom** or **Rotate**, as you drag the cursor up and down, the image will be zoomed or rotated back and forth. Whenever you stop dragging the image, it will stop zooming or rotating, and a camera keyframe is set. The letter **K** appears in the cell of the camera layer.

4. Select another cell farther down the camera layer. Repeat step 3, but apply a different value to the animation parameter. For example, if you are animating a horizontal pan using the X Pan parameter, place the image in a different part of the screen.

5. In the exposure sheet layer, select the range of frames between the two camera keyframes, and click the **Play Forward** button. The animation will be played back.

6. You can keep manipulating the image directly for each parameter at any particular keyframe until you are satisfied with the results.

Entering numeric values

1. Select a cell in an active camera layer.

2. Select an animation parameter (X Pan, Y Pan, Zoom, or Rotate).

3. Enter a number in the field to the right of the animation parameter you selected.

4. Click on the ok! button. A keyframe is set automatically, and the letter K appears in the cell of the animation layer.

5. Select another cell farther down the camera layer. Enter a different number in the field to the right of the animation.

6. Select the range of frames between the two keyframes, and click the **Play Forward** button. The animation will be played back.

7. You can keep changing the values for each parameter at a particular keyframe until you are satisfied with the results.

Using and interpreting function curves

A function curve is a mathematical representation of the change in an animation parameter over time. Don't let this concept discourage you if you are mathematically disinclined — Editing function curves is a very simple, graphical process, letting you create elaborate camera moves very quickly and precisely.

How to interpret function curves

In CTP, there are four kinds of camera parameters that generate function curves: X Pan, Y Pan, Zoom, and Rotate.

• The vertical axis represents the change in value of the parameter.

• The horizontal axis represents time, as measured in frames.

• The slope of the line (its shape) determines the rate of change of a parameter's value over time. Therefore, by changing the shape of the curve, you change the animation on the camera layer.

For example, let's say we want to create a simple camera pan on a layer containing only one image of an automobile. Assume that the director wants us to animate an automobile driving from left to right across the screen. If we select a cell in the camera layer in the exposure sheet, the function curves appear. If the line is shaped like this...

the flat line means that the car doesn't move. The camera is stuck at one position, and it stays at that position over time, so the automobile looks like it is standing still.

If the line is angled like this...

• . the straight line means that the camera pan moves at a constant rate. From the first keyframe to the second keyframe, the camera panned 10 fields over 60 frames, at a constant speed. So our little automobile appears to move across the screen by ten fields in about two seconds, without speeding up or slowing down.

If the line is curved, however, the rate of change is no longer constant — the steeper the slope of the line, the faster the rate of change, and the shallower the slope of the line, the slower the rate of change. For example, if the line is curved like this...

it means that the automobile appears to start off at a fast speed, slow down over time, then stop. This is because the slope of the line is reduced gradually until finally it flattens out completely. In the same way, if the line is curved like this...
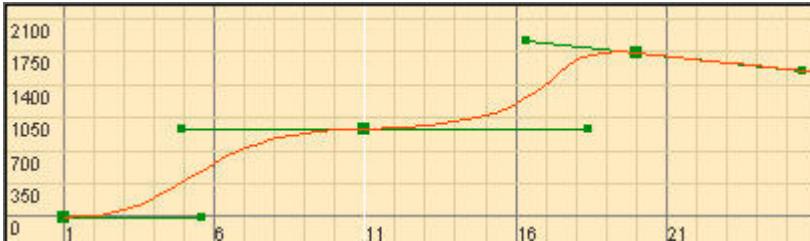

it means that the automobile appears to start off slowly and gradually speed up. Now, if the line is curved like this...


• it means that the automobile appears to start off slowly, pick up speed, slow down, and then stop. This curve represents what is traditionally called an "ease-in, ease-out" camera move.

If the line is curved like this...

it means that the automobile appears to start off slowly, pick up speed, slow down, stop, start off again, pick up speed, slow down, and stop a second time.

See if you can guess what would happen to our little automobile if the function curve of the camera pan were shaped like this:
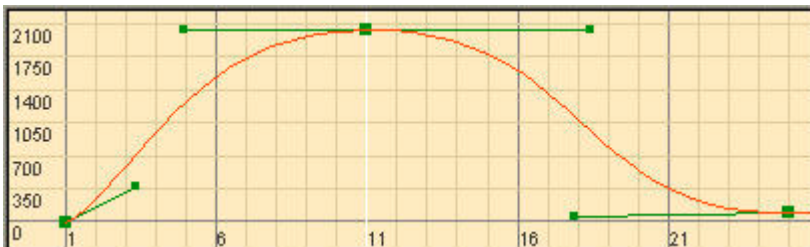
When the line curves back downwards, the value of the parameter that is being animated (the pan, zoom, or rotation of the camera) returns closer to the value at the start of the curve. So in the case of our camera pan on the little automobile, according to the curve it would appear to start off slowly, pick up speed, slow down, then stop. But this time, as the curve slopes back downwards, the car appears to start moving backwards. The car picks up speed driving in reverse, then finally slows down and stops at its original position.

The example of the camera pan on our little automobile can be applied just as easily to a camera zoom, or a rotation. The slope of the curve dictates the rate of change of the camera movement, whether it is a pan, zoom, or rotation. Therefore, If you change the shape of the curve, you change the rate of the camera animation.

Note: There are certain types of curve that are impossible to create. For example, you would never get function curves that look like this:
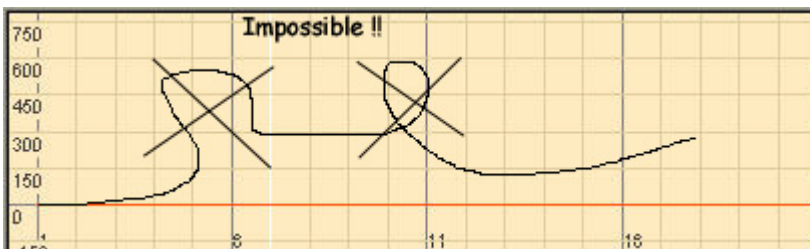
The reason that these curves are impossible to produce is because time is a constant value, always moving in one direction. Curves shaped like these would imply that the value of the animated parameter loops backwards in time. While cartoon characters themselves can violate the space-time continuum whenever they like, unfortunately, computers aren't as flexible!

Editing the curves

Editing the slope of the function curve is a matter of dragging the tension points at each keyframe. The tension points look like little handles on each keyframe that run off from the function curve at a tangent:

Here are some shortcuts to help you edit function curves:

• **Space bar**: Press the space bar over the function curves viewing area and drag to pan along the viewable area of the function curves. If you right-click at the same time as you press the space bar, then drag the cursor in the viewing area, you can zoom in and out of the function curves viewing area.

• **Ctrl key**: To add keyframes directly to the curve, hold the **Ctrl** key and click on the curve. You can use this same method to remove unwanted keyframes directly from the curve.

• **Shift key**: To move keyframes in time from one frame to another, press the Shift key and drag the keyframe to the desired position. If you wish to level a keyframe's tension points horizontally, press the Shift key and drag one of the tension points.

Creating special effects in CTP

Composing large backgrounds

Sometimes a background image needs to be very large, especially if the director wants to create a wide panning shot. If a background painting is too large to be scanned in one pass, you can scan the image in two or more sections, then compose (or stitch together) each section of the background into one large image.

The **Compose cells** and **Drag image** commands are useful for stitching together two or more background images to create one large background. To use the Compose cells and Drag image commands, do the following:

1. Drag the two images you want to stitch together from the storage sheet into the exposure sheet.

2. Select one of the cells.

3. Press the **Compose cells** button.

4. Select the other cell. The **Drag image** button in the paint tools is activated automatically, and the second image is superimposed over the first image. The second image appears semi-transparent.

5. Click on the semi-transparent image and drag it to align roughly with the first image.

6. Use the arrow keys to align the pixels of the two images exactly.

7. Press the *ok!* button. The two images are now combined into one seamless image.

Note: If you are scanning a large background in several parts, always make sure each image overlaps with the other a little bit. It makes it easier to align the pixels later, so you won't have any gaps or abrupt seams in the final composited image.

Finishing touches

Performing an animation test

Activate the layer or layers you want to test by clicking on the check box at the top of the layer. If you want to perform the test on a single layer, deactivate any other layers. If you want to perform the test on multiple layers, activate the appropriate layers.

2. If you only want to play back a portion of the animation, select a range of cells. It doesn't matter if you select cells in other layers, because only the active layers will be played back. If you want to play back all of the contents of the active layers, you don't need to select the cells — proceed to step 3.

3. Press the **Play Forward** button in the view area controls:

The active layers will be played back in sequence. If you have selected a specific range of cells, all the selected frames in all the active layers will be played back.

Outputting to video

I. Activate the layer or layers you want to output by clicking on the check box at the top of the layer:

3. Press the **Video Output** button underneath the viewing controls:

2. Press the **Play Forward** button:

3. A dialog box appears, letting you generate a video according to the parameters of your video output card.

Outputting to the computer

1. Activate the layer or layers you want to output by clicking on the check box at the top of the layer.

2. Go to the File menu and scroll down to **Export Frames**.

3. A dialog box appears, letting you save a sequence of composited images anywhere on your computer's file system.

Managing your animated productions

Saving and backing up your work

To save a scene, go to the File menu and scroll down to Save As. A browser appears, which lets you save the scene in the default CTP Scenes folder, or anywhere else on your computer's file system.

Remember that the CTP scene file is really like a directory (or folder) containing the parts of each animated production (the images, sounds, camera animations, etc.). When you want to back up the scene file to a storage medium (removable drive, tape backup, etc.) remember that the contents of the scene file are as important as the scene file itself Back up the contents of the Scenes folder early and often, just to be safe.