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TOON BOOM HARMONY 12.1
Reference Guide

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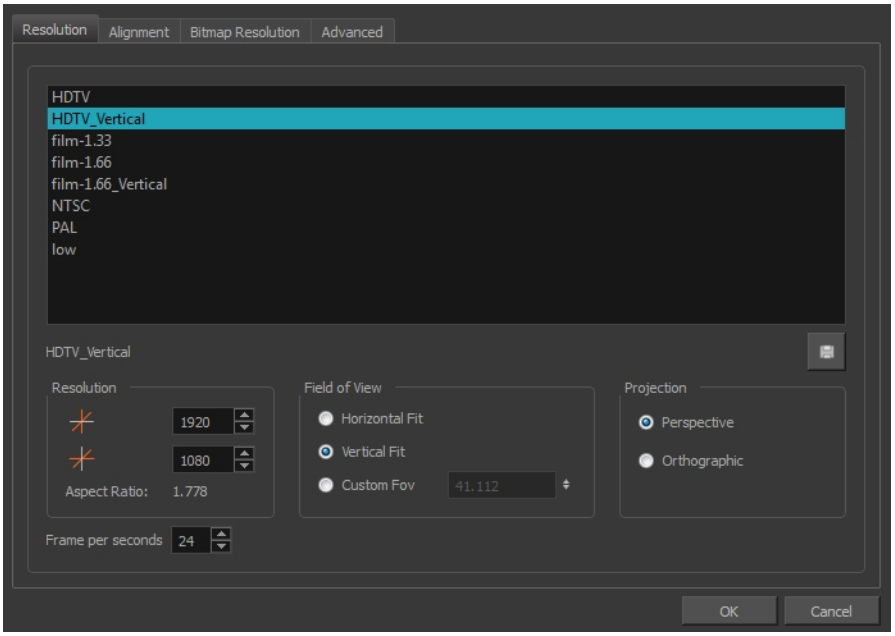
Chapter 1: Dialog Boxes

Dialog boxes contain controls such as options and lists through which you can carry out a particular command or task. For example, in the Scene Settings dialog box, you must indicate the resolution and alignment. A typical dialog box looks as follows:

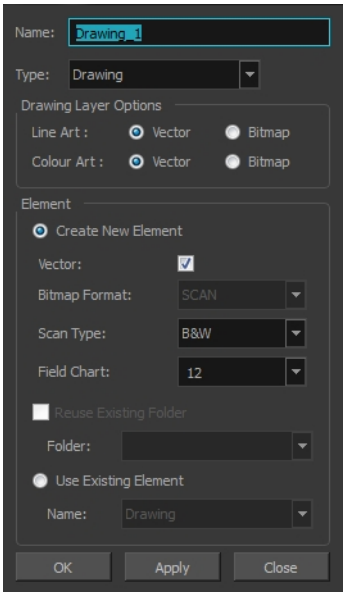


Add Column Dialog Box

The Add Column dialog box lets you add a column in the Xsheet view.

By default, when you create a new scene, there is one drawing column in the Xsheet view and one corresponding drawing layer in the Timeline view.

You can add an element for each drawing and it will appear as a column in the Xsheet view, a layer in the Timeline view, and a node in the Node view.



For tasks related to this dialog box, see *Adding New Drawing Elements* on page 1.

How to access the Add Column dialog box

1. Do one of the following:
   - In the Xsheet menu, select **Columns > Add Columns**.
   - Click the Add Columns button.
   - Press Shift + C.

NOTE: The Add Column dialog box contains additional parameters for working with elements which will only display if you set advanced preferences. To do this, press Ctrl + U (Windows/Linux) or ⌘ + U (Mac OS X) to open the Preferences dialog box. Select the **Advanced** tab, then select the **Advanced Element Mode** option and click **OK**.

Parameter	Description
Name	Lets you give the new column a meaningful name.
Type	Lets you select a type of column to create. Choices include: Drawing, Timing, Sound, 3D Path, 3D Rotation, Bezier Curve, Ease Curve, Expression and Annotation.
Drawing Layer Options	
Line Art	Creates a vector or bitmap drawing column in the Line Art layer.
Colour Art	Creates a vector or bitmap drawing column in the Colour Art layer.
Element	
Create New Element	Creates an independent column with its own drawing folder.
Vector	Select this option if you want the layer to contain vector drawings. Deselect this option if you want the layer to contain bitmap images. Most of the time, the Vector option will be enabled.
Bitmap Format	Lets you select the type of bitmap image to insert in the column. Select **SCAN** from the list if you are planning to scan drawings using the Toon Boom Harmony Scan module.
Scan Type	If you chose **SCAN** from the Bitmap Format list, select the kind of scanning you want to achieve.
Field Chart	When importing traditional animation, lets you indicate the size of paper on which the animation or background was drawn. If you are not using perforated animation paper, leave the 12 field default value as is.
Reuse Existing Element	Links your column to an existing folder within the Element folder of your scene.
Folder	Lets you select the folder to which you want to link your new column.
Use Existing Element	Uses drawings from an existing column in the new column. Both columns will be attached to the same set of drawings, but their timing will remain independent from one another. If you modify one of the drawings, it will be

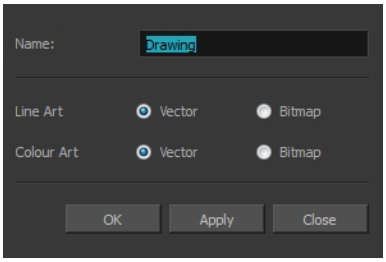
	modified in both columns. This is the same principle as the Clone column.
Name	Lets you select the column to which you want to link your new column.
Add and Close	Adds the selected type of layers to the Timeline view and corresponding column in the Xsheet view and closes the dialog box. The names of the layers/columns are automatically numbered incrementally.
Add	Adds the selected type of layers to the Timeline view and corresponding column in the Xsheet view. The dialog box remains open for you to add as many layers/columns as needed. The names of the layers/columns are automatically numbered incrementally.
Close	Closes the dialog box.

Add Drawing Layer Dialog Box

The Add Drawing Layer dialog box lets you add a drawing layer to your project.

By default, when you create a new scene, there is one drawing column in the Xsheet view and one corresponding drawing layer in the Timeline view.

You can add an element for each drawing and it will appear as a column in the Xsheet view, a layer in the Timeline view, and a node in the Node view.



For tasks related to this dialog box, see *Adding New Drawing Elements* on page 1.

How to access the Add Drawing Layer dialog box

1. Do one of the following:
   - In the Timeline view, click the Add Drawing Layer button.
   - From the top menu, select **Insert > Drawing**.
   - Press Ctrl + R (Windows/Linux) or ⌘ + R (Mac OS X).

Parameter	Description
Name	Lets you give the new layer a meaningful name.
Line Art	Creates a vector or bitmap drawing layer in the Line Art layer.
Colour Art	Creates a vector or bitmap drawing layer in the Colour Art layer.
Add and Close	Adds the selected type of layers to the Timeline view and corresponding column in the Xsheet view and closes the dialog box. The names of the layers/columns are automatically numbered incrementally.
Add	Adds the selected type of layers to the Timeline view and corresponding column in the Xsheet view. The dialog box remains open for you to add as many

	layers/columns as needed. The names of the layers/columns are automatically numbered incrementally.
Close	Closes the dialog box.

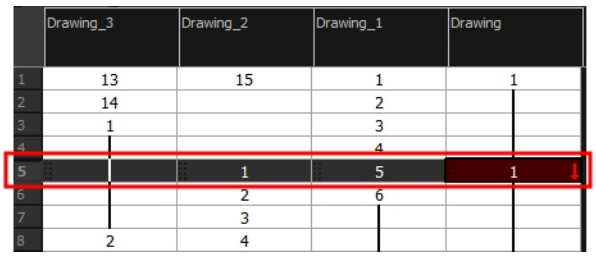
Add Frames Dialog Box

The Add Frames dialog box lets you add frames anywhere in the middle of the scene—before or after a selection. If you select a frame row in the Xsheet view, Harmony will add the new frames before or after the selection, depending on your choice.

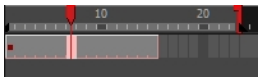
For tasks related to this dialog box, see *Frames* on page 1.

How to access the Add Frames dialog box

1. Do one of the following:
   - In the Timeline view, select the frame to which you want to add frames before or after.
   - In the Xsheet view, select a frame row.

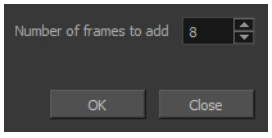


   - In the Timeline view, select the frame to which you want to add frames before or after.



2. Do one of the following:
   - From the top menu, select **Scene > Frame > Add Frames Before Selection** or **Add Frames After Selection**.
   - In the Xsheet view, right-click and select **Frames > Add Frames Before Selection** or **Add Frames After Selection**.
   - In the Xsheet toolbar, click the Add Frames button to add frame after your selection.
   - Press Ctrl + G and Ctrl + H (Windows/Linux) or ⌘ + G and Ctrl + H (Mac OS X).

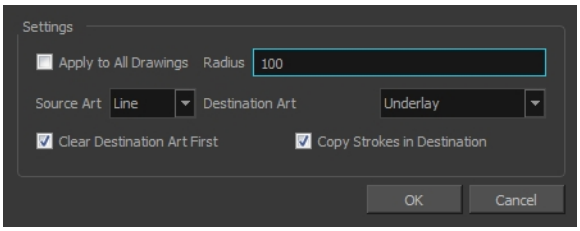
   The Add Frames dialog box opens.



Parameter	Description
Number of frames to add	Lets you enter the number of frames needed in the scene.

Auto-Matte Dialog Box

The Auto-Matte dialog box lets you generate a matte for a drawing.



For tasks related to this dialog box, see *Art Layers* on page 1.

How to access the Auto Matte dialog box

1. In the Camera or Drawing view, select the drawing you want to create a matte for.
2. Do one of the following:
   - From the top menu, select **Drawing > Generate Auto-Matte**.
   - In the Camera or Drawing menu, select **Drawing > Generate Auto-Matte**.

Parameter	Description
Settings	
Apply to all Drawings	Creates a matte for all the drawings included in layer.
Radius	Lets you increase or decrease the radius value depending on the precision or roughness of your line. Use a lower value, the closer to your lines' contours the matte will be shaped. The higher the value, the looser the matte will be shaped.
Source Art	Lets you select the layer from which you want the matte created: **Line Art**,**Colour Art**, **Underlay** or **Overlay**.
Destination Art	Lets you select the layer on which you want the matte to be created: **Line Art**,**Colour Art**, **Underlay** or **Overlay**.
Clear Destination Art First	Deletes existing artwork on the destination layer before adding a matte to it.
Copy Strokes in Destination	Copies the contour of your lines as invisible lines in the matte drawing. This is useful if you need to reuse the lines later.

Close Gaps Dialog Box

The Close Gaps dialog box lets you close up drawing areas that not are closed. This may sometimes happen when painting. You can close small gaps in a drawing by creating small, invisible strokes between the two closest points to close the colour zone. You do not need to trace directly over the gap. You can draw it a few millimeters away. The two closest points automatically close the gap.

For tasks related to this dialog box, see *Closing Gaps* on page 1.

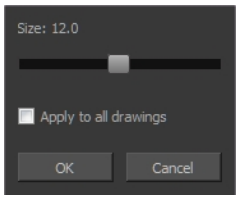
How to access the Close Gaps dialog box

1. From the top menu, select **View > Show > Show Strokes** or press K to see a preview of the result.

2. If you want the strokes you draw to be flattened in your drawing instead of being on top, click the Auto-Flatten button in the Tool Properties view.

3. From the top menu, select **Drawing > Clean Up > Close Gaps** or press Shift + F10 (Windows/Linux only).

   The Close Gaps dialog box opens.



Parameter	Description
Size	Lets you set the size of the gap you want to be closed.
Apply to all drawings	Closes all gaps in the drawing of the selected layer.

Column Types Dialog Box

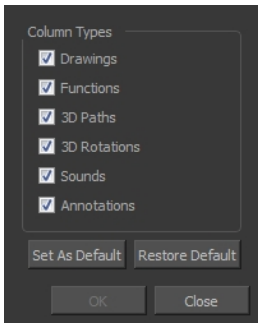
The Columns Types dialog box lets you show or hide columns in the exposure sheet.

For tasks related to this dialog box, see *Showing and Hiding Columns* on page 1.

How to access the Columns Types dialog box

1. In the Xsheet view, select **View > Column Types Manager**.

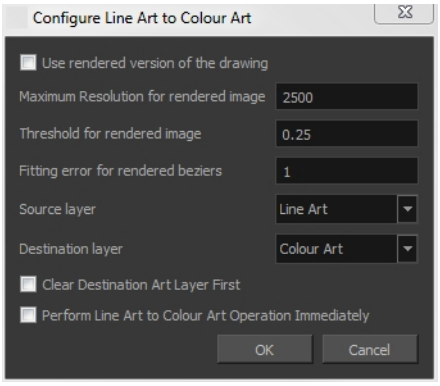
   The Column Types dialog box opens.



Parameter	Description
Column Types	Lets you select the types of columns to display in the Xsheet view.
Save as Default	Makes these new settings the default ones used each time you start Harmony.
Restore Default	Returns the settings to their defaults.

Configure Line Art to Colour Art Dialog Box

The Configure Line Art to Colour Art dialog box lets you modify settings for the Line Art and Colour Art layers.



How to access the Configure Line Art to Colour Art dialog box

1. From the Timeline menu, select **Edit > Modify Paste Presets > All** or **Key Frame** or **Exposure**.

Parameter	Description
Use rendered version of the drawing	Renders the drawing and vectorize it to calculate the position of the centreline that will produce the colour art stroke.
Maximum Resolution for rendered image	The size of the rendered image.
Threshold for rendered image	The value of grey processed to create the rendered vectorized arts.
Fitting error for rendered Beziers	This value represents how precise the fitting of the colour art zone in relation to the line art will be.
Source layer	Lets you select the layer (Line Art, Colour Art, Underlay or **Overlay**) you want the colour art to be created from.
Destination layer	Lets you select the layer (Line Art, Colour Art, Underlay or **Overlay**) you want the colour art to be created on.
Clear Destination Art Layer First	Deletes the content before the colour art is added. This is useful when you already have artwork on the destination layer.
Perform Line Art to Colour Art Operation Immediately	Performs the **Create Colour Art from Line Art** command when you click OK.

Create Cycle Dialog Box

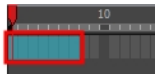
The Create Cycle dialog box lets you create cycles from a series of drawings and exposures.

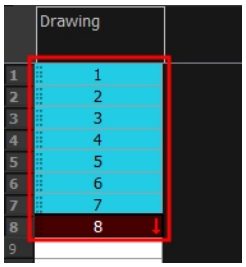
When you create a drawing cycle, all the repeated drawings are linked to the same original files. When modify, repaint, or correct a drawing named "1" for example, all drawings named "1" are updated simultaneously. In order to modify a drawing independently from its other exposures, you must duplicate the drawing.

For tasks related to this dialog box, see *Creating Cycles* on page 1.

How to access the Create Cycle dialog box

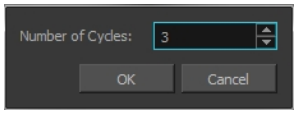
1. In the Timeline or Xsheet view, select the cell range to loop.





2. In the Timeline toolbar, click the Create Cycle button (you may have to customize the toolbar to display it).

   The Create Cycle dialog box opens.



Parameter	Description
Number of Cycles	Lets you specify the number of cycles, including the current selection.

Create Drawing from Drawing Selection Dialog Box

The Create Drawing from Drawing Selection dialog box lets you break down the main body parts of a character.

There is no need to create any layers prior to this process. Make sure your model is well centered and sized in the Camera view.

You do not need to make clean cuts around your parts; a rough one is sufficient as long as it includes all the artwork of the part you want to break down. You will clean the extra bits and pieces later.

Using the Cutter tool, you can roughly cut the main sections, and then use the Select tool to select precise lines and colour zones.

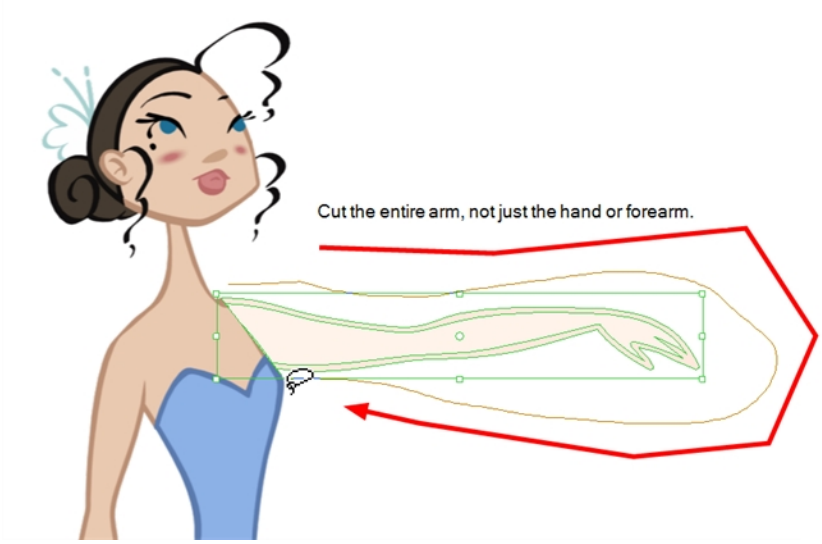
For tasks related to this dialog box, see *Breaking Down the Main Parts* on page 1.

How to access the Create Drawing from Drawing Selection dialog box

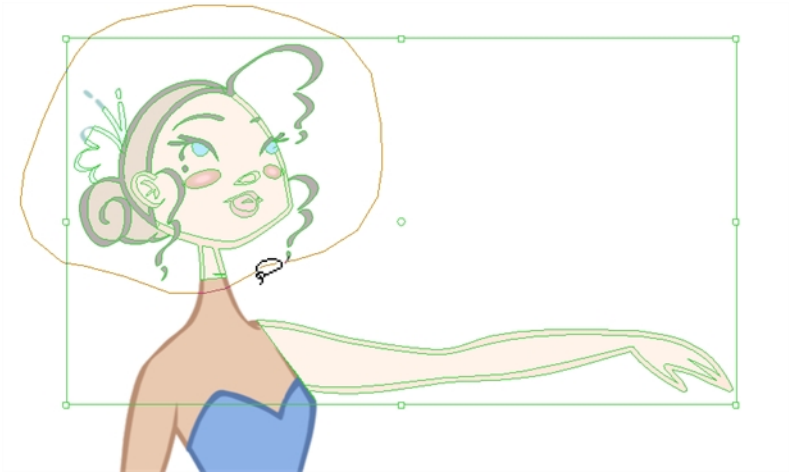
1. In the Timeline view, select the cell of the model that corresponds to the first view to break down.

2. In the Tools toolbar, select the Cutter tool.
   - If you prefer to use the Select tool, choose the Select tool from the Tools toolbar or press Alt + S.
   - In the Tool Properties view, you can switch to the Lasso selection mode.

3. In the Camera view, create a selection around the first part to break down. If you click on a zone, the Cutter tool will select the zone. It will end the selection at the first point of intersection that it meets.

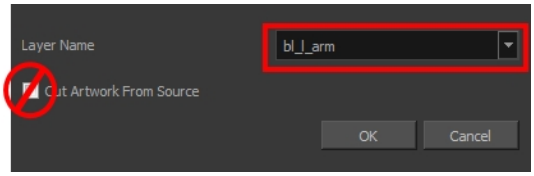


- Hold down Shift to create a new lasso selection around another zone and add it to your previous selection.



4. From the top menu, select **Edit > Create Drawing From Drawing Selection** or press F9 (Windows/Linux) or ⌘ + F9 (Mac OS X).

   The Create Drawing From Drawing Selection dialog box opens.



Parameter	Description
Layer Name	Lets you enter a name for the layer using the naming convention you established.
Cut Artwork From Source	Lets you cut the selected artwork from the model.

Create Palette Dialog Box

The Create Palette dialog box lets you create a palette in Basic mode. For simple productions, it is recommended to use the Basic mode. This setting stores the palettes automatically for you and saves them at the Scene level. When you use the Advanced Palette Lists mode, you can decide at which level you want to store your palettes: Environment, Job, Scene, or Element.

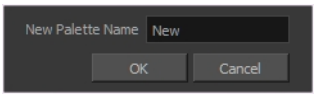
For tasks related to this dialog box, see *Creating a Colour Palette* on page 1.

How to access the Create Palette dialog box

1. From the Colour view menu, select **Palettes** > **New** or click the New Palette button.

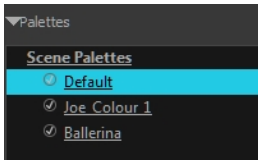
   The Create Palette dialog box opens.

2. Enter the palette name according to the model.



3. Click **OK**.

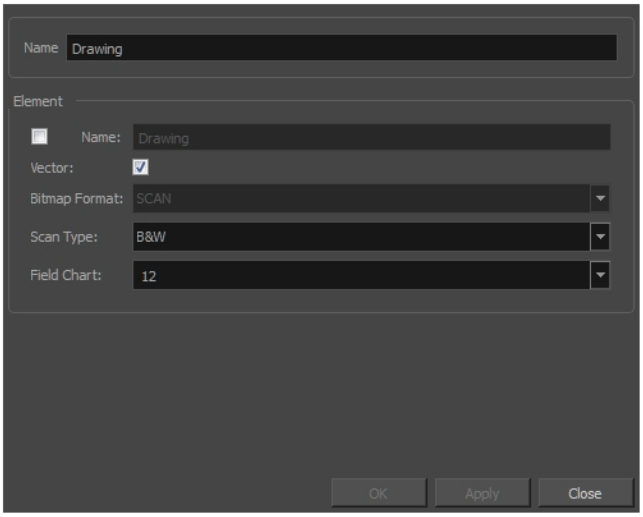
   The palette appears in the drawing element's palette list.



Parameter	Description
New Palette Name	Lets you enter a name for the new palette.

Drawing Dialog Box

The Drawing dialog box lets you add, delete or modify elements (drawing folders) in your scene.



For tasks related to this dialog box, see *Modifying Layers and Columns* on page 1.

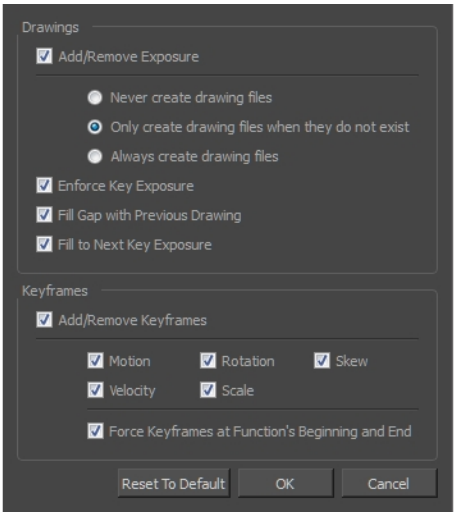
How to access the Drawing dialog box

1. In the Xsheet view, double-click on a column name. Do not click on the drawing folder name that the column is linked to (this also appears in the column header just below the column name).

Parameter	Description
Name	Type in a new name in this field to create an element or to rename the selected element.
Element	
Name	Type in a new name in this field to create an element or to rename the selected element.
Vector	Select this option if the new element is a vector drawing or if you want to enable the parameters on the selected element in the Elements list.
Bitmap Format	Lets you select the file format of the bitmap layer.
Scan Type	If you're planning to scan elements with the Toon Boom Harmony Scan module, select the scan type from the list.
Field Chart	If you're importing traditional animation, select the size of the paper on which the animation was drawn.

Edit Default Paste Preset Dialog Box

The Edit Default Paste Preset dialog box lets you modify settings for the keyframe and exposure paste presets, as well as setting the defaults.



How to access the Edit Default Paste Preset dialog box

1. From the Timeline menu, select **Edit > Modify Paste Presets > All** or **Key Frame** or **Exposure**.

Parameter	Description
Drawings	

Add/Remove Exposure	**Never create drawing files**: When adding exposures to a drawing layer, drawing files will not be created.
	Only create drawing files when they do not exist: When adding exposures to a drawing layer, new drawings will be created only when drawings with the same name do not already exist in the destination.
	Always create drawing files: When adding exposures to a drawing layer, new drawings will always be created. If drawing files with the same name already exist, Harmony will create a new name for the drawing.
Enforce Key Exposure	If there are key exposures that exist on copied drawings, they are preserved when pasting. No key exposures are added. This is the default behavior when pasting.
Fill Gap with Previous Drawing	Fills selected area in the Xsheet or Timeline view with the previous drawing.
Fill to Next Key Exposure	Fills selected area till the next key exposure.
Keyframes	
Add/Remove Keyframes	**Motion:** Copies the properties of the selected motion keyframe to the new frame.
	Velocity: Copies the properties of the selected velocity keyframe to the new frame.
	Rotation: Copies the properties of the selected rotation keyframe to the new frame.
	Scale: Copies the properties of the selected scale keyframe to the new frame.
	Skew: Copies the properties of the selected skew keyframe to the new frame.
	Force Keyframes at Function's Beginning and End: Adds a keyframe to the beginning and end of the pasted function, reproducing the source function.

Edit Exposure Paste Preset Dialog Box

The Edit Exposure Paste Preset dialog box lets you reuse key exposures as you animate. There are different options to paste your selected drawings when they contain key exposures:

Enforce Key Exposure: If there are key exposures that exist on copied drawings, they are preserved when pasting. No key exposures are added. This is the default behavior when pasting.

Fill Gap with Previous Drawing: Fills selected area in the Xsheet or Timeline view with the previous drawing.

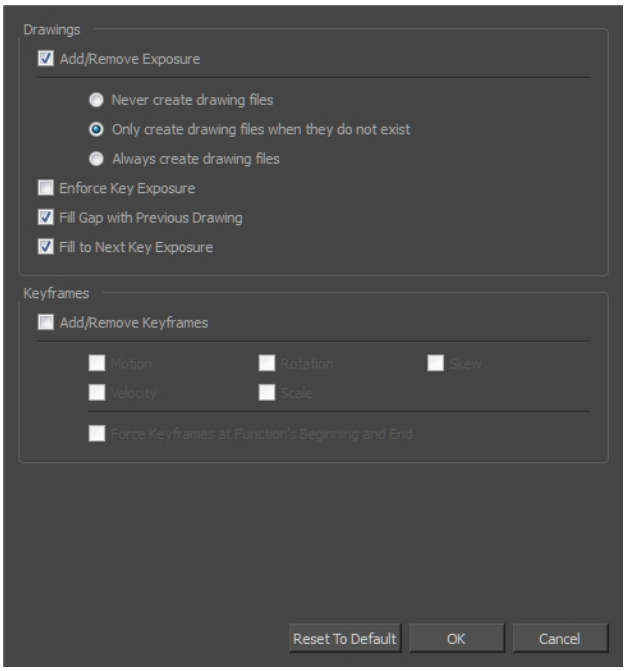
Fill to Next Key Exposure: Fills selected area till the next key exposure.

For tasks related to this dialog box, see *Using Paste Special* on page 1.

How to access the Edit Exposure Paste Preset dialog box

1. In the Timeline or Xsheet view, select the drawings you want to copy and press Ctrl + C (Windows/Linux) or ⌘ + C (Mac OS X).
2. In the Timeline or Xsheet view, select the cell where you want your pasted selection to start.
3. From the Timeline view menu, select **Edit > Modify Paste Presets > Exposure**.

The Edit Exposure Paste Preset dialog box opens.



Parameter	Description
Drawings	
Add/Remove Exposure	**Never create drawing files**: When adding exposures to a drawing layer, drawing files will not be created.
	Only create drawing files when do they do not exist: When adding exposures to a drawing layer, new drawings will be created only when drawings with the same name do not already exist in the destination.
	Always create drawing files: When adding exposures to a drawing layer, new drawings will always be created. If drawing files with the same name already exist, Harmony will create a new name for the drawing.
Enforce Key Exposure	Creates a key exposure on the same drawing.
Fill Gap with Previous Drawing	Fills selected area in the Xsheet or Timeline view with the previous drawing.
Keyframes	
Add/Remove Keyframes	**Motion**: Copies the properties of the selected motion keyframe to the new frame.
	Velocity: Copies the properties of the selected velocity keyframe to the new frame.
	Rotation: Copies the properties of the selected rotation keyframe to the new frame.
	Scale: Copies the properties of the selected scale keyframe to the new frame.
	Skew: Copies the properties of the selected skew keyframe to the new frame.
	Force Keyframes at Function's Beginning and End: Adds a keyframe to the beginning and end of the pasted function, reproducing the source function.

Reset to Default	Return all values to their defaults.

Export Soundtracks Dialog Box

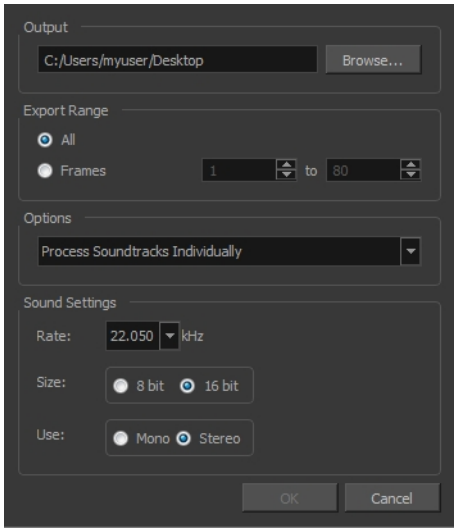
The Export Soundtracks dialog box lets you export a sound file to use it in another application, such as an editing software. Harmony allows you to export sound files as a merged soundtrack or as a series of individual files. The exported soundtracks are generated as *.wav files.

For tasks related to this dialog box, see *Exporting a Sound File* on page 1.

How to access the Export Soundtracks dialog box

1. From the top menu, select **File > Export > Soundtrack.**

   The Export Soundtracks dialog box opens.



Parameter	Description
Output	Lets you specify the location in which the file will be exported.
Export Range	
All	Exports the sound over all the frames of your scene.
Frames	Sets the start and end frames in the corresponding fields on the right.
Options	
Process Soundtracks Individually	Each soundtrack from all layers is exported as individual files.
Merge All Soundtracks	One single file is created, combining all the sound files you imported in your scene. Note that it will only use the sound files in the selected frame range set in the Export Range section. If you selected to export all the frames, all the sound files will be processed.
Sound Settings	

Rate	Lets you set the rate of the soundtrack.
Size	Lets you export the soundtrack at 8 or 16 bits.
Use	Lets you export the soundtrack as mono or stereo.

Export to Flash Movie Dialog Box

The Export to Flash Movie dialog box lets you export your animation as a Flash (.swf) movie.

The SWF export supports some bitmap effects (which can be previewed in Render View mode) and SWF Blend Modes (vector effects which can be previewed in OpenGL View mode).

The following are also supported:

- Pencil line thickness: They are converted to brush strokes in the .swf file.
- Auto Patch node for creating joint patches.
- Burn-in information incuding time code, frame number and scene information–see *Burn-In* on page 1.

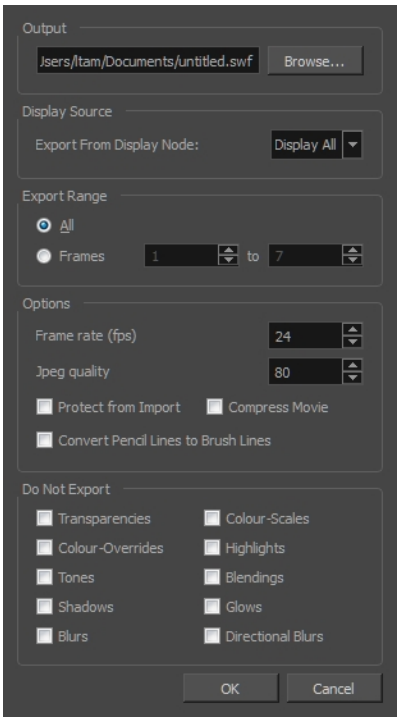
If you have not already done so, you should preview the .swf by using the SWF preview button to see what the two types of effects look like when blended together. Once you are satisfied with the results, go ahead and export your movie.

For tasks related to this dialog box, see *Exporting an SWF Movie* on page 1.

How to access the Export to Flash Movie dialog box

1. From the top menu, select **File > Export > SWF**.

   The Export to Flash Movie (.swf) dialog box opens.



Parameter	Description
Output	Lets you specify the location in which the file will be exported.
Display Source	Lets you select a Display node to read from in the Export From Display Node menu.
Export Range	
All	Exports all the frames of your movie.
Frames	Export a frame range which you specify
Options	
Frame Rate	Lets you enter a Frame rate (fps). By default, it will be set to match the fps of your Harmony project. If you choose a lower frame rate, your export playback will be faster than your actual project. The reverse is also true for a higher frame rate.
Jpeg Quality	Lets you select a JPEG quality: ▸ 100 = Full quality ▸ 50 = Average quality at about 1/5th of the size. ▸ 25 = Medium quality where loss of high image resolution starts to occur. ▸ 10 = Low quality where “macro-blocking” or large pixelation become obvious. ▸ 1 = Lowest quality where there is extreme loss of colour and detail and the image becomes nearly unrecognizable.
Protect from Import	Prevents the movie from being imported into another application.
Convert Pencil Lines to Brush Lines	Retains the thickness of pencil lines.
Compress Movie	Compresses the movie for a lighter format. The movie may lose some quality, but the file will be lighter.
Do Not Export	Lets you select the effects you do **NOT** want to be rendered in the SWF movie. **NOTE:** Certain Harmony effects are not listed in this section as they are not compatible and therefore not available for SWF export. These effects will not appear in the SWF render.

Export to QuickTime Movie Dialog Box

The Export to QuickTime Movie dialog box lets you export your animation as a QuickTime movie. To render a QuickTime movie with transparency, you need to set the Depth to Millions of Colours +. You can set this this when exporting a QuickTime movie.

If you added burn-in information to your scene, it will be included in your exported file–see *Burn-In* on page 1.

For tasks related to this dialog box, see *Exporting a QuickTime Movie* on page 1.

How to access the Export to QuickTime Movie dialog box

1. From the top menu, select **File > Export > Movie**.

Parameter	Description
Output	
Browse	Lets you select a folder in which to save your movie and give it a file name for the export.
Display Source	
Export from Display Node	If there is no Display node in the scene, the drop-down list will indicate Display All and render the scene in the same order as the Timeline view, including nodes floating in the Node view. It is always recommended to render from the Display node, located under the final Composite node, unless you want to render a specific section isolated by a particular Display node.
Export Range	
All	Exports the entire frame range.
Frames	Lets you enter the frame range to export.
Resolution	
Resolution list	Lets you select a resolution ratio. If you select Custom, you can enter the width and height.
Width and Height	Lets you specify the width and height of the resolution.
Options	
Movie Options	Opens the Movie Settings dialog box in which you can set the the compression settings for the movie you will export–see Movie Settings Dialog Box.

Expression Dialog Box

In Harmony, you can use expressions to automate the calculation of effect values based on the values in another function. An expression is a mathematical formula that allows you to manipulate the value in the source function to create new values for the destination effect.

The Expression dialog box is where you write expressions. It's a simple text editor that can handle incomplete or invalid JS programs although they will not be evaluated. Harmony can save and load invalid JS programs.

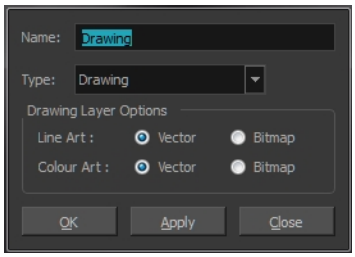
The Expression editor evaluates the current script at the current global frame and reports any errors or returns the numerical result of the program.

For tasks related to this dialog box, see *Expression Columns* on page 1.

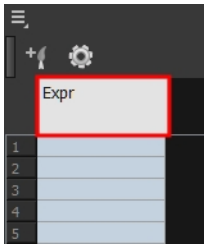
How to access the Expression dialog box

1. In the Xsheet view menu, select **Columns > Add Column**s or press Shift + C.

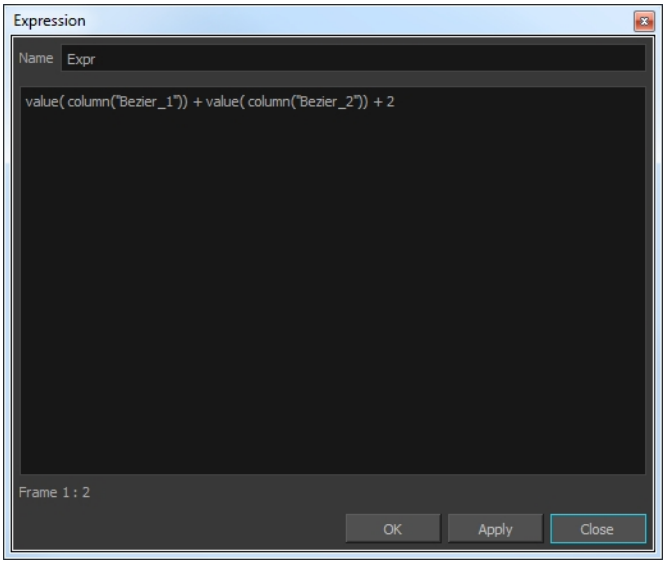
   The Add Column dialog box opens.

2. In the Name field, type a name for the column.
3. From the Type menu, select **Expression** and click **OK**.
4. Double-click on the column's header to open the Expression dialog box.

   The Expression dialog box opens.



Parameter	Description
Name	Indicates the name of the expression column in the Xsheet. You can edit this name.
Description field	Area in which you can type in expressions.

Extend Exposure Dialog Box

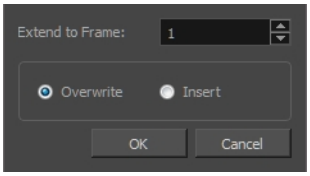
The Extend Exposure dialog box lets you extend the exposure of a selected cell in the Timeline or Xsheet.

For tasks related to this dialog box, see *Filling Exposure* on page 1.

How to access the Extend Exposure dialog box

1. Select a cell and do one of the following:
   - From the top menu, select **Animation > Cell > Extend Exposure**.
   - Press F5.

   The Extend Exposure dialog box opens.



Parameter	Description
Extend to Frame	Lets you enter the frame up to which you want to extend the exposure.
Overwrite	Lets you expose the drawing in the frames and replace the drawings that were orginally there.
Insert	Lets you expose the drawing in the frames and move the subsequent frames forward in the Timeline view.

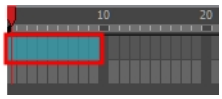
Fill Cells Randomly Dialog Box

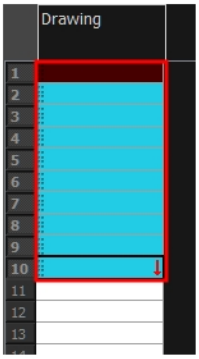
The Fill Cells Randomly dialog box lets you fill in random values over a selection. You can give a maximum and a minimum value and create a range for Harmony to choose the random values from. The selection can be over one cell or a cell range in one column or more or an entire column or many entire columns.

For tasks related to this dialog box, see *Filling a Selection Randomly* on page 1.

How to access the Fill Cells Randomly dialog box

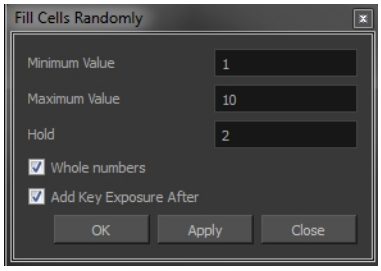
1. In the Timeline or Xsheet view, select a cell range.





2. Do one of the following:
   - Select **Animation > Cell > Fill Cells Randomly**.
   - In the Xsheet view, click the Fill Cells Randomly button (you may have to customize the toolbar to display it).

   The Fill Cells Randomly dialog box opens.



Parameter	Description
Minimum Value	The lowest acceptable value.
Maximum Value	The highest acceptable value.
Hold	The exposure holding value.
Whole Numbers	If you are applying this to a drawing column, this option lets you avoid having decimal points.

Add Key Exposure After	Inserts a key exposure after the frame following the last cell.

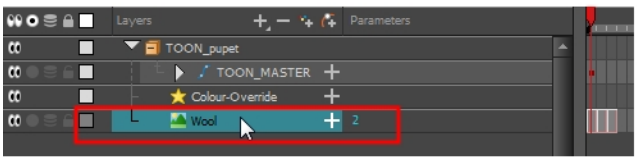
Fill Exposure Using Render Changes Dialog Box

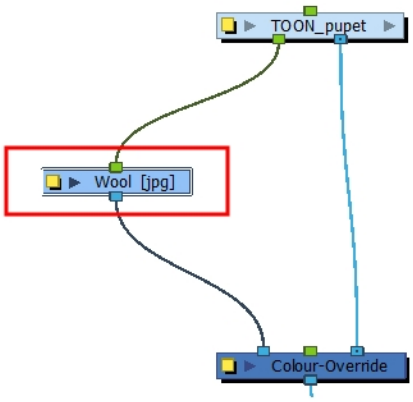
The Fill Exposure Using Render Changes dialog box lets you detect if a threshold of changes has occurred between two consecutive images and then expose the affected textures for further processing. It can be used for example to change the texture on a characters shirt only when the shape of the shirt is changed significantly from the previous frame. This avoids unnecessary repetitive texture changes on every frame.

For tasks related to this dialog box, see *Exposure Fill Using Render Change* on page 1.

How to access the Fill Exposure Using Render Changes dialog box

1. In the Timeline view, select the textures or live-action sequence.

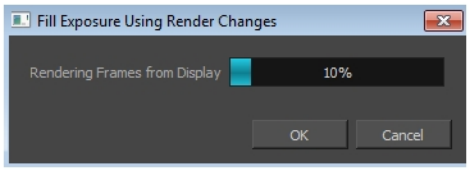




2. From the top menu, select **Scene > Default Display >** ***desired Display node***.

3. From the top menu, select **Animation > Exposure Fill > Using Render Change**.

   Wait while Harmony creates a low resolution render of the images to preview.



4. In the Fill Exposure Using Render Changes window, use the Frame slider to view the motion change analysis.

5. Based on your style preference, adjust the parameters to assign when the texture exposure changes will occur. You can adjust the type of filter to use for the motion detection, as well as threshold values to indicate what will be considered a big enough motion variation for an exposure change.

Parameter	Description
Changes Detection Settings	**Frame**: Use the slider to see when a change is necessary. A red edge indicates there is a large enough motion for the texture to change.
	Use: Lets you use either the Red, Green, Blue, or Alpha channel, or Luminance difference between frames to analyze the motion changes. The Alpha channel is selected by default as it is the most commonly used parameter.
	Pixel Value Change Threshold: The percentage of change in a pixel to be considered different from one frame to another. The higher the value, the more change is required when comparing two images in order for a new texture to be used.
	Area Change Threshold: The percentage of non-empty pixels that must change from one frame to another to be considered different.
Fill Settings	These settings let you change the exposure. You can also decide on how many images you want to cycle.
	First/Last Frame: Lets you set the first and last frame for the exposure change. You can set this for the entire scene or for part of the scene (frames 20 to 32 for example).
	Number of Drawings in Cycle: Lets you set of the number of drawings to include in the cycle.
	First Drawing Used in Cycle: Lets you set the first drawing used in the cycle. Your drawings must be named using numeric values only, or number values with a prefix or suffix. It cannot only be letters.
	Drawing Name Prefix: Adds a prefix before the number. For example, *texture*_01, *texture*_02 and so on.
	Drawing Name Suffix: Adds a suffix after the number. For example, 01_*texture*, 02_*texture* and so on.

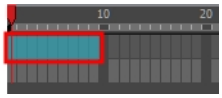
Fill Selection Dialog Box

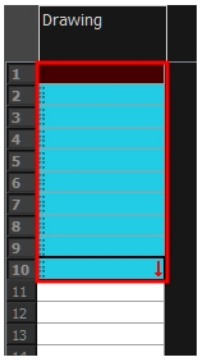
The Fill Selection dialog box lets you fill the same value over an entire selection. The selection can be over one cell, a cell range in one column, a cell range over many columns, an entire column, or many columns. You can use numbers, words, letters, or any alphanumeric value.

For tasks related to this dialog box, see *Filling a Selection with a Single Exposure* on page 1.

How to access the Fill Selection dialog box

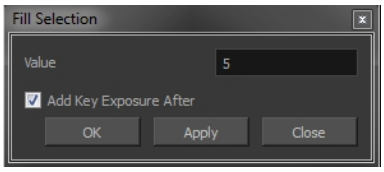
1. In the Timeline or Xsheet view, select a cell range.





1. Do one of the following:
   - From the top menu, select **Animation > Cell > Fill Selection**.
   - In the Xsheet toolbar, click the Fill Selection button (you may have to customize the toolbar to display it).
   - Press Ctrl + T (Windows/Linux) or ⌘ + T (Mac OS X)).

   The Fill Selection dialog box opens.



Parameter	Description
Value	
Add Key Exposure After	Inserts a key exposure after the frame following the last cell.

Import Images Dialog Box

The Import Images dialog box lets you import bitmap images and vectorize them, making the images editable. Then you can use a variety of drawing tools to edit the image. Or you can always keep the original bitmap image as is.

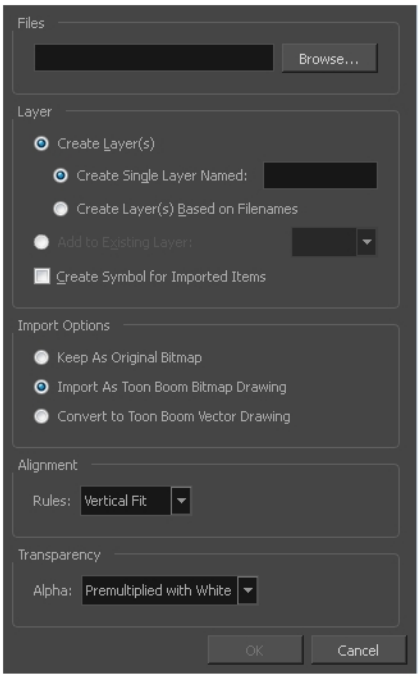
Also, you can choose to import bitmap images on bitmap or vector layers depending on your project..

For tasks related to this dialog box, see *How to Import Bitmap Images* on page 1 and *Importing Bitmap Images* on page 1.

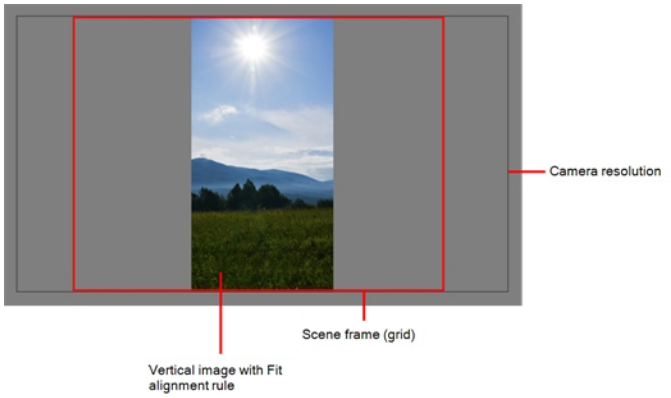
How to open the Import Images dialog box

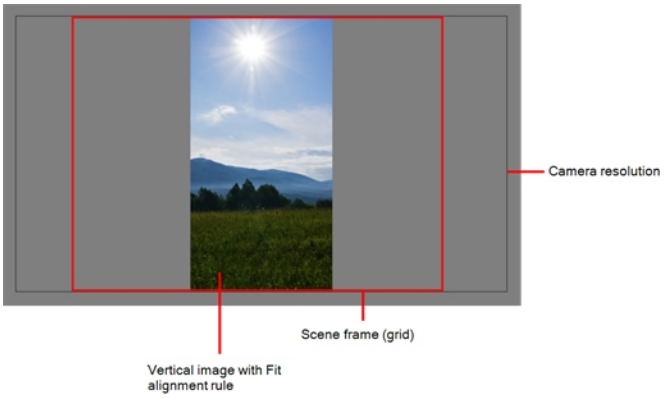
1. Do one of the following:
   - From the top menu, select **File > Import > Images**.
   - In the File toolbar, click the Import Images button.
   - In the Xsheet view, right-click anywhere in the frame area and select **Import > Images**.

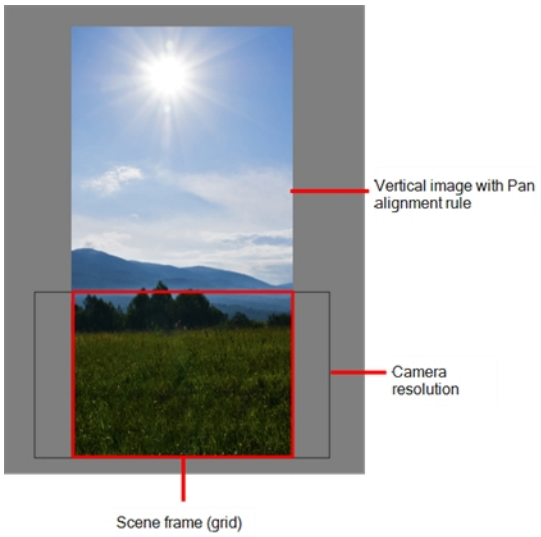
   The Import Images dialog box opens.



Parameter	Description
Files	
Browse	Lets you find and select images on your computer.
Layer	
Create Layers(s)	Lets you create layers for imported images.
Create Single Layer Named	Creates a layer you can name.
Create Layer(s) Based on Filenames	Creates a layer based on each unique filename prefix. For example, the filenames a-1.tga, a-2.tga and b-1.tga will create layers name "a" and "b", where "a" has two drawings and "b" has one. When creating a single layer from these three filenames, all three drawings will be inserted in the new layers.
Add to Existing Layer	Lets you select an existing layer to which imported images will be added.
Create Symbol for Import Items	Encapsulates imported item in a symbol.

Import Options	Depending on how you choose to import images, the Alignment section offers different options.
Keep as Original Bitmap	Retains an imported image as a bitmap. In the Alignment section, decide on the size and placement of your image within the camera frame. Depending on the Scene Settings (the height and width in pixels that you chose for your project), an image that you import may get scaled to the point where all its individual pixels become visible.
Import as Toon Boom Bitmap Drawing	Imports a drawing into a vector layer where you can edit the image using the drawing tools.
Convert to Toon Boom Vector Drawing	Imports a drawing and converts it to a Toon Boom vector drawing.
Alignment	
Rules	**Horizontal Fit**: Enlarges or shrinks (but not distorts) the image height to match the full height of the scene grid. 
	Vertical Fit: If the image orientation is landscape, this will enlarge or shrink (but not distort) the image width to match that of the scene grid. Note that the Fit alignment rule equals the Center Fit rule in the layer properties.
	Actual Size: Scales the image in proportion to the scene's resolution. The

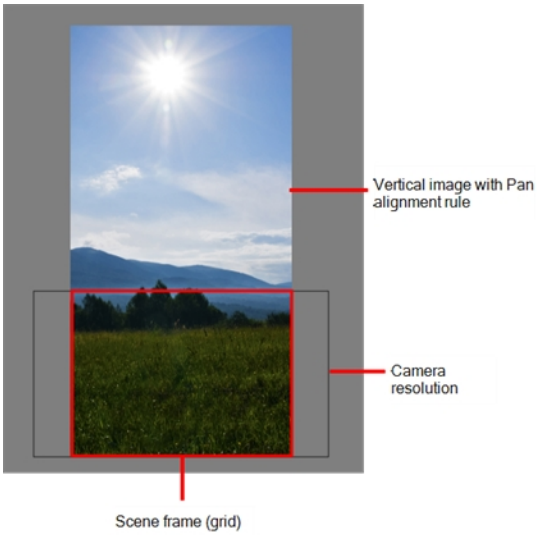
	system looks at the resolution of the bitmap image, for example 4000 x 2000, then compares it to the scene's resolution, for example 1920 x 1080, and adjusts the scale factor in proportion. So, in this example, the bitmap would appear at 208% (4000/1920). If you import a bitmap that is 960 x 540, it will be displayed at 50% (960/1920) of the size of the project resolution.
	Fit: Enlarges or shrinks (but not distorts) the image height to match the full height of the scene grid.  If the image orientation is landscape, this will enlarge or shrink (but not distort) the image width to match that of the scene grid. Note that the Fit alignment rule equals the Center Fit rule in the layer properties.
	Pan: This is the opposite of the Fit parameter. If the image orientation is portrait, its width will be made to match the width of the scene grid. As a result, part of the image's height will extend beyond the height of the frame. This can be useful if you want to make your background move up and down, or from left to right to make it appear as if the camera is panning or to actually perform a camera pan.



The opposite will apply to a landscape image. Its height will be fit to the scene grid, therefore it is possible that the image will extend beyond the scene grid's boundaries.

Note that the Pan alignment rule equals the Center First Page rule in the layer properties.

This is the opposite of the Fit parameter. If the image orientation is portrait, its width will be made to match the width of the scene grid. As a result, part of the image's height will extend beyond the height of the frame. This can be useful if you want to make your background move up and down, or from left to right to make it appear as if the camera is panning or to actually perform a camera pan.

<table>
<tr><td></td><td> 

The opposite will apply to a landscape image. Its height will be fit to the scene grid, therefore it is possible that the image will extend beyond the scene grid's boundaries.

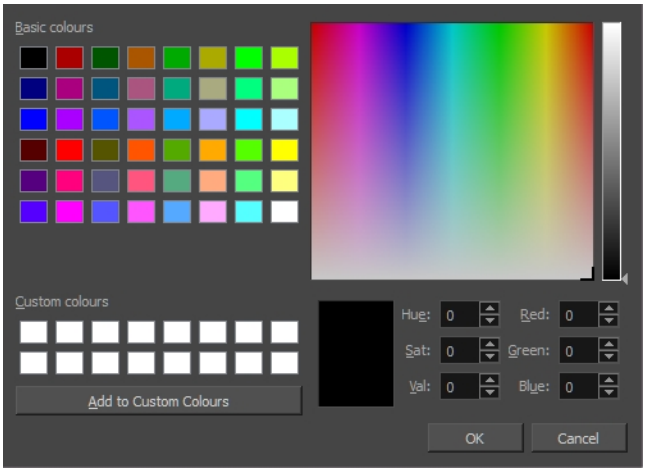
Note that the Pan alignment rule equals the Center First Page rule in the layer properties.</td></tr>
<tr><td></td><td>Project Resolution: Scales the image in proportion to the scene's resolution. The system looks at the resolution of the bitmap image, for example 4000 x 2000, then compares it to the scene's resolution, for example 1920 x 1080, and adjusts the scale factor in proportion. So, in this example, the bitmap would appear at 208% (4000/1920). If you import a bitmap that is 960 x 540, it will be displayed at 50% (960/1920) of the size of the project resolution.</td></tr>
<tr><td colspan="2">Transparency</td></tr>
<tr><td rowspan="4">Alpha</td><td>Premultiplied with White: Individual pixels at the edge of an image are blended with white.</td></tr>
<tr><td>Premultiplied with Black:Pixels at the edge of an image are blended with black.</td></tr>
<tr><td>Straight: Pixels at the edge of an image are blended with black, white and greys.</td></tr>
<tr><td>Clamp to Colour to Alpha:Premultiplies the colour value with the alpha value. When the colour is clamped to the alpha, the colour value cannot be higher than the alpha value. It calculates the real colour value faster. When the RGB values are multiplied with the alpha value, that is to say, if you have a pixel of value R=247, G=188, B=29 and the alpha is 50% or the image has a 50% transparency, then the actual RGB values that are output would be half of the</td></tr>
</table>

	amounts listed above.
Vectorization	
Black and White	Vectorizes drawings as a solid black line; creates a 100% vector-based drawing.
Grey	Vectorizes the image as a mix of vector contour and greyscale bitmap filling. Lines keep the texture from the scan, and the white of the paper becomes transparent.

Marker Colour Dialog Box

The Marker Colour dialog box lets you set the colour of scene markers that are displayed at the top of the Timeline view (in the frame counter area). Using colours for scene markers helps to differentiate them visually, making them easy to identify in the Timeline view.

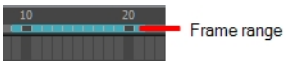
You can select a colour by choosing from a basic set of colours, using the colour wheel or by specifying the HSV or RGB values. Once you have selected a colour, you can adjust its intensity and save it as a custom colour that you can reuse.



For tasks related to this dialog box, see *Setting Scene Markers* on page 1.

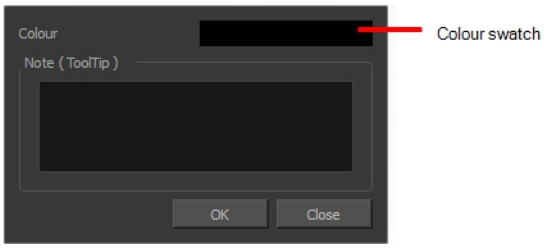
How to access the Marker Colour dialog box

1. In the frame counter area of the Timeline view, select a frame range to mark.

2. Right-click and select **Create Scene Marker**.

   The Timeline Scene Marker dialog box opens. The Colour box displays a black colour swatch, or the colour of the last scene marker you created.



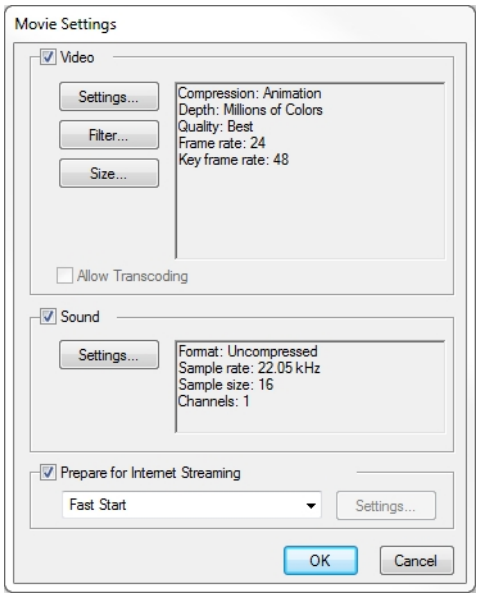
3. Click the colour swatch.

   The Marker Colour dialog box opens.

Parameter	Description
Basic colours	The basic set of colours in the system?
Custom colours	Displays the custom colours you created.
Add to custom colours	Lets you add the selected colour to the Custom colours list above.
Colour wheel	Lets you select a colour by dragging the T-shaped pointer.
Value slider	Once you select a colour, you can drag the slider to change the intensity and see it previewed in the Colour Preview window below..
Colour Preview	Displays the colour you are currently selecting. To apply the colour, click OK.
Hue, Saturation, Value	Lets you set the hue (colour), saturation (amount of colour) and brightness (value) of the colour.
Red, Green, Blue	Lets you set the red, green and blue values.

Movie Settings Dialog Box

The Movie Settings dialog box lets you set the compression settings for the movie you will export.



For tasks related to this dialog box, see *Exporting a QuickTime Movie* on page 1.

How to access the Movie Settings dialog box

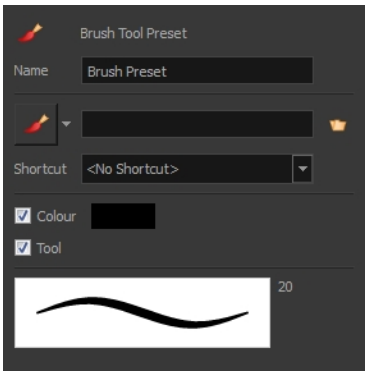
1. From the top menu, select **File > Export > Movie**.
2. In the Export to QuickTime Movie dialog box that opens, click **Movie Options**.

Parameter	Description
Video	
Settings	Opens the Standard Video Compression Settings dialog box. This is where you can set the video compression settings for the movie you will export–see *Standard Video Compression Settings Dialog Box* on page 79.
Filter	Opens the Choose Video Filter dialog box, where you can select from a range of filters to apply to your video export.
Size	Opens the Export Size Settings dialog box. The size settings are overridden by the Harmony's scene settings.
Sound	
Settings	Opens the Standard Video Compression Settings dialog box. This is where you can you set the sound compression settings for the movie you will export–see *Sound Settings Dialog Box* on page 79.

New Tool Preset Dialog Box

The New Tool Preset dialog box lets you create new tool presets and manage them.

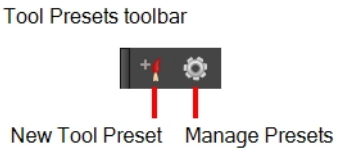
Tool presets let you save a variety of settings and are very handy and efficient for accessing the tools you use most often. That way, the tool is already set with the desired properties, such as colour, line thickness, whether to enable Draw Behind or Auto Flatten mode, and so on. You can create presets for these tools and many more: Brush, Pencil, Eraser, Rectangle, Ellipse, and Line. First, select a tool, adjust the properties, and then create a tool preset for it. Once you have created a tool preset, you can always make adjustments to fine-tune it, as well as create a keyboard shortcut for it.



For tasks related to this dialog box, see *Working with Tool Presets* on page 1.

How to access the New Tool Preset dialog box

1. Do one of the following:
   - From the top menu, select **Windows > Toolbars > Tool Presets**.
   - Right-click an empty area below the top menu and select **Tool Presets**.



2. In the Tool Presets toolbar, click the New Tool Preset button.

Parameter	Description
Name	Lets you give the preset a meaningful name.
Icon list	Lets you select an icon for the preset.
Folder icon	Lets you select an image for the preset.
Shortcut	Lets you assign a keyboard shortcut to the preset.
Colour	Saves the current colour into the tool preset.
Tool	If you disable this option, only the colour will be associated. You could, for example, set three different colours with shortcuts not associated with any tool. The colour preset would then work on any selected tool. Selecting the brush tool was only a vehicle to get into the New Tool Preset dialog box.

Paste Special Dialog Box

The Paste Special dialog box lets you determine how templates and symbols are imported in the Timeline view.

When you import a template in the Timeline view, all layers are created as well as drawings and keyframes. You can choose to import only the keyframes without the drawings or import only the drawings that are not already in your layers. You can adjust the behaviour using the Paste Special dialog box.When you import a symbol in your scene, its full length is exposed by default. If you import a symbol in the Timeline view's left side, all the frames will be exposed. However, if you import it into an existing layer, you can use the Paste Special dialog box to adjust the import behaviour to fit your requirements.Once you set the parameters, Harmony will reuse them each time you import a symbol in the Timeline view's right side until you set new parameters.

For tasks related to this dialog box, see *Using Paste Special* on page 1.

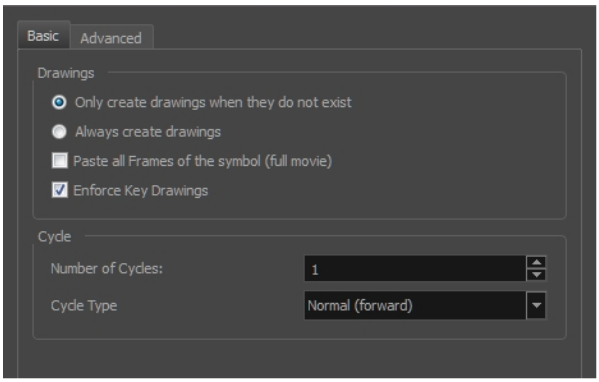
How to access the Paste Special dialog box

1. In the Library view, select the symbol or template to import.
2. Press Ctrl + B (Windows/Linux) or ⌘ + B (Mac OS X) and drag the selection to the Timeline view.

NOTE: Drop the selection in the Timeline view before releasing the keyboard shortcut key.

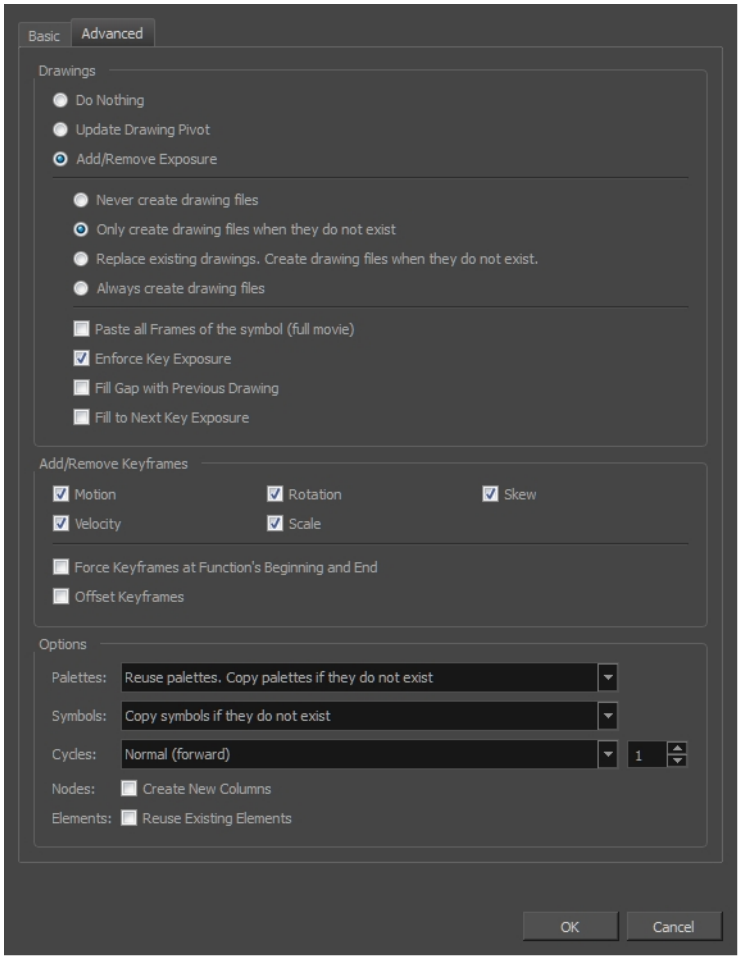
The Paste Special dialog box opens.

Basic Tab



Parameter	Description
Drawings	
Only create drawing files when they do not exist	When adding exposures to a drawing layer, new drawings will be created only when drawings with the same name do not already exist in the destination.
Always create drawing files	When adding exposures to a drawing layer, new drawings will always be created. If drawing files with the same name already exist, Harmony will create a new name for the drawing.
Paste all Frames of the Symbols (full movie)	When enabled, the Paste Special command exposes all the symbol's frames instead of only the first one.
Enforce Key Drawings	Creates a key exposure on the same drawing.
Cycle	
Number of Cycles	Lets you set the number of cycles.
Cycle Type	**Normal (forward):** Pastes your selection as is, starting with the first cell and ending with the last.
	Reverse: Pastes your selection in reverse, starting with the last cell and ending with the first.
	Forward > Reverse: Pastes your selection as a yo-yo, starting with the first cell, going to the last one and ending with the first cell.
	Reverse > Forward: Pastes your selection as a reverse yo-yo, starting with the last cell, going to the first one and ending with the last cell.

Advanced Tab



Parameter	Description
Drawings	
Do Nothing	Does not create or overwrite drawings.
Update Drawing Pivot	Revises the drawing pivot in the destination to use the same drawing pivot as the first drawing in the template. If you have a range of drawings selected in the destination, the pivot points of all selected drawings will be updated.
Add/Remove Exposure	**Never create drawing files**: When adding exposures to a drawing layer, drawing files will not be created.
	Only create drawing files when they do not exist: When adding exposures to a drawing layer, new drawings will be created only when drawings with the same name do not already exist in the destination.
	Replace existing drawings. Create drawing files when they do not exist: Replace drawings with the same names to update a scene with new modified drawings and preserve the animation. **Tip**: If you don't want to lose the existing animation when pasting

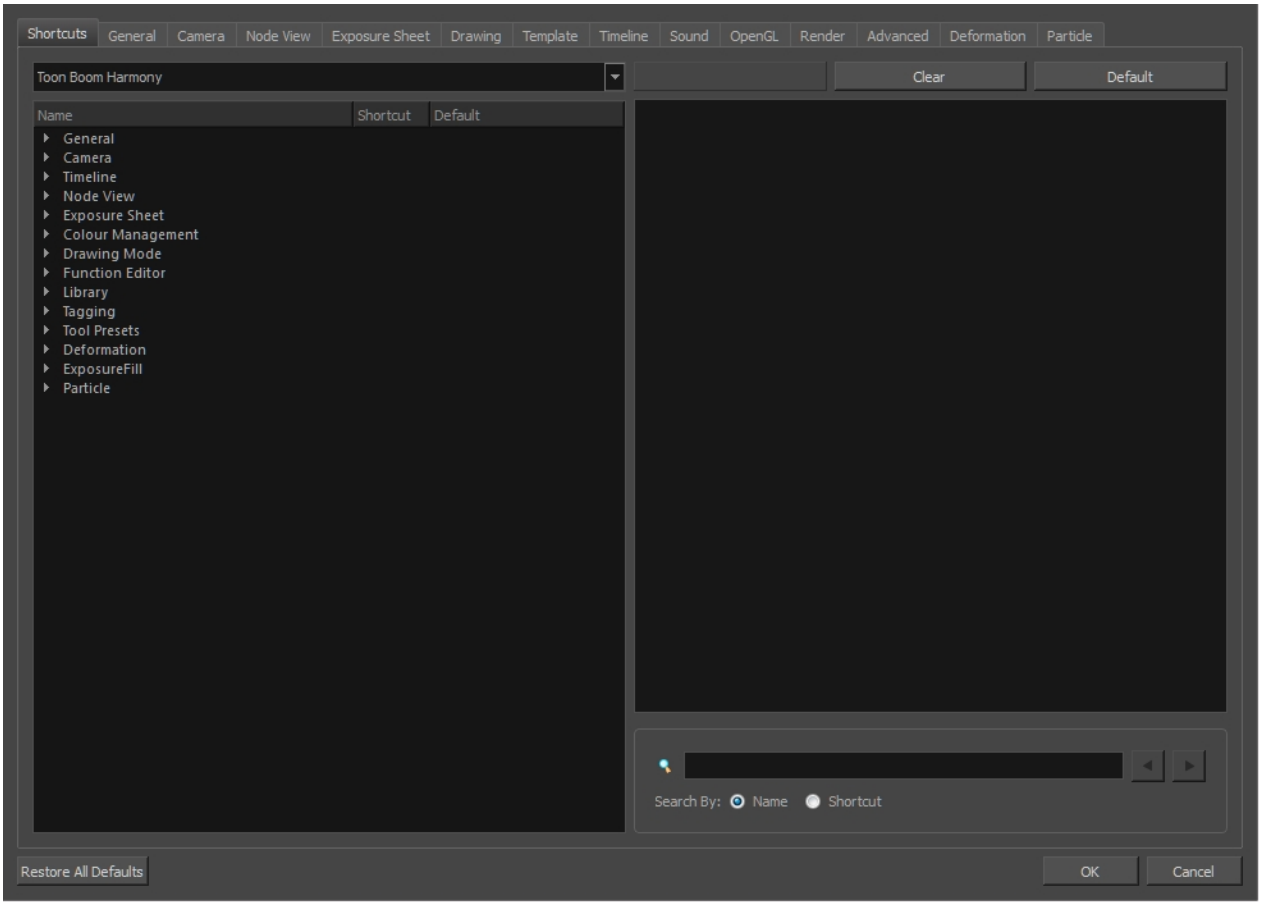
	a template, such as when placing new drawings after the animation, then delete the template's animation. It will still have updated the drawings but not override the existing animation.
	Always create drawing files: When adding exposures to a drawing layer, new drawings will always be created. If drawing files with the same name already exist, Harmony will create a new name for the drawing.
	Paste all frames of the symbol (full movie): When enabled, the Paste Special command exposes all the symbol's frames instead of only the first one.
	Enforce Key Exposure: If there are key exposures that exist on copied drawings, they are preserved when pasting. No key exposures are added. This is the default behavior when pasting.
	Fill Gap with Previous Drawing: Fills selected area in the Xsheet or Timeline view with the previous drawing.
	Fill to Next Key Exposure: Fills selected area till the next key exposure.
Add Remove/Keyframes	
Motion	Copies the properties of the selected motion keyframe to the new frame.
Velocity	Copies the properties of the selected velocity keyframe to the new frame.
Rotation	Copies the properties of the selected rotation keyframe to the new frame.
Scale	Copies the properties of the selected scale keyframe to the new frame.
Skew	Copies the properties of the selected skew keyframe to the new frame.
Force Keyframes at Function's Beginning and End	Adds a keyframe to the beginning and end of the pasted function, reproducing the source function.
Offset Keyframes	When pasting functions, offsets keyframes from the function's last frame value by the values in the pasted function. This will continue the progression of a function instead of repeating the values.
Options	
Palettes	**Do nothing**: Does not create, overwrite, merge or link palettes. **Reuse palettes. Copy palettes if they do not exist**: Palettes in the destination drawings are left as they are. **Copy and overwrite existing palettes**: Overwrites destination palettes with the palettes from the source drawings. **Copy and create new palette files**: Creates new palette files, placing them at the same relative environment and scene level as the source. If the palettes in the templates were stored at the environment level of the source scene, the paste operation will place the palettes in the environment level of the destination scene. **Copy and create new palette files in element folder**: Creates new palette files in the element folders of the destination scene, rather than in the same relative job or environment. **Copy palette and merge colours. Add new colours only**: Adds new colours

	to the destination palettes and ignores colours that are the same in the two palettes. **Copy palettes and update existing colours**: Adds new colours to the destination palette and updates duplicate colours in the destination with colour values from the source. **Link to original palettes (colour model)**: Links the colour palettes in the destination scene to the palettes in the source. Use this to link drawings to the palettes in a colour model. **Copy scene palettes and merge colours. Add new colours only**: Adds new colours to the destination scene palettes and ignores colours that are the same in the two palettes. **Copy scene palettes and update existing colours**: Adds new colours to the destination scene palette and updates duplicate colours in the destination with the colour values from the source.
Symbols	**Copy symbols if they do not exist**: This is the default setting for this operation and will prevent Symbols in an Action template from being copied.
	Duplicate symbols: Creates a duplicate of the symbol instead of linking the Symbol instance to the original one. The new Symbol is created in the Library.
Cycles	**Normal (forward):**Pastes your selection as is, starting with the first cell and ending with the last. **Reverse**: Pastes your selection in reverse, starting with the last cell and ending with the first. **Forward > Reverse:**Pastes your selection as a yo-yo, starting with the first cell, going to the last one and ending with the first cell. **Reverse > Forward**: Pastes your selection as a reverse yo-yo, starting with the last cell, going to the first one and ending with the last cell.
Nodes	**Create New Columns**: A new column is created when you copy and paste nodes from the Node view or layer in the Timeline view. If the layers are linked to function curves, the function curves, drawings and timing will be duplicated.
Elements	**Reuse existing elements**: Lets you paste existing elements without creating new ones. This should be used only when pasting within versions of the same scene.

Preferences Dialog Box

The Preferences dialog box lets you adjust preferences to suit your work style, allowing you to work more efficiently.

NOTE: Some preferences require you to exit and restart the application, or close a view and reopen it.



How to access the Preferences dialog box

Do one of the following:

- From the top menu, select **Edit > Preferences** (Windows/Linux) or **Stage > Preferences** (Mac OS X).
- Press Ctrl + U (Windows/Linux) or ⌘ + U (Mac OS X).

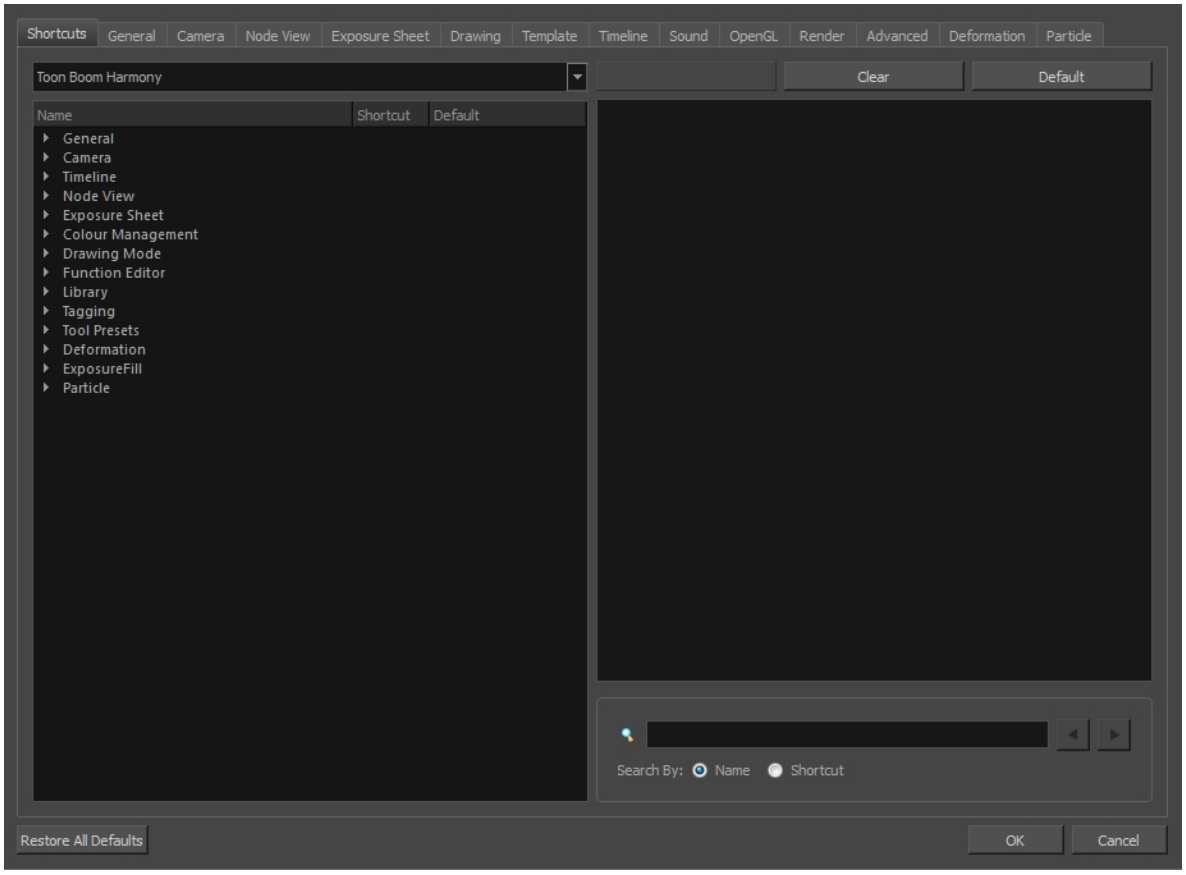
Shortcuts Tab

To speed up your work, all of the keyboard shortcuts can be customized. You can even choose other software keyboard shortcut sets.

In Toon Boom Harmony, you can choose a set of default keyboard shortcuts you are familiar with. You can choose between the following:

- Adobe Flash
- Toon Boom Harmony
- Toon Boom Studio

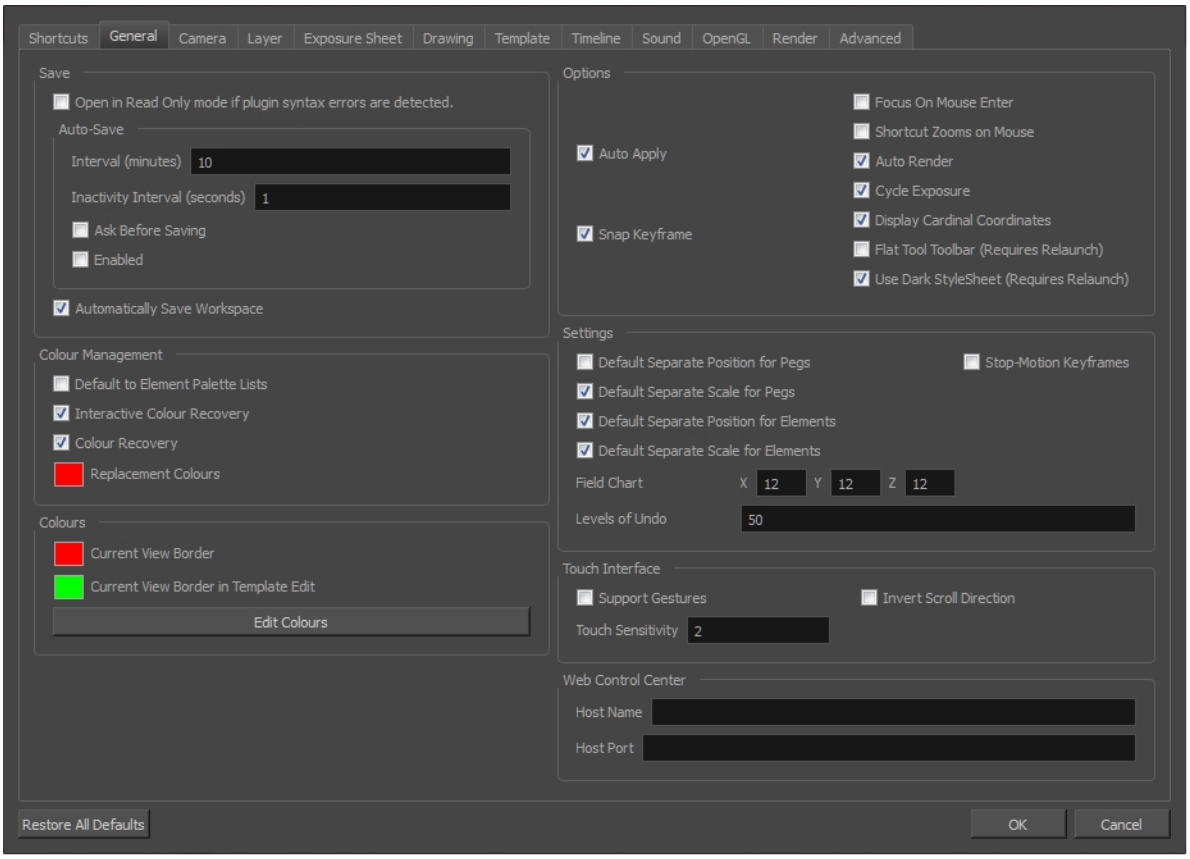
You can also customize most of the shortcuts and use the search feature to find particular shortcuts.



For tasks related to this dialog box, see *Shortcut Preferences* on page 1.

Parameter	Description
Keyboard Shortcut List	Lets you choose a set of keyboard shortcuts to use, including Toon Boom Harmony, Adobe Flash and Toon Boom Studio.
Keyboard Shortcut Categories	Each category lists all the keyboard shortcuts. Some commands may not have a keyboard shortcut assigned to it. Selecting a shortcut displays its description on the right.
Restore All Defaults	Restores all the default keyboard shortcuts. This erases any custom shortcuts you made.
Press Shortcut Key	Displays the keyboard shortcut assigned to a command.
Clear	Lets you remove the keyboard shortcut assigned to a command.
Default	Lets you return a keyboard shortcut to its default.
Search	Lets you search for a command. The result is highlighted in the Keyboard Shortcut Categories on the left.
Search by Name/Shortcut	Lets you search for a command by its name or keyboard shortcut keys.

General Tab

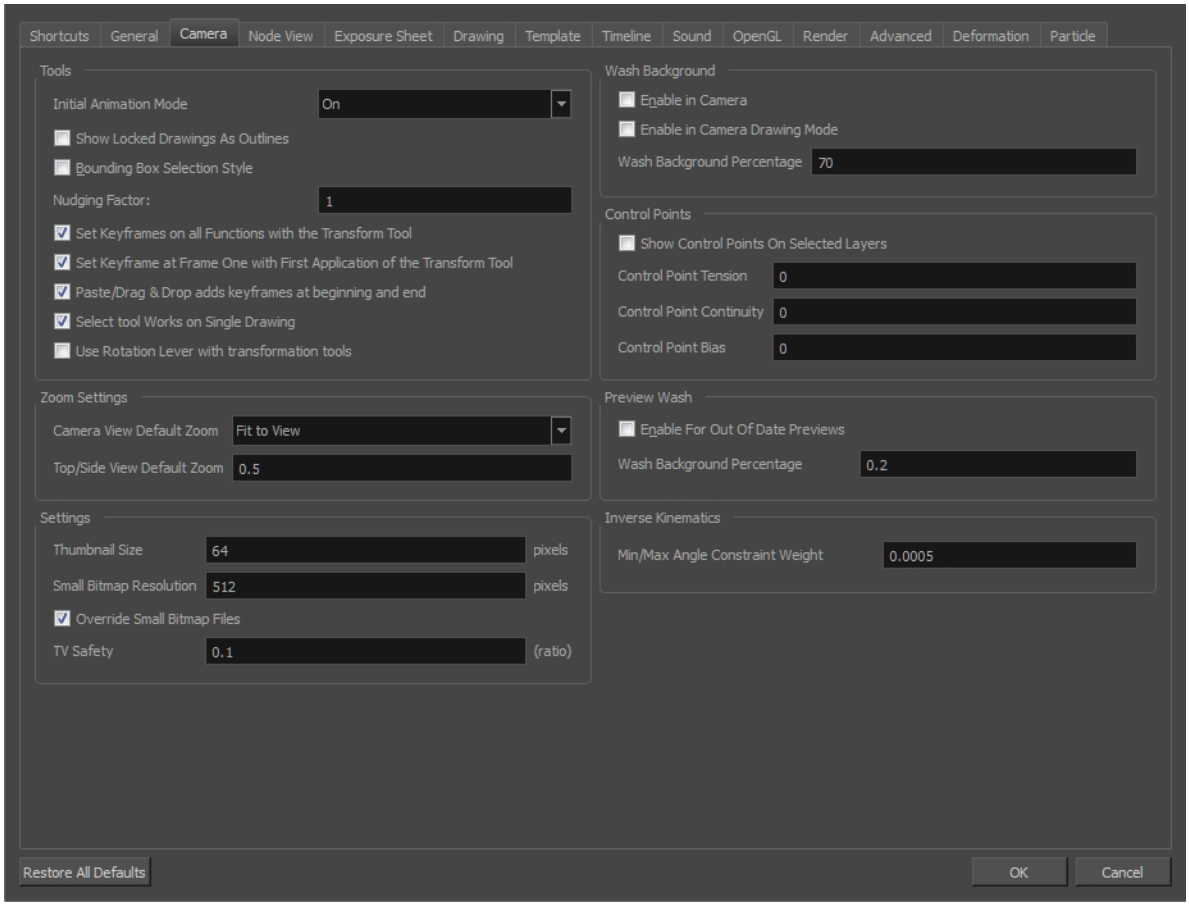


Parameter	Description
Save	**Auto-Save:** • **Interval (minutes)**: This is the frequency at which the auto-save takes place. • **Inactivity Interval (seconds):** When Auto-save is about to take place, it verify if you are drawing or doing anything in the application. If so, Auto-save waits this number of seconds before attempting another save. • **Ask Before Saving:** Before performing an auto-save, the system will prompt you with a message to confirm if you want to save or not. You can choose to turn off this option. • **Enabled:** This enables the Auto-save feature. If you do not want the system to automatically save your work, deselect this option. The auto-save is off by default. **Automatically Save Workspace**: This option is enabled by default. Every time you add a view to your workspace, remove a toolbar or change a view's width, these modifications are saved when you quit the application. If you do not want the system to save these modifications, disable the preference.

	This preference does not require you to restart the application.
Colours	The Colours option allows you to modify the colours of the different user interface views and elements. For example, you can change the Camera view's background colour from grey to white. Altering these preferences requires you to restart the application or to close a view and reopen it for the modifications to be applied. **Current View Border**: Sets the colour of the frame around the workspace view you are currently using, also known as focus. By default, the colour is red. Click on the red colour swatch to select a new colour in the Colour Picker window. **Current View Border in Template Edit**: Sets the colour of the frame around the workspace view you are currently using when editing a template from your library view. By default, the colour is green. Click on the green colour swatch to select a new colour in the Colour Picker window. **Edit Colours**: Click on the Edit Colours button to open the Colours window.
Web Control Center	**Host name**: Name of the Web Control Center server name.
	Host port: 8080 (the default port number) or custom port number set by the system administrator.
Options	**Editors Always on Top**: When enabled, the Layers and Function Editors are on top of the main window. **Close Previous Editors**: Closes previously opened editors. **Focus on Mouse Enter:** Disabled by default. In Toon Boom Harmony, for the operations or keyboard shortcuts to work in the view in which you are working, the focus must be in that view. When the focus is on a particular view, a red rectangle appears around its frame. You must click in the view or on the view's header for the focus to be done. If you enable the Focus on Mouse Enter preference, you will not need to click in the view to get the focus. It will be done as soon as your mouse enters the view. **NOTE:** If you enable the Focus On Mouse Enter preference, certain operations from the top menu may not be available since the view focus may change as you make your way to the top menu. In this case use keyboard shortcuts and quick access menus (right-click menus). **Auto Render**: Automatically enables the Auto-Render option. **Cycle Exposure**: Make navigation in the Xsheet View wrap-around from the last frame or the last column to the first. Lets you expand the toolbar so there are no nested toolsets in the toolbar. You will need to close Harmony and relaunch it for the new interface to be

	displayed. A default set of tools will appear in the toolbar. However, you can customize which tool icons appear in the toolbar to fit your own work pattern. Once you have enabled the Flat Tool Toolbar preference, you can customize the tools that appear in the toolbar. This means you can change the default set of tools and replace the tools which you use less frequently with ones which are used more often. This customizing is done through the Toolbar Manager–see *Managing the Toolbars* on page 1. **Use Dark StyleSheet (Requires Relaunch)**: Application loads a dark skin for the User Interface.
Settings	**Stop-Motion Keyframes**: New keyframes are created as stop-motion keyframes. **Default Separate Position for Pegs**: New pegs are created with separate position functions. **Default Separate Scale for Pegs**: New pegs are created with separate scale functions. **Default Bezier**: New functions curves are created as Bezier Curves. **Default Bezier Velocity**: New velocity curves are created as Bezier Curves. **Levels of Undo**: Determines the number of actions retained by the Undo list. By default, 50 actions are stored in the list. You can alter the number if you want to.

Camera Tab

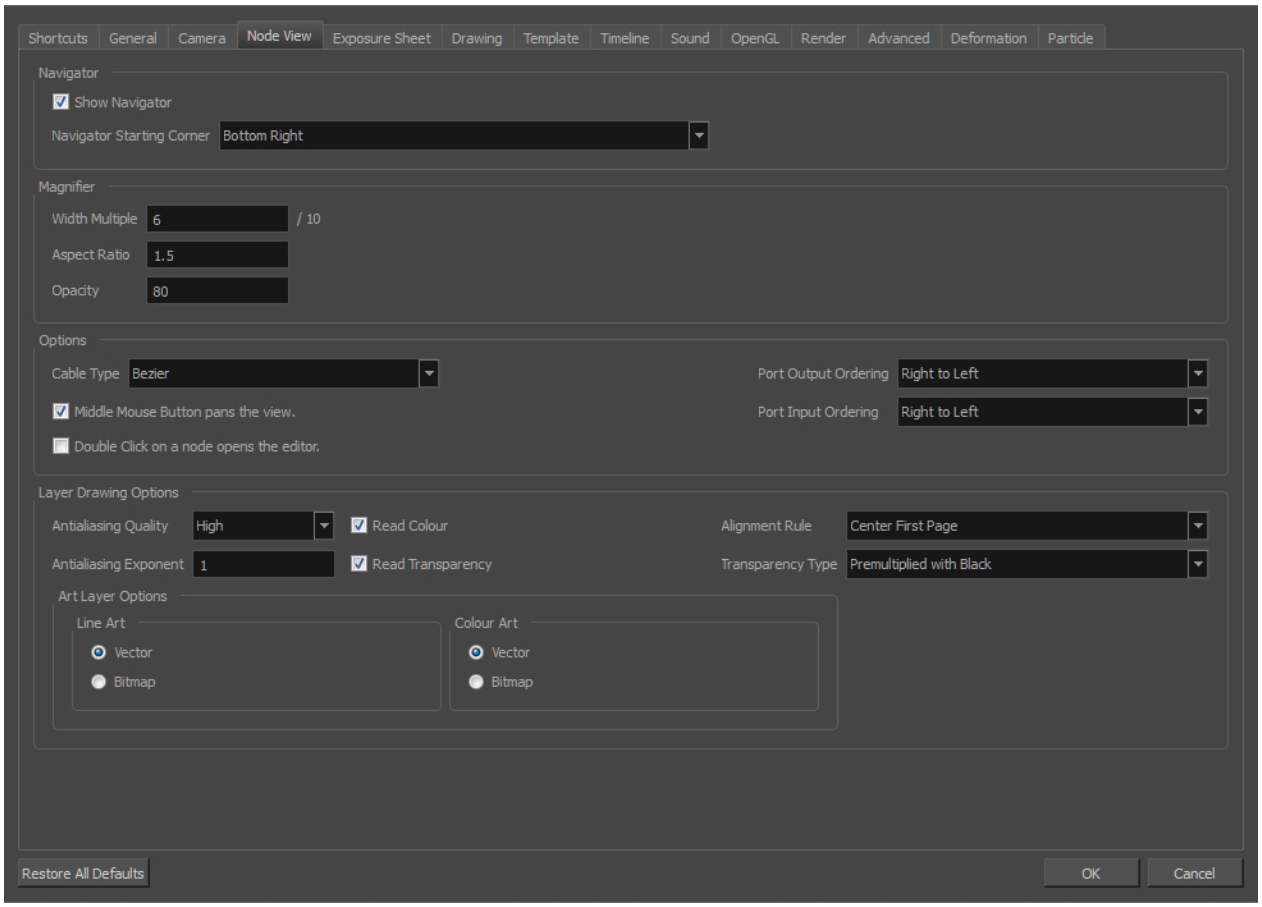


Parameter	Description
Tools	**Initial Animation Mode**: Determines which animation mode is enabled when the scene is opened. **Show Locked Drawings As Outlines**: In the Camera view, locked elements are displayed as outlines only. **Bounding Box Selection Style**: In the Camera view, selected elements are not highlighted in colour but displayed with the bounding box only. **Nudging Factor**: The nudging increment value. **Set Keyframe on All Functions with the Transform Tool**: When this option is selected, the Transform tool will create a keyframe for all functions of the selected pegs, including the functions that normally would not be affected by the transformation. **Set Keyframe At Frame One With First Application of the Transform Tool**: When this option is selected, wherever you set a keyframe on a layer, a keyframe is added on your frame 1. If this options is deselected, a keyframe is only added to the current frame. If later on, you add a keyframe on your frame 1, it may modify the first keyframe you added.

	Paste/Drag&Drop Adds Keyframes at Beginning and End: Select this option to copy and paste a set of frames that includes an interpolated sequence between two keyframes, but only extracts a partial section. Under normal circumstances, cutting and pasting a function without either the start or end keyframe would render the function null. This option caps the partial function with a new keyframe when you perform the paste. **Select Tool Works on Single Drawing**: By default, when you draw a selection box in the Camera view, the Select tool will select all the drawing strokes and symbols in its path. If you prefer the Select tool to only select the current drawing and not the other visible drawings, select the **Select Tool Works on Single Drawing** option. **Use Rotation Lever with Transformation Tools**: Lets you see the rotation lever when using the transformation tools. When this option is deselected, hovering your cursor over the corner of an element's bounding box is sufficient to rotate it.
Zoom Settings	**Camera View Default Zoom**: The default zoom value for the Camera view. **Top/Side View Default Zoom**: The default zoom value for the Top/Side views.
Settings	**Thumbnail Size**: The thumbnail size, in pixels, that appears in the Top and Side views. **Small Bitmap Resolution**: The size, in pixels, of the smaller bitmap version of your image. When you import a bitmap image into a scene, a smaller version of it is created in order to accelerate the compositing and playback processes. **Override Small Bitmap Files**: Enable this option if you want the system to generate new versions of the existing smaller bitmap files, every time you modify the Small Bitmap Resolution value. When the option is disabled, the existing smaller bitmap versions will not be regenerated and will keep the same resolution as when they were created. **TV Safety**: The ratio value for the TV Safety frame in proportion to the regular camera frame.
Wash Background	**Enable in Camera**: Dulls background bitmaps in the Camera view. This allows you to see other elements clearly, such as the ones that have not yet been painted. **Enable in Camera Drawing Mode**: Dulls background bitmaps in Camera view while using the drawing tools. This allows you to see other elements clearly, such as the ones that have not yet been painted. **Wash Background Percentage**: The Wash Percentage value.
Control Points	**Show Control Points On Selected Layers**: By default, when you select an element with the Transform tool, the motion path related to the object is displayed. **Control Point Tension**: The default Tension value for new keyframes and control points. **Control Point Continuity**: The default Continuity value for new keyframes and

	control points. **Control Point Bias**: The default Bias value for new keyframes and control points.
Preview Wash	**Enable For Out of Date Previews**: When you disable the automatic render preview, you need to click on the Update Preview button in the Rendering toolbar or the Camera view bottom toolbar in order to recalculate and update the preview. When this option is enabled, if the current render preview is out of date and requires you to press the Update Preview button, the Camera view will display the current preview as washed out colours. **Wash Background Percentage**: This is the value, in percentage, by which the outdated preview will be washed out.
Inverse Kinematics	**Min/Max Angle Constraint Weight**: This value acts similar to the Stiffness setting in the Inverse Kinematics Properties panel. This option only affects the minimum and maximum angle values set using the Min/Max Angle Mode. The higher the value, the stronger your need to move the body part to approach the minimum and maximum values set. Although the maximum value goes up to 1.0, in a production setting, the most practical value to use would be closer to 0.1.

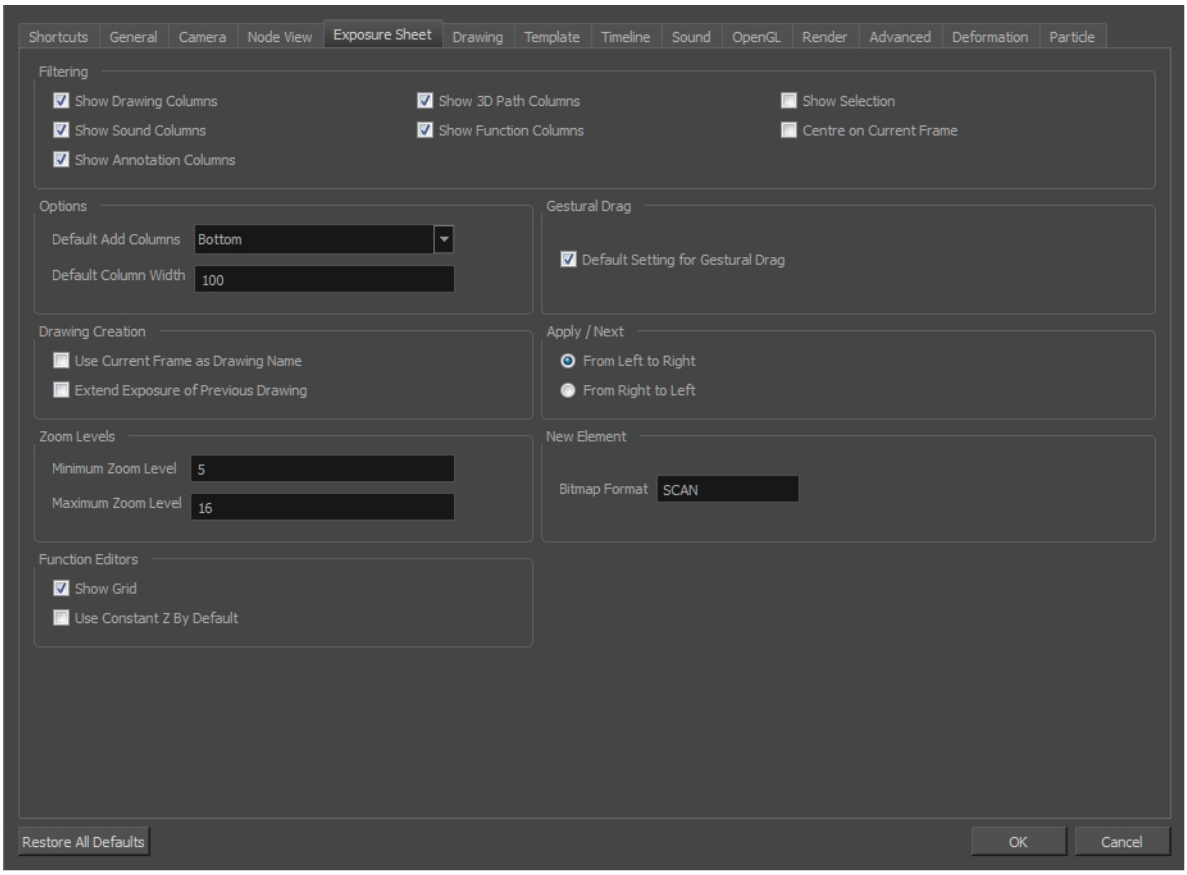
Node View Tab



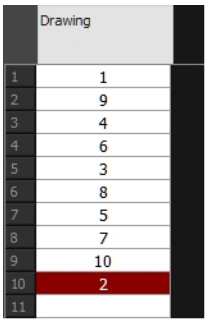
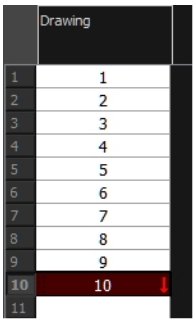
Parameter	Description
Navigator	**Show Navigator**: Shows or hides the display of the Navigator in the Node view when starting Toon Boom Harmony. **Navigator Starting Corner**: Indicates which corner is the default Navigator position.
Magnifier	**Width Multiple**: Sets the width of the magnifier in tenths of the Node view width. Values range from 0.1-10. **Aspect Ratio**: Sets the width to height ratio of the magnifier. Values range from 0.1-10. **Opacity**: Sets the transparency of the magnifier. Values range from 0-100. A value of 100 makes the magnifier completely transparent. A value of 0 makes the magnifier completely opaque.
Options	**Cable Type**: Displays node connections as Line (straight) or Bezier (curves). **Middle Mouse Button Pans the View**: Lets you use the middle mouse button to pan the Node view. **Double Click on a Node Opens the Editor**: Lets you open a node's property editor by double-clicking. **Port Output Ordering**: Orders the Output Port Right to Left or Left to Right. **Port Input Ordering**: Orders the Input Port Right to Left or Left to Right.
Line Drawing Options	**Antialiasing Quality**: Smoothness setting applied to colour art. The higher the setting, the more antialiasing is applied. Higher quality images require more time to render and more system memory. Choose a lower quality if you are rendering a pencil test. • **Low**: No antialiasing • **Medium Low**: Some antialiasing • **Medium**: Medium antialiasing • **High**: Extensive antialiasing **Antialiasing Exponent**: Controls the amount of area around the Line and Colour Art edges used in the antialiasing process. A higher value uses less area, resulting in sharper edges, while a lower value uses more area, resulting in softer edges. If the Antialiasing Quality value is set to Low (no antialiasing), this value is ignored. **Read Colour**: Controls the production of colour information from bitmap images. If this node reads 3 or 4-channel bitmaps, this selection determines whether the colour should be read or ignored. If this node reads 1-channel bitmaps, this selection determines whether the channel should be read as colour. When this option is selected with 1-channel images, the result will be a greyscale image. **Read Transparency**: Controls the production of alpha information from bitmap images. If this node reads a 1 or 3-channel image, this option will create a matte from the colour values in the image. If the node reads a 4-channel image and this option is not selected, the alpha information in the image will be ignored.

	Alignment Rule: The Alignment position for the element node. The new element node will be created following this default rule of alignment. **Transparency Type**: • **Premultiplied with Black**: Pixels at the edge of an image are blended with black. • **Straight**: Pixels at the edge of an image are blended with black, white and greys. • **Premultiplied with White**: Pixels at the edge of an image are blended with white. • **Clamp Colour to Alpha:** Select this option when you want to premultiply the colour value with the alpha value. When the colour is clamped to the alpha, the colour value cannot be higher than the alpha value. It calculates the real colour value faster. When the RGB values are multiplied with the alpha value, that is to say, if you have a pixel of value R=247, G=188, B=29 and the alpha is 50% or the image has a 50% transparency, then the actual RGB values output would be half of the amounts listed above. **Art Layer Options**, **Line Art/Colour Art:** • **Vector/Bitmap**: Determines if a newly created element will be a vector or bitmap layer.

Exposure Sheet Tab

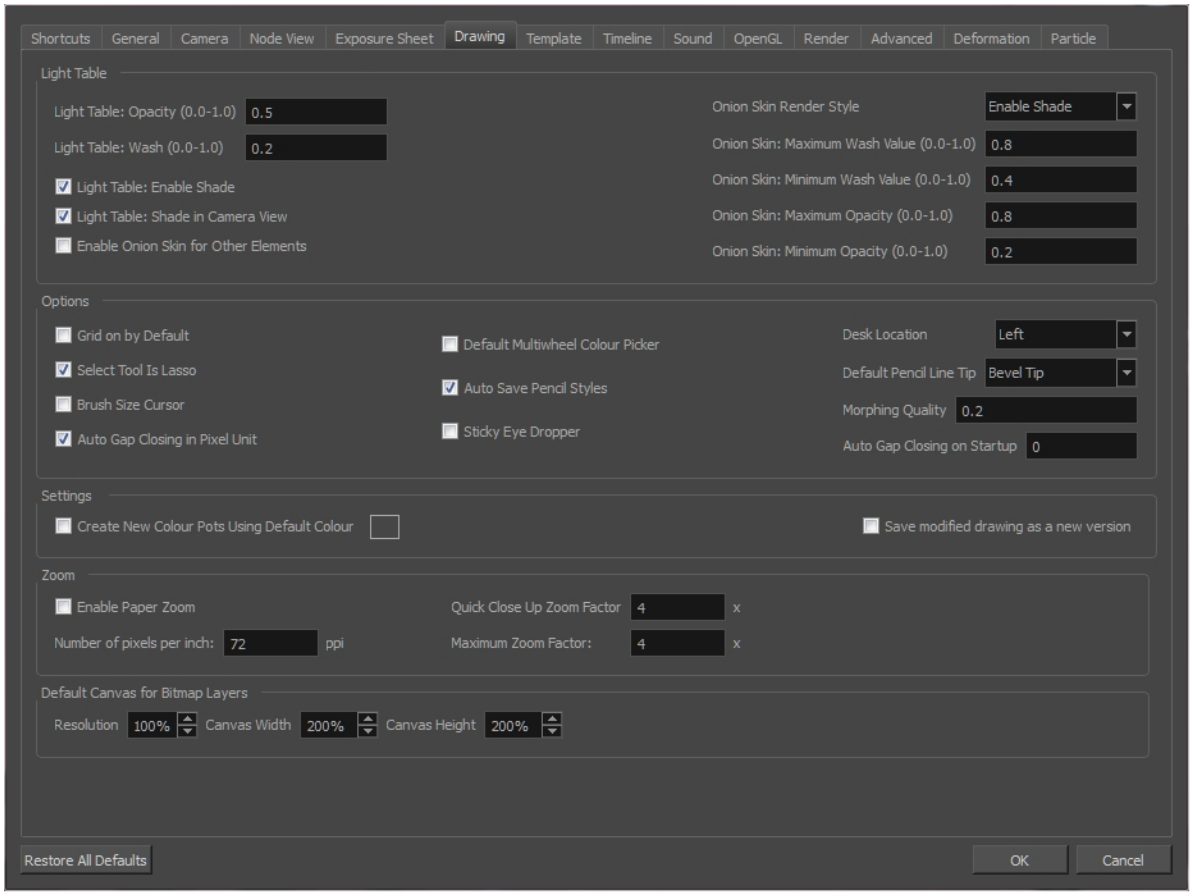


Parameter	Description
Filtering	These preferences are used to display or hide certain layer types in the Xsheet view. **Show Drawing Columns**: Displays the Drawing layers in the Xsheet view. **Show Sound Columns**: Displays the Sound columns in the Xsheet view. **Show Annotation Columns**: Displays the Annotation columns in the Xsheet view. **Show 3D Path Columns**: Displays the 3D Path columns in the Xsheet view. **Show Function Columns:** Displays the Function columns layers in the Xsheet view. **Show Selection:** Sets the Show Selection option On or Off by default in the Xsheet view. **Centre on Current Frame**: Turns auto-centering on or off when playing back a scene. Auto-centering is used during sound breakdown with the ShuttleXpress device.
Options	**Default Add Columns**: The default position where the new column will be added.

	Default Column Width: The default width value for the new column being created.
Drawing Creation	**Use Current Frame as Drawing Name**: Automatically names the drawing corresponding to the frame position. This avoids numbering conflicts while animating.  For example, using the default preferences, you start with the first drawing on frame 1, this drawing is called 1. You then draw the extreme position drawing on frame 10, this drawing is called 2. Next, the in-between pose is drawn on frame 5, this drawing is called 3 and so on. At the end, you have a sequence like this: 1-9-4-6-3-8-5-7-10-2.  Instead, using the Use Current Frame as Drawing Name option, each drawing is automatically named by its frame number and the sequence looks like: 1-2-3-4-5-6-7-8-9-10. **Extend Exposure of Previous Drawing**: When drawing on a blank frame, a new drawing is created and the timing is extended from the previous exposed drawing.
Zoom Levels	You can set the minimum and maximum zoom levels to view the Xsheet, depending on the number of columns and rows in the project. Once you set a level, close and reopen the Xsheet so the new values take effect. **Minimum Zoom Level**: Lets you set the lowest level of zoom. Choose a value between 1 and 6. **Maximum Zoom Level**: Lets you set the highest level of zoom. Choose a value between 14 and 20. **NOTE:** You can set a keyboard shortcut to view the entire Xsheet.

Function Editors	**Show Grid**: When selected, the grid is displayed by default when opening the Function Editor. **Use Constant Z By Default**: When selected, the Constant Z option will be enabled by default in the Function Editor. Constant Z means that even when creating Motion keyframes, the Z function will use Stop-Motion keyframes and will not be interpolated, this can be very useful for cut-out animation. The Constant Z feature only works with 3Dpaths. You can also enable the Constant Z option directly in the Function Editor or Function view for specific functions.
Gestural Drag	**Default Setting for Gestural Drag:** This is the default value enabling gestural dragging of cells in the Xsheet view.
Apply/Next	**From Left to Right**: When clicking the **Apply/Next** button in the Xsheet view Column Properties, the next column to be displayed in the Column Properties will be the one on the right. **From Right to Left**: When clicking the **Apply/Next** button in the Xsheet view Column Properties, the next column to be displayed in the Column Properties will be the one on the left.
New Element	**Bitmap Format:** By default, when you create a new empty bitmap column, it will use the file format indicated in the field as the new column format. The default value is SCAN, which means that it is set for scanned-in drawings.

Drawing Tab

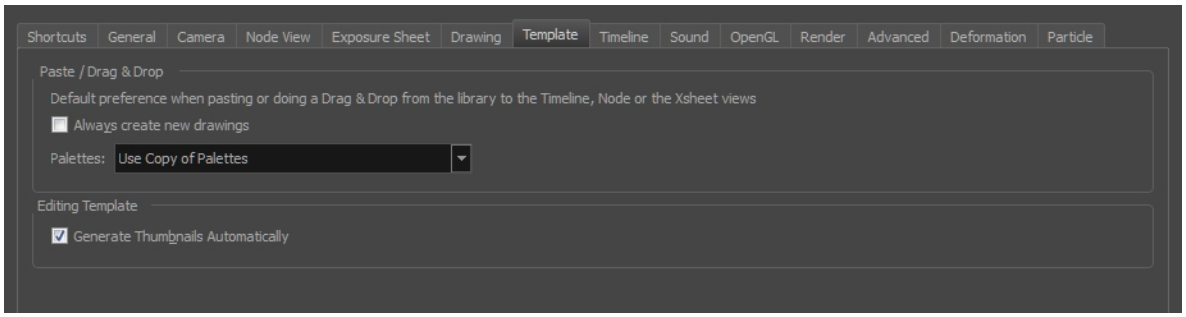


Parameter	Description
Light Table	**Light Table: Opacity (0,0-1,0):**The maximum opacity value for the light table display (0 = transparent). **Light Table: Wash (0,0-1,0)**: The washed-out value for the light table display (0 = transparent). **Light Table: Enable Shade**: When enabled, the drawings appearing on the Light Table are displayed in washed out colours in the Drawing view. When this option is disabled, the drawings appearing in the Light Table are displayed using normal colours. This option is for the Drawing view only. **Light Table: Shade in Camera View**: When enabled, the drawings appearing on other layers are displayed in washed-out colours in the Camera view. When this option is disabled, the drawings appearing on other layers are displayed using normal colours. This option is for the Camera view only. **Onion Skin: Maximum Wash Value (0,0-1,0)**: The maximum washed-out value for onion skinned drawings. **Onion Skin: Minimum Wash Value (0,0-1,0)**: The minimum washed-out value for onion skinned drawings.

	Onion Skin: Maximum Opacity (0,0-1,0): The maximum opacity value for onion skinned drawings. (0 = transparent). **Onion Skin: Minimum Opacity (0,0-1,0)**: The minimum opacity value for onion skinned drawings. (0 = transparent).
Options	**Grid On By Default**: When opening the Drawing view, the grid displays automatically. **Select Tool is Lasso**: When this option is enabled, the Select tool behaves as a lasso selector. When this option is disabled, the Select tool behaves as a rectangle selector. **Brush Size Cursor**: When this option is enabled, the brush tool displays the brush size as a circle around the cursor. **Auto Gap Closing in Pixel Units**: Disabling this option will cause your gap to be zoom dependent. Zoom dependent means that the more you zoom in, the smaller the gap you can close with the Close Gap tools. By enabling this option, you choose to make the gap display available in pixel units, which is not zoom dependent. **Default Multiwheel Colour Picker**: Displays the Multiwheel Colour Picker window instead of the regular Colour Picker. **Auto Save Pencil Styles**: When this option is enabled, new pens and pen styles are automatically saved. **Sticky Eye Dropper**: Keeps the Colour Picker's Dropper tool active until it is released by clicking on the Dropper icon again. **Desk Location**: Defines the location of the Desk panel in the Drawing view. **Default Pencil Line Tip**: Sets the default pencil line tip to either **Round**, **Flat**, or **Bevel**. **Morphing Quality**: Sets the default quality value for the morphing sequences. If you change this value, it will not affect the morphing sequence which was created previously. After a morphing sequence has been created using this default quality value, its quality can be changed manually by using the Morphing Tool Properties. **Auto Gap Closing on Startup**: The values for automatic gap closing while painting drawings are: **0** = Disabled, 1=Small, 2=Medium, 3=Big.
Settings	**Create New Colour Pots Using Default Colour**: Set the default colour for creating a new colour swatch. Enable the option so that this default colour is used each time you add a new colour in your palettes. This option is useful for when you create new colour pots so that a more recognizable colour is created and not just a duplicate of the currently selected colour. Choosing a colour that is the opposite of your intended colour palette is recommended, such as grey if your palette will be filled with bright, primary colours. **Save modified drawing as a new version**: Saves modified drawings as a new version if the drawing is also used in another scene version.
Zoom	**Enable Paper Zoom**: Enabling this option allows you to set the 100% Zoom level onscreen, in order to physically match the measurements of your paper

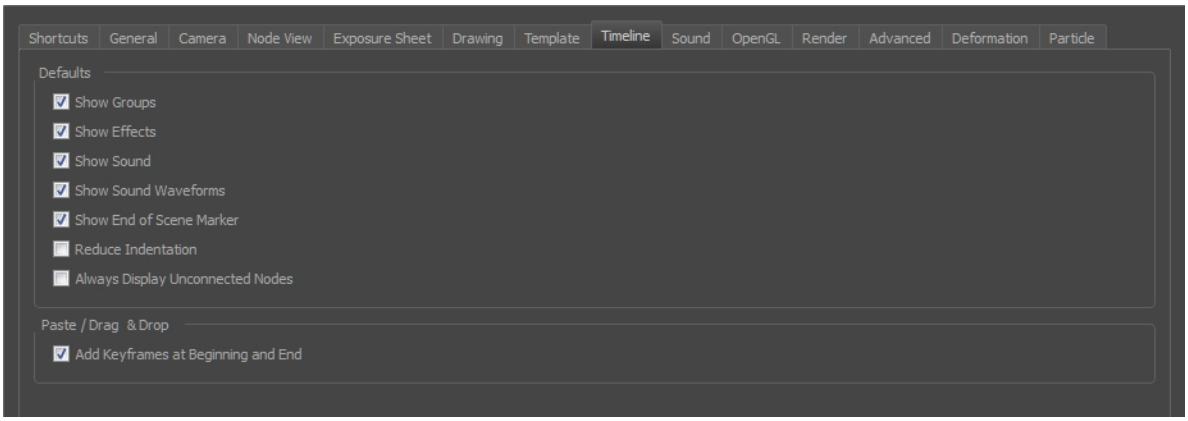
	drawing. **Number of Pixels per Inch**: Enter the PPI for your monitor. To obtain the PPI of your screen, divide the height or width of your monitor's resolution setting by the corresponding physical height or width of your monitor screen (resolution height divided by physical height, or resolution width divided by physical width) in inches. **Quick Close Up Zoom Factor**: Sets the zoom level for the Quick Close up Zoom keyboard shortcut. **Maximum Zoom Factor**: Sets the maximum zoom level for the paper zoom.
Default Canvas for Bitmap Layers	Sets the default values for the resolution, width and height of the canvas when working with bitmap layers in a new scene. This prevents you from creating unusually large bitmap canvases.

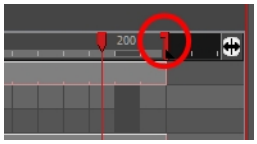
Template Tab



Parameter	Description
Paste/Drag & Drop	**Always Create New Drawings**: By default, when you import timeline templates in the right section of the Timeline view, to stack them, the system will analyze and create only the non-existing drawings and only expose the existing ones. When enabled, this option automatically creates new drawings for every one of them that is exposed. **Palettes**: • **Ask User**: When dropping a template into a scene, the system will ask if you want to link the palette to the original or create a local copy in the scene. • **Use Original Palette**: The system will automatically link drawing elements to the original palette file. If the original palette is not encountered a local copy will be created. • **Use Copy of Palettes**: The system will automatically create a local copy of the palette in the scene.
Editing Template	**Generate Thumbnails Automatically**: Automatically create thumbnails for the template when you want to see the thumbnails in the Library or when saving a template modification.

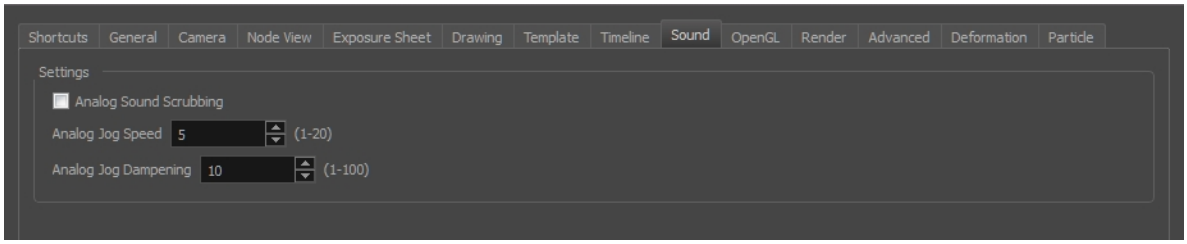
Timeline Tab



Parameter	Description
Defaults	**Show Groups**: Displays the Group layers in the Timeline. **Show Effects**: Displays the Effect layers in the Timeline. **Show Sound**: Displays the Sound layers in the Timeline. **Show Sound Waveforms**: Displays the imported sounds waveform in the Timeline. **NOTE:** You can always toggle the visibility of the waveform in the Timeline view by adding the Show Sound Waveform button from the Toolbar Manager. This button will work whether you have the Show Sound Waveform option enabled or disabled in the Preferences panel. **Show End of Scene Marker:** Displays the red bracket that delineates the end of your scene in the Timeline view. If you know that many different hands will be working on your scene, you may want to deselect this option so the scene length is not increased or decreased by accident.  **Reduce Indentation**: When this option is enabled, the horizontal indentation for parented nodes in the Timeline is reduced to optimize the amount of space taken in the Timeline. When you have a cut-out character and there is a long cascade of parented nodes, you can enable this option so the Timeline (left side) does not have expand too wide to see all your nodes. **Always Display Unconnected Nodes**: Enable this preference if you prefer to see elements in the Timeline that have not yet been connected to a particular Display, even when in Normal View mode. This preference is not on by default.

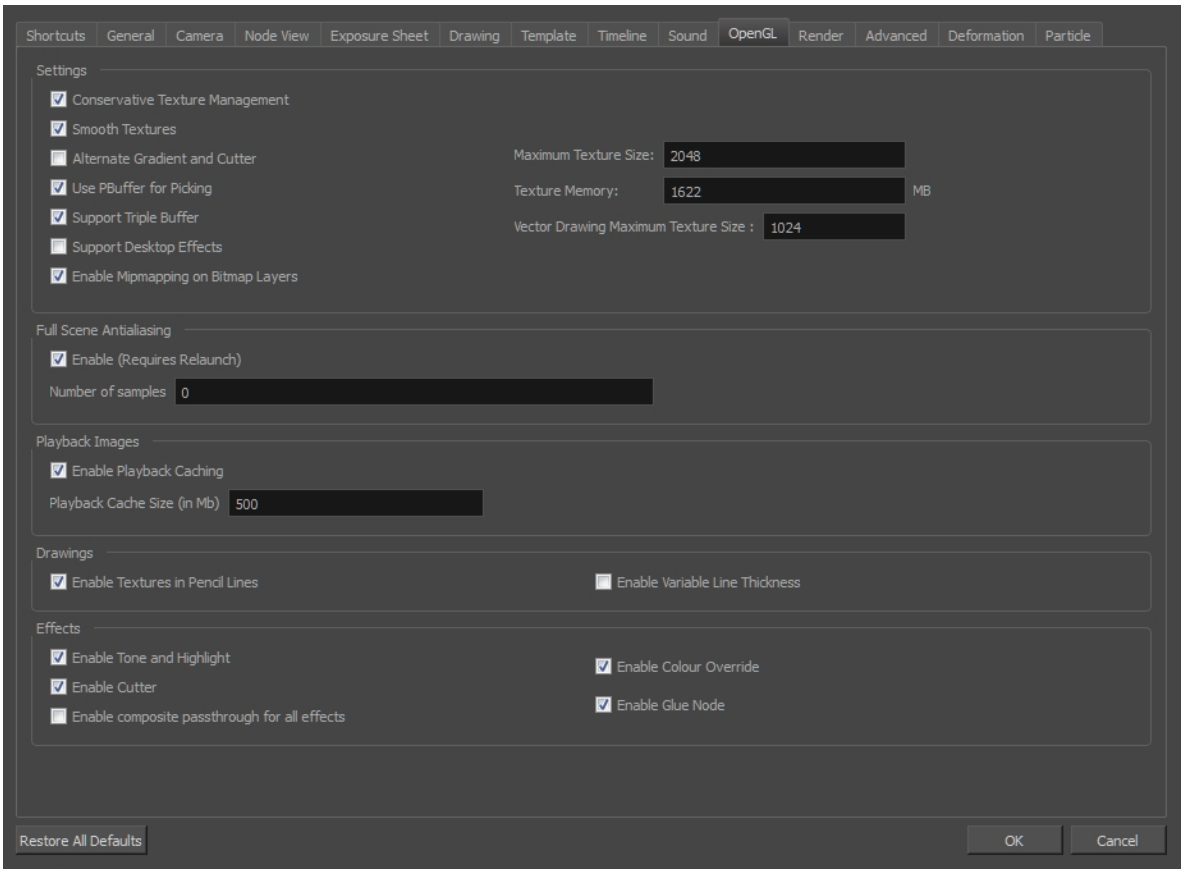
Paste/Drag & Drop	**Add Keyframes at Beginning and End**: Copies and pastes a set of frames that includes an interpolated sequence between two keyframes, but only extracts a partial section. Under normal circumstances, cutting and pasting a function without either the start or end keyframe would render the function null. This option caps the partial function with a new keyframe when you perform the paste.
	Overwrite exposures and keyframes during drag and drop: If the area on which you are dropping a selection contains exposures and/or keyframes, they are overwritten by the content you are selected by dragging.

Sound Tab

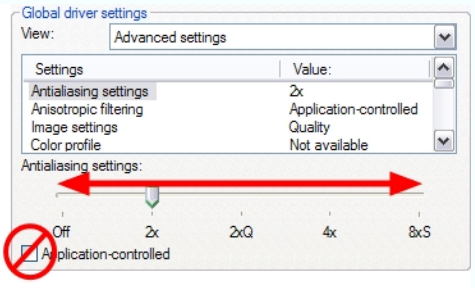


Parameter	Description
Settings	**Analog Sound Scrubbing**: Switches from digital to analog sound scrubbing. **Analog Jog Speed**: Lets you control the sensitivity of the jog slider or dial. Choose a value between 1 and 20. The higher the jog speed value, the slower you can scrub to have the sound play at an average pace. **Analog Jog Dampening**: Lets you choose a value between 1 and 100 for the Analog Jog Dampening. The higher the value, the less precise Harmony is at responding to the jog's changes in speed. However, the more smooth the play back is using the jog slider or dial.

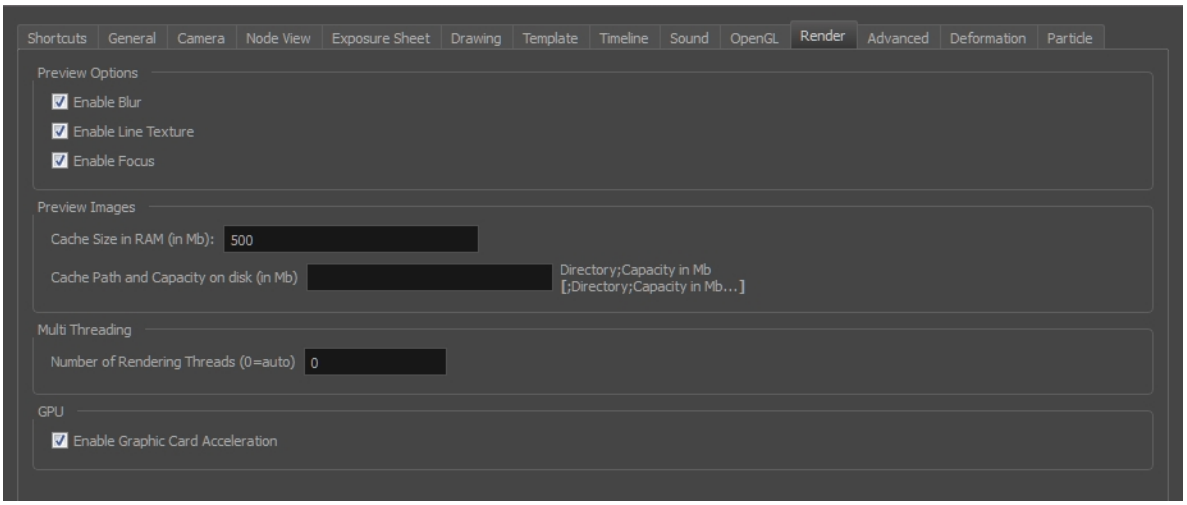
OpenGL Tab



Parameter	Description
Settings	**Conservative Texture Management**: Turns on and off conservative memory management for bitmap texture files. Performance will improve when this is enabled. If disabled, you will have a better on-screen rendering of bitmap files at the expense of slower performance. **Smooth Textures**: Smooths out the pixels of bitmap images when zooming in; this improves bitmap image quality. **Alternate Gradient and Cutter**: This is an alternative way to disable write in the OpenGL Backbuffer, required for some video cards (i.e. GeForce FX5200). Do not enable this option unless you are experiencing problems with gradients and cutters in OpenGL. **Use PBuffer for Picking**: This will use an off-screen buffer for picking, resulting in a quicker response. This option should not be enabled if using a small capacity video card (32MB). **Support Triple Buffer**: Enable this option for a better compatibility with Windows Vista if your video card driver does not allow to disable the triple buffering option. Not enabling this option may result in a dashing line when drawing a brush stroke. **Support Desktop Effects**: Enable this option for better compatibility with

	Windows 7, Windows Vista and Mac OS X desktop effects. This will prevent graphic compositing problems from happening when the full-scene anti-aliasing option is enabled. **Enable Mipmapping on Bitmap Layers:** Generate anti-aliased mipmap textures. Disable this option for increased performance when working on Bitmap layers with non-standard graphic cards. **Maximum Texture Size**: The size that the bitmap file will be reduced to when using the Conservative Texture Management. **Texture Memory**: The amount of temporary memory used to store bitmap texture files. **Vector Drawing Maximum Texture Size**: This is the size that the .tvg file will be reduced to for better performance when in OpenGL render mode.
Full Scene Antialiasing	The Full Scene Antialiasing is generated by your computer's graphic card. It provides a smooth line display in OpenGL. This antialiasing will not only antialias your drawings but all the different views in the interface. This option lets you see smooth lines as you draw as well as an antialiased drawing area. You can change the value of the Full Scene Antialiasing using the Preferences dialog box to fit the current level used in the Camera or Drawing view. **Enable (Requires Relaunch)**: By default, this option is off. Select to turn on the Full Scene Antialiasing option. You'll need to restart Toon Boom Harmony. **Number of samples (For Mac OS)**: Enter the number of samples you want to be used for the antialiasing process. The number of samples is basically equivalent to the amount of time a pixel will be enlarged to calculate the antialiasing. This technique is called *supersampling*. The higher the number of samples, the better the antialiasing quality will be, but the longer it will take to calculate. The recommended value is 4. **NOTE:** If you are using Windows or Linux, you must enable your graphic card's antialiasing parameter. Refer to user guide of your graphics card. For example, the parameters for an NVIDIA GeForce card may look like this: 

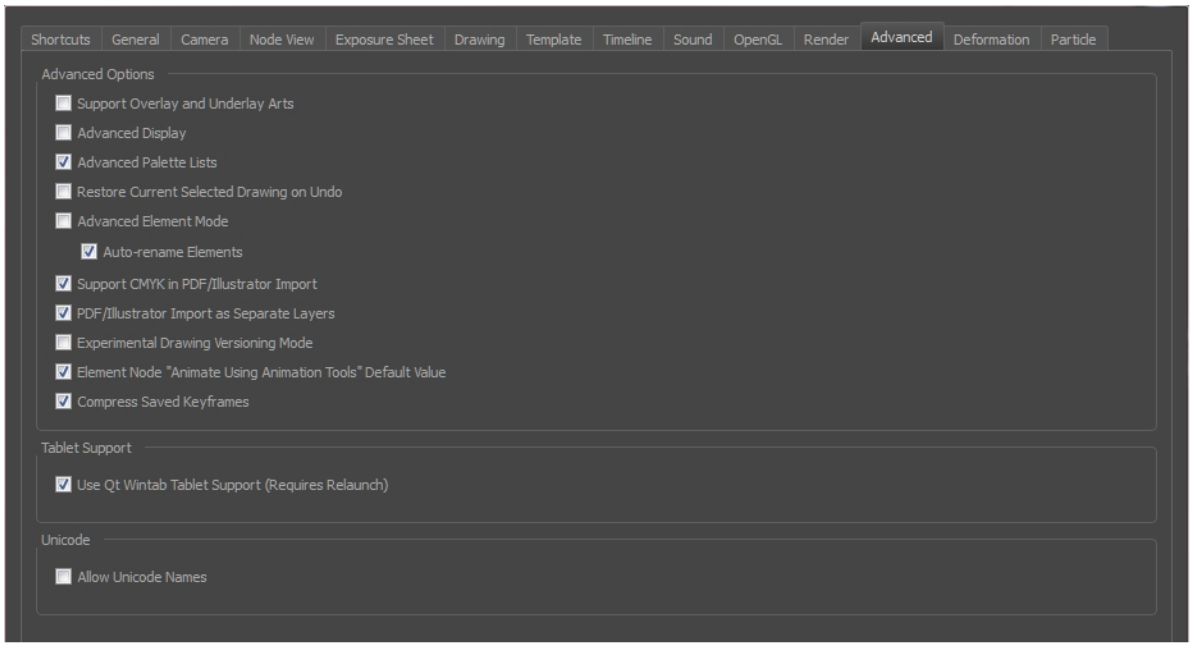
Render Tab



Parameter	Description
Preview Options	**Enable Blur**: Renders blur effects derived from the Blur-Directional, Blur-Radial, and Blur-Variable in the Render View window. **Enable Line Texture**: Renders line texture in the Render view. **Enable Focus**: Renders focus effects from the Focus-Apply and Focus-Set nodes.
Preview Images	**Cache Size in RAM (in Mb)**: Cache size in RAM for intermediate preview images (Mb). **Cache Path and Capacity on Disk (in MB)**: If this field is left empty, Harmony's temporary directory will be used to offload intermediate images. There is no disk usage limit for the temporary directory. When you specify a folder, you must type in the capacity (in MB) inside the path. Use the following method: path;capacity in MB; example: `C:\user\tmp_image_folder;2000;` **NOTE: The specified folder must already exist. If there is an error in the path, Harmony's temporary directory will be used. You can also specify a RAM drive in the path.**
Multi Threading	This lets you specify the level of parallel processing done during the final image calculation (soft-rendering). Allowing parallel processing speeds up the soft-render process. **Number of Rendering Threads**: Lets you specify the number of parallel processes during the soft-render process. A value of 1 disables the multi-threading process because it specifies that only one rendering thread will be used during the process. The maximum number of threads is 64. The recommended starting value is 2 threads per CPU core, meaning that if you are using a 2 Quad

	Core CPU, the preferences should initially be set to 16 threads.
GPU	**Enable Graphic Card Acceleration**: Optimizes the rendering blurs by using the GPU's acceleration capabilities. This option is on by default. Not all cards support this acceleration.

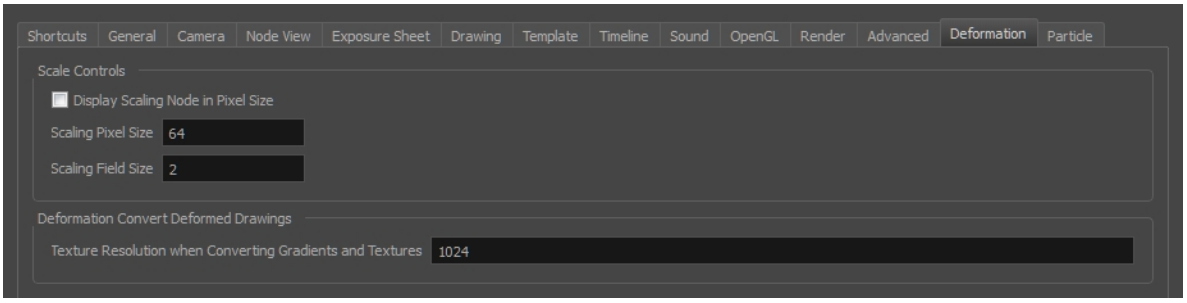
Advanced Tab



Parameter	Description
Advanced Options	**Support Overlay and Underlay Arts**: When enabled, options to manipulate overlay and underlay arts are available. **Advanced Display**: Enable or disable the Advanced Display mode. **Advanced Palette Lists**: Lets you switch your palette list to Advanced Palette Lists mode for creating and storing palettes in the Scene or Element Palette List. **Restore Current Selected Drawing on Undo**: If a drawing other than the current one is being affected by an Undo command, the affected drawing is displayed. **Advanced Element Mode**: Displays more options in the Add Column dialog box and the Column Properties dialog box. • **Auto-rename Elements**: Controls whether to rename the element whenever the corresponding node name in the Node view or layer name in the Timeline view is changed. **Support CMYK in PDF/Illustrator Import**: Lets you import .pdf and .ai files that were created or exported in CMYK mode. The colours of the resulting imported image may still not look 100% faithful to its CMYK original due to the RGB conversion. It is recommended that you convert these files to RGB

	images before importing them into Toon Boom Harmony. Disabling this option will cause all the colours of the imported image to be displayed as red to indicate that the file was not converted to RBG before import. **PDF/Illustrator Import as Separate Layers**: Imports the different groups/elements of the .pdf or .ai file as separate layers. For Illustrator files, the import will use the top level group as separate layer names. Deselect this option to import pdf or .ai files as a single layer. **Element Node "Animate Using Animation Tools" Default Value**: If you know that you prefer to work in the style of version 7.3 or earlier, or if you intend to substitute many drawings throughout your animation, you might wish to deselect this option. This way, you won't have to do it every time (through the Layer Properties) for each new drawing layer that you create. **Compress Saved Keyframes**: Compresses keyframe values when there are no changes between adjacent keyframes. The resulting project is not compatible with versions of Harmony prior to version 11.
Tablet Support	**Use Qt Wintab Tablet Support (Requires Relaunch)**: If you are using a tablet other than Wacom, deselect this option (and relaunch) if you are having issues with offset or pressure sensitivity.
Unicode	**Allow Unicode Names**: Lets you use up to 120 ASCII characters for names of environments, jobs and scenes. This means you can use characters for languages, such as Japanese, Chinese, French, Spanish, and others, characters for names in your database setup–see *Advanced Tips and Guidelines* on page 1.

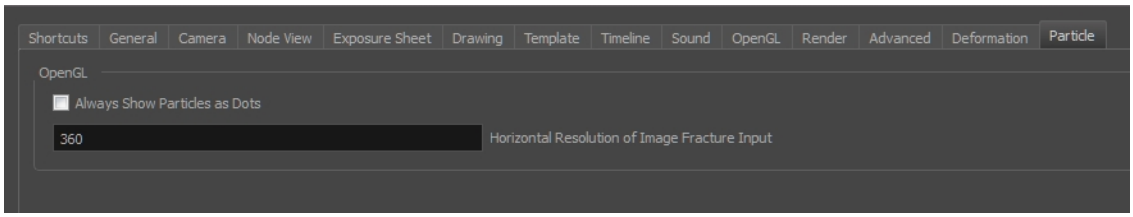
Deformation Tab



Parameter	Description
Scale Controls	The Scale controls let you customize the appearance of the Deformation-Scale and Deformation-Uniform-Scale controls by setting the distance from the deformer axis. **Display Scaling Node in Pixel Size:** This option is disabled by default. The distance between the controls and the deformer axis is calculated using fields as a value. Select this option to change the value to pixels. **Scaling Pixel Size**: The default value is 64 pixels, meaning the distance between the controls and the deformer axis is 64 pixels. You can enter any pixel value.

	Scaling Field Size: The default value is 2 fields, meaning the distance between the controls and the deformer axis is 2 fields. You can enter any field value.
Deformation Convert Deformed Drawings	**Texture Resolution when Converting Gradient and Textures**: Sets the size of the bitmap texture used during the conversion of deformed drawings to drawings. The maximum value accepted is 2048 pixels.

Particle Tab



Parameter	Description
OpenGL	**Always Show Particles as Dots**: Displays the particles as dots in the OpenGL preview mode. This makes the playback speed faster for a heavy scene. **Horizontal Resolution of Image Fracture Input**: This is the size, in pixels, of the proxy bitmap image rendered in OpenGL when using the Image Fracture particle. A smaller image size increases the playback speed in heavy scenes.

Remove Dirt Dialog Box

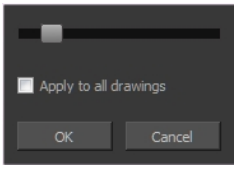
The Remove Dirt dialog box lets you select small dots and hairs on a drawing for removal.

When paper drawings are passed through a scanner, there can be some hair and dirt scattered across them. These lines and dots need to be cleaned. Harmony provides different tools to help get rid of them quickly.

For tasks related to this dialog box, see *Dirt Clean Up* on page 1.

How to access the Remove Dirt dialog box

1. Do one of the following:
   - From the top menu, select **Drawing > Clean Up > Remove Dirt.**
   - From the Camera or Drawing View menu, select **Drawing > Clean Up > Remove Dirt**.
   - Press Shift + D.



Parameter	Description
Slider	Lets you adjust the amount of detail removed from the layer.

	Raising the Remove Dirt level will select bigger dots. When selecting larger dots, be careful not to lose small details like pupils and nostrils. Once you have chosen the level, you can apply it to the current drawing or the entire animation sequence. This is a quick way to get rid of most dirt and dust. During this process, the dirt that will be removed is highlighted in red.
Apply to all drawings	Applies the operation to all drawings in the layer.

Remove Hair Dialog Box

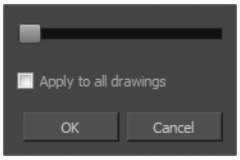
The Remove Hair dialog box lets you remove any small strokes created in the Colour Art layer from very thick lines or filled zones. Increasing the Remove Hair level value will select larger strokes for removal from the drawing.

When paper drawings are passed through a scanner, there can be some hair and dirt scattered across them. These lines and dots need to be cleaned. Harmony provides different tools to help get rid of them quickly.

For tasks related to this dialog box, see *Dirt Clean Up* on page 1.

How to access the Remove Hair dialog box

1. In the Timeline or Xsheet view, select the drawing containing the drawing to clean.
2. From the top menu, select **View > Show > Show Strokes** to display the invisible lines or press K.
3. In the top menu, select **Drawing > Clean Up > Remove Hair**.

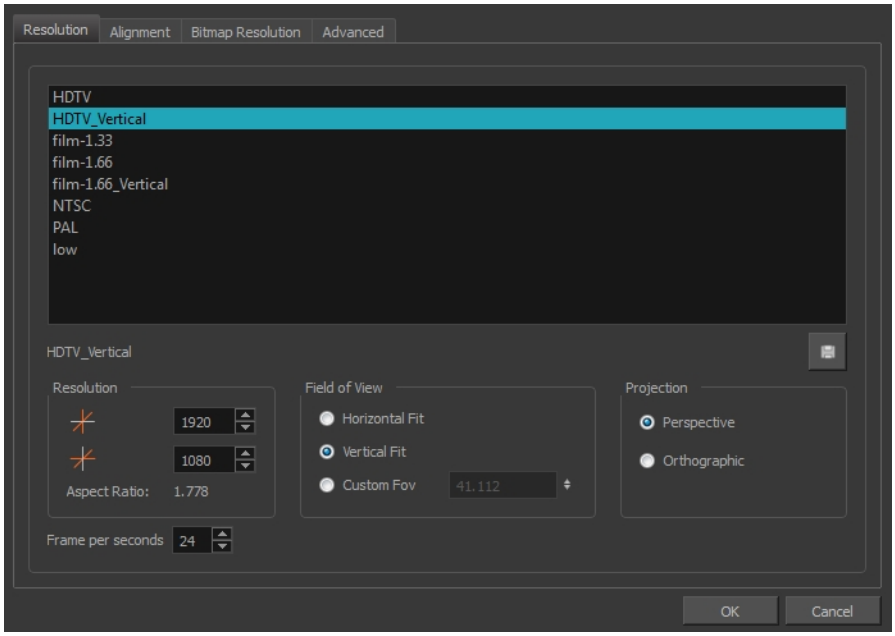


Parameter	Description
Slider	Lets you adjust the number of length of hairs selected.
Apply to all drawings	Applies the operation to all drawings in the layer.

Scene Settings Dialog Box

The Scene Settings dialog box lets you parameters for your scene.

When you created your new scene, you set up the resolution and the alignment. However, if you want to change these initial settings later, you can do it using the Scene Settings dialog box. The different Scene Settings options are separated into four tabs.



How to access the Scene Settings dialog box

1. From the top menu, select **Scene > Scene Settings.**

   The Scene Settings dialog box opens.

Resolution Tab

Parameter	Description
Resolution Presets	You can select your project's resolution (camera frame size) from this preset list. ▸ **HDTV:** High definition television delivers a higher quality image than standard television (4:3) does, because it has a greater number of lines of resolution. To take advantage of the superior quality your output device must be compatible with HDTV technology to make this resolution setting useful. ▸ **HDTV_Vertical**: The "vertical resolution" of HDTV_Vertical refers to how the images will be aligned in relation to the actual scene frame (default 4:3 grid). Note that the camera resolution and the scene frame are not the same. When working with 12 or 16 field drawing grids, the grid is a different aspect ratio from the camera frame. When you fit vertically, you fit the images with the top and bottom of the scene grid. ▸ **film-1.33:** Use this resolution setting for the academy film format that conforms to the standard 4:3 aspect ratio. ▸ **film-1.66**: Use this resolution setting for the widescreen film format that conforms to the 16:9 aspect ratio. ▸ **film-1.66_Vertical**: This is essentially the same as film-1.66. Refers to how the drawing is fit into the scene frame. When working with 12 or 16 field drawing grids, the grid is a different aspect ratio from the camera

	frame. When you fit vertically, you fit the images with the top and bottom of the scene frame. ▸ **NTSC:** This is the standard analogue television broadcasting system used in North America and conforms to the North American standards on how rectangular pixels are displayed for computer and television screens. ▸ **PAL:** This resolution works best with the European format for television and computer screens, as the rectangular pixels are displayed at a different orientation. ▸ **Low:** This format is ideal for videos destined for the web, where size and fast download of a video file might take precedence over quality. ▸ **Cloud Preview**: This is the resolution used by Web Control Center to create its preview.
Selected Resolution Preset	Displays the selected resolution preset.
Save Resolution Setting	Click the Save Resolution button after you define your new resolution to save it as a preset.
Pixel Dimensions	Displays the pixel dimensions for your project resolution. If you decide to type in the pixel dimensions, or use the up and down arrows to change the pixel increments, you will have to save your custom selection in order to save it as a new preset. It will then appear in the resolution selection list. It doesn't modify the current resolution preset.
Aspect Ratio	Displays the ratio between the horizontal and vertical dimensions of the camera framing. Each resolution setting has a preset aspect ratio that cannot be changed.
Frame per second	Sets the frame rate for your project. The higher the frame rate, for example 30 fps, the faster the animation will pla. The lower the frame rate, for example 12 fps, the slower your animation will play. Avoid going under 12 frames per second as your animation will have a choppy playback. The human eye requires a minimum of 12 frames per second to perceive a fluid animation.
Field of View	Use these options to define the FOV (field of view) of the camera (angle of the camera cone) and how the drawing elements (and drawing grid) align to the scene grid. The drawing grid is always scaled proportionally to a 4:3 ratio (unless you change the scene alignment), therefore changing the Field of View setting may not show a visible difference if your project resolution is also 4:3, such as NTSC. ▸ **Horizontal Fit:** The camera resolution is set to fit the left and right edges of the scene grid.

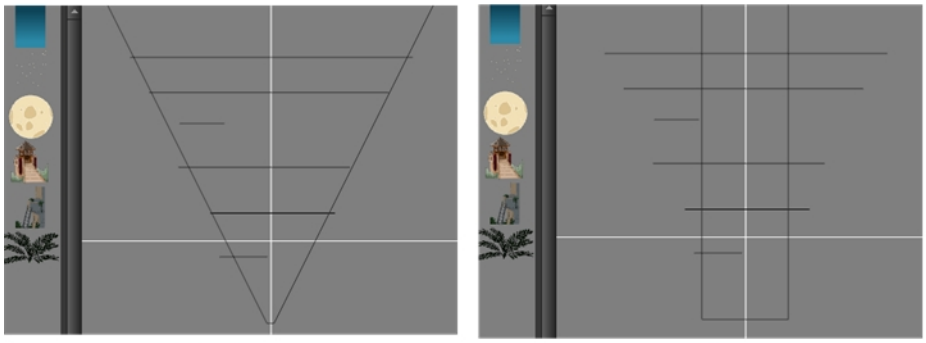
- **Vertical Fit:** The camera resolution is set to fit the top and bottom edges of the scene grid.

- **Custom Fov:** After selecting this option, use the now-active field to the right to enter in a value, in degrees, of the angle that you want the camera cone to be. Increasing this value will make the camera cone wider (the angle is more obtuse), widening the FOV and making the grid and all elements appear farther away. Decreasing the default value will create the opposite effect.

Projection

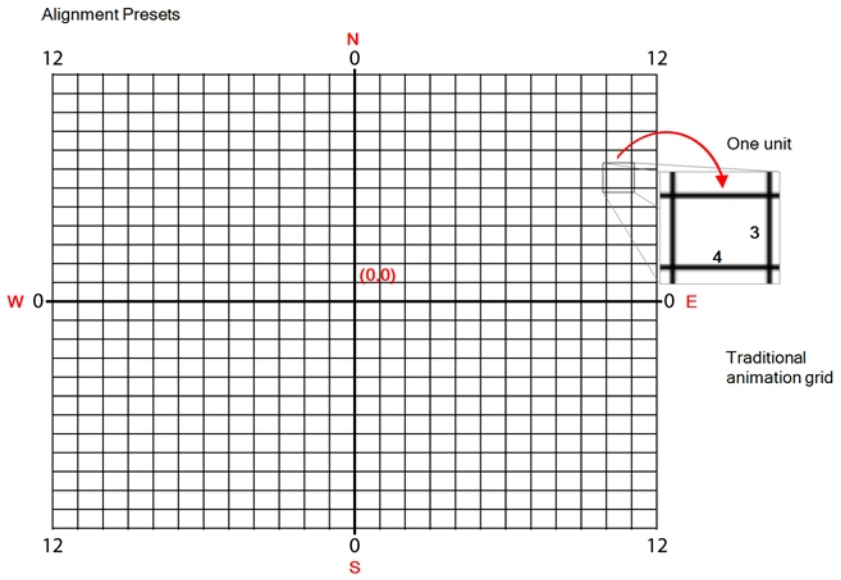
The Projection settings allows you to modify the type of camera your scene is using. You can either use a perspective camera (regular camera) or orthographic camera (no perspective).

- **Perspective:** The Perspective option is the default and most common option. Objects placed closer to the camera will be displayed bigger and objects placed further away will be displayed smaller.
- **Orthographic:** The Orthographic option is specific to the gaming pipeline. It changes the camera from Perspective to Orthographic, meaning that there is no more perspective in the Camera view. Objects, when moved in depth will not change size. There is more information available about this option in the Gaming user guide. In order to create scenes with the Orthographic camera by default, you need to create a new custom scene

	resolution.  Perspective camera Orthographic camera Perspective camera Orthographic camera

Alignment Tab

Parameter	Description
Alignment	The Alignment presets give you two preset options: ▸ **4:3 12 Fields**: Defines the units of your project to have a 4:3 ratio and sets up 12 of these units to run both vertically and horizontally in four cardinal quarters (NW, NE, SW, SE). This Alignment preset is visible in the FOV and drawing grids. ▸ **Square 12 Fields**: Defines the units of your project to have a 1:1 or square ratio and sets up 12 units to run both vertically and horizontally in four cardinal quarters (NW, NE, SW, SE). This Alignment preset is NOT visible in the FOV and drawing grids.
Units Aspect Ratio	In the Units Aspect Ratio fields, enter the aspect ratio of the grid you will use. The aspect ratio describes the shape of the grid unit. A square grid unit would have the ratio 1:1, whereas a grid unit of aspect ratio 4:3 is a unit with one side 1.33 times as big as the other side.

	 If the aspect ratio you want to use is 1:1, enter 1 in the Left/Right field (X-axis) and 1 in the Up/Down field (Y-axis). The default Aspect Ratio is set to 4:3 as it is the one used by traditional animators, who are accustomed to working with the grid system described above.
Number of Units	In the Number of Units fields, enter the number of horizontal, vertical and depth units for your scene's grid. Animators who prefer to work traditionally will understand the default setting of 24 units horizontal by 24 units vertical as it, once again, corresponds to the grid above. Twelve is a common setting for the field depth. Those who prefer to work in pixels should enter the pixel dimensions (3) of their project. This way if you want to move something over 600 pixels you just need to type in 600 units.
Coordinates at Centre	In the Coordinates at Centre, you can enter a new coordinate for the centre of your scene. By default, the (0,0) centre is set in the middle of the grid as shown in the grid above. If you want to change the centre of your grid, for example to the upper left corner, you would enter (-12, 12), -12 units across and 12 units up. That is of course unless you changed the number of units to match the pixel dimensions of your scene. Then you would enter negative half the width and positive half the height.
Save	Saves your current Alignment settings and be able to select them later from the list.

NOTE: If you change your scene's alignment from 4:3 12 Fields to Square 12 Fields part way though your project, you may find that the animation grid becomes offset. To correct this, choose the following setting from the Layer Properties panel's Advanced tab: **Alignment > Alignment Rule > Centre First Page**.

Bitmap Resolution Tab

Parameter	Description
Scene Resolution	This is the scene resolution preset name and size in pixels.
Width	This is the width of the resolution for the bitmap that will be created. This is not the actual size of the bitmap. TVG drawings (Toon Boom drawing native format) have an infinite size. Bitmap TVGs are composed of small tiles. Therefore it does not mean that because you have artwork at the four corners of your camera frame or even quite far outside of your drawing that your bitmap image will be very large and heavy. By default, it is set to the same width as the scene resolution.
Height	This is the height of the resolution for the bitmap that will be created. By default, it is set to the same height as the scene resolution.
Resolution Factor	This is the size of the bitmap resolution in relation to the scene resolution. If you increase the percentage, the width and height fields will increase accordingly. If you plan to animate the camera and zoom into your background, you will need to set a higher resolution so that the smaller area in which you will zoom will be 100% of the scene resolution.

Advanced Tab

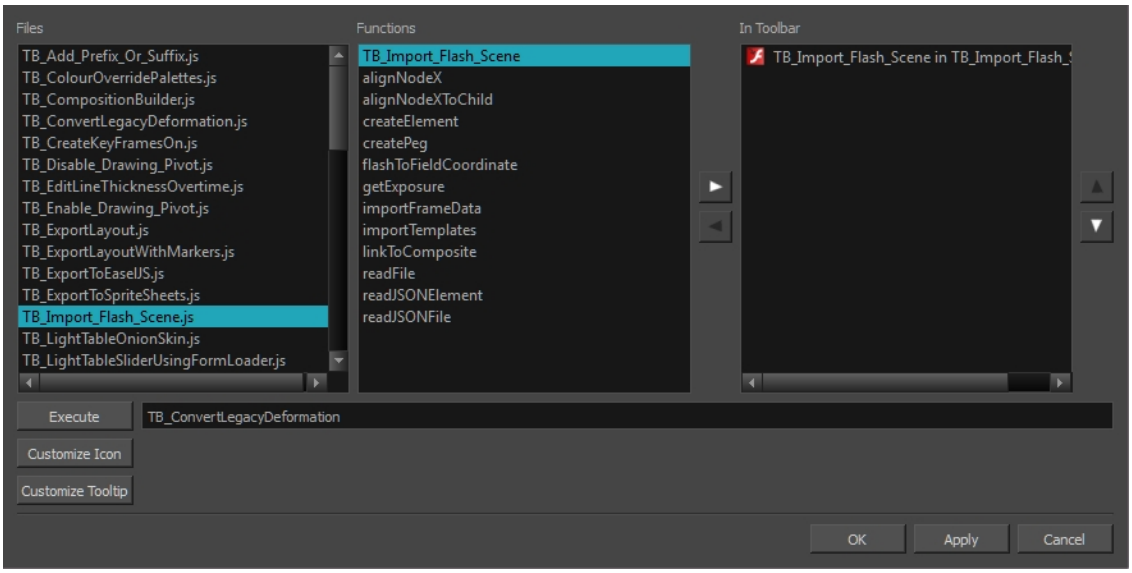
The Advanced tab contains an option for Toon Boom Digital Pro release 7.3 and Harmony release 7.3.

Since version 7.8, the method in which Z-Ordering is calculated has been optimized. Enable this option if you want to use the version 7.3 system.

Toon Boom Digital Pro and Toon Boom Harmony 7.3 allowed smaller values on the Z-axis such as 0.0001. Since version 7.8, the Z-ordering calculation is now optimized and allows only larger values such as 0.001.

Scripts Manager Dialog Box

The Scripts Manager dialog box lets you link a script to a toolbar button for quick and easy access. Once you select a script, you can add it to the toolbar, load a custom icon and add a tooltip.



For tasks related to this dialog box, see *Linking a Script to a Toolbar Button* on page 1.

How to access the Scripts Manager Dialog Box

1. In the Scripting toolbar, click the Manage Scripts button.

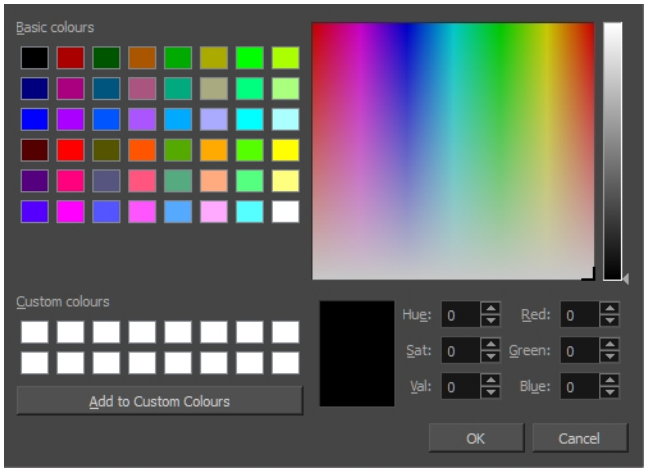
   The Scripts Manager dialog box opens.

Parameter	Description
Files	A list of the available JavaScript files.
Functions	A list of the available functions for the selected script.
In Toolbar	Adds the selected script to the toolbar.
Execute	Runs the script you selected. Press Esc to interrupt the execution of the script.
Customize Icon	Lets you load a custom icon for the function. You can browse for a `*.png`, `*.jpg` or `*.xpm` file.
Customize Tooltip	Lets you type in a tooltip for the function. When you hover over the button in the toolbar, your tooltip will appear.

Select Colour Dialog Box

The Select Colour dialog box lets you set the colour of layers and columns. Using colours for layers and columns helps to differentiate them visually, making them easy to identify. The colours you choose will be reflected in the Node view.

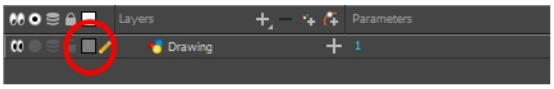
You can select a colour by choosing from a basic set of colours, using the colour wheel or by specifying the HSV or RGB values. Once you have selected a colour, you can adjust its intensity and save it as a custom colour that you can reuse.



For tasks related to this dialog box, see *Changing the Colour of a Layer or Column* on page 1.

How to access the Select Colour dialog box in the Timeline view

1. In the Timeline view, click the Change Track Colour button of the layer you want to modify.



The Select Colour dialog box opens.

How to access the Select Colour dialog box in the Xsheet view

1. In the Xsheet view, select one or more columns to modify.
2. Right-click on the column's header and select **Colour > Change Columns Colour**.

   The Select Colour dialog box opens.

Parameter	Description
Basic colours	The basic set of colours in the system?
Custom colours	Displays the custom colours you created.
Add to custom colours	Lets you add the selected colour to the Custom colours list above.
Colour wheel	Lets you select a colour by dragging the T-shaped pointer.
Value slider	Once you select a colour, you can drag the slider to change the intensity and see it previewed in the Colour Preview window below..
Colour Preview	Displays the colour you are currently selecting. To apply the colour, click OK.
Hue, Saturation, Value	Lets you set the hue (colour), saturation (amount of colour) and brightness (value) of the colour.
Red, Green, Blue	Lets you set the red, green and blue values.

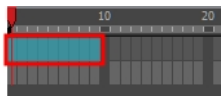
Sequence Fill Dialog Box

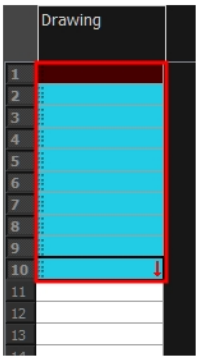
The Sequence Fill dialog box lets you create a numbered sequence over a selection. The sequence can be forward, backward, single, double or higher increment, as a cycle, and so on. The selection can be over one cell or a cell range in one column or more or an entire column or many entire columns.

For tasks related to this dialog box, see Filling a Selection with a Sequence.

How to access the Sequence Fill dialog box

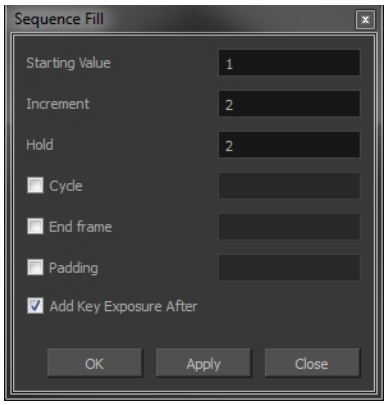
1. In the Timeline or Xsheet view, select a cell range.





2. Do one of the following:
   - From the top menu, select **Animation > Cell > Sequence Fill**.
   - In the Timeline view, right-click and select **Exposure > Sequence Fill**.
   - In the Xsheet toolbar, click the Sequence Fill button (you may have to customize the toolbar to display it).
   - Press Ctrl + M (Windows/Linux) or ⌘ + M (Mac OS X)).

   The Sequence Fill dialog box opens.



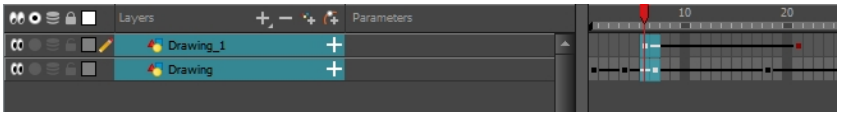
Parameter	Description
Starting Value	The first number in the sequence.
Increment	Lets you type the number by which the drawing number will increase from frame to frame. For example, an increment of 1 gives you: `1-2-3-4`; an increment of 2 gives you: `1-3-5-7`; and -2 gives you this: `8-6-4-2`.
Hold	The exposure holding value.
Cycle	
End Frame	
Padding	
Add Key Exposure After	Inserts a key exposure after the frame following the last cell.

Set Ease for Multiple Parameters Dialog Box

The Edit Set Ease for Multiple Parameters dialog box lets you apply ease to multiple functions and keyframes. You can display the function curve and modify the Bezier or Ease curve–see *Adjusting the Velocity* on page 1.

How to access the Set Ease for Multiple Parameters dialog box

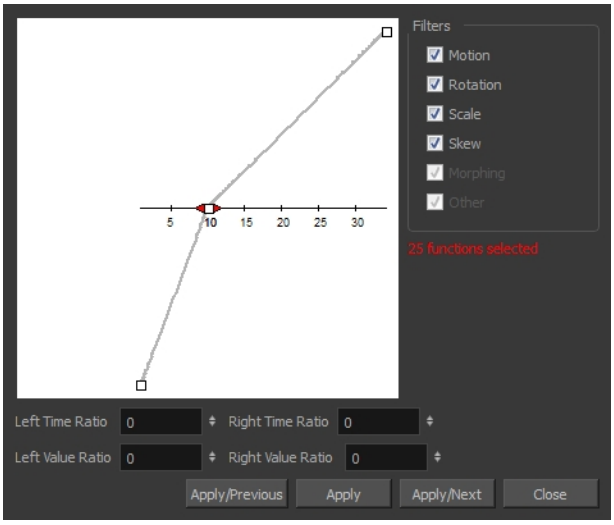
1. In the Timeline view, select a keyframe on one or more layers.



2. Do one of the following:

   - In the Timeline view, right-click and select **Set Ease For Multiple Parameters**.
   - In the Timeline toolbar, click the Set Ease For Multiple Parameters button.

   The Set Ease For Multiple Parameters dialog box opens.



Parameter	Description
Filters	
Motion	**Motion**: Applies the easing parameters to the selected Position X, Position Y, Position Z and 3D Path functions.
	Rotation: Applies the easing parameters to the selected Angle functions.
	Scale: Applies the easing parameters to the selected Scale functions.
	Skew: Applies the easing parameters to the selected Skew functions.
	Morphing: Applies the easing parameters to the selected Morphing Velocity functions. Note that it applies to the Morphing velocity function found in the Layer Properties window, not the basic morphing ease in the Tool Properties view.
	Other: Applies the easing parameters to all the other the selected functions, such as all functions created to animate effect parameters.
Left and Right Time Ratio	Lets you type the percentage value corresponding to the length of time you want the easing to last. Stay between 0% and 100%. If you go beyond 100%, your motion will overshoot.
Left and Right Value Ratio	Lets you type the percentage value of how strong you want the easing out to be.

	Stay between 0% and 100%. If you go beyond 100%, your motion will overshoot.
Apply/Previous	Applies the easing parameters to the selected keyframes and then selects the previous keyframe in the timeline.
Apply	Applies the easing parameters to the selected keyframes.
Apply/Next	Applies the easing parameters to the selected keyframes and then selects the next keyframe in the timeline.
Close	Close the dialog box. If you did not apply the modifications, they will be cancelled.

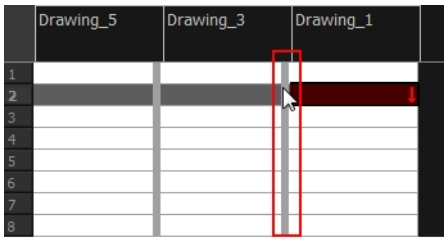
Show Hidden Columns Dialog Box

The Show Hidden Columns dialog box lets you display all the columns contained in the exposure sheet. It can be used to hide individual columns.

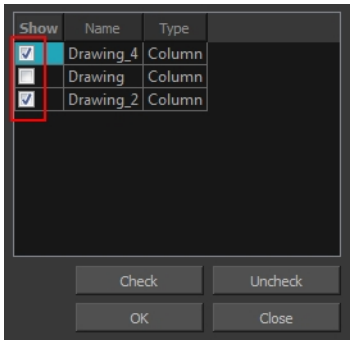
For tasks related to this dialog box, see *Showing and Hiding Columns* on page 1.

How to access the Show Hidden Columns dialog box

1. In the Xsheet view, do one of the following:
   - Click the thick grey line that represents a hidden column.
   - Right-click on the column header and select **Show Hidden Columns**.
   - Press Alt + Shift + H.



The Show Hidden Columns dialog box opens.



Parameter	Description
Show	Lets you select the hiddens columns to display in the Xsheet view.
Name	Name of the drawing.
Type	

Check	Selects all columns.
Uncheck	Deselects all selected columns.

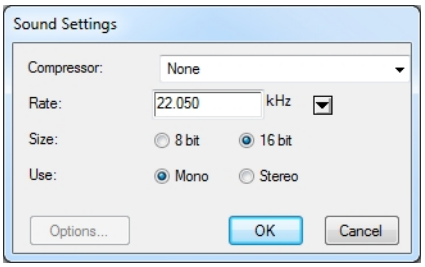
Sound Settings Dialog Box

The Sound Settings dialog box lets you set the compression settings for the movie you will export.

For tasks related to this dialog box, see *Exporting a QuickTime Movie* on page 1.

How to access the Sound Settings Dialog Box

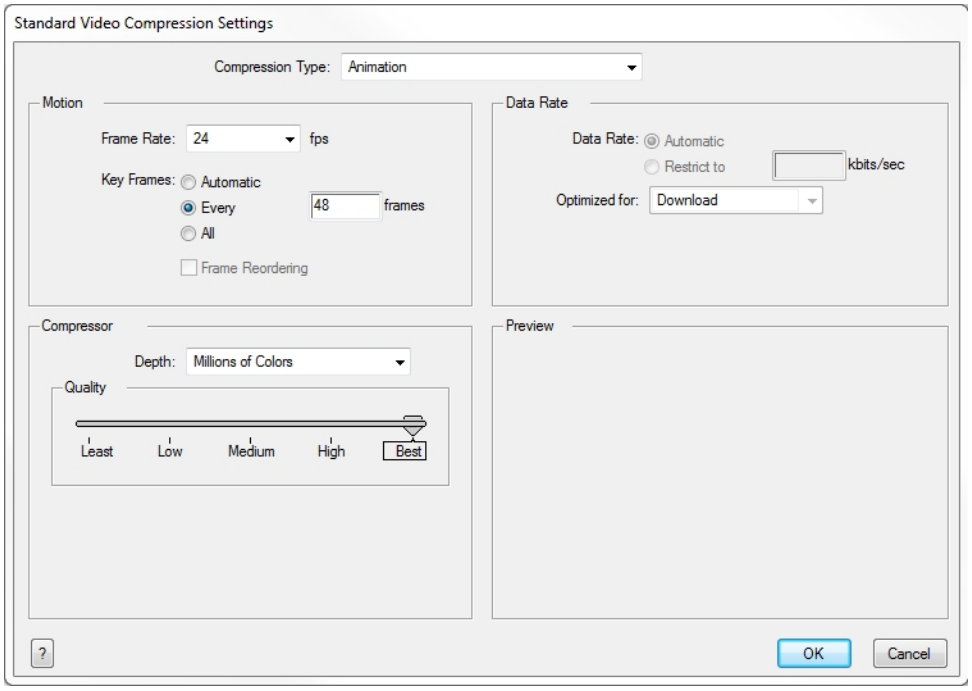
1. From the top menu, select **File > Export > Movie**.
2. In the Export to QuickTime Movie dialog box that opens, click **Movie Options**.
3. In the Movie Setting dialog box that opens, click **Settings** in the Sound section.



Parameter	Description
Compressor	Lets you select a compression type. The default setting is None. This will preserve your original sound file without the loss of information. However, an uncompressed sound file will inevitably add “weight” to the overall size of your video export.
Rate	Lets you select a rate. It is best to check and match the original properties of your sound file. For example, if your file has an audio sample rate of 48 kHz and you choose a conversion rate of 22.05 kHz, the sound will play at the same speed, but with higher frequencies missing. For a standard film sound quality, choose **44.1 kHz**, or **48 kHz** for DVD quality. Anything less will make the sound “dull” or less bright. For things like recorded voice, this doesn't matter so much, but for music it can make an audible difference. If file size is a consideration, such as with videos for the Internet, then a lower rate might be more practical.
Size and Use	Size and Use are related. It is advisable to check your original sound file properties. If the file was recorded in one channel (mono), there is no point in choosing the two channel (stereo) option. Although Mono can support a 16-bit channel, the extra information is unnecessary. Mono is generally paired with 8-bit and Stereo with 16-bit.

Standard Video Compression Settings Dialog Box

The Standard Video Compression Settings dialog box lets you set the compression settings for the movie you will export.



For tasks related to this dialog box, see *Exporting a QuickTime Movie* on page 1.

How to access the Standard Video Compression Settings Dialog Box

1. From the top menu, select **File > Export > Movie**.
2. In the Export to QuickTime Movie dialog box that opens, click **Movie Options**.
3. In the Movie Setting dialog box that opens, click **Settings** in the Video section.

Parameter	Description
Compression Type	Lets you select a codec. The availability of certain compression settings depends on the Compression Type selected. For example, Animation is the default compression type and as a result the Data Rate option is greyed out.
Motion	
Frame Rate	Lets you select a frame rate. By default, it is set to match the frames-per-second (fps) of your Harmony project. If you choose a lower frame rate, your export playback will be faster than your actual project. The reverse is also true for a higher frame rate.
Key Frames	**Automatic**:
	Every: Inserts keyframes. This is the option is recommended by QuickTime. For further details, refer to the QuickTime documentation.
	All:
	Frame Rendering:
	Frames: Lets you set the number of keyframes to insert.
Compressor	

Depth	Lets you select a depth based on your movie's needs. For example, Millions of Colours+ houses an alpha channel.
Quality	Lets you choose a quality setting. The higher the quality of the export, the larger the resulting file.
Data Rate	
Date Rate	**Automatic**: Lets the system automatically select the most optimal bit rate.
	Restrict To: Lets you enter a rate to save space and allow for faster downloading at a cost to the quality of the export.
	Optimized For: Lets you select the intended viewing method.
Preview	Displays a preview of the movie to be exported.

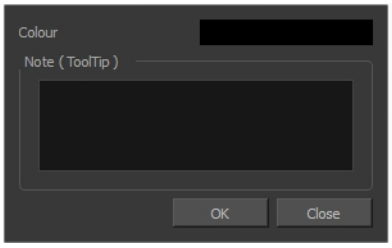
Timeline Scene Marker Dialog Box

The Timeline Scene Marker dialog box lets you create and manage scene markers in the Timeline view. Scene markers are visual indicators displayed at the top of the Timeline view in the frame counter area. You can use it to denote anything relevant to your work. You can indicate the frames you want to clean up, a change in action, an impact, or where you intend to apply an effect. You can also add a note to a scene marker, which is displayed when you hover over the scene marker.

For tasks related to this dialog box, see *Setting Scene Markers* on page 1.

How to access the Timeline Scene Marker dialog box

1. In the frame counter area of the Timeline view, do one of the following:
   - Drag to select the frame range to mark.
   - Right-click and select **Scene Markers > Mark Current Frame**.



Parameter	Description
Colour swatch	Opens the Mark Colour dialog box where you can select a colour for the scene marker.
Note (Tooltip)	Lets you type in a name for your scene marker. Making the name meaningful will help you to quickly identify scene markers especially when there are many of them in the frame counter area of the Timeline view.

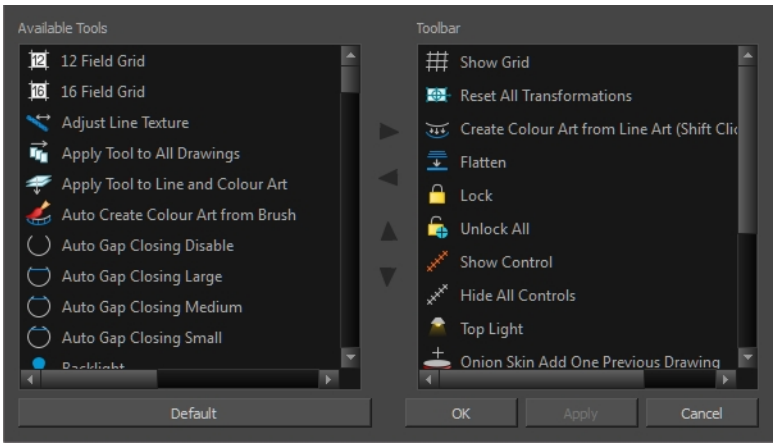
Toolbar Manager Dialog Box

The Toolbar Manager dialog box lets you customize the toolbar in any of the views. You can add your favourite tools to a toolbar for an efficient workflow.

For tasks related to this dialog box, see *Managing the Toolbars* on page 1.

How to access the Toolbar Manager dialog box

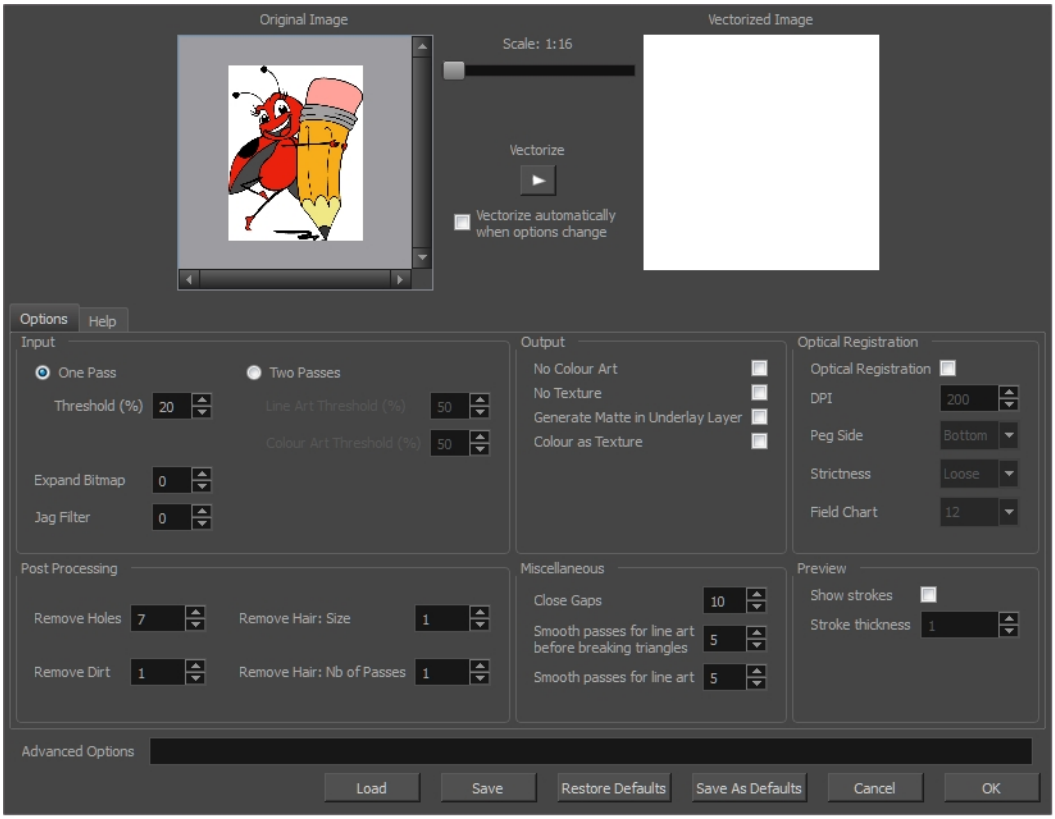
1. Right-click on a toolbar in any view and select **Customize**.



Parameter	Description
Available Tools	Displays the complete list of tools available for customizing a toolbar.
Toolbar	Displays a list of the tools currently available on the toolbar.
Default	Restores the toolbar with its default items.

Vectorization Parameters Dialog Box

The Vectorization Parameters dialog box lets you vectorize pencil drawings, along with any red, blue or green pencil marks you may have used to indicate highlights and shadows. The drawing will be vectorized into pure red, blue, green and black (RGB values), while creating colour art zones wherever lines connect. After painting in your tones and highlights, change your pure RGB colours to transparent (0 Alpha) in the Colour Picker window and watch the indicator colour zone lines disappear.



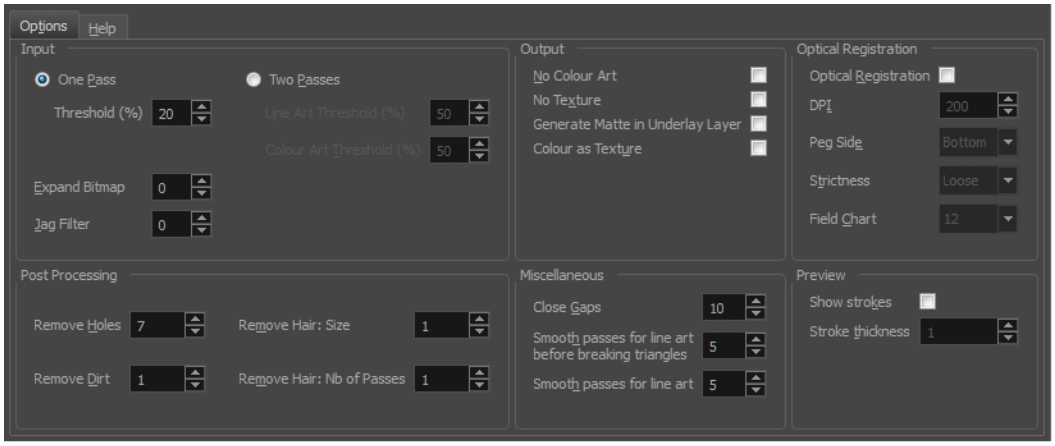
For tasks related to this dialog box, see *Custom Vectorization Parameters* on page 1.

How to open the Vectorization Parameters dialog box

1. From the top menu, select **File > Import > From Scanner**.
   You can also open it from any other import option that allows you to customize the vectorization parameters (i.e. from the scanner).
2. In the Scan Drawings window, do the following:
   - In the Layer section, decide on the layer options.
   - In the Import Options section, select the **Convert to Toon Boom Vector Drawing** option
   - Click **Preview**.
3. In the Vectorization section, click the Vectorization Parameters button.

Options Tab

The Options tab contains the main vectorization settings. More settings are available in the Help tab.

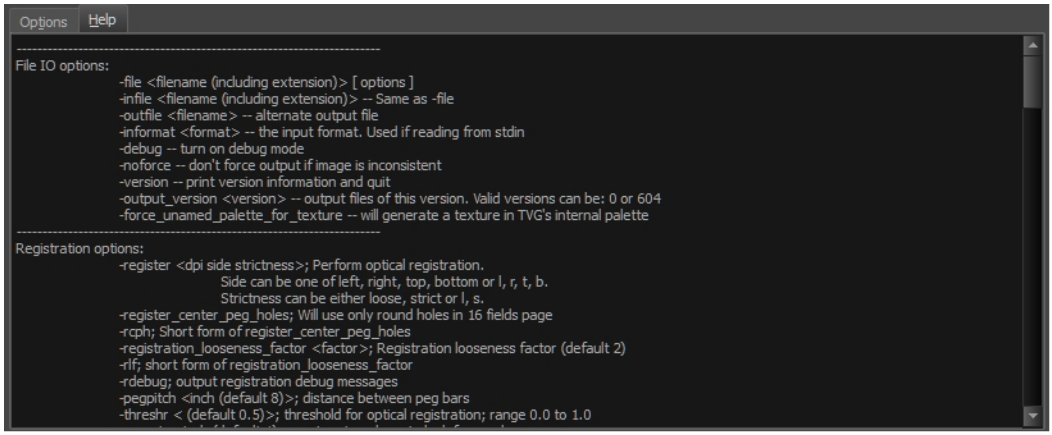


Parameter	Description
Input	The input filters are applied to the bitmap image before it is vectorized.
One Pass	One threshold value is applied to both the Line and Colour Art. For drawings with distinct vector-style lines of mattes, you only need one pass.
Two Passes	Applies a different threshold value to each layer. For greyscale drawings, you may want to perform the vectorization process twice to apply different threshold values to the Line and Colour Art layers.
Threshold	Determines which values in the scanned image are considered part of the Line or Colour Art layer and what will be eliminated from the vectorized drawing; 0% is white and 100% is black. The threshold is between these two values.
Expand Bitmap	Lets you enter a value to scale the bitmap to detect small variations in the line. Use this option if you scanned a greyscale image and want to preserve small variations in the texture to apply to the line art.
Jag Filter	Lets you enter a value to scale back the bitmap to remove some of the line's roughness. This is useless when you have a drawing that appears quite rough; the Jag filter will eliminate excess strokes in the final drawing.
Line Art Threshold (%)	
Colour Art Threshold (%)	
Output	The output filters are applied during the vectorization process.
No Colour Art	Does not generate filling zones in the Colour Art layer.
No Texture	Does not generate texture in the Line Art layer in the final images. Select this option to create solid lines in the final line art.
Generate Matte in Underlay Layer	Creates an opaque zone behind your drawing's lines to avoid seeing through the layers.
Colour as Texture	Converts colour values into a texture layer.
Optical Registration	The optical registration options are used to automatically align drawings based on the position of the peg holes on the animation paper. The peg holes must appear in the scanned drawings for the optical registration to work.
DPI	Lets you enter the dots-per-inch value of your image. You must enter the same

	value as the DPI used to scan the image.
Peg Side	Lets you select the position of the peg holes on your drawings. Identify whether they are on the top, bottom, left or right.
Strictness	Determines how exact the location of the peg holes must be for the software to recognize them. There are two values to choose from: **Strict**: The peg holes must be in a tightly defined area to be recognized. **Loose**: The peg holes can be recognized somewhere in a larger area. This is the recommended setting.
Field Chart	Lets you indicate the size of the animation paper, 12 or 16.
Post Processing	The Post Processing filters are applied to the final vector images.
Remove Holes	Removes holes of a specified value that might make painting difficult.
Remove Dirt	Removes stray marks and dirt of a specified value. Try a value around 500.
Remove Hair Size	Removes small strokes that have no line art.
Remove Hair: Number of Passes	The number of times the drawing will be analyzed to identify hair marks.
Miscellaneous	
Close Gaps	Closes gaps in the Colour Art so you can paint it.
Smooth Passes for Line Art Before Breaking Triangles	The number of times the smoothing operation runs before creating the triangles that break lines in the drawing. If unnecessary triangles are appearing in the drawing, increase this value.
Smooth Passes for Line Art	The number of times the smoothing operation is performed after the triangles have been created. This further smooths the line art.
Preview	
Show Strokes	Shows the strokes in the Vectorized Image panel.
Stroke Thickness	Shows the size of the strokes.

Help Tab

The Help tab contains the most advanced vectorization settings which you type in the Advanced Option fields at the bottom of the Vectorization Parameters dialog box.



File IO Options

-**file** <filename (including extension)> [options]

-**infile** <filename (including extension)>; same as -file

-**outfile** <filename>; alternate output file

-**informat** <format>; the input format. Used if reading from stdin

-**debug**; turn on debug mode

-**noforce**; don't force output if image is inconsistent

-**version**; print version information and quit

-**output_version** <version>; output files of this version. Valid versions can be: 0 or 604

-**force_unamed_palette_for_texture**; will generate a texture in TVG's internal palette

Registration Options

-**register** <dpi side strictness>; perform optical registration.

- Side can be one of left, right, top, bottom or l, r, t, b.
- Strictness can be either loose, strict or l, s.

-**register_center_peg_holes**; will use only round holes in 16 fields page

-**rcph**; short form of register_center_peg_holes

-**registration_looseness_factor** <factor>; registration looseness factor (default 2.000000)

-**rlf**; short form of registration_looseness_factor

-**rdebug**; output registration debug messages

-**pegpitch** <inch (default 8.000000)>; distance between peg bars

-**threshr** < (default 0.500000)>; threshold for optical registration; range 0.0 to 1.0

-**rmargin** <inch (default 1)>; region size where to look for peg bars

-**peg_distance_from_center** <inch (default 5.25)>; peg distance from centre of the image

-**pdfc**; short form of -peg_distance_from_center

-**out_peg_position** <side (default same)>; wanted position of the peg on the drawing.

- Can be one of right, left, top, bottom (or r, l, t, b) or same.
- A rotation will be performed if it is different from the side passed to -register.

-**output_peg_matrix**; output the peg transformation matrix on standard output.

-**scanner_calibrate**; < (default 1.0000 1.0000) > x and y scale factors to be applied to scanner image.

Filtering Options

-**pixel** <pixel_shape (default '4x3')>; Valid values: 4x3

-**gap** <worldUnits (default 10)>; close gaps up to this big

-**pencil**; generate line art only

-**keep_dirt**; don't filter out dirt

-**thresh** <threshold (default 0.2)>; range 0.0 to 1.0

-**rmv_hairs** <worldUnits (default 1)> <passes (default 1)>

- remove hairs of size smaller than "size" in "passes" passes

-**rmv_holes** <area (default 7)>; remove holes smaller than "area"

-**rmv_dirt** <area (default 1)>; remove dirt smaller than "area"

- try values between 100 and 500 for rmv_holes and rmv_dirt. The area is in world units squared

-**rmv_triangles** <worldUnits (default 30.000000)>; remove triangles at "pixels"

- distance from each other. Use -no_break to remove all triangles

-**no_texture**; don't generate textured strokes

-**color_as_texture**; will vectorize the alpha channel and put the RGB colour in a textured colour

-**noclosegap**; disable all gap closing algorithms

-**no_break**; disable the breaking of line art

-**jag_filter** <pixels (default 0>; expand the pixels in the vectorization bitmap

-**expand_bitmap** <pixels (default 0>; expand the pixels in the vectorization bitmap

-**fit_errorc** <error (default 1.000000>; fitting error for the colour art

-**fit_errorl** <error (default 1.000000>; fitting error for the line art

-**smoothl** <passes (default 1>; number of smooth passes for line art

-**smoothc** <passes (default 1>; number of smooth passes for colour art

-**first_smooth** <passes (default 0>; number of smooth passes for line art before breaking triangles

-**first_smoothl** <passes (default 0>; number of smooth passes for line art before breaking triangles

-**first_smoothc** <passes (default 0>; number of smooth passes for line art in colour art pass (needs -2pass)

-**2pass**; specify two sets of parameters; one for line art "l", one for colour art "c"

(-thresh, -rmv_holes and -rmv_dirt will be overridden by -threshl, threshc, -rmv_holesl, -rmv_holesc, -rmv_dirtl and -rmv_dirtc)

-**threshl** <threshold for line art (default 0.5)>; range 0.0 to 1.0

-**threshc** <threshold for color art (default 0.5)>; range 0.0 to 1.0

-**jag_filterl** <pixels (default 0>; expand the pixels in the vectorization bitmap for line art

-**jag_filterc** <pixels (default 0>; expand the pixels in the vectorization bitmap for colour art

-**expand_bitmapl** <pixels (default 0>; expand the pixels in the vectorization bitmap for line art

-**expand_bitmapc** <pixels (default 0>; expand the pixels in the vectorization bitmap for colour art

-**rmv_holesl** <area (default 7)>; remove line art holes smaller than "area"

-**rmv_holesc** <area (default 7)>; remove colour art holes smaller than "area"

-**rmv_dirtl** <area (default 1)>; remove line art dirt smaller than "area"

-**rmv_dirtc** <area (default 1)>; remove colour art dirt smaller than "area"

try values between 100 and 500 for rmv_holesl, rmv_holesc, rmv_dirtl and rmv_dirtc. The values are in world units squared

-**margins** <inch (default 0.25)>; remove margin around bitmap

-**top_margin** <inch (default 0.25)>; remove margin at top of bitmap

-**bottom_margin** <inch (default 0.25)>; remove margin at bottom of bitmap

-**left_margin** <inch (default 0.25)>; remove margin at left of bitmap

-**right_margin** <inch (default 0.25)>; remove margin at right of bitmap

-**remove_peg_bars**; remove the peg bar holes

-**field_size** <fields (default 12 or use value in scan file)>; set the drawing to this field size

-**fs**; short hand for -field_size

-**peg_bar_size** <inch (default 1)>; the size of the peg bar region

-**noframe**; do not put a frame around the colour art

-**frame_fields** <default -1.000000>; put a frame of the specified dimension around the colour art

-**downscale_input** <default 1>; downscale the raw input by this integer factor

-**downscale_texture** <default 1>; downscale the output texture by this integer factor

-**buildmatte**; generate a matte on underlay for line test

-**buildmatte_colourart**; generate a matte on colour art for line test

NOTE: -buildmatte and -buildmatte_colourart are mutually exclusive

-copystrokes; copy original strokes when building matte.

Options for bitmap that has no registration information

-pixel_margins <inch (default 0)>; remove margin around bitmap

-top_pixel_margin <inch (default 0)>; remove margin at top of bitmap

-bottom_pixel_margin <inch (default 0)>; remove margin at bottom of bitmap

-left_pixel_margin <inch (default 0)>; remove margin at left of bitmap

-right_pixel_margin <inch (default 0)>; remove margin at right of bitmap

-dpi <(default -1)>; dpi information of input bitmap

RGB Keying Options

-rgb; generate separate zones for red, green and blue lines

-rgb_alpha <value (default 255)>; generate red, green and blue colour with alpha of this value

-no_red; ignore red colour in vectorization

-no_green; ignore green colour in vectorization

-no_blue; ignore blue colour in vectorization

-flatten; flatten the drawing after generating colours

-rmv_rgb_dirt <threshold area default 0.0>; remove red, green and blue regions smaller than area

-expand_bitmap_rgb <pixels (default 0>; expand the pixels in the vectorization bitmap for rgb

-threshrgb <value> <threshold for rgb vectorization default 0.200000>;

-threshsv <saturation threshold default 0.500000> <value threshold default 0.500000>; thresholds on saturation and value to consider a pixel to be grey

Colour Vectorization Options

-color_vectorize; perform a colour vectorization

-file2 <colour art filename>; specify the colour art bitmap

-penstyle <center alpha (0.0-20.0)> <edge alpha (0.0-20.0)> <gamma (0-10)><centre pressure effect (0.0-1.0)> <edge pressure effect (0.0-1.0)><texture bitmap downscaling (0.2-20)> <texture bitmap file (valid filename or "" if no file)>; generate brush texture for the line art

-pressure_variation <strategy (0, 1 or 2)> <min pressure (0.0-1.0)> <max pressure (0.0-1.0)> <max variation (0.0-1.0)>; specify a pressure strategy for the centre line.

-blur_radius <pixels (default 0)>; blur the penstyle texture generated

-color_contour_smooth_passes <times (default 3)>; perform number of smooth passes on contour before computing texture

-ccsp <times (default 3)>; short for -color_contour_smooth_passes

-color_rmv_holesl <world units (default 0.000000)>; remove holes of this size when computing texture

-**color_fill_holesl** <world units (default 0.000000)>; fill holes of this size for colour line art

Bubble Usage (implemented only for colour vectorization's line art)

-**create_bubbles**; add bubbles into the LineArt. Implemented for colour vectorization only

-**bubble_gap** <value (default 3)>; max number of colour art points between 2 bubbles

-**bubble_length** <value (default 10)>; max number of circles in a bubble

-**min_radius** <value (default 1.5000)>; min radius of a circle in a bubble relative to the line thickness (must be >= 1.0)

-**max_radius** <value (default 3.5000)>; max radius of a circle in a bubble relative to the line thickness (must be >= 1.0)

-**uniform_gap**; the space between bubbles is constant

4 Colour Vectorization

-4colours [key:value] ... [key:value] ; The key value list can be empty. The list of keys is:

rgbdiff:value ; between [0.0-1.0] or [0-255]

dark:value ; between [0.0-1.0] or [0-255]

grey:value ; between [0.0-1.0] or [0-255]

white:value ; between [0.0-1.0] or [0-255]

dirt:value ; dirt area. 200 is a good value

rt:value ; between [0.0-1.0] or [0-255]

gt:value ; between [0.0-1.0] or [0-255]

bt:value ; between [0.0-1.0] or [0-255]

NOTE: There must be no space between the colon and the key/value. For example: -4colours rgbdiff:20 dark:20 grey:120 white:250 dirt:200 rt:240 gt:240 bt:240

Xsheet Column Width Dialog Box

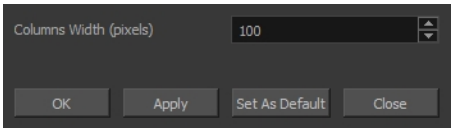
The Xsheet Column Width dialog box lets modify the width of a column in the Xsheet view and use it as the default column width.

For tasks related to this dialog box, see *Modifying the Look of the Column* on page 1.

How to access the Xsheet Column Width Dialog Box

1. In the Xsheet view, select a column.
2. From the Xsheet menu, select **View > Set Columns Width**.

   The Xsheet Column Width dialog box opens.



Parameter	Description
Columns Width (pixels)	Lets you set the width of the selected columns (in pixels).
Apply	Applies the value you entered to the selected column without closing the dialog box.
Set As Default	Uses the value you entered as the default for all columns in the Xsheet.

Chapter 2: Layer Properties

Intro...

Drawing Layer Properties

The Layer Properties editor or view lets you adjust the properties of a layer in the Timeline view or a node in the Node view. The Layer Properties can be viewed as a floating window or as a view (docked).

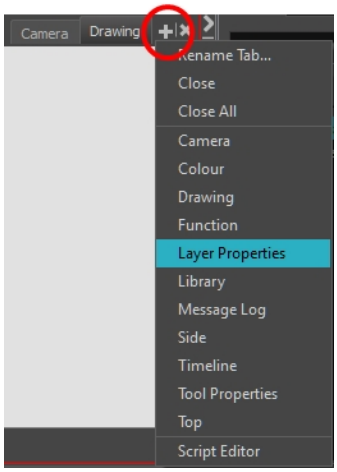
Each layer has its own set of properties that can be modified, including effect and peg layers. Display the Layer Properties editor or view if you want to modify some of the layer's properties, such as the name or the antialiasing quality.

How to access the Layer Properties editor

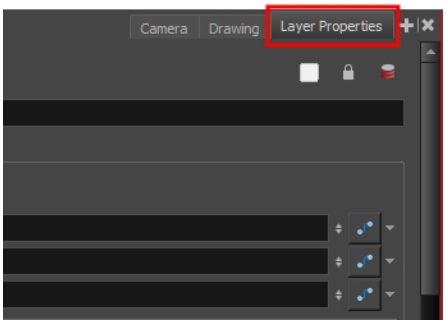
- Double-click on a layer in the Timeline view or a node in the Node view.
- Right-click on a layer in the Timeline view or a node in the Node view and select **Layer Properties**.
- Select a layer in the Timeline view or a node in the Node view and press Shift + E.

How to access the Layer Properties view

1. Do one of the following:
   - Select the view you want to add from **Windows > Layer Properties**.
   - In the top-right corner of a view, click the Add View button and select Layer Properties from the list.



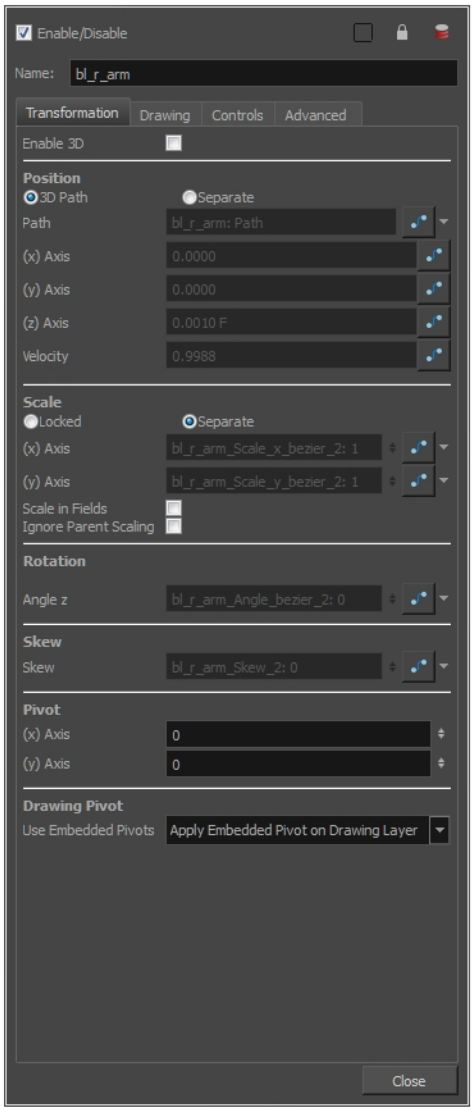
   By default, the Layer Properties view appears as a tab.



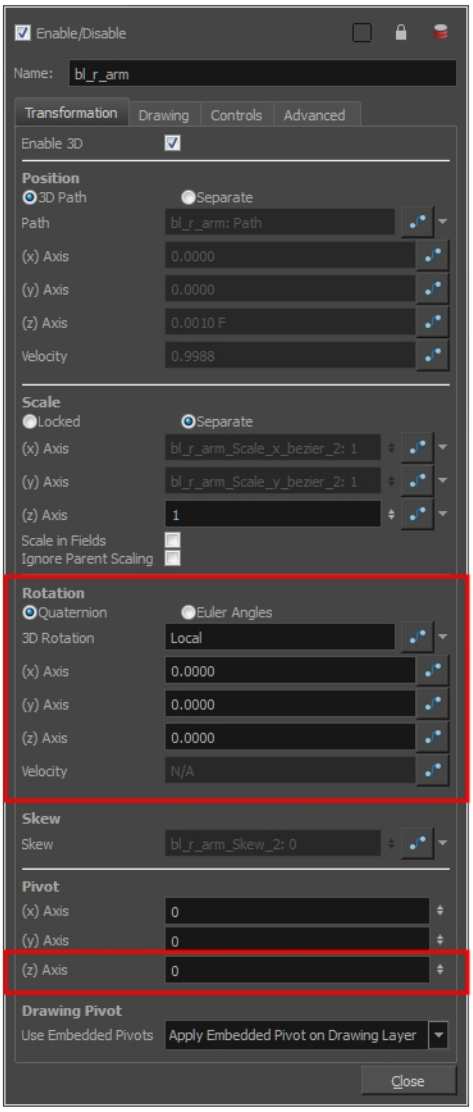
Transformation Tab

The Transformation tab contains parameters for adjusting the position, scale, rotation, skew and pivots of an element.

When the Enable 3D option is selected, additional parameters appear in the Rotation and Pivot sections to rotate objects on 3 axis in the 3D space.



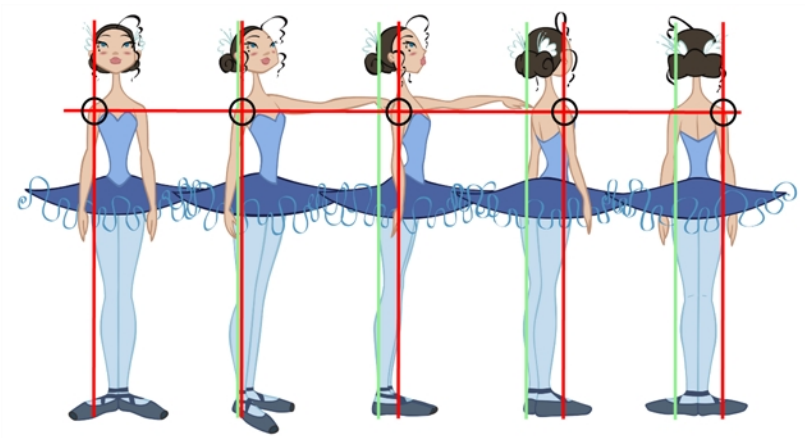
Transformation tab with the Enable 3D option deselected



Transformation tab with the Enable 3D option selected

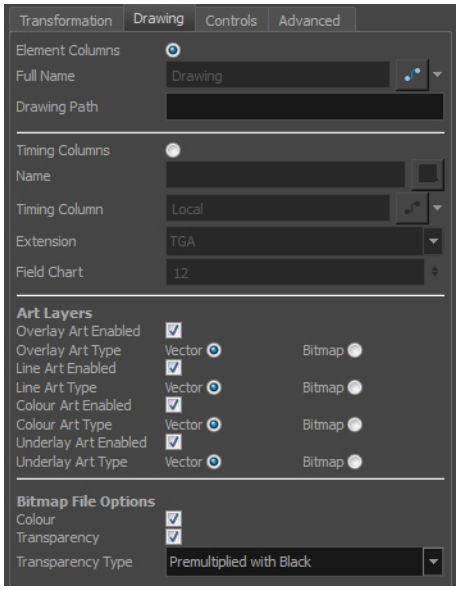
Parameter	Description
Enable 3D	Displays additional parameters for working with 3D objects.
Position	**3D Path**: Lets you use a 3D path function to animate an element. **Separate**: Lets you independently edit the different coordinate fields. **Path (x) Axis**: Lets you type in a new East/West coordinate corresponding to the desired position. **Path (y) Axis**: Lets you type in a new North/South coordinate corresponding to the desired position. **Path (z) Axis**: Lets you ype in a new Forward/Backward coordinate corresponding to the desired position. **Velocity**: When the 3D Path option is selected, lets you set the speed at which

Scale	**Locked**: Resizes the element while keeping its ratio. The X and Y axes scale proportionally **Separate**: Resizes the element allowing to modify the ratio (squash and stretch). **(x) Axis**: Lets you type in the horizontal scale value. **(y) Axis**: Lets you type in the vertical scale value. **Scale in Fields**: Instead of using the standard scaling units, when this option is enabled, images are scaled using field units, based on the traditional animation field chart. **Ignore Parent Scaling**: When this option is enabled, any scaling value applied to a parent layer is ignored in the current layer. This can be handy in cut-out rigs when you need to scale an arm without affecting the forearm.
Rotation	**Angle z**: Lets you type in a degree value for the rotation angle. Note that you can enter values greater than 360 and -360 degrees. If you enter 720, the object will rotate twice.
Skew	**Skew**: Lets you type in a degree value between -90 to 90 for the skew angle.
Pivot	**(x) Axis**: Lets you type in a new East/West coordinate corresponding to the desired position. **(y) Axis**: Lets you ype in a new North/South coordinate corresponding to the desired position.
Drawing Pivot	**Use Embedded Pivots**: Harmony has three types of pivots: • **Permanent Pivot** This is a permanent pivot, sometime referred to as peg pivot, that is applied to the entire drawing or peg layer. If you modify its position, it will be changed for the entire layer, modifying the animation, scale and rotation interpolation. The permanent pivot is set using the Rotate, Translate or Scale tool. The Transform tool will only move that pivot temporarily for positioning purposes, but the animation interpolation will be done from the original permanent pivot's position. The Transform tool is designed to move the pivot temporarily during the animation process. It also permits you to select multiple pegs and apply a common temporary pivot. To permanently move a peg pivot, use the Rotate or Scale tool. You can also directly type the values in the Layer Properties window in the Pivot section's (x) Axis and (y) Axis fields. In the Layer Properties window, in the Drawing Pivot section, select the **Don't Use Embedded Pivot** option to use the permanent pivot. • **Drawing Pivot** The Drawing pivot is contained within each drawing. In one layer, each drawing can have its own pivot. If you have many different views of a character within one layer, the pivot can be different and the animation will adjust to the pivot. The Drawing pivot can also be referred to as *embedded pivot*. If you are not mixing different views within the same layers or are using pegs to animate your layers, it is recommended to use the

	permanent pivot.  You can set a different pivot for each one of your drawings. For example, if you have a series of drawings from different views, they are not likely to rotate from the same location. In that case, you can set a different pivot for these drawings by using the Drawing Pivot tool. In the Layer Properties window, in the Drawing Pivot section, select the **Apply Embedded Pivot on Drawing Layer** option to use the drawing pivot directly on the drawing layer. If you want to apply the drawing pivot to a parent peg to force the peg to follow the drawing pivot variations, enable the **Apply Embedded Pivot on Parent Peg** option. • **Symbol Pivot** The Symbol pivot is similar to the Drawing pivot. Each symbol cell can have its own pivot and act the same as the Drawing pivot. The Symbol pivot can also be referred to as *embedded pivot*. Inside a symbol, each drawing can have its own pivot. If you are not mixing different views within the same layers or are using pegs to animate your layers, it is recommended to use the Peg pivot. For a simple character rig, it is recommended to set the Peg pivot (even on drawing layers) using the Rotate tool.

Drawing Tab

The Drawing tab contains parameters for the element and timing columns, designating art layers, and setting bitmap options.

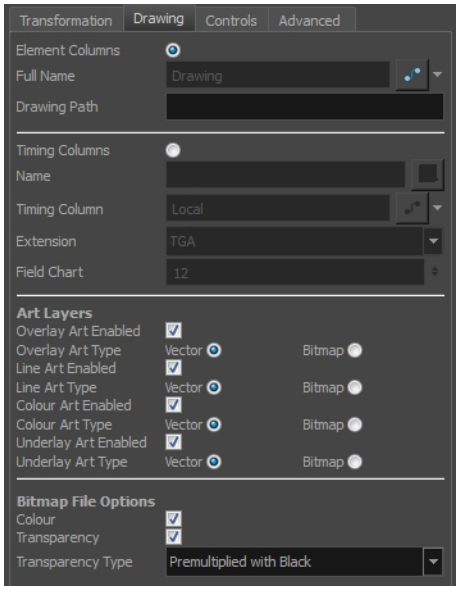


Parameter	Description
Element Columns	**Full Name**: Select which element to connect to the node from the list of elements that already exist in your scene. **Drawing Path**: Displays the full path to the current drawing.
Timing Columns	**Name**: Path to the file you want to link to. **Timing Column**: Link to the column that contains the desired timing. **Extension**: When linking to a background file, enter its file name extension. **Field Chart**: If you are importing traditional animation, select the size of the paper on which the animation was drawn.
Art Layers	**Overlay Art Enabled:** Enables the Overlay Art display. **Line Art Enabled:** Enables the Line Art display. **Colour Art Enabled**: Enables the Colour Art display. **Underlay Art Enabled**: Enables the Underlay Art display. **Overlay Art Type**: Allows you to set the Overlay Art as Vector or Bitmap type. **Line Art Type**: Allows you to set the Line Art as Vector or Bitmap type. **Colour Art Type**: Allows you to set the Colour Art as Vector or Bitmap type. **Underlay Art Type**: Allows you to set the Underlay Art as Vector or Bitmap type.
Bitmap File Options	When an image is created with an external software and that image has some transparency, there are several formats the software can use when writing the RBG channels. The purpose of the four import options for the transparency is for the user to tell Harmony how to interpret the RGB channels of the imported image. The correct option has to match the ouput format of the software that

	was used to create the image in the first place. For instance, if the you used Adobe Photoshop and exported an image as Straight, then it should be imported in Harmony as Straight in order to get the correct result. Note that if the image has no alpha channel or if it does have an alpha channel and all the pixels are 100% opaque, it does not make any difference which option is selected. **Colour**: Controls the production of colour information from bitmap images. If this module reads 3 or 4-channel bitmaps, this selection determines whether the colour should be read or ignored. If this module reads 1-channel bitmaps, this selection determines whether the channel should be read as colour. When this option is selected with 1-channel images, the resulting image will be a greyscale image. **Transparency**: Controls the production of alpha information from bitmap images. If this module reads a 1 or 3-channel image, this option will create a matte from the colour values in the image. If the module reads a 4-channel image and this option is not selected, the alpha information in the image will be ignored.
	Transparency Type **Premultiplied with Black**: Semi-transparent pixels in the original image are blended with black. **Premultiplied with White**: Semi-transparent pixels in the original image are blended with white. **Straight**: Semi-transparent pixels in the original image are left as is (unmatted). **Clamp Colour to Alpha**: Semi-transparent pixels in the original image are blended with black. On import, each of the RGB channels is clamped so that a color value never exceed the alpha value for a given pixel. When the RGB values are multiplied with the alpha value, that is to say, if you have a pixel of value R=247, G=188, B=29 and the alpha is 50% or the image has a 50% transparency, then the actual RGB values output would be half of the amounts listed above.

Drawing Tab

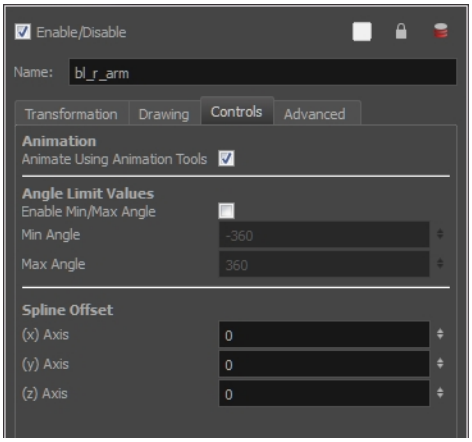
The Drawing tab contains parameters for the element and timing columns, designating art layers, and setting bitmap options.



Parameter	Description
Element Columns	**Full Name**: Select which element to connect to the node from the list of elements that already exist in your scene. **Drawing Path**: Displays the full path to the current drawing.
Timing Columns	**Name**: Path to the file you want to link to. **Timing Column**: Link to the column that contains the desired timing. **Extension**: When linking to a background file, enter its file name extension. **Field Chart**: If you are importing traditional animation, select the size of the paper on which the animation was drawn.
Art Layers	**Overlay Art Enabled:** Enables the Overlay Art display. **Line Art Enabled:** Enables the Line Art display. **Colour Art Enabled**: Enables the Colour Art display. **Underlay Art Enabled**: Enables the Underlay Art display. **Overlay Art Type**: Allows you to set the Overlay Art as Vector or Bitmap type. **Line Art Type**: Allows you to set the Line Art as Vector or Bitmap type. **Colour Art Type**: Allows you to set the Colour Art as Vector or Bitmap type. **Underlay Art Type**: Allows you to set the Underlay Art as Vector or Bitmap type.
Bitmap File Options	When an image is created with an external software and that image has some transparency, there are several formats the software can use when writing the RBG channels. The purpose of the four import options for the transparency is for the user to tell Harmony how to interpret the RGB channels of the imported image. The correct option has to match the ouput format of the software that

	was used to create the image in the first place. For instance, if the you used Adobe Photoshop and exported an image as Straight, then it should be imported in Harmony as Straight in order to get the correct result. Note that if the image has no alpha channel or if it does have an alpha channel and all the pixels are 100% opaque, it does not make any difference which option is selected. **Colour**: Controls the production of colour information from bitmap images. If this module reads 3 or 4-channel bitmaps, this selection determines whether the colour should be read or ignored. If this module reads 1-channel bitmaps, this selection determines whether the channel should be read as colour. When this option is selected with 1-channel images, the resulting image will be a greyscale image. **Transparency**: Controls the production of alpha information from bitmap images. If this module reads a 1 or 3-channel image, this option will create a matte from the colour values in the image. If the module reads a 4-channel image and this option is not selected, the alpha information in the image will be ignored.
	Transparency Type **Premultiplied with Black**: Semi-transparent pixels in the original image are blended with black. **Premultiplied with White**: Semi-transparent pixels in the original image are blended with white. **Straight**: Semi-transparent pixels in the original image are left as is (unmatted). **Clamp Colour to Alpha**: Semi-transparent pixels in the original image are blended with black. On import, each of the RGB channels is clamped so that a color value never exceed the alpha value for a given pixel. When the RGB values are multiplied with the alpha value, that is to say, if you have a pixel of value R=247, G=188, B=29 and the alpha is 50% or the image has a 50% transparency, then the actual RGB values output would be half of the amounts listed above.

Controls Tab

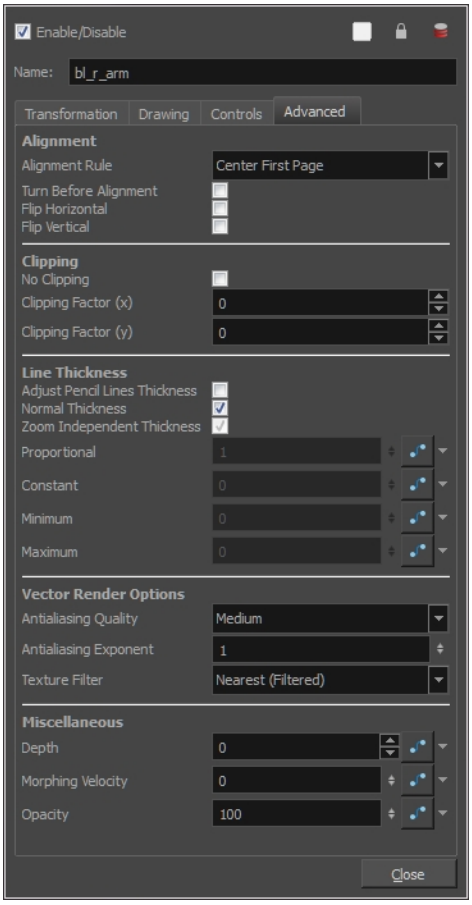


The Controls tab contains animation control options.

Parameter	Description
Animation	**Animate Using Animation Tools**: By default, a drawing layer can be animated using the same parameters as a peg, but you can disable this feature. Being able to switch your drawing layers so they can no longer be animated without a peg has certain advantages. In cut-out animation, it is easier to separate your drawing exposure and keyframes to change timing easier and rearrange keyframe position in the Timeline view. This feature is also available for backward compatibility when bringing in templates created in older versions of the software, so as not to lose their offset keyframes or drawing substitution keyframes.
Angle Limit Values	Lets you set a maximum and minimum rotation angle for a drawing. This option is used mainly for a cut-out character when you do not want an elbow to bend too far in or out. **Enable Min/Max Angle**: Activates the minimum and maximum angle constraints. **Min Angle**: Type the minimum angle you want the drawing to rotate too. **Max Angle**: Type the maximum angle you want the drawing to rotate too.
Spline Offset	In the X, Y and Z axis fields, type the coordinates of where you want to offset the visual trajectory. By default, the trajectory is displayed at the centre drawing, using the layer's pivot position. If you want to move it so it corresponds better with your drawing, either type new coordinates or use the Spline Offset tool available in the Advanced Animation toolbar. To display the trajectory in the Camera view, select your drawing and select **View > Show > Control**. You can also press Shift + F11 (Windows/Linux) or ⌘ + F11 (Mac OS X).

Advanced Tab

The Advanced tab contains options for setting the alignment of drawings, clipping, line thickness, vector render options, and more.



Parameter	Description
Alignment	**Alignment Rule**: The alignment rule selections are intended to deal with drawings that were created on paper of a different size or orientation from the default alignment rule (set up in the Scene Settings dialog box) or imported bitmap images. The drawings are then scaled to match the Harmony alignment rectangle. Note that alignment rules are not based on the camera frame, but on the scene frame. Refer to the Fundamentals Guide to learn more about scene alignment and scene settings. • **Left**: The default alignment for drawings; aligns the drawings to the left side of the scene's alignment rectangle. Harmony scales the drawings to match their height to the alignment rectangle of the scene. • **Right**: Aligns the drawings to the right side of the alignment rectangle. Harmony scales the drawings to match their height to the height of the alignment rectangle of the scene. • **Top**: Aligns the drawings to the top of the alignment rectangle. Harmony scales the drawings to match their widths to the width of the alignment rectangle of the scene. • **Bottom**: Aligns the drawings to the bottom of the alignment rectangle. Harmony scales the drawings to match their widths to the width of the alignment rectangle of the scene.

	• **Centre Fit**: Centers the drawings. • **Centre Fill**: Centers the drawings and then scales them so the width or height fills the available space. • **Centre LR**: Aligns the drawings in the left-right centre of the alignment rectangle. Harmony scales the drawings to match their height to the height of the alignment rectangle of the scene. • **Centre TB**: Aligns the drawings in the top-bottom centre of the alignment rectangle. Harmony scales the drawings to match their widths to the width of the alignment rectangle of the scene. • **Stretch**: Scales the drawings so they fit within the alignment rectangle of the scene. This is particularly useful for images that you will manipulate with a Quadmap node. If the drawings in the Quadmap node do not have the same aspect ratio as the alignment rectangle of the scene (from the Scene Settings dialog box), the handles on the quadmap will not appear on the corners of the image, making it difficult to manipulate the quadmap. In this case, you would set the drawing layer of the quadmap images to Stretch to make the handles appear on the corner of the image. This can have the effect of distorting the images, but it is not an issue with images that will be distorted through the Quadmap node anyways. • **As Is**: Leaves the drawings aligned as they are. • **Centre First Page**: Aligns the centre of the first part of a standard pan cel with the centre of the field chart.
	Turn Before Alignment: Rotates the drawings in the selected element 90 degrees to the left before scaling and aligning them according to the alignment rule, and before performing any offset, rotation or scaling for the element or peg. This and the Alignment Rule are intended for drawings that were created on paper of a different size or orientation than the other paper in the scene, and requires alignment so they are treated accurately.
	Flip Horizontal: Flips the drawing on the X-axis.
	Flip Vertical: Flips the drawing on the Y-axis.
Clipping	**No Clipping**: Select this option if you do not want to clip the images in this node before an effect is applied to it.
	Clipping Factor (X)/(Y): This is an option for rendering images that are larger than the final frame. With this option enabled, images can be moved by an **Apply Peg Transformation** node without black entering into the composite as a result of early clipping. In addition, this option is useful for images that have a blur that should appear in the frame even though the image itself is not in frame–see Apply Image Transformation and Apply Peg Transformation.
Line Thickness	As you move the camera in your scene along the Z-axis, notice that, logically, the lines of the elements become thicker the closer the camera gets to the drawing. If you prefer the lines to remain the same size or become thicker at a different speed, you can use the thickness feature to adjust your brush stroke and pencil line thickness. You can modify the size of the lines even if the camera is not animated.

	To learn how to use this feature, see Camera Truck-ins and Line Thickness. **Adjust Pencil Lines Thickness**: Lets you work with pencil lines and adjust their thickness. You will not see any changes to lines in the Camera view OpenGL mode. You must switch to the Render mode. **Normal Thickness**: Disables all overrides on the brush stroke line thickness. This option must be enabled in order for the pencil line thickness parameter and pencil lines to appear. If you want to modify the brush stroke thickness, deselect this option. To enable brush strokes to work with the line thickness feature, you must first create central strokes in the Colour Art layer. The central strokes control the line variation of your brush strokes in the Line Art layer. Select **Drawing > Create Colour Art from Line Art**. **Zoom Independent Thickness**: Select this if you want your line thickness to remain constant independently from the camera move. Everything else will increase in size, but the line thickness will stay the same. **Proportional:** Enter a multiple by which you want to increase the line thickness base on its original thickness. A value of 1 will result in no change; a value of 0 (zero) will hide the lines. **Constant**: Enter a value in pixels (based on a 720x540 screen resolution) to indicate the amount of pixels you want to add around the existing line. **Minimum:** Enter a value in pixels (based on a 720x540 screen resolution) for the minimum line thickness allowed. **Maximum**: Enter a value in pixels (based on a 720x540 screen resolution) for the maximum line thickness allowed.

Vector Render Options	• **Antialiasing Quality**: A smoothness (antialiasing) setting applied to the final rendered image.
	  • **Low**: No antialiasing
	  • **Medium Low**: Basic antialiasing
	  • **Medium**: Improved antialiasing (blurs the textures)
	  • **High**: High quality antialiasing (does not blur the textures)
	  Higher quality images require more time to render and more system memory. Choose a lower quality if you are rendering a pencil test.
	• **Antialiasing Exponent**: Controls the size of the area around the final image edges used in the antialiasing process. A higher value uses less area, resulting in sharper edges, while a lower value uses more area, resulting in softer edges. If the Antialiasing Quality value is set to Low (no antialiasing) or Medium Low, this value is ignored. Values: Between 0 and 1.
	• **Texture Filter:** This option changes the way coloured pixels of TVG textures are calculated when rendered for different degrees of accuracy.
	  • **Bilinear**: This option takes the four pixels around each point and makes a bilinear interpolation between them. (Medium Quality)
	  • **Nearest**: This option chooses the colour of the closest pixel to a point. (Lower Quality)

	• **Nearest (Filtered)**: This option is an improved version of Bilinear and improves the quality when zooming on a texture. (Best Quality)
Miscellaneous	• **Depth**: Overrides the order of cables in the node system to determine the forward/backward order in which this element is rendered. The Z position value overrides the depth value. • **Morphing Velocity**: Creates a velocity function curve for morphing sequences in the layer. This function modifies the interpolation percentage between the 2 drawings. If set, the morphing between the two drawings will not be linear over time between the two drawings but will be modulated according to this curve. This can be used to create a periodic morphing over a long period of time. • **Opacity**: Lets you quickly change the transparency of the selected element. Opacity settings here will be reflected in both **OpenGL** preview, and full render.

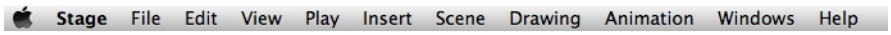
Chapter 3: Menus

There are several types of menus in Harmony: main menus, quick-access menus and view menus.

- *Main Menus* on page 107
- *Quick-access Menus* on page 129
- *View Menus* on page 130

Main Menus

The main menus contain most of the commands. Depending on the view you're working in and the element, some commands are available and others not. The main menu is always located at the very top of the interface.



On Mac OS X, there is also a Stage category that contains the following commands:

- Preferences
- About
- Quit

Animation Menu

The Animation menu lets you access tools, adjust animation timing, set deformation, morphing and IK parameters, lock or unlock layers, and select elements in the Xsheet and Timeline views.

How to access the Animation menu

- At the top of the interface, select **Animation**.

Command	Description
Animate	Enables the Animate mode which lets you keyframe drawing layers to create computer-generated animation. When working in the Animate mode, you can animate a layer's position and then turn off the mode to reposition a layer for the entire scene. When the Animate mode is disabled, keyframes are created on selected layers at the current frame. Depending on what transformations were performed (rotation, translation, skew), the new keyframes are added on the corresponding parameters (function curves).
Stop-Motion Keyframe	Sets a stop-motion keyframe which there is no computer-generated motion between two keyframes. The segment is constant or flat. The drawing remains still until the playback reaches the next keyframe, then the drawing pops to its new location.
Delete Keyframe	Deletes the selected keyframe.
Tools	
Transform	Lets you create a global selection so you can reposition, scale, rotate and skew as one unit, which is useful for cut-out characters.

Inverse Kinematics	Lets you pull on a character's extremities, such as the hands and feet, and have the rest of the body follow. Can be used on any piece connected in a hierarchy.
Translate	Lets you move the selected element along the X and Y axes.
Rotate	Turns a selected element around its pivot point.
Scale	Increases or decreases the size of a selected element. You can scale an object up to make it larger or down to make it smaller. Press Shift to scale the element while maintaining its proportions.
Skew	Slants the selected element.
Maintain Size	Keeps elements the same size aspect ratio in the Camera view as you move them towards or away from the camera.
Spline Offset	Lets you reposition the visual trajectory without offsetting or modifying your animation. By default, the trajectory is located at 0,0,0 fields. If your elements were drawn in a different location than the centre of the drawing area, it will look like the trajectory is not aligned with your drawing. Also, if you have several elements attached to one trajectory, you might want your trajectory to be at a different location to represent the group's motion better.
Reposition Drawing	Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
Cell	
Increase Exposure	Adds one more exposure to a selected cell; repeating this action adds an extra cell each time. This is an efficient way to extend a drawing's exposure and is always set in Insert mode. Increasing an exposure pushes the existing exposure forward.
Decrease Exposure	Decreases exposure of a selected cell by one; repeating this action decreases one exposure adds an extra cell each time. This is an efficient way to shorten a drawing's exposure. Decreasing an exposure pulls in the existing exposure.
Set Exposure to	Lets you set the exposure to 1, 2, 3 or a custom exposure.
Extend Exposure	Lets you enter the frame up to which you want to extend the exposure. You can expose the drawing in the frames and replace the drawings that were originally there or move the subsequent frames forward in time.
Add Key Exposure	Adds a key exposure to the selected cell.
Remove Key Exposure	Removes only the key exposure (key frames) not all the exposures. The existing key exposure is replaced by the preceding exposure.
Remove Duplicate Key Exposure	When working with drawings to adjust the timing of a mouth in a lipsync, for example, and forcing the use of specific key exposures, unnecessary key exposures will be created. You can delete these duplicates without affecting the rest of the drawing. The first drawing of the selection will be used for the range.

	NOTE: Duplicate key exposures may occur when pasting with the Enforce Key Exposure option selected.
Fill Empty Cells	Lets you fill empty cells to extend the exposure of single frame drawings to fill the range of empty cells after each one.When creating drawings on cells that are not side-by-side, the exposure of the first drawing no longer fills automatically. You must select the frame range where you want your drawings to hold their exposure up to the next drawing and use the Fill Empty Cells command.
Insert Blank Cell	Adds an empty cell between other cells.
Clear Exposure	Removes the exposure from the selected cell.
Clear Exposure and Pull	Replaces the exposure from the selected cell with exposures that follow it.
Fill Selection	Lets you fill the same value over an entire selection. The selection can be over one cell, a cell range in one column, a cell range over many columns, an entire column, or many columns. You can use numbers, words, letters, or any alphanumeric value.
Sequence Fill	Lets you create a numbered sequence over a selection. The sequence can be forward, backward, single, double or higher increment, as a cycle, and so on. The selection can be over one cell or a cell range in one column or more or an entire column or many entire columns.
Fill Cells Randomly	Lets you fill in random values over a selection. You can give a maximum and a minimum value and create a range for Harmony to choose the random values from. The selection can be over one cell or a cell range in one column or more or an entire column or many entire columns.
Hold Exposure	Lets you expose a drawing for three, four, or five cells and so on.
Deformation	
Set Curves and Offsets Independent from Parent	When you transfer a curve's position to its parent offset, first you must to set curves and offsets independent from parent.
Transfer Curve Values to Offset	Lets you transfer all of the information from first curve deformer to its parent Offset node. This is useful for a legacy scene created using Curve deformations where the Offset's position has been placed far away from the drawing to make sure it doesn't affect the drawing's deformation. You can bring back the offset and give it the first curve's position. The Envelope deformation lets you animate the offset of each curve separately. The offset no longer needs to be placed far away.
Convert Elliptic Deformation ROI to Shape	After you have created a deformation chain using Elliptic as the Zone of Influence type, you can select your deformer and click on this button to convert it to a Shaped type. Control points will appear around the shape making it easy to customize. **NOTE:** You can also convert the Elliptic zone of influence to a shape. From the top menu, select **Animation > Deformation > Convert Elliptic Deformation ROI to Shape**. This will create a much smaller initial

	zone of influence than if you were to convert it directly to a shape.
Convert Deformed Drawing to Drawings	Converts deformation animation to a drawing sequence so you can adjust it using the drawing tools to perfect something or add detail. You may also want to change the timing and set it on double frame instead of single frame.
Convert to New Drawing and Add Deformation Chain	Takes the pose/drawing and the deformer of the selected frame and converts it to a new pose/drawing with the corresponding deformer.
Exposure Fill	
Using Render Change	Modifies the timing (exposure) of the selected layer, lets you adjust the parameters to assign when the texture exposure changes will occur. You can adjust the type of filter to use for the motion detection, as well as threshold values to indicate what will be considered a big enough motion variation for an exposure change–see *Exposure Fill Using Render Change* on page 1.
Morphing	
Create Morphing	Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
Insert Morphing Key Drawing	Creates a morphing keyframe from a selected morphing frame.
Delete Morphing	Once a cell is selected in a morphing sequence, deletes the entire sequence between the two keyframes.
Convert Morphing to Drawing	Lets you convert your morphing inbetweens to real drawings you can edit. This is useful when manually editing a morphing sequence or if you prefer to have animation timing in double frame (on twos) instead of single frame (on ones).
Contour Hint	The Contour Hint point is used on the colour fill zone and brush lines; in other words, on Contour vectors. It allows you to control the line thickness and contour position. Also, if a contour is not animated correctly, you can use hints to correct the animation. For example, if a flag is not waving properly. When adding a Contour Hint point, make sure to place it far enough away from the contour so you can see it snap to the contour. Contour Hint points are yellow.
Zone Hint	The Zone Hint point is used on a colour zone to control the proximity rule. The Zone Hint is placed in the centre of the colour zone. Sometimes a colour zone is not associated with the corresponding one by default. For example, in a splash animation there are many water droplets that are the same colour. Harmony automatically morphs the droplet to the nearest one. This is not always the one you may have predicted. A Zone Hint will force a colour zone to morph with another one. Zone Hint points are cyan in colour.
Pencil Hint	A Pencil Hint point is used to control a pencil line, also known as *central vector*. It can be used on drawings that were done using the

	Pencil, Polyline, Ellipse, Line and Rectangle tools. Like the Contour Hint, the Pencil Hint snaps to the central vector. Make sure to place it far enough away from the line so you will see it snap when you move it. Pencil Hint points are magenta in colour.
Appearing Point Hint	An Appearing Point Hint is used to control the trajectory of an appearing shape. A shape will appear in the destination drawing when there is no corresponding shape in the source drawing. If you do not place an Appearing Point Hint to control the point of appearance, the shape will appear from its centre and expand outwards. Appearing Point Hint points are violet in colour.
Vanishing Point Hint	A Vanishing Point Hint is used to control the trajectory of a vanishing shape. A shape will vanish from the source drawing when there is no corresponding shape in the destination drawing. If you do not place a Vanishing Point Hint to control the point of disappearance, the shape will vanish into its centre. Vanishing Point Hint points are green in colour.
Switch Between Morphing Key Drawings	Toggles between the two key drawings in your morphing sequence. This option is useful while setting hints. You can use the default keyboard shortcut F4 to toggle between your drawings.
Go to First Frame	Goes to the first frame of your morphing sequence.
Go to Previous Frame	Goes to the previous frame of the selected frame in the morphing sequence.
Go to Next Frame	Goes to the next frame of the selected frame in the morphing sequence.
Go to Last Frame	Goes to the last frame of your morphing sequence.
Suggest Hints	Automatically sets hint points on key drawings as a help tool. If you're not sure where to set hints, you can use this option. It will set the main hints which you can then fine tune.
Hide Hints	Temporarily hides the hint points from the key drawings. Use this option when you have a series of hint points hiding some lines you would like to see.
IK Constraints	
Set IK Nail	Blocks the X, Y and Z positions.
Set IK Hold Orientation	Blocks the angle.
Set IK Hold X	Blocks only the X position.
Set IK Hold Y	Blocks only the Y position.
Remove All Constraints	Removes all nails except the minimum and maximum angles.
Lip-Sync	
Change Mouth Shape to	Lets you change the mouth shape to one of the following: A, B, C, D, E, F, G, X.
Auto Lip-Sync Detection	Generates a sound detection for lip-sync.
Map Lip-Sync	Automatically maps drawings in an element to the mouth chart you

	have generated for a sound. This can save time when you are lip-synching a voice track.
Flip	
Flip Horizontal	Flips the selection horizontally or vertically.
Flip Vertical	
Flip Scale X	Once your drawing layer is rotated, the original horizontal and vertical axes change. The Flip Scale X and Flip Scale Y will perform a flip on your drawing layer following its original axis.Remembers the original X-axis of the layer and flips the element following it.
Flip Scale Y	Remembers the original Y-axis of the layer and flips the element following it.
Linear Motion	Switches between a linear and curved corner.
Lock in Time	Indicates if the point is locked to a specific frame (keyframe) or only locked to a specific position and the curve can flow through it freely as other points are being added, moved, or adjusted (control point).
No Z Dragging	Keeps the Z value when you drag a character using the Transform or Translate tool.
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the previous or next drawing.
Substitute Drawing Next	
Go to Previous Keyframe	Go to the previous or next keyframe.
Go to Next Keyframe	
Select Previous Keyframe /Point	Select the previous or next keyframe/point.
Select Next Keyframe /Point	
Select Child Skipping Effects	Lets you select the first element parented to the selected peg element in the Timeline view skipping effects in the hierarchy.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Group Content	Selects all of the contents of the group.
Select Parent Skipping Effects	Lets you select the parent of the selected element in the Timeline view skipping effects in the hierarchy.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.
Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
Lock	
Lock	Locks one or a multiple selection of layers.
Unlock	Unlocks one or a multiple selection of locked layers.

Lock All	Locks all the layers in the Timeline view.
Unlock All	Unlocks all the layers in the Timeline view.
Lock All Others	Locks every layer except the selected ones.
Reset	Returns the value of the selected element to the initial value of the active tool. For example, if the Rotate tool is active, the transformation angle will be reset to 0 and if the Transform tool is active, all the transformation values will be reset.
Reset All	Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the default position. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets all transformations on the current frame except the Z position. This is useful when doing cut-out animation. Cut-out puppets often have a particular Z ordering for the different views of a character. You might want to reset the transformation, but not necessarily the Z position.

Drawing Menu

The Drawing menu lets you access many tools related to drawing, painting, dirt removal, optimizing strokes, and more.

How to access the Drawing menu

- At the top of the interface, select **Drawing**.

Command	Description
Drawing Tools	Activates a drawing tool including: Select, Contour Editor, Pencil Editor, Cutter, Smooth Editor, Perspective, Envelope, Reposition All Drawings, Drawing Pivot, Brush, Pencil, Text, Eraser, Dropper, Morphing, Line, Rectangle, Ellipse, Polyline, Paint, Ink, Repaint Brush, Close Gap, Stroke, Edit Gradient/Texture, Hand, Zoom and Rotate View. These drawing tools are available on the Tools toolbar.
Clean Up	
Remove Dirt	Opens the Remove Dirt dialog box where you can specify the number and size of dots removal from a selected drawing.
Remove Hair	Opens the Remove Hair dialog box where you can specify the number and length of hairs for removal from a selected drawing. This removes any small strokes created in the Colour Art layer from very thick lines or filled zones. Increase the value to select larger strokes for removal from the drawing.
Close Gaps	Closes small gaps in a drawing by creating small, invisible strokes between the two closest points to close the colour zone. You do not need to trace directly over the gap. You can draw it a few millimeters

	away. The two closest points automatically close the gap.
Remove Art Inside Selection	Removes any art inside a selection. It is recommended that you clean your Colour Art level as well. If you have a stroke accumulation in the Colour Art, it can result in large output files, especially if you work in high definition resolutions.
Remove Art Inside Selection on All Drawings	Removes any art inside all drawings selected with the Permanent Selection option in the Select tool.
Remove Art Outside Selection	Removes any art existing outside a selection. It is recommended that you clean the Colour Art level as well. If you have a stroke accumulation in the Colour Art, it can result in large output files, especially if you work in high-definition resolutions.
Remove Art Outside Selection on All Drawings	Removes any art outside all drawings selected with the Permanent Selection option in the Select tool.
Paint	**NOTE:** The Paint commands require you to use the Permanent Selection option in the Select tool so you can maintain a selection over multiple drawings.
Unpaint Selection	Unpaints any art existing inside a selection.
Unpaint Selection on All Drawings	Unpaints all art contained inside a selection on all the drawings within the same layer.
Unpaint Outside Selection	Unpaints any art existing outside a selection. If no selection have been drawn using the Select tool, the entire drawing will be unpainted.
Unpaint Outside Selection on All Drawings	Unpaints all art outside a selection on all the drawings within the same layer.
Repaint Selection	Repaints any art inside a selection.
Repaint Selection on All Drawings	Repaints any art inside a selection on all the drawings contained within the same layer.
Repaint Outside Selection	Repaints any art outside a selection. If no selection has been drawn using the Select tool, the entire drawing will be repainted.
Repaint Outside Selection on All Drawings	Repaints any art outside a selection on all the drawings contained within the same layer.
Convert	
Pencil Lines to Brush Strokes	Converts the selected centreline pencil strokes into contour strokes brush lines.
Brush Strokes to Pencil Lines	Converts selected contour strokes into centreline pencil strokes. The brush stroke thickness will be lost.
Strokes to Pencil Lines	Converts the selected invisible line to a pencil line.
Break Apart Text Layers	Text is treated as a single drawing object. This separates the text so each character becomes an individual drawing object you can select and modify independently.
Optimize	
Flatten	Merges drawing objects and brush strokes into a single layer. If you

	draw new lines to fix a drawing or line with many brush strokes, it can be useful to flatten them all into a single shape. By default, lines are drawn one on top of each other. If you intend to repaint the lines or modify their shape, it will be easier if they are flattened.
Smooth	Smooths selected drawing strokes and removes extra points.
Create Contour Strokes	Adds a permanent invisible line around a shape that was drawn directly in Harmony. This allows you to unpaint lines with the Paint tool but maintain the shape of the lines, should you need to repaint later.
Remove Contour Strokes	Remove any permanently invisible lines that were created while scanning and vectorizing drawings or manually adding contour strokes. This is useful for removing the intersection triangles created during vectorization.
Remove Extra Strokes	Removes strokes inside painted area. This option only works after the painted drawing is flattened.
Optimize	Reduces the number of layers, such as overlapping brush strokes, in the selected drawing objects. Drawing objects will only be flattened and optimized if the selected objects do not change the appearance of the final image when they are merged.
Crop Brush Textures	Crops an unnecessarily large texture bitmap that lies unseen beneath the vector contour of a textured line. This often occurs when you cut and paste textured lines from one drawing into another. If you cut a portion from a textured line and paste it into a different drawing, Harmony pastes the entire unseen texture bitmap from the source drawing into the new one, even if you only took a small portion of the source drawing. Using the Crop Brush Texture command will crop away extraneous texture that does not touch the vector area. If there are many textured lines in your scene, this will greatly reduce the file size.
Reduce Drawing Texture Resolution	When you import and vectorize as texture (colour) a high resolution image, the size of your drawing can be heavy. You can reduce the size and resolution of the textures in a drawing. When you import and vectorize drawings using the grey or colour preset styles, you don't have control on the size of the bitmap texture. You can reduce that bitmap texture.
Transform	
Flip Horizontal	Flips the current selection horizontally.
Flip Vertical	Flips the current selection vertically.
Rotate 90 CW	Rotates the current selection 90 degrees clockwise.
Rotate 90 CCW	Rotates the current selection 90 degrees counter-clockwise.
Rotate 180	Rotates the current selection 180 degrees.
Arrange	
Bring to Front	Moves the selected art to the front (on top).
Bring Forward	Moves the selected art one level forward (closer to the front).
Send Backward	Moves the selected art one level lower (behind).

Send to Back	Moves the selected art behind everything (bottom / back).
Create Empty Drawing	Creates a drawing in the selected cell, replacing any drawing that may already be exposed in that cell and the following ones until it meets another drawing, key exposure or a blank cell.
Duplicate Drawings	Lets you duplicate the drawing and work on a copy of it. This lets you modify an existing drawing but retain the original. When duplicating a drawing, the selected cell is replaced with the new drawing. The exposure of the original drawing that was on the current cell is removed. The original drawing is not deleted from the project folder or other cells in which it is exposed.
Delete Selected Drawings	Permanently removes selected drawings. Once you save your project, these drawings cannot be recovered.
Rename Drawing	Lets you give a selected drawing a new name.
Rename Drawing with Prefix	Lets you rename a drawing sequence with a prefix, which can be quite useful for cut-out puppet breakdown and deformation animation. This applies to any deformation work done in pre-Harmony 12 versions.
Rename by Frame	Lets you rename a series of drawings relative to their frame position. This is useful in hand-drawn animation.
Select Strokes with Current Colour	Lets you select drawing elements and painted areas with the same colour as the currently selected colour in your colour palette.
Distribute to Layers	Every selected stroke in the Camera view is placed on separate layers; one layer per stroke. If artwork is composed of several strokes, you must group them to put them on the same layer. This operation cannot be done in the Drawing view.
Create Colour Art from Line Art	Lets you use the outline you traced on one of the four embedded layers (line art, colour art, overlay, underlay) and create invisible strokes to paint your drawings on separate layers. This provides more inking and painting flexibility. You can also configure this option to create the invisible strokes on any of the four embedded layers.
Create Breaking Triangles	Useful for brush strokes, creates triangular breaks at natural line intersections. These intersections are the probable locations where colour line breaks may occur, such as where a sleeve meets a hand. This makes it easier to soft trace lines in different colours when there are flattened or unflattened clean brush strokes.
Generate Auto-Matte	Fills colour based on currently selected colour swatch on different drawing layers (overlay, underlay) so overlapping lines are more visible during a line test.
Adjust Line Texture Opacity	Lets you adjust the contrast and opacity of textured lines in a drawing.
Change Bitmap Drawing Resolution	Lets you change the resolution of bitmap art for individual drawings. You can reduce the resolution of your bitmap file as well as increase it. Be careful because enlarging the bitmap resolution on an existing drawing will result in a loss of quality.Harmony will perform a pixel smoothing pass (resampling) and create additional pixels to avoid

	losing too much quality, but only to a certain extent. This feature is very useful when you need to have a full resolution of a bitmap image (such as imported bitmaps as .psd or .tga for the background) for tracing to create a matte directly in Harmony. By default, Harmony creates small thumbnail images when imported as bitmap in order to increase performance by using a small thumbnail image instead of using the original large size bitmap for animation work in Harmony. This will make difficult to view details or trace due to the low resolution (blurry). This option temporary increases the resolution of bitmaps up to their original bitmap resolution to make tracing easier. **NOTE:** Regardless of using small thumbnails in Harmony, the final render will use the real image resolution so there is no loss of quality in the final render. **NOTE:** The small thumbnail size can be changed in Preferences (Camera tab).
Previous Drawing Next Drawing Previous Layer Next Layer	Once a cell is selected in the Timeline or Xsheet view, you can navigate between the drawings, frames, and layers. Displays the previous drawing, next drawing, previous layer or next layer.
Colour Protection	
Toggle Current Colour Protection	Temporarily enables/disables the Colour Protection feature so you can quickly correct wrongly inked or painted areas under protected colour without readjusting the Current Colour Protection option.
Respect Colour Protection	In the Colour view, you can protect a colour swatch to avoid repainting or unpainting the zones linked to that swatch. If you using the Paint tool and this option is deselected, you will repaint or unpaint the protected colours on your drawings until you enable the option again.

Edit Menu

The Edit menu lets you repeat and undo actions, cut/copy/paste selected objects, select and manipulate objects, work with symbols, and access the Preferences dialog box.

How to access the Edit menu

- From the top menu, select **Edit**.

Command	Description
Undo	Removes the last change made to your project. Harmony supports multiple undo, so you can undo changes you made in the order you made them.

Redo	Redoes an operation you have undone. This command is active only after you use the Undo command.
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Paste Special	Opens the Paste Special dialog box which lets you determine how templates and symbols are imported in the Timeline view. There are advanced paste options for drawings, timings, keyframes, layers, as well as palettes and symbols.
Paste Special Again	Pastes new drawings with the previous Paste Special settings.
Paste Cycle	Cycles a portion of an animation. You can increase or decrease the number of cycles to paste and select a type of cycle: Normal, Reverse, Forward-Reverse and Reverse-Forward.
Paste Reverse	Reverses the timing of drawings or keyframes in range of selection after copying.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected. Not clear for me. Missing information: This however unselects the currently selected drawing (e.g. unselect current selected lines and select everything else that is unselected).
Auto-Apply	Automatically applies changes you make to a property dialog box. Harmony applies the modification automatically and displays the result immediately in the Camera view. If you do not want to immediately display every change made to your scene, turn off this default setting by deselecting the Auto Apply option. This is useful when you are working on a very heavy scene. **NOTE:** If you want to always work in Auto-Apply mode, you can deselect the Auto-Apply option in the Preferences dialog box (General tab). Then, each time you start Harmony, the Auto-Apply mode will be off. You must click the Apply button to see any modifications.
Create Symbol	Creates a symbol from selected drawing elements in the Drawing or Camera view, nodes in the Node view, or a layer or cells in the Timeline view.

Expand Symbol	Extracts a symbol's contents and places it on the root timeline. Its contents will be copied and inserted into the root timeline. The symbol will not be removed from the Timeline view once it is expanded. The symbol's layers will be parented to it in case you created motions and transformations on the drawing layer that contain the symbol. Breaking the hierarchy could result in the loss of any scaling and animation you may have created.
Expand Selected Symbol in Groups	Expands a symbol within a group to avoid crowding the timeline with a series of layers. When you expand the symbols, the layers will be contained in a group node that you can expand to see the content.
Duplicate Selected Symbol	Creates a duplicate of a selected symbol. If other symbols are nested inside the new symbol, they are not duplicated. If you modify them, the original and other instances will also be modified.
Create Drawing from Drawing Selection	Breaks a character into its main body parts. There is no need to create any layers prior to this process. Make sure your model is well centered and sized in the Camera view–see *Breaking Down the Main Parts* on page 1.
Clone: Drawings Only	Creates a copy of the drawings in the selected layer in the Timeline view or column in the Xsheet view. The timing it not copied.
Clone: Drawings and Timing	Creates a copy of the drawings and their timings in the selected layer in the Timeline view or column in the Xsheet view.
Duplicate	Duplicates a layer to have a copy of the drawings that are independent from the original ones, as well as an independent timing (exposure). When you need the drawings to be modified independently, you will want to duplicate the layer instead of cloning it.
Merge	There are two methods of merging drawings. • You can merge selected drawings in adjacent elements. The columns and layers will be left intact, and each new merged drawing will reside in the frames of the left-most column or lower layer. • You can merge elements. All drawings will be merged. Unused columns and layers will be deleted, but the original drawing files are still accessible.
Group	
Group	Groups selected drawing objects in the Camera or Drawing view.
Ungroup	Ungroups a selected group of drawing objects in the Camera or Drawing view.
Group Selected Layers	Groups selected layers in the Timeline view or nodes selected in the Node view.
Ungroup Selected Layers	Ungroups a selected group in the Timeline or Node views.
Move to Parent Group	Moves selected nodes in the Node view up to the parent group level, maintaining all connections.
Preferences	Opens the Preferences dialog box where you can set your preferences for Harmony.

File Menu

The File menu lets you open, close, save, scan, print, and import and export files.

How to access the File menu

- From the top menu, select **File**.

Command	Description
New	Creates a new scene while closing any scene already open. The New Scene dialog box opens, asking for directory, name, and resolution information.
Open	Displays the Open Scene dialog box where you can browse for a scene file. You can open a new scene from the current one and the previous scene will close.
Open Recent	Displays a list of the most recently opened scenes.
Clear	Clears the list of recently opened scenes.
Close	Closes the currently opened scene, but does not close the Harmony application.
Save	Saves all changes made to the opened scene, drawings, palettes, and palette lists.
Save As	Saves the current file with a different name and at a different location. Saves the current state of a scene as another scene. The Save As window prompts you for a new name and a different location for this scene before saving it. This will create a complete scene directory for the new scene. **NOTE:** The scene name **cannot** exceed 23 characters.
Save as New Version	Saves the current scene as another version. The Save Version dialog box prompts you to give a name for this new version. This will create a new .xstage file in your current project directory.
Back Up Scene	Backs up the current scene to a location you choose.
Remove Unused Files	Removes the unused palettes from the scene list.
Import	
From Scanner	Imports drawings from a TWAIN scanner.
Images	Imports bitmap images which you can choose to vectorize–see *Importing Bitmap Images* on page 1.
3D Models	Once you have exported a model using a 3D authoring software, you can import it and integrate it in your 2D animation scene. You have the possibility to convert your 3D models to *.osb files upon import to Harmony and save them as such. This will allow Harmony to render 3D files with the associated textures without the need to copy

	them manually (as long as the auxiliary files are linked correctly and named appropriately on your disk)–see *Importing a 3D Object* on page 1.
Link to Images	Links to images stored on a centralizer server when working with Harmony Server.
Movie	Lets you convert a QuickTime movie to an image sequence and audio file.
Sound	Lets you import sound files into your project.
Colour Model	Lets you import TVG drawing file into your project. Once imported, it is display in the Model view for use as a colour model which you can load into any Harmony scene.
SWF, Illustrator Files to Library	Lets you import SWF files into your project.
Export	
Movie	Exports animation as a QuickTime movie–see *Exporting a QuickTime Movie* on page 1.
Render Write Nodes	Renders all the Write nodes in a node structure.
Soundtrack	Exports a sound file as a merged soundtrack or series of individual files. The exported soundtracks are generated as *.wav files–see *Exporting a Sound File* on page 1.
SWF	Exports a Flash movie file. The SWF export supports some bitmap effects (which can be previewed in Render View mode) and SWF Blend Modes (vector effects which can be previewed in OpenGL View mode). See *Exporting an SWF Movie* on page 1.
OpenGL Frames	Exports OpenGL frames (fast display mode) for a quick screen renders of a scene that contain no transparency channel. Heavier scenes containing 3D, multiple effects and camera moves can be fairly long to export–see *Exporting OpenGL Frames* on page 1.
Layout Image	Exports all the elements in your scene to a layout .psd file.
Layout Image from Selection	Exports only the selected elements to a layout .psd file–see *Exporting a Layout* on page 1.
Print	
Xsheet	Prints the exposure sheet so you can take it to your animation table, provide a copy to the animator, or create your Xsheet skeleton directly in Harmony.
Node View	Print the Node view for reference purposes.
Quit	Closes the application.

Help Menu

The Help menu lets you display the Harmony documentation, Welcome screen and end user license agreement, as well as access the Toon Boom website, and identify the product name and version number.

How to access the Help menu

- At the top of the interface, select **Help**.

Command	Description
Online Help	Opens the Harmony Help system, complete with instructions on how to use the system. This requires an internet connection.
Getting Started	Opens the Harmony Getting Started Guide (in PDF format) in a browser window. Requires Acrobat Reader.
Toon Boom on the Web	Opens the Harmony website, which features a Support and Community > Forum section.
Customer Experience Improvement Program	The Customer Experience Improvement Program allows Toon Boom to collect usage information. The data does not contain any personally identifiable information and cannot be used to identify you. The data will consist of a basic hardware description, a project summary and usage information. The information is used only for software improvement purposes, as well as for sharing with third parties for the same reason. This program is enabled by default but is voluntary. If you prefer not to participate, you can opt out when you first launch the software, by using a global preference, or by a command line argument.
About	Identifies the product name and version number.
Show Welcome Screen	Displays the Harmony Welcome screen.
Show End User License Agreement	Displays the End User License Agreement.
Debug Mode	Enables the Debug mode for gathering and displaying precise information about each rendering frame, such as the nodes encountered and action taken. You can view this information in the Message Log view.

Command	Description
Online Help	Opens the Harmony Help system, complete with instructions on how to use the system. This requires an internet connection.
Getting Started	Opens the Harmony Getting Started Guide (in PDF format) in a browser window. Requires Acrobat Reader.
Toon Boom on the Web	Opens the Harmony website, which features a Support and Community > Forum section.
Customer Experience Improvement Program	The Customer Experience Improvement Program allows Toon Boom to collect usage information. The data does not contain any personally identifiable information and cannot be used to identify you. The data will consist of a basic hardware description, a project summary and usage information. The information is used only for software improvement purposes, as well as for sharing with third parties for the same reason. This program is enabled by default but is voluntary. If you prefer not to participate, you can opt out when you first launch the software, by using a global preference, or by a command line argument.

About	Identifies the product name and version number.
Show Welcome Screen	Displays the Harmony Welcome screen.
Show End User License Agreement	Displays the End User License Agreement.
Debug Mode	Enables the Debug mode for gathering and displaying precise information about each rendering frame, such as the nodes encountered and action taken. You can view this information in the Message Log view.

Insert Menu

The Insert menu lets you create empty symbols in the Library view, different types of layers in the Timeline view, keyframes and control points.

How to access the Insert menu

- At the top of the interface, select **Insert**.

Command	Description
Create Empty Symbol in Library	Creates an empty symbol in the Library view to which you can edit (add content).
Bone	Adds a new Bone layer to the Timeline view.
Camera	Adds a new Camera layer to the Timeline view.
Colour-Card	Adds a new Colour-Card layer to the Timeline view.
Drawing	Adds a new Drawing layer to the Timeline view and a column in the Xsheet view.
Game Bone	Adds a new Game Bone layer to the Timeline and Node views.
Group	Adds a new Group layer to the Timeline and Node views.
Kinematic Output	Adds dd a new Kinematic Output layer to the Timeline and Node views.
Peg	Adds a new Peg layer to the Timeline and Node views.
Quadmap	Adds a new Quadmap layer to the Timeline and Node views.
Particle	
Basic Particle System	Adds a new layer with a basic particle system in the Timeline and Node views.
Basic Gravity-based System	Adds a new layer with a basic gravity-based particle system in the Timeline view.
Keyframe	Adds a keyframe to the selected cell in the Timeline view.
Keyframe and Duplicate Drawing	Adds a keyframe to the selected drawing layer cell in the Timeline view and creates a duplicate of the drawing, which sits on top of the original drawing.
Position Keyframe	Adds a position keyframe whereby keyframes will only be added on the X, Y and Z parameters of the selected layer. Keyframes are not added on the Angle, Scale and Skew parameters.
Control Point	Adds a control point to the trajectory of the selected element or peg in

	the Camera view when the element or peg is in a 3D path. Note that you must have a 3D path in the peg portion in order to add a control point.

Play Menu

The Play menu lets you play back animation and sound. Use it to scrub the sound to create your lip-sync, loop the playback, navigate through frames, and change the playback range and speed.

How to access the Play menu

- At the top of the interface, select **Play**.

Command	Description
Play	Plays and stops the animation.
Render and Play	Creates a render of your scene to play back the final result including the effects.
Test SWF Movie	Creates a SWF format movie and a report to test your result before proceeding to the final movie.
Stop	Stops playback.
Playback Speed	Opens the Set New Frame Rate dialog box where you can set the frame rate at which the playback plays.
Loop	Repeatedly plays back your animation indefinitely.
Enable Sound	Turns on sound during playback.
Enable Sound Scrubbing	Turns on sound scrubbing during playback.
Start Frame	Opens the Set Playback Start Frame dialog box where you can set the frame number on which to start playback.
Stop Frame	Opens the Set Playback Stop Frame dialog box where you can set the frame number on which to stop playback.
First Frame	Moves the red playhead to the first frame.
Previous Frame	Moves the red playhead to the previous frame.
Next Frame	Moves the red playhead to the next frame.
Last Frame	Moves the red playhead to the last frame.
Go to Frame	Opens the Go to Frame dialog box where you can enter the frame number on which the red playhead to be positioned in the Timeline view.
Enable Playback	
Top View	Plays back your animation in the Top, Side or Perspective views.
Side View	
Perspective View	

Scene Menu

The Scene menu lets you set the scene length, add frames to the scene, view different displays of the scene, set render options, access the Scene Settings dialog box and Elements Manager window, and verify the drawing and palette files in your project.

How to access the Scene menu

- At the top of the interface, select **Scene**.

Command	Description
Scene Length	Lets you set the length of the scene in frames.
Frame	
Add Frames at Start	Adds the number of frames you specify to be added at the beginning or end of the scene.
Add Frames at End	
Add Frames Before Selection	Adds the number of frames you specify before or after your selection.
Add Frames After Selection	
Remove Selected Frames	Deletes the selected frames from your scene.
Camera	
Default Camera	Lets you select a camera. If you only add one camera to your scene, you will only see Default Camera in your list.
Default Display	
Display All	Shows the contents of a specific Display node, updating the contents of the Camera, Top, Side, and Timeline views—see *Display Concepts* on page 1.
Display	
Scene Settings	Opens the Scene Settings dialog box where you can set the resolution, alignment, bitmap resolution and many other parameters.
Render	
Auto Render	Automatically recalculates the preview image whenever you modify a parameter. If your scene is heavy and you do not want the preview rendered automatically, deselect the Auto-Render option and do the preview update manually.Note that this will slow down Harmony as it takes resources to update every frame.
Auto Render Write	Renders a frame each time the current frame is changed. You must have a Write node in your node structure to use this command.
Recalculate All	Refreshes the node structure and rerenders the display when the Camera view is in render mode.
Recalculate Selected	Refreshes the node structure and rerenders the display of selected elements when the Camera View is in render mode.
Cancel Preview Render	Cancels a render that was started.
Element Manager	Opens the Element Manager window where you can add, delete or modify elements (drawing folders) in your scene. If you have drawing

	folders that are not linked to a column in your scene, use the Element Manager to delete them if needed.
Check Files	Verifies the integrity of the drawing and palette files in your project.

View Menu

The View menu lets you manipulate the view by zooming, panning, or rotating. You can also display the grid and change its size, use the onion skin feature to help with drawing, and set the preview resolution.

How to access the View menu

- At the top of the interface, select **View**.

Command	Description
Toggle Full Screen	Enlarges the selected view to full screen which is done in three stages. First, the selected view enlarges to the maximum width or height, but keeps the tool views such as Colour or Tool Properties view. Second, the view enlarges to full screen. Third, the view returns to its original size.
Zoom In	Zooms in the view.
Zoom Out	Zooms out the view.
Rotate View CW	Rotates the Camera view 30 degrees clockwise, like an animation table.
Rotate View CCW	Rotates the Camera view 30 degrees counter-clockwise, like an animation table.
Reset Zoom	Resets the view's zoom to its default position.
Reset Rotation	Resets the view's rotation to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Next Colour	Goes to the next colour in the Colour view.
Previous Colour	Goes to the previous colour in the Colour view.
Grid	
Show Grid	Displays the grid.
Grid Outline Only	Displays the outline of the grid only.
Underlay	Displays the grid under the drawing elements.
Overlay	Displays the grid over the drawing elements.
Square Grid	Displays a standard square grid.
12 Field Grid	Displays a 12-field size grid.
16 Field Grid	Displays a 16-field size grid.

Onion Skin	
Show Onion Skin	Lets you preview the previous and next drawings. By default, the previous drawings appear in a shade of red and the next drawings are displayed with a shade of green. You can change these colours in the Preferences dialog box.
Add to Onion Skin	Adds a series of selected elements to the onion skin preview.
Remove from Onion Skin	Removes a series of selected elements from the onion skin preview.
Remove Unselected from Onion Skin	Removes all elements except the ones selected from the onion skin preview.
Add All to Onion Skin	Adds all of the scene's elements to the onion skin preview.
Remove All from Onion Skin	Removes all of the scene's elements from the onion skin preview.
Onion Skinning by Drawing	In Camera view, the onion skin by default is per frame, this option lets you set it by drawing so you don't see any exposure's onion skin from the same drawing.
No Previous Drawing	Removes the previous drawing's onion skin and displays only the next drawing.
Previous Drawing	Displays the previous drawing.
Previous Two Drawings	Displays the previous two drawings.
Previous Three Drawings	Displays the previous three drawings.
No Next Drawing	Do not show the onion skin for all of the next drawings.
Next Drawing	Show the onion skin for the next drawing.
Next Two Drawings	Show the onion skin for the next two drawings.
Next Three Drawings	Show the onion skin for the next three drawings.
Reduce One Previous Drawing	Reduces the number of previous visible drawings by one.
Add One Previous Drawing	Adds one drawing to the number of previous visible drawings.
Reduce One Next Drawing	Reduces the number of next visible drawings by one.
Add One Next Drawing	Adds one drawing to the number of next visible drawings.
Light Table	Turns on the light table so you can see the previous and subsequent active layers in washed-out colours. It is useful for seeing the other layers when designing, animating or cleaning up your animation.
Backlight	Produces a silhouette effect by changing the drawing's coloured areas into a single dark, solid colour. Use this to verify the completeness of the ink and paint process. Any unpainted zones can be seen as the light shows through the unpainted areas of the silhouetted drawing.
Show	
Symbol Pivot	Displays a symbol's pivot. The Symbol pivot is similar to the Drawing pivot. Each symbol cell can have its own pivot and act the same as the Drawing pivot. The Symbol pivot can also be referred to as *embedded pivot*. Inside a symbol, each drawing can have its own pivot.

Safe Area	Displays the TV safety zone and the centre of the camera frame. The safe area adapts to the scene resolution, as well as the safety zone and frame's centre.
Camera Mask	Displays a black mask around the scene's frame to avoid seeing the unnecessary artwork. This option is handy when you're animating and setting up the scene. It allows you to see your scene's composition better.
Control	Displays the controls of the selected element.
Current Drawing on Top	Displays the selected drawing on top of everything while you draw. By enabling this option, each time you select a drawing tool, the selected drawing is displayed in front of everything in the Camera view. The Timeline and Node view ordering remain unchanged. You only need to enable this option once, it is not necessary to do it each time you select a drawing tool.
Outline Locked Drawings	Displays drawing that are locked in the Timeline view (cannot be selected in the Camera view) as wireframes.
Show Strokes	Displays the strokes in your drawings so that the invisible lines stand out.
Show Strokes with Colour Wash	Displays strokes with washed-out colours.
Hide All Controls	Hides the controls of the selected element.
Deformation	
Show Current Deformers and Hide All Others	Shows all current deformers and hides all other manipulators displayed in the Camera view.
Particle	
Show Particles as Dots in OpenGL	Displays the particles as dots in the OpenGL preview mode. This makes the playback speed faster for a heavy scene.
Preview Manager	Opens the Preview Manager where you can set options for the quality of previews, and clearing and updating the cache.
Preview Resolution	
Same as Scene Resolution	Lets you choose a resolution for previewing a scene.
3/4 of Scene Resolution	
1/2 of Scene Resolution	
1/3 of Scene Resolution	
1/4 of Scene Resolution	
Custom	Lets you select a resolution from a list of presets or enter X and Y values for a custom preview resolution.
Bitmap File Quality	Lets you change the quality of the preview of the bitmap file in the Camera view. It will not affect the final render.

Windows Menu

The Windows menu lets you customize your workspace to suit your working style, save it as a new workspace, and load it from the Workspace toolbar. You can also show or hide the different toolbars and views in Harmony.

How to access the Windows menu

- From the top menu, select **Windows**.

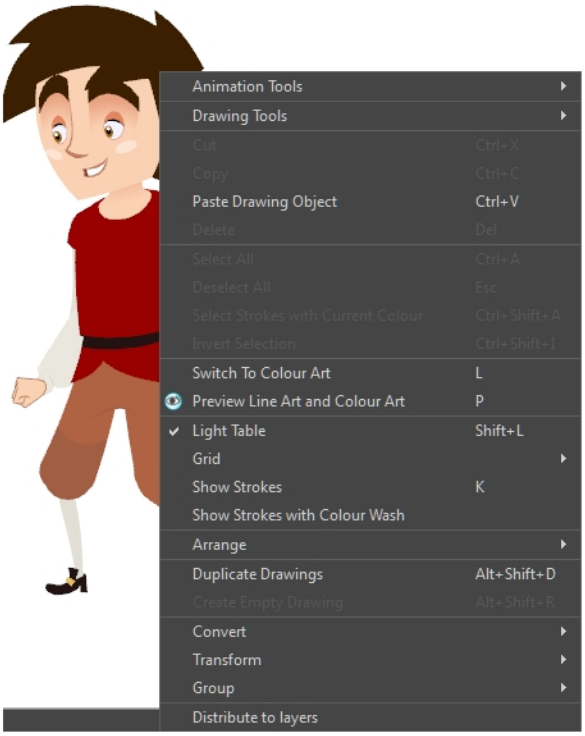
Command	Description
Restore Default Workspace	Returns modified workspaces to their original default layout if you do not like the current modifications or inadvertently closed some windows.
Workspace	
Workspace Manager	Opens the Workspace Manager where you can modify, create, delete, rename and reorder your workspaces.
Workspace	Lets you open workspaces designed specifically for animating, compositing, hand drawing, scripting and the default workspace.
Toolbars	Lets you show or hide these toolbars: Playback, File, Edit, Advanced Animation, Scripting, Coordinate, Control Point, Display, Tools, Workspace, Deformation, Drawing View, Xsheet View and Timeline View– see *Toolbars* on page 1.
Camera	Shows or hides the Camera view.
Colour	Shows or hides the Colour view.
Coord. and Control Points	Shows or hides the Coordinates and Control Points view.
Drawing	Shows or hides the Drawing view.
Function	Shows or hides the Function view.
Layer Properties	Shows or hides the Layer Properties view.
Library	Shows or hides the Library view.
Message Log	Shows or hides the Message Log view.
Node Library	Shows or hides the Library view.
Node View	Shows or hides the Node view.
Side	Shows or hides the Side view.
Timeline	Shows or hides the Timeline view.
Tool Properties	Shows or hides the Tool Properties view.
Top	Shows or hides the Top view.
Xsheet	Shows or hides the Xsheet view.
Script Editor	Shows or hides the Script Editor view.

Quick-access Menus

A quick-access menu lets you open a list of the commands you will use most often.

How to access a quick-access menu

1. Right-click anywhere in a view.



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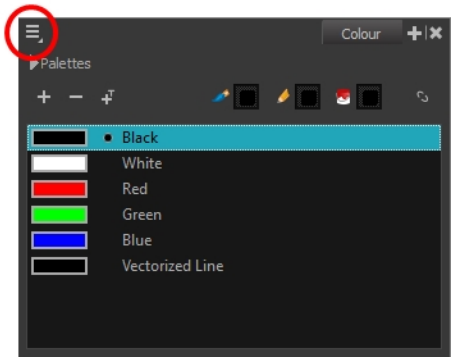
View Menus

A view menu contains commands specifically related to that view.

How to access a view menu

In the top-left corner of a view, click the Menu button.



Camera Menu

The Camera menu lets you do many things in the Camera view, including selecting and editing objects in different views, changing the display, setting morphing parameters, accessing tools and many more.

How to access the Camera menu

- In the upper-left corner of the Camera view, click the menu button.

Command	Description
Edit	
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Select Stroke With Current Colour	Select the strokes that contain the currently selected colour.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.
Select Child Skipping Effects	Lets you select the first element parented to the selected peg element in the Timeline view skipping effects in the hierarchy.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Parent Skipping Effects	Lets you select the parent of the selected element in the Timeline view skipping effects in the hierarchy.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.
Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
Group	**Group**: Groups selected drawing objects in the Camera or Drawing view.
	Ungroup: Ungroups a selected group of drawing objects in the Camera or Drawing view.
View	
Navigation	**Zoom In**: Zooms in the view.
	Zoom Out: Zooms out the view.
	Reset Zoom: Resets the view's zoom to its default position.

	Rotate View CW: Rotates the Camera view 30 degrees clockwise, like an animation table.
	Rotate View CCW: Rotates the Camera view 30 degrees counter-clockwise, like an animation table.
	Reset Rotation: Resets the view's rotation to its default position.
	Reset Pan: Resets the view's pan to its default position.
	Reset View: Resets the view to its default position.
Switch to Colour Art	Displays the Colour Art layer. When switching art layers, you can edit the selected layer without affecting the other one.
Preview Line Art and Colour Art@@	
Open GL View	Switches the Camera view to fast display, letting you see your animation play in real time. The OpenGL display requires less memory. The final look of your effects is not shown in the OpenGL View Mode. You must switch to the Render View Mode to see your effects.
Render View	Switches the Camera view to a fully rendered display showing the final image of the current frame. If a modification is done to your current frame or if you move to a different frame, click the **Update Preview** button to update the display if your preview does not update automatically.The Render View Mode display lets you see the final look of your frames including effects and antialiasing. You cannot play back your scene in Render View Mode. To see your scene fully rendered and to play it back, you must press the Render and Play button in the Playback toolbar.
Matte View	Switches the Camera view to a matte display showing the alpha channel of the elements in your scene. The transparency level ranges from 0 to 100 percent. Zero percent is completely transparent and represented by black and 100 percent is completely opaque and represented by white. Everything in between these extremes has a transparency level somewhere between 1 and 99 percent and is represented in various shades of grey.
Grid	**Show Grid**: Displays the grid.
	Grid Outline Only: Displays the outline of the grid only.
	Underlay: Displays the grid under the drawing elements.
	Overlay: Displays the grid over the drawing elements.
	Square Grid: Displays a standard square grid.
	12 Field Grid: Displays a 12-field size grid.
	16 Field Grid: Displays a 16-field size grid.
Onion Skin	**Show Onion Skin**: Lets you preview the previous and next drawings. By default, the previous drawings appear in a shade of red and the next drawings are displayed with a shade of green. You can change these colours in the Preferences dialog box.
	Add to Onion Skin: Adds a series of selected elements to the onion skin preview.
	Remove from Onion Skin: Removes a series of selected elements from the onion skin preview.

	Remove Unselected from Onion Skin: Removes all elements except the ones selected from the onion skin preview.
	Add All to Onion Skin: Adds all of the scene's elements to the onion skin preview.
	Remove All from Onion Skin: Removes all of the scene's elements from the onion skin preview.
	Onion Skinning by Drawing:
	No Previous Drawing:
	Previous Drawing: Displays the previous drawing.
	Previous Two Drawings: Displays the previous two drawings.
	Previous Three Drawings: Displays the previous three drawings.
	No Next Drawing: Displays no next drawing.
	Next Drawing: Displays the next drawing.
	Next Two Drawings: Displays the next two drawings.
	Next Three Drawings: Displays the next three drawings.
	Reduce One Previous Drawing: Reduces the number of previous visible drawings by one.
	Add One Previous Drawing: Adds one drawing to the number of previous visible drawings.
	Reduce One Next Drawing: Reduces the number of next visible drawings by one.
	Add One Next Drawing: Adds one drawing to the number of next visible drawings.
Light Table	Turns on the light table so you can see the previous and subsequent active layers in washed-out colours. It is useful for seeing the other layers when designing, animating or cleaning up your animation.
Backlight	Produces a silhouette effect by changing the drawing's coloured areas into a single dark, solid colour. Use this to verify the completeness of the ink and paint process. Any unpainted zones can be seen as the light shows through the unpainted areas of the silhouetted drawing.
Show	**Symbol Pivot**: Displays a symbol's pivot. The Symbol pivot is similar to the Drawing pivot. Each symbol cell can have its own pivot and act the same as the Drawing pivot. The Symbol pivot can also be referred to as *embedded pivot*. Inside a symbol, each drawing can have its own pivot.
	Safe Area: Displays the TV safety zone and the centre of the camera frame. The safe area adapts to the scene resolution, as well as the safety zone and frame's centre.
	Camera Mask: Displays a black mask around the scene's frame to avoid seeing the unnecessary artwork. This option is handy when you're animating and setting up the scene. It allows you to see your scene's composition better.
	Control: Displays the controls of the selected element.
	BBox Selection Style: Lets you change the display style of selected elements to

	a bounding box style. This removes the default overlay highlight and leaves only the bounding box around the selected element.
	Outline Locked Drawings: Drawings that are locked in the Timeline view (cannot be selected in the Camera view) are displayed as wireframes.
	Show Current Drawing on Top: Displays the selected drawing on top of everything while you draw. By enabling this option, each time you select a drawing tool, the selected drawing is displayed in front of everything in the Camera view. The Timeline and Node view ordering remain unchanged.
	Show Strokes: Displays the strokes in your drawings so that the invisible lines stand out.
	Show Strokes with Colour Wash: Displays strokes with washed-out colours.
	Highlight Selected Colour:
	Show Scan Information: Displays a status bar showing the scanning information at the bottom of the Drawing and Camera view.
Hide All Controls	Hides the controls of the selected element.
Render Current Frame	Renders only the current frame.
Auto Render	Automatically recalculates the preview image whenever you modify a parameter. If your scene is heavy and you do not want the preview rendered automatically, deselect the Auto-Render option and do the preview update manually.Note that this will slow down Harmony as it takes resources to update every frame.
Layer Properties	Displays the Layer Properties window of the selected layer in the Timeline view.
Preview Manager	Opens the Preview Manager where you can set options for the quality of previews, and clearing and updating the cache.
Bitmap File Quality	Lets you change the quality of the preview of the bitmap file in the Camera view. It will not affect the final render.
Drawing	
Clean Up	**Remove Dirt**: Opens the Remove Dirt dialog box where you can specify the number and size of dots removal from a selected drawing.
	Remove Hair: Opens the Remove Hair dialog box where you can specify the number and length of hairs for removal from a selected drawing. This removes any small strokes created in the Colour Art layer from very thick lines or filled zones. Increase the value to select larger strokes for removal from the drawing.
	Close Gaps: Closes small gaps in a drawing by creating small, invisible strokes between the two closest points to close the colour zone. You do not need to trace directly over the gap. You can draw it a few millimeters away. The two closest points automatically close the gap.
	Remove Art Inside Selection: Removes any art inside a selection. It is recommended that you clean your Colour Art level as well. If you have a stroke accumulation in the Colour Art, it can result in large output files, especially if you work in high definition resolutions.
	Remove Art Inside Selection On All Drawings: Removes any art inside all drawings selected with the Permanent Selection option in the Select tool.
	Remove Art Outside Selection: Removes any art existing outside a selection. It is recommended that you clean the Colour Art level as well. If you have a stroke

	accumulation in the Colour Art, it can result in large output files, especially if you work in high-definition resolutions.
	Remove Art Outside Selection On All Drawings: Removes any art outside all drawings selected with the Permanent Selection option in the Select tool.
Paint	**Unpaint Selection**: Unpaints any art existing inside a selection.
	Unpaint Selection on All Drawings: Unpaints all art contained inside a selection on all the drawings within the same layer.
	Unpaint Outside Selection: Unpaints any art existing outside a selection. If no selection have been drawn using the Select tool, the entire drawing will be unpainted.
	Unpaint Outside Selection on All Drawings: Unpaints all art outside a selection on all the drawings within the same layer.
	Repaint Selection: Repaints any art inside a selection.
	Repaint Selection on All Drawings: Repaints any art inside a selection on all the drawings contained within the same layer.
	Repaint Outside Selection: Repaints any art outside a selection. If no selection has been drawn using the Select tool, the entire drawing will be repainted.
	Repaint Outside Selection on All Drawings: Repaints any art outside a selection on all the drawings contained within the same layer.
Convert	**Pencil Lines to Brush Strokes**: Converts the selected centreline pencil strokes into contour strokes brush lines.
	Brush Strokes to Pencil Lines: Converts selected contour strokes into centreline pencil strokes. The brush stroke thickness will be lost.
	Strokes to Pencil Lines: Converts the selected invisible line to a pencil line.
	Brush Apart Text Layers: Text is treated as a single drawing object. This separates the text so each character becomes an individual drawing object you can select and modify independently.
Optimize	**Flatten**: Merges drawing objects and brush strokes into a single layer. If you draw new lines to fix a drawing or line with many brush strokes, it can be useful to flatten them all into a single shape. By default, lines are drawn one on top of each other. If you intend to repaint the lines or modify their shape, it will be easier if they are flattened.
	Smooth: Smooths selected drawing strokes and removes extra points.
	Create Contour Strokes: Adds a permanent invisible line around a shape that was drawn directly in Harmony. This allows you to unpaint lines with the Paint tool but maintain the shape of the lines, should you need to repaint later.
	Remove Contour Strokes: Remove any permanently invisible lines that were created while scanning and vectorizing drawings or manually adding contour strokes. This is useful for removing the intersection triangles created during vectorization.
	Remove Extra Strokes: Removes strokes inside painted area. This option only works after the painted drawing is flattened.
	Optimize: Reduces the number of layers, such as overlapping brush strokes, in the selected drawing objects. Drawing objects will only be flattened and optimized

	if the selected objects do not change the appearance of the final image when they are merged.
	Crop Brush Textures: Crops an unnecessarily large texture bitmap that lies unseen beneath the vector contour of a textured line. This often occurs when you cut and paste textured lines from one drawing into another. If you cut a portion from a textured line and paste it into a different drawing, Harmony pastes the entire unseen texture bitmap from the source drawing into the new one, even if you only took a small portion of the source drawing. Using the Crop Brush Texture command will crop away extraneous texture that does not touch the vector area. If there are many textured lines in your scene, this will greatly reduce the file size.
	Reduce Drawing Texture Resolution: When you import and vectorize as texture (colour) a high resolution image, the size of your drawing can be heavy. You can reduce the size and resolution of the textures in a drawing. When you import and vectorize drawings using the grey or colour preset styles, you don't have control on the size of the bitmap texture. You can reduce that bitmap texture.
Arrange	**Bring to Front**: Moves the selected art to the front (on top).
	Bring Forward: Moves the selected art one level forward (closer to the front).
	Send Backward: Moves the selected art one level lower (behind).
	Send to Back: Moves the selected art behind everything (bottom / back).
Transform	**Flip Horizontal**: Flips the current selection horizontally.
	Flip Vertical: Flips the current selection vertically.
	Rotate 90 CW: Rotates the current selection 90 degrees clockwise.
	Rotate 90 CCW: Rotates the current selection 90 degrees counter-clockwise.
	Rotate 180: Rotates the current selection 180 degrees.
Create Empty Drawing	Creates a drawing in the selected cell, replacing any drawing that may already be exposed in that cell and the following ones until it meets another drawing, key exposure or a blank cell.
Duplicate Drawings	Lets you duplicate the drawing and work on a copy of it. This lets you modify an existing drawing but retain the original. When duplicating a drawing, the selected cell is replaced with the new drawing. The exposure of the original drawing that was on the current cell is removed. The original drawing is not deleted from the project folder or other cells in which it is exposed.
Delete Selected Drawings	Permanently removes selected drawings. Once you save your project, these drawings cannot be recovered.
Rename Drawing	Lets you give a selected drawing a new name.
Create Colour Art From Line Art	Lets you use the outline you traced on one of the four embedded layers (line art, colour art, overlay, underlay) and create invisible strokes to paint your drawings on separate layers. This provides more inking and painting flexibility. You can also configure this option to create the invisible strokes on any of the four embedded layers.

Generate Auto-Matte	Automatically creates a matte from a selected drawing or all drawings on a layer. Opens the auto-Matte dialog box where you can set the radius of the lines depending on how precise or rough your line is. You can also select the source and destinatin layers from which the matte will be created.
Adjust Line Texture Opacity	Lets you adjust the contrast and opacity of textured lines in a drawing.
Change Bitmap Drawing Resolution	Lets you change the resolution of bitmap art for individual drawings. You can reduce the resolution of your bitmap file as well as increase it. Be careful because enlarging the bitmap resolution on an existing drawing will result in a loss of quality.Harmony will perform a pixel smoothing pass (resampling) and create additional pixels to avoid losing too much quality, but only to a certain extent.
Previous Drawing	Once a cell is selected in the Timeline or Xsheet view, you can navigate between the drawings, frames, and layers Displays the previous drawing, next drawing, previous layer or next layer.
Next Drawing	
Previous Layer	
Next Layer	
Colour Protection	**Toggle Current Colour Protection**: Temporarily enables/disables the Colour Protection feature so you can quickly correct wrongly inked or painted areas under protected colour without readjusting the Current Colour Protection option.
	Respect Colour Protection: In the Colour view, you can protect a colour swatch to avoid repainting or unpainting the zones linked to that swatch. If you using the Paint tool and this option is deselected, you will repaint or unpaint the protected colours on your drawings until you enable the option again.
Drawing Tools	
Select	Lets you select elements from the Camera and Drawing views.
Contour Editor	Lets you add, remove or modify points on a vector line and control them.
Pencil Editor	Lets you modify the thick and thin contour of a pencil line (basically a central vector shape). Shape control points along the central spine allow you to adjust the stroke curve and position.
Cutter	Lets you cut a drawing area to move, copy, cut or delete it.
Smooth Editor	Lets you optimize contours and reduce the number of points on a line.
Perspective	Lets you deform a drawing selection and alter its perspective.
Envelope	Lets you deform and warp part of a drawing using a grid envelope and Bezier handles.
Reposition All Drawings	Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
Drawing Pivot	Lets you set pivots on a characters, drawings and symbols.
Brush	A pressure-sensitive tool for creating a contour shape with a thick and thin line effect, as if created with a paint brush.
Pencil	A pressure-sensitive tool for drawing the final images, such as character nodes, cut-out puppet and clean animation. Creates a central vector shape.

Text	Lets you type text in your project using various fonts and text attributes.
Eraser	A pressure-sensitive tool for precisely erasing parts of a drawing.
Dropper	Lets you pick a colour directly from a drawing.
Morphing	Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
Line	Lets you draw straight lines, rectangles, polylines and ellipses which you can then edit.
Rectangle	
Ellipse	
Polyline	
Paint	Lets you paint both empty and filled zones.
Ink	Lets you paint only the segment you clicked on between two intersections to be painted.
Repaint Brush	
Close Gap	Lets you close small gaps in a drawing by creating small, invisible strokes between the two closest points.
Stroke	Lets you draw stokes, connect line ends and flatten lines.
Edit Gradient/Texture	Lets you modify the position of a gradient or texture colour within a specific zone.
Hand	Lets you pan the Drawing or Camera view.
Zoom	Lets you zoom in and out of the Drawing or Camera view.
Rotate View	Lets you rotate the Drawing or Camera view just like with a real animation disc. Can also be used in Perspective view.
Animation	
Insert Keyframe	Adds a keyframe on the selected cell in the Timeline view. If the Animate mode is enabled in the Camera view, a keyframe is automatically created on the current frame.
Insert Control Point	
Set Stop-Motion Keyframe	Sets a stop-motion keyframe which there is no computer-generated motion between two keyframes. The segment is constant or flat. The drawing remains still until the playback reaches the next keyframe, then the drawing pops to its new location.
Set Motion Keyframe	Sets a motion keyframe. In motion keyframes, there is no automatic interpolation created between the selected point and the next one. The layer will maintain its position until the animation reaches the frame of the next point and will then jump to the new position. Deselect this option to generate interpolation and get the layer to progressively move to the next position.
Flip	
Set Ease for Multiple Parameters	Lets you set the ease in and ease out on multiple functions and keyframes. This opens the Set Ease For Multiple Parameters where you can modify the Bezier or Ease curve. You can apply easing parameters to a certain type of function only, such as rotation or scale.

Linear Motion	
Lock in Time	Indicates if the point is locked to a specific frame (keyframe) or only locked to a specific position and the curve can flow through it freely as other points are being added, moved, or adjusted (control point).
No Z Dragging	
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the previous or next drawing.
Substitute Drawing Next	
Select Previous Keyframe/Point	Select the previous or next keyframe/point.
Select Next Keyframe/Point	
Lock	
Reset	Returns the value of the selected element to the initial value of the active tool. For example, if the Rotate tool is active, the transformation angle will be reset to 0 and if the Transform tool is active, all the transformation values will be reset.
Reset All	Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the default position. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets all transformations on the current frame except the Z position. This is useful when doing cut-out animation. Cut-out puppets often have a particular Z ordering for the different views of a character. You might want to reset the transformation, but not necessarily the Z position.
Animation Tools	
Transform	Lets you create a global selection so you can reposition, scale, rotate and skew as one unit, which is useful for cut-out characters.
Translate	Lets you move the selected element along the X and Y axes.
Rotate	Turns a selected element around its pivot point.
Scale	Increases or decreases the size of a selected element. You can scale an object up to make it larger or down to make it smaller. Press Shift to scale the element while maintaining its proportions.
Maintain Size	Keeps elements the same size aspect ratio in the Camera view as you move them towards or away from the camera.
Skew	Slants the selected element.
Reposition Drawing	Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
Spline Offset	Lets you reposition the visual trajectory without offsetting or modifying your animation. By default, the trajectory is located at 0,0,0 fields. If your elements were drawn in a different location than the centre of the drawing area, it will look like the trajectory is not aligned with your drawing. Also, if you have several elements attached to one trajectory, you might want your trajectory to be at a different location to represent the group's motion better.

Inverse Kinematic Tool	Lets you pull on a character's extremities, such as the hands and feet, and have the rest of the body follow. Can be used on any piece connected in a hierarchy.
IK Constraints	
Set IK Nail	Blocks the X, Y and Z positions.
Set IK Hold Orientation	Blocks the angle.
Set IK Hold X	Blocks only the X position.
Set IK Hold Y	Blocks only the Y position.
Set IK Min Angle	Sets limitations on the angle parameter to prevent the puppet from bending too far.
Set IK Max Angle	
Remove All Constraints	Removes all nails except the minimum and maximum angles.
Morphing	
Morphing	Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
Contour Hint	The Contour Hint point is used on the colour fill zone and brush lines; in other words, on Contour vectors. It allows you to control the line thickness and contour position. Also, if a contour is not animated correctly, you can use hints to correct the animation. For example, if a flag is not waving properly. When adding a Contour Hint point, make sure to place it far enough away from the contour so you can see it snap to the contour. Contour Hint points are yellow.
Zone Hint	The Zone Hint point is used on a colour zone to control the proximity rule. The Zone Hint is placed in the centre of the colour zone. Sometimes a colour zone is not associated with the corresponding one by default. For example, in a splash animation there are many water droplets that are the same colour. Harmony automatically morphs the droplet to the nearest one. This is not always the one you may have predicted. A Zone Hint will force a colour zone to morph with another one. Zone Hint points are cyan in colour.
Pencil Hint	A Pencil Hint point is used to control a pencil line, also known as *central vector*. It can be used on drawings that were done using the Pencil, Polyline, Ellipse, Line and Rectangle tools. Like the Contour Hint, the Pencil Hint snaps to the central vector. Make sure to place it far enough away from the line so you will see it snap when you move it. Pencil Hint points are magenta in colour.
Vanishing Point Hint	A Vanishing Point Hint is used to control the trajectory of a vanishing shape. A shape will vanish from the source drawing when there is no corresponding shape in the destination drawing. If you do not place a Vanishing Point Hint to control the point of disappearance, the shape will vanish into its centre. Vanishing Point Hint points are green in colour.
Appearing Point Hint	An Appearing Point Hint is used to control the trajectory of an appearing

	shape. A shape will appear in the destination drawing when there is no corresponding shape in the source drawing. If you do not place an Appearing Point Hint to control the point of appearance, the shape will appear from its centre and expand outwards. Appearing Point Hint points are violet in colour.
Switch Between Morphing Key Drawings	Toggles between the two key drawings in your morphing sequence. This option is useful while setting hints. You can use the default keyboard shortcut F4 to toggle between your drawings.
Suggest HInts	Automatically sets hint points on key drawings as a help tool. If you're not sure where to set hints, you can use this option. It will set the main hints which you can then fine tune.
Hide Hints	Temporarily hides the hint points from the key drawings. Use this option when you have a series of hint points hiding some lines you would like to see.

Colour Menu

The Colour menu lets you access commands related to the Colour view such as creating new palettes, adding new colour swatches, and displaying the Tint panel.

How to access the Colour menu

- In the upper-left corner of the Colour view, click the menu button.

Command	Description
Palettes	
New	Creates a new colour palette. By default, Toon Boom Harmony is set to the Basic mode. For simple productions, it is recommended to use the Basic mode. This setting stores the palettes automatically for you and saves them at the Scene level. When you use the Advanced Palette Lists mode, you can decide at which level you want to store your palettes: Environment, Job, Scene, or Element.
Link	Lets you access other palettes created in the project and link them to your scene–see *Importing and Linking Palettes* on page 1.
Import	Imports a colour palette located on your hard drive.
Remove	Deletes the selected colour palette.
Rename	Lets you five the selected colour palette a new name.
Duplicate	Creates a copy of the original palette, using the same names and colour values, but has a different ID and is independent from the original palette. This ensures that both the duplicate and original palettes are completely independent.
Clone	Creates a copy of the master palette. The colours in each palette have the same properties. The colours have the same identification number pointing to the same colour zones, but they can have different names and RGBA values.
Pencil Texture Palette	
Move Up	Moves the selected colour palette up one level.

Move Down	Moves the selected colour palette down one level.
Colour Editor	Opens the Colour Editor where you can
Tint Panel	Opens the Tint panel where you can modify a series of colours to blend a tint in them or offset their RGBA values.
Current Palette Overrides	
Display Colour Values	Display the colour values beside their colour swatches in the palette list.
Colours	
Cut	Cuts the selected colour swatch from the palette.
Copy	Copies the selected colour swatch which you can paste in a different palette.
Copy Colour ID	Copies a colour swatch's colour ID so you can keep a reference file of colour IDs or use them with custom plug-ins. Example of a colour ID: `075cf5b552401130`.
Paste Colour Values	Pastes the colour value of the copied swatch over an existing colour swatch.
Paste As New Colours	Creates a new colour swatch from the colour value of the copied swatch.
Paste As Clones	
New	Creates a new colour swatch from the colour swatch that was last selected.
Edit	Opens the Colour Picker window in which you can edit the selected colour swatch.
Delete	Deletes the selected colour swatch from the palette.
New Texture	Lets you add a bitmap colour swatch to your palette. You can load photos and textures and paint your drawings with it. The bitmap image must be a .tga or .psd file format.
Edit Texture	
Scale Down Texture	Lets you set a new maximum texture size or scaling factor.
New Default Colour	
Protect Colour	Locks a selected colour, so if you ever paint over it accidentally, the work already done will not be affected. You can also block the filling colours if you painted all of the animation in Line Art and plan to repaint the lines.
Swatch Mode	Displays the colour swatches with its corresponding name inside the swatch. When this option is not selected, the names of the colour swatches are displayed beside the swatch.
Independent Bitmap Colour	
Bitmap Colour Sliders	
RGB	
HSV	

Drawing Menu

The Drawing menu lets you access tools, set morphing parameters, lock or unlock layers, and select elements in the Drawing view.

How to access the Drawing menu

- In the upper-left corner of the Drawing view, click the menu button.

Command	Description
Edit	
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Select Stroke With Current Colour	Select the strokes that contain the currently selected colour.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.
View	
Zoom In	Zooms in the view.
Zoom Out	Zooms out the view.
Reset Zoom	Resets the view's zoom to its default position.
Rotate View CW	Rotates the Camera view 30 degrees clockwise, like an animation table.
Rotate View CCW	Rotates the Camera view 30 degrees counter-clockwise, like an animation table.
Reset Rotation	Resets the view's rotation to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Switch to Colour Art	Displays the Colour Art layer. When switching art layers, you can edit the selected layer without affecting the other one.
Preview Line Art and Colour Art	
Grid	**Show Grid**: Displays the grid.
	Grid Outline Only: Displays the outline of the grid only.
	Underlay: Displays the grid under the drawing elements.
	Overlay: Displays the grid over the drawing elements.
	Square Grid: Displays a standard square grid.
	12 Field Grid: Displays a 12-field size grid.
	16 Field Grid: Displays a 16-field size grid.

Onion Skin	**Show Onion Skin**: Lets you preview the previous and next drawings. By default, the previous drawings appear in a shade of red and the next drawings are displayed with a shade of green. You can change these colours in the Preferences dialog box.
	Show Centre Line:
	No Previous Drawing:
	Previous Drawing: Displays the previous drawing.
	Previous Two Drawings: Displays the previous two drawings.
	Previous Three Drawings: Displays the previous three drawings.
	No Next Drawing: Displays no next drawing.
	Next Drawing: Displays the next drawing.
	Next Two Drawings: Displays the next two drawings.
	Next Three Drawings: Displays the next three drawings.
	Reduce One Previous Drawing: Reduces the number of previous visible drawings by one.
	Add One Previous Drawing: Adds one drawing to the number of previous visible drawings.
	Reduce One Next Drawing: Reduces the number of next visible drawings by one.
	Add One Next Drawing: Adds one drawing to the number of next visible drawings.
Light Table	Turns on the light table so you can see the previous and subsequent active layers in washed-out colours. It is useful for seeing the other layers when designing, animating or cleaning up your animation.
Backlight	Produces a silhouette effect by changing the drawing's coloured areas into a single dark, solid colour. Use this to verify the completeness of the ink and paint process. Any unpainted zones can be seen as the light shows through the unpainted areas of the silhouetted drawing.
Show	
Show Strokes	Displays the strokes in your drawings so that the invisible lines stand out.
Show Strokes with Colour Wash	Displays strokes with washed-out colours.
Highlight Selected Colour	Identify a selected colour swatch used in a drawing.
Show Morphing Key Drawing Thumbnail	
Show Scan Information	Displays a status bar showing the scanning information at the bottom of the Drawing and Camera view.
Desk	

No Thumbnail	Changes the size of the drawing desk thumbnails.
Small Thumbnail	
Medium Thumbnail	
Large Thumbnail	
Remove Selected Drawing	Clears selected drawing from drawing desk.
Remove All Drawings	Clears all drawing from drawing desk.
Drawing	
Clean Up	**Remove Dirt**: Opens the Remove Dirt dialog box where you can specify the number and size of dots removal from a selected drawing.
	Remove Hair: Opens the Remove Hair dialog box where you can specify the number and length of hairs for removal from a selected drawing. This removes any small strokes created in the Colour Art layer from very thick lines or filled zones. Increase the value to select larger strokes for removal from the drawing.
	Close Gaps: Closes small gaps in a drawing by creating small, invisible strokes between the two closest points to close the colour zone. You do not need to trace directly over the gap. You can draw it a few millimeters away. The two closest points automatically close the gap.
	Remove Art Inside Selection: Removes any art inside a selection. It is recommended that you clean your Colour Art level as well. If you have a stroke accumulation in the Colour Art, it can result in large output files, especially if you work in high definition resolutions.
	Remove Art Inside Selection On All Drawings: Removes any art inside all drawings selected with the Permanent Selection option in the Select tool.
	Remove Art Outside Selection: Removes any art existing outside a selection. It is recommended that you clean the Colour Art level as well. If you have a stroke accumulation in the Colour Art, it can result in large output files, especially if you work in high-definition resolutions.
	Remove Art Outside Selection On All Drawings: Removes any art outside all drawings selected with the Permanent Selection option in the Select tool.
Paint	**Unpaint Selection**: Unpaints any art existing inside a selection.
	Unpaint Selection on All Drawings: Unpaints all art contained inside a selection on all the drawings within the same layer.
	Unpaint Outside Selection: Unpaints any art existing outside a selection. If no selection have been drawn using the Select tool, the entire drawing will be unpainted.
	Unpaint Outside Selection on All Drawings: Unpaints all art outside a selection on all the drawings within the same layer.
	Repaint Selection: Repaints any art inside a selection.
	Repaint Selection on All Drawings: Repaints any art inside a selection on all the drawings contained within the same layer.
	Repaint Outside Selection: Repaints any art outside a selection. If no selection has been drawn using the Select tool, the entire drawing will be repainted.

	Repaint Outside Selection on All Drawings: Repaints any art outside a selection on all the drawings contained within the same layer.
Convert	**Pencil Lines to Brush Strokes**: Converts the selected centreline pencil strokes into contour strokes brush lines.
	Brush Strokes to Pencil Lines: Converts selected contour strokes into centreline pencil strokes. The brush stroke thickness will be lost.
	Strokes to Pencil Lines: Converts the selected invisible line to a pencil line.
	Brush Apart Text Layers: Text is treated as a single drawing object. This separates the text so each character becomes an individual drawing object you can select and modify independently.
Optimize	**Flatten**: Merges drawing objects and brush strokes into a single layer. If you draw new lines to fix a drawing or line with many brush strokes, it can be useful to flatten them all into a single shape. By default, lines are drawn one on top of each other. If you intend to repaint the lines or modify their shape, it will be easier if they are flattened.
	Smooth: Smooths selected drawing strokes and removes extra points.
	Create Contour Strokes: Adds a permanent invisible line around a shape that was drawn directly in Harmony. This allows you to unpaint lines with the Paint tool but maintain the shape of the lines, should you need to repaint later.
	Remove Contour Strokes: Remove any permanently invisible lines that were created while scanning and vectorizing drawings or manually adding contour strokes. This is useful for removing the intersection triangles created during vectorization.
	Remove Extra Strokes: Removes strokes inside painted area. This option only works after the painted drawing is flattened.
	Optimize: Reduces the number of layers, such as overlapping brush strokes, in the selected drawing objects. Drawing objects will only be flattened and optimized if the selected objects do not change the appearance of the final image when they are merged.
	Crop Brush Textures: Crops an unnecessarily large texture bitmap that lies unseen beneath the vector contour of a textured line. This often occurs when you cut and paste textured lines from one drawing into another. If you cut a portion from a textured line and paste it into a different drawing, Harmony pastes the entire unseen texture bitmap from the source drawing into the new one, even if you only took a small portion of the source drawing. Using the Crop Brush Texture command will crop away extraneous texture that does not touch the vector area. If there are many textured lines in your scene, this will greatly reduce the file size.
	Reduce Drawing Texture Resolution: When you import and vectorize as texture (colour) a high resolution image, the size of your drawing can be heavy. You can reduce the size and resolution of the textures in a drawing. When you import and vectorize drawings using the grey or colour preset styles, you don't have control on the size of the bitmap texture. You can reduce that bitmap texture.
Arrange	**Bring to Front**: Moves the selected art to the front (on top).

	Bring Forward: Moves the selected art one level forward (closer to the front).
	Send Backward: Moves the selected art one level lower (behind).
	Send to Back: Moves the selected art behind everything (bottom / back).
Transform	**Flip Horizontal**: Flips the current selection horizontally.
	Flip Vertical: Flips the current selection vertically.
	Rotate 90 CW: Rotates the current selection 90 degrees clockwise.
	Rotate 90 CCW: Rotates the current selection 90 degrees counter-clockwise.
	Rotate 180: Rotates the current selection 180 degrees.
Create Empty Drawing	Creates a drawing in the selected cell, replacing any drawing that may already be exposed in that cell and the following ones until it meets another drawing, key exposure or a blank cell.
Duplicate Drawings	Lets you duplicate the drawing and work on a copy of it. This lets you modify an existing drawing but retain the original. When duplicating a drawing, the selected cell is replaced with the new drawing. The exposure of the original drawing that was on the current cell is removed. The original drawing is not deleted from the project folder or other cells in which it is exposed.
Delete Selected Drawings	Permanently removes selected drawings. Once you save your project, these drawings cannot be recovered.
Rename Drawing	Lets you give a selected drawing a new name.
Create Colour Art From Line Art	Lets you use the outline you traced on one of the four embedded layers (line art, colour art, overlay, underlay) and create invisible strokes to paint your drawings on separate layers. This provides more inking and painting flexibility. You can also configure this option to create the invisible strokes on any of the four embedded layers.
Generate Auto-Matte	Automatically creates a matte from a selected drawing or all drawings on a layer. Opens the auto-Matte dialog box where you can set the radius of the lines depending on how precise or rough your line is. You can also select the source and destinatin layers from which the matte will be created.
Adjust Line Texture Opacity	Lets you adjust the contrast and opacity of textured lines in a drawing.
Change Bitmap Drawing Resolution	Lets you change the resolution of bitmap art for individual drawings. You can reduce the resolution of your bitmap file as well as increase it. Be careful because enlarging the bitmap resolution on an existing drawing will result in a loss of quality.Harmony will perform a pixel smoothing pass (resampling) and create additional pixels to avoid losing too much quality, but only to a certain extent.
Previous Drawing	Once a cell is selected in the Timeline or Xsheet view, you can navigate between the drawings, frames, and layers Displays the previous drawing, next drawing, previous layer or next layer.
Next Drawing	
Previous Layer	
Next Layer	

Colour Protection	**Toggle Current Colour Protection**: Temporarily enables/disables the Colour Protection feature so you can quickly correct wrongly inked or painted areas under protected colour without readjusting the Current Colour Protection option.
	Respect Colour Protection: In the Colour view, you can protect a colour swatch to avoid repainting or unpainting the zones linked to that swatch. If you using the Paint tool and this option is deselected, you will repaint or unpaint the protected colours on your drawings until you enable the option again.
Drawing Tools	
Select	Lets you select elements from the Camera and Drawing views.
Contour Editor	Lets you add, remove or modify points on a vector line and control them.
Pencil Editor	Lets you modify the thick and thin contour of a pencil line (basically a central vector shape). Shape control points along the central spine allow you to adjust the stroke curve and position.
Cutter	Lets you cut a drawing area to move, copy, cut or delete it.
Smooth Editor	Lets you optimize contours and reduce the number of points on a line.
Perspective	Lets you deform a drawing selection and alter its perspective.
Envelope	Lets you deform and warp part of a drawing using a grid envelope and Bezier handles.
Reposition All Drawings	Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
Drawing Pivot	Lets you set pivots on a characters, drawings and symbols.
Brush	A pressure-sensitive tool for creating a contour shape with a thick and thin line effect, as if created with a paint brush.
Pencil	A pressure-sensitive tool for drawing the final images, such as character nodes, cut-out puppet and clean animation. Creates a central vector shape.
Text	Lets you type text in your project using various fonts and text attributes.
Eraser	A pressure-sensitive tool for precisely erasing parts of a drawing.
Dropper	Lets you pick a colour directly from a drawing.
Morphing	Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
Line	Lets you draw straight lines, rectangles, polylines and ellipses which you can then edit.
Rectangle	
Ellipse	
Polyline	
Paint	Lets you paint both empty and filled zones.
Ink	Lets you paint only the segment you clicked on between two intersections to be painted.
Repaint Brush	
Close Gap	Lets you close small gaps in a drawing by creating small, invisible strokes between the two closest points.

Stroke	Lets you draw stokes, connect line ends and flatten lines.
Edit Gradient/Texture	Lets you modify the position of a gradient or texture colour within a specific zone.
Hand	Lets you pan the Drawing or Camera view.
Zoom	Lets you zoom in and out of the Drawing or Camera view.
Rotate View	Lets you rotate the Drawing or Camera view just like with a real animation disc. Can also be used in Perspective view.
Morphing	
Morphing	Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
Contour Hint	The Contour Hint point is used on the colour fill zone and brush lines; in other words, on Contour vectors. It allows you to control the line thickness and contour position. Also, if a contour is not animated correctly, you can use hints to correct the animation. For example, if a flag is not waving properly. When adding a Contour Hint point, make sure to place it far enough away from the contour so you can see it snap to the contour. Contour Hint points are yellow.
Zone Hint	The Zone Hint point is used on a colour zone to control the proximity rule. The Zone Hint is placed in the centre of the colour zone. Sometimes a colour zone is not associated with the corresponding one by default. For example, in a splash animation there are many water droplets that are the same colour. Harmony automatically morphs the droplet to the nearest one. This is not always the one you may have predicted. A Zone Hint will force a colour zone to morph with another one. Zone Hint points are cyan in colour.
Pencil Hint	A Pencil Hint point is used to control a pencil line, also known as *central vector*. It can be used on drawings that were done using the Pencil, Polyline, Ellipse, Line and Rectangle tools. Like the Contour Hint, the Pencil Hint snaps to the central vector. Make sure to place it far enough away from the line so you will see it snap when you move it. Pencil Hint points are magenta in colour.
Vanishing Point Hint	A Vanishing Point Hint is used to control the trajectory of a vanishing shape. A shape will vanish from the source drawing when there is no corresponding shape in the destination drawing. If you do not place a Vanishing Point Hint to control the point of disappearance, the shape will vanish into its centre. Vanishing Point Hint points are green in colour.
Appearing Point Hint	An Appearing Point Hint is used to control the trajectory of an appearing shape. A shape will appear in the destination drawing when there is no corresponding shape in the source drawing. If you do not place an Appearing Point Hint to control the point of appearance, the shape will appear from its centre and expand outwards. Appearing Point Hint points are violet in colour.
Switch Between	Toggles between the two key drawings in your morphing sequence. This option is

Morphing Key Drawings	useful while setting hints. You can use the default keyboard shortcut F4 to toggle between your drawings.
Go to First Frame	Goes to the first frame of your morphing sequence.
Go to Previous Frame	Goes to the previous frame of the selected frame in the morphing sequence.
Go to Next Frame	
Go to Last Frame	Goes to the last frame of your morphing sequence.
Suggest HInts	Automatically sets hint points on key drawings as a help tool. If you're not sure where to set hints, you can use this option. It will set the main hints which you can then fine tune.
Hide Hints	Temporarily hides the hint points from the key drawings. Use this option when you have a series of hint points hiding some lines you would like to see.

Function Menu

The Functions menu lets you do many things in the Camera view, including selecting and editing objects in different views, changing the display, setting morphing parameters, accessing tools and many more.

How to access the Function menu

- In the upper-left corner of the Function view, click the menu button.

Command	Description
Edit	
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Delete	Removes selected objects.
Select Next Keyframe	Selects the next keyframe.
Select Previous Keyframe	Selects the previous keyframe.
Select Left Handle	Selects the left handle of the selected keyframe.
Select Right Handle	Selects the right handle of the selected keyframe.
Select All	Selects all objects in the Function view. This helps you manage multiple objects as one.
Deselect All	Deselects all selected objects in the Function view.
View	
Show Current Frame	Displays the current frame
Toggle Grid	Enables the display of the grid.
Reset Zoom	Resets the view’s zoom to its default position.
Reset Pan	Resets the view’s pan to its default position.

Reset View	Resets the view to its default position.
Function List	
Auto Load Selection	
Clear	
Load Selection	
Add Selection	
Remove Selection	
Show	**Show Motion**:
	Show Rotation:
	Show Scale:
	Show Skew:
	Show Other:

Library Menu

The Library menu lets you access commands specific to the Library view, such as opening a Library or getting the rights to modify a library folder.

How to access the Library menu

- In the upper-left corner of the Library view, click the menu button.

Command	Description
View	
List	Displays the contents of the selected folder as a list.
Thumbnails	Displays the contents of the selected folder as a thumbnails.
Details	Displays the details of the selected file.
Generate Thumbnails	Creates a thumbnail to display in the preview window.
Edit	
New Symbol	Creates a new symbol from a drawing or part of a drawing in the Drawing or Camera view, a layer in the Timeline view, or a node in the Node view. If your selection is in the Timeline or Node view, the new symbol appears in the Symbol folder. The current selection is not replaced by the new symbol. The new symbol only appears in the library. You must drag it into your scene to use it. If your selection is in the Drawing or Camera view, the new symbol appears in the Symbol folder and in the Timeline view as a new layer.
Cut	Cuts the selected file in the Library view.
Copy	Copies the selected file in the Library view.
Paste	Pastes the selected file in the Library view.
Delete	Deletes the selected file in the Library view.
Delete Thumbnails	Deletes any thumbnails that were generated for display in the preview window.

Edit Symbol	Places you inside the symbol where you can edit it. To return to the project's timeline, click the Top button in the Camera view's top-left corner, press Ctrl + Shift + E (Windows/Linux) or ⌘ + Shift + E (Mac OS X).
Remove Unused Files	Removes any files not in use in the
Rename Template	Lets you rename a selected template.
Import Files	Opens the
Folders	
New Folder	Creates a new folder in the Library view. Before you can create a new folder, you must have the right to modify the folder in which you are creating the new folder.
Refresh	Updates the view and its contents.
Open Library	Lets you open a library on your computer.
Close Library	

Model Menu

The Model menu lets you load models and view them in different ways, as well as access some drawing tools.

How to access the Model menu

- In the upper-left corner of the Model view, click the menu button.

Command	Description
Previous Model	
Next Model	
Import Model	
Use Current Drawing as Model	
Load Default Models	
Clear Model	
Zoom In	Zooms in the view.
Zoom Out	Zooms out the view.
Reset Zoom	Resets the view's zoom to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Rotate View CW	Rotates the Camera view 30 degrees clockwise, like an animation table.
Rotate View CCW	Rotates the Camera view 30 degrees counter-clockwise, like an animation table.
Reset Rotation	Resets the view's rotation to its default position.
Select	Activates the Select tool. This tools is also available on the Tools toolbar.
Cutter Selection	@@need help

Dropper	Activates the Dropper tool. This tools is also available on the Tools toolbar.
Zoom	Activates the Zoom tool. This tools is also available on the Tools toolbar.

Node Menu

The Node menu lets you organize the nodes according to how you like to work and the nodes you use most often. You can easily add categories and subcategories, remove categories you don't use, and rename categories.

How to access the Node menu

- In the upper-left corner of the Node view, click the menu button.

Command	Description
File	
Print	Lets you print the contents of the Node view. You must be connected to a printer.
Edit	
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Paste Special	Lets you copy and paste selected drawings into a different layer or paste the selection in the same layer to duplicate the drawings.
Paste Special Again	Pastes new drawings with the previous Paste Special settings.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.
Layer Properties	Shows or hides the Layer Properties view.
Recalculate Selected	Refreshes the node structure and rerenders the display of selected elements when the Camera View is in render mode.
Recalculate All	Refreshes the node structure and rerenders the display when the Camera view is in render mode.
Tag	You can tag elements in the Timeline or Node views to view only those elements. When you tag elements, an asterisk appears beside the item in the Timeline view. Once your elements are tagged and you have switched over to View Tagged Layers mode, the Timeline view will display only tagged elements. The red bar on the left of the layers indicates you are in this view mode. See *Timeline View Modes* on page 1.
	Timeline Tag: Tags selected elements in the Timeline or Node views.

	Timeline Untag: Untags selected layer in the Timeline view.
	Timeline Untag All: Untags all tagged elements.
	Timeline Untag All Others: Untags all elements except the selected one.
Auto Render Write	Renders a frame each time the current frame is changed. You must have a Write node in your node structure to use this command.
Select Child Skipping Effects	Lets you select the first element parented to the selected peg element in the Timeline view skipping effects in the hierarchy.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Group Content	Select contents within the group node.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Parent Skipping Effects	Lets you select the parent of the selected element in the Timeline view skipping effects in the hierarchy.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.
Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
View	
Zoom In Node View	Zooms in the view.
Zoom Out Node View	Zooms out the view.
Reset Zoom	Resets the view's zoom to its default position.
Centre on Selection	Centre the display of the Node view on the selected node. This is useful when you have many nodes in the Node view, you may find it hard to locate which one is selected.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Show All Nodes	Display all nodes.
Editor	Display the Layer Properties editor of the selected node.
Publish Attribute Node	To quickly access parameters for nodes that are grouped, you can select your most common parameters to modify and make them appear in the group Layer Properties editor. This way, you can access them directly without having to enter the group every time.
Show Selected Thumbnails	Displays the thumbnails of selected nodes.
Hide All Thumbnails	Hides all the thumbnails of selected nodes.
Navigator	**Hide Navigator**: Hides the navigator.
	Top Right: Places the navigator in the top-right corner of the Node view.
	Top Left: Places the navigator in the top-left corner of the Node view.
	Bottom Right: Places the navigator in the bottom-right corner of the Node view.

	Bottom Left: Places the navigator in the top-left corner of the Node view.
Cable Style	**Line**: Use straight lines to show the connections between nodes.
	Bezier: Use curved (Bezier) lines to show the connections between nodes.
Nodes	
Enable	Activate the selected node.
Disable	Deactivate the selected node.
Enable All	Activate all nodes.
Disable All Others	Deactivates all nodes except for those those selected. This operation only affects the current level layers. It does not affect the nested nodes within a group. Deactivated nodes appear in red.
Clone Selected Nodes: Drawings and Timing	Creates a copy of the selected element that is linked to the original. If a drawing is modified in the original or cloned layer, both will be updated. However, cloned layers can have different timings. When you clone a node, it does not automatically connect itself to the Composite node of your scene. You can clone the drawings only or both the drawings and timing–see *Cloning and Duplicating Layers* on page 1.
Clone Selected Nodes: Drawings Only	
Duplicate Selected Nodes	Creates an independent copy of the selected element. This useful when you need to modify the element independently, including the timing (exposure). Changes to the original element do not propagate to the duplicate.
Group Selection	Creates a simple group from your selection. The resulting group displays the same number of connections as elements in the group.
Group Selection with Composite	Group a selection.
Ungroup	Ungroups the selected group of nodes.
Move to Parent Group	Moves selected nodes up to the parent group level.
Exit Group	Exits the group.
Clear Published Attributes	Removes the most common parameters you selected for quick access in the Layer Properties editor of a group.
Insert	
Composite	Adds a Composite node to the Node view.
Display	Adds a Display node to the Node view.
Drawing	Opens the Add Drawing Layer dialog box where you can specify the type of layer to add.
Group	Adds a Group node to the Node view.
Parent Peg	Adds a new peg to the timeline as a parent of the selected layer.
Peg	Adds a Peg node to the Node view.
Effects	Lets you add effects from these categories: 3D, Combine, Deformation, Favourites, Filter, Generator, Group, Misc, Move, Output, Particle, Sapphire, Shading and Plugins.

Backdrop	Adds a backdrop to the Node view. Backdrops are a way to work with complex node systems that let you associate a selected set of nodes by colour. See *Working with Backdrops* on page 1.

Node Library Menu

The Node Library menu lets you organize the nodes according to how you like to work and the nodes you use most often. You can easily add categories and subcategories, remove categories you don't use, and rename categories.

How to access the Node Library menu

- In the upper-left corner of the Node Library view, click the menu button.

Command	Description
New Category	Adds a new category to the list of categories to which you can organize nodes according to how you like to work and the nodes you use most often.
Rename Category	Renames an existing category.
Remove Category	Remove a category you no longer need.
Remove Node	Removes a node from a category.
Refresh	Updates the view and its contents.

Perspective Menu

The Perspective menu lets you select and edit elements, manipulate the view during scene setup, set parameters for animation and access animation tools.

How to access the Perspective menu

- In the upper-left corner of the Perspective view, click the menu button.

Command	Description
Edit	
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.

Select Child Skipping Effects	Lets you select the first element parented to the selected peg element in the Timeline view skipping effects in the hierarchy.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Parent Skipping Effects	Lets you select the parent of the selected element in the Timeline view skipping effects in the hierarchy.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.
Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
View	
Zoom In	Zooms in the view.
Zoom Out	Zooms out the view.
Move Forward	
Move Backward	
Reset Zoom	Resets the view's zoom to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Look At Selected	
Layer Properties	Shows or hides the Layer Properties view.
Light Table	Turns on the light table so you can see the previous and subsequent active layers in washed-out colours. It is useful for seeing the other layers when designing, animating or cleaning up your animation.
Camera Cone	Displays the camera cone.
Control	Displays the controls of the selected element.
Hide All Controls	Hides the controls of the selected element.
Enable Playback	Plays back your animation in the Top, Side or Perspective views.
Animation	
Animate	Enables the Animate mode which lets you keyframe drawing layers to create computer-generated animation. When working in the Animate mode, you can animate a layer's position and then turn off the mode to reposition a layer for the entire scene. When the Animate mode is disabled, keyframes are created on selected layers at the current frame. Depending on what transformations were performed (rotation, translation, skew), the new keyframes are added on the corresponding parameters (function curves).
Insert Keyframe	Adds a keyframe to the selected cell in the Timeline view.
Insert Control Point	
Set Stop-Motion	Sets a stop-motion keyframe which there is no computer-generated motion

Keyframe	between two keyframes. The segment is constant or flat. The drawing remains still until the playback reaches the next keyframe, then the drawing pops to its new location.
Set Motion Keyframe	Sets a motion keyframe. In motion keyframes, there is no automatic interpolation created between the selected point and the next one. The layer will maintain its position until the animation reaches the frame of the next point and will then jump to the new position. Deselect this option to generate interpolation and get the layer to progressively move to the next position.
Flip	**Flip Horizontal**: Flips the current selection horizontally.
	Flip Vertical: Flips the current selection vertically.
	Flip Scale X: Once your drawing layer is rotated, the original horizontal and vertical axes change. The Flip Scale X and Flip Scale Y will perform a flip on your drawing layer following its original axis.Remembers the original X-axis of the layer and flips the element following it.
	Flip Scale Y: Remembers the original Y-axis of the layer and flips the element following it.
Set Ease for Multiple Parameters	Opens the Set Ease for Multiple Parameters dialog box where you can change the velocity of selection functions.
Linear Motion	
Lock in Time	Indicates if the point is locked to a specific frame (keyframe) or only locked to a specific position and the curve can flow through it freely as other points are being added, moved, or adjusted (control point).
No Z Dragging	
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the previous or next drawing.
Substitute Drawing Next	
Select Previous Keyframe /Point	Select the previous or next keyframe/point.
Select Next Keyframe /Point	Select Next Keyframe /Point
Lock	**Lock**: Locks one or a multiple selection of layers.
	Unlock: Unlocks one or a multiple selection of locked layers.
	Lock All: Locks all the layers in the Timeline view.
	Unlock All: Unlocks all the layers in the Timeline view.
	Lock All Others: Locks every layer except the selected ones.
Reset	Returns the value of the selected element to the initial value of the active tool. For example, if the Rotate tool is active, the transformation angle will be reset to 0 and if the Transform tool is active, all the transformation values will be reset.
Reset All	Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the default position. All transformations are reset regardless of the tool you're using.

Reset All Except Z	Resets all transformations on the current frame except the Z position. This is useful when doing cut-out animation. Cut-out puppets often have a particular Z ordering for the different views of a character. You might want to reset the transformation, but not necessarily the Z position.
Animation Tools	
Transform	Lets you create a global selection so you can reposition, scale, rotate and skew as one unit, which is useful for cut-out characters.
Translate	Lets you move the selected element along the X and Y axes.
Rotate	Turns a selected element around its pivot point.
Scale	Increases or decreases the size of a selected element. You can scale an object up to make it larger or down to make it smaller. Press Shift to scale the element while maintaining its proportions.
Maintain Size	Keeps elements the same size aspect ratio in the Camera view as you move them towards or away from the camera.
Skew	Slants the selected element.
Reposition Drawing	Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
Spline Offset	Lets you reposition the visual trajectory without offsetting or modifying your animation. By default, the trajectory is located at 0,0,0 fields. If your elements were drawn in a different location than the centre of the drawing area, it will look like the trajectory is not aligned with your drawing. Also, if you have several elements attached to one trajectory, you might want your trajectory to be at a different location to represent the group's motion better.

Side Menu

The Side menu lets you position elements in 3D space, set parameters for animation and access animation tools—see *Side View* on page 1.

How to access the Side menu

- In the upper-left corner of the Side view, click the menu button.

Command	Description
Edit	
Cut	Removes selected objects. You can then paste the object or its properties to another object.
Copy	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.

Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.
Select Child Skipping Effects	Lets you select the first element parented to the selected peg element in the Timeline view skipping effects in the hierarchy.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Parent Skipping Effects	Lets you select the parent of the selected element in the Timeline view skipping effects in the hierarchy.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.
Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
View	
Zoom In	Zooms in the view.
Zoom Out	Zooms out the view.
Reset Zoom	Resets the view's zoom to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Layer Properties	Shows or hides the Layer Properties view.
Camera Cone	Displays the camera cone.
Control	Displays the controls of the selected element.
Hide All Controls	Hides the controls of the selected element.
Enable Playback	Plays back your animation in the Top, Side or Perspective views.
Animation	
Animate	Enables the Animate mode which lets you keyframe drawing layers to create computer-generated animation. When working in the Animate mode, you can animate a layer's position and then turn off the mode to reposition a layer for the entire scene. When the Animate mode is disabled, keyframes are created on selected layers at the current frame. Depending on what transformations were performed (rotation, translation, skew), the new keyframes are added on the corresponding parameters (function curves).
Insert Keyframe	Adds a keyframe to the selected cell in the Timeline view.
Insert Control Point	
Set Stop-Motion Keyframe	Sets a stop-motion keyframe which there is no computer-generated motion between two keyframes. The segment is constant or flat. The drawing remains still until the playback reaches the next keyframe, then the drawing pops to its new location.
Set Motion Keyframe	Sets a motion keyframe. In motion keyframes, there is no automatic interpolation

	created between the selected point and the next one. The layer will maintain its position until the animation reaches the frame of the next point and will then jump to the new position. Deselect this option to generate interpolation and get the layer to progressively move to the next position.
Flip	**Flip Horizontal**: Flips the current selection horizontally.
	Flip Vertical: Flips the current selection vertically.
	Flip Scale X: Once your drawing layer is rotated, the original horizontal and vertical axes change. The Flip Scale X and Flip Scale Y will perform a flip on your drawing layer following its original axis.Remembers the original X-axis of the layer and flips the element following it.
	Flip Scale Y: Remembers the original Y-axis of the layer and flips the element following it.
Set Ease for Multiple Parameters	Opens the Set Ease for Multiple Parameters dialog box where you can change the velocity of selection functions.
Linear Motion	
Lock in Time	Indicates if the point is locked to a specific frame (keyframe) or only locked to a specific position and the curve can flow through it freely as other points are being added, moved, or adjusted (control point).
No Z Dragging	
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the previous or next drawing.
Substitute Drawing Next	
Select Previous Keyframe /Point	Select the previous or next keyframe/point.
Select Next Keyframe /Point	Select Next Keyframe /Point
Lock	**Lock**: Locks one or a multiple selection of layers.
	Unlock: Unlocks one or a multiple selection of locked layers.
	Lock All: Locks all the layers in the Timeline view.
	Unlock All: Unlocks all the layers in the Timeline view.
	Lock All Others: Locks every layer except the selected ones.
Reset	Returns the value of the selected element to the initial value of the active tool. For example, if the Rotate tool is active, the transformation angle will be reset to 0 and if the Transform tool is active, all the transformation values will be reset.
Reset All	Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the default position. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets all transformations on the current frame except the Z position. This is useful when doing cut-out animation. Cut-out puppets often have a particular Z ordering for the different views of a character. You might want to reset the transformation, but not necessarily the Z position.

Animation Tools	
Transform	Lets you create a global selection so you can reposition, scale, rotate and skew as one unit, which is useful for cut-out characters.
Translate	Lets you move the selected element along the X and Y axes.
Rotate	Turns a selected element around its pivot point.
Scale	Increases or decreases the size of a selected element. You can scale an object up to make it larger or down to make it smaller. Press Shift to scale the element while maintaining its proportions.
Maintain Size	Keeps elements the same size aspect ratio in the Camera view as you move them towards or away from the camera.
Reposition Drawing	Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
Spline Offset	Lets you reposition the visual trajectory without offsetting or modifying your animation. By default, the trajectory is located at 0,0,0 fields. If your elements were drawn in a different location than the centre of the drawing area, it will look like the trajectory is not aligned with your drawing. Also, if you have several elements attached to one trajectory, you might want your trajectory to be at a different location to represent the group's motion better.

Timeline Menu

The Timeline menu lets you...

select and edit elements, manipulate the view during scene setup, set parameters for animation and access animation tools.

How to access the Timeline menu

- In the upper-left corner of the Timeline view, click the menu button.

Parameter	Description
Import	
From Scanner	Imports drawings from a TWAIN scanner.
Images	Imports bitmap images which you can choose to vectorize–see *Importing Bitmap Images* on page 1.
Sounds	Lets you import sound files into your project.
Edit	
Cut cells from Xsheet	Removes selected objects. You can then paste the object or its properties to another object.
Copy cells from Xsheet	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Paste Special	Lets you copy and paste selected drawings into a different layer or paste the selection in the same layer to duplicate the drawings.
Paste Special Again	Pastes new drawings with the previous Paste Special settings.

Paste Cycle	Cycles a portion of an animation. You can increase or decrease the number of cycles to paste and select a type of cycle: Normal, Reverse, Forward-Reverse and Reverse-Forward.
Paste Reverse	Reverses the timing of drawings or keyframes in range of selection after copying.
Delete	Removes selected objects.
Modify Paste Presets	Lets you modify existing presets when pasting keyframes and exposures. There are three presets you can modify: the default presets for both key frames and exposures, key frames only and exposures only. See *Modifying Paste Presets* on page 1.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.
Select Child Skipping Effects	Lets you select the first element parented to the selected peg element in the Timeline view skipping effects in the hierarchy.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Parent Skipping Effects	Lets you select the parent of the selected element in the Timeline view skipping effects in the hierarchy.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.
Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
Lock	**Lock**: Locks one or a multiple selection of layers.
	Unlock: Unlocks one or a multiple selection of locked layers.
	Lock All: Locks all the layers in the Timeline view.
	Unlock All: Unlocks all the layers in the Timeline view.
	Lock All Others: Locks every layer except the selected ones.
Tag	**Timeline Tag**: You can tag elements in the Timeline or Node views to view only those elements. When you tag elements, an asterisk appears beside the item in the Timeline view. Once your elements are tagged and you have switched over to View Tagged Layers mode, the Timeline view will display only tagged elements. The red bar on the left of the layers indicates you are in this view mode. See *Timeline View Modes* on page 1.
	Timeline Untag: Untags selected layer in the Timeline view.
	Timeline Untag All: Untags all tagged elements.

	Timeline Untag All Others: Untags all elements except the selected one.
Scene Markers	**Mark Current Frame**: Places a scene marker on the current frame on which the playhead is parked. The marker appears in the frame counter area of the Timeline view. You can customize the colour of the scene marker and add text to display as a tooltip when you hover over the marker–see *Setting Scene Markers* on page 1.
	Create Scene Marker: Creates a scene marker from a selected frame range in the frame counter area of the Timeline view.
	Edit Scene Marker: Lets you edit an existing scene marker. **NOTE**: It's important to select the entire length of the scene marker, otherwise the Timeline Scene Marker dialog box will not open for editing.
	Delete Scene Marker: Removes an existing scene marker.
Share Functions	Lets you share an existing function curve. By default, all function curves can only be used and modified using their original parameter. If you want another layer or parameter to use the same function curve, you must share it. See *Function Curves* on page 1.
View	
Cycle to Next View Mode	Displays the new view mode.
Normal View Mode	Displays the Normal view mode, the default in the Timeline view. It shows everything connected to the chosen display. In this mode, anything not connected to the currently set default display will not be shown in the Timeline view. This also means that you cannot add certain elements to the Timeline view, as by default, when added they are not connected to any display or composite node. An example of such an element is a peg.
Selection Only Mode	Displays only elements currently selected in the Camera or Node view. This makes it easier to concentrate on one or a few elements at a time.
View Tagged Layers	Lets you see only elements which have been assigned a Tagged status. An item that has been tagged will appear in the Timeline view with a small asterisk beside its name. Once your elements are tagged and you have switched over to View Tagged Layers mode, the Timeline view will display only tagged elements. The red bar on the left of the layers indicates you are in this view mode. While in this mode, the asterisks are not displayed beside the tagged elements.
Show Functions	
Centre on Selection	Centers the Timeline view on the selected layer. This useful when you have several layers in the Timeline view, you may find it hard to locate which one is selected.
Show	**Show Manager**:
	Show Sounds:
	Show Effects:
	Show Groups:
	Show Composites:

	Show Sound Waveform:
Change Track Colour	
Default Track Colour	
Collapse/Expand	
Collapse All	
Expand All	
Set Tempo Marker	Lets you set a marker that synchronizes your animation with a musical score. This lets you reproduce the FPB (Frames Per Beat) and use the tempo signature as tempo markers. The Xsheet view lets you pace your animation according to the tempo or beat of the soundtrack music or to any rhythmic sound, such as the ticking of a clock or water leaking from a spout. See *Setting Tempo Markers* on page 1.

Top Menu

The Top menu lets you position elements in 3D space, set parameters for animation and access animation tools– see *Top View* on page 1.

How to access the Top menu

- In the upper-left corner of the Top view, click the menu button.

Command	**Description**
Edit	
Cut Drawing Object	Removes selected objects. You can then paste the object or its properties to another object.
Copy Drawing Object	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Delete Drawing Object	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Invert Selection	Deselects the currently selected items and selected all other items that were not selected. For example, if some lines are selected in a drawing, this command will deselect them and select any other lines in the drawing that were not selected.
Select Child	Lets you select the first element parented to the selected peg element in the Timeline view.
Select Children	Lets you select all elements parented to the selected peg element in the Timeline view.
Select Parent	Lets you select the parent of the selected element in the Timeline view.
Select Previous Sibling	Lets you select the previous element (above current element) in the Timeline view.

Select Next Sibling	Lets you select the next element (below current element) in the Timeline view.
View	
Zoom In	Zooms in the view.
Zoom Out	Zooms out the view.
Reset Zoom	Resets the view's zoom to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Layer Properties	Shows or hides the Layer Properties view.
Camera Cone	Displays the camera cone.
Control	Displays the controls of the selected element.
Hide All Controls	Hides the controls of the selected element.
Enable Playback	Plays back your animation in the Top, Side or Perspective views.
Animation	
Animate	Enables the Animate mode which lets you keyframe drawing layers to create computer-generated animation. When working in the Animate mode, you can animate a layer's position and then turn off the mode to reposition a layer for the entire scene. When the Animate mode is disabled, keyframes are created on selected layers at the current frame. Depending on what transformations were performed (rotation, translation, skew), the new keyframes are added on the corresponding parameters (function curves).
Insert Keyframe	Adds a keyframe to the selected cell in the Timeline view.
Insert Control Point	
Set Stop-Motion Keyframe	Sets a stop-motion keyframe which there is no computer-generated motion between two keyframes. The segment is constant or flat. The drawing remains still until the playback reaches the next keyframe, then the drawing pops to its new location.
Set Motion Keyframe	Sets a motion keyframe. In motion keyframes, there is no automatic interpolation created between the selected point and the next one. The layer will maintain its position until the animation reaches the frame of the next point and will then jump to the new position. Deselect this option to generate interpolation and get the layer to progressively move to the next position.
Flip	**Flip Horizontal**: Flips the current selection horizontally.
	Flip Vertical: Flips the current selection vertically.
	Flip Scale X: Once your drawing layer is rotated, the original horizontal and vertical axes change. The Flip Scale X and Flip Scale Y will perform a flip on your drawing layer following its original axis.Remembers the original X-axis of the layer and flips the element following it.
	Flip Scale Y: Remembers the original Y-axis of the layer and flips the element following it.
Set Ease for Multiple Parameters	Opens the Set Ease for Multiple Parameters dialog box where you can change the velocity of selection functions.

Linear Motion	
Lock in Time	Indicates if the point is locked to a specific frame (keyframe) or only locked to a specific position and the curve can flow through it freely as other points are being added, moved, or adjusted (control point).
No Z Dragging	
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the previous or next drawing.
Substitute Drawing Next	
Select Previous Keyframe /Point	Select the previous or next keyframe/point.
Select Next Keyframe /Point	Select Next Keyframe /Point
Lock	**Lock**: Locks one or a multiple selection of layers.
	Unlock: Unlocks one or a multiple selection of locked layers.
	Lock All: Locks all the layers in the Timeline view.
	Unlock All: Unlocks all the layers in the Timeline view.
	Lock All Others: Locks every layer except the selected ones.
Reset	Returns the value of the selected element to the initial value of the active tool. For example, if the Rotate tool is active, the transformation angle will be reset to 0 and if the Transform tool is active, all the transformation values will be reset.
Reset All	Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the default position. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets all transformations on the current frame except the Z position. This is useful when doing cut-out animation. Cut-out puppets often have a particular Z ordering for the different views of a character. You might want to reset the transformation, but not necessarily the Z position.
Animation Tools	
Transform	Lets you create a global selection so you can reposition, scale, rotate and skew as one unit, which is useful for cut-out characters.
Translate	Lets you move the selected element along the X and Y axes.
Rotate	Turns a selected element around its pivot point.
Scale	Increases or decreases the size of a selected element. You can scale an object up to make it larger or down to make it smaller. Press Shift to scale the element while maintaining its proportions.
Maintain Size	Keeps elements the same size aspect ratio in the Camera view as you move them towards or away from the camera.
Spline Offset	Lets you reposition the visual trajectory without offsetting or modifying your animation. By default, the trajectory is located at 0,0,0 fields. If your elements were drawn in a different location than the centre of the drawing area, it will look like the

	trajectory is not aligned with your drawing. Also, if you have several elements attached to one trajectory, you might want your trajectory to be at a different location to represent the group's motion better.

Xsheet Menu

The Xsheet menu lets you

–see *Timing on page 1* on page 1.

How to access the Xsheet menu

- In the upper-left corner of the Xsheet view, click the menu button.

Parameter	Description
File	
Import	**Images**: Imports bitmap images which you can choose to vectorize–see *Importing Bitmap Images* on page 1.
	From Scanner: Imports drawings from a TWAIN scanner.
	Sounds: Lets you import sound files into your project.
Print	Prints the exposure sheet so you can take it to your animation table, provide a copy to the animator, or create your Xsheet skeleton directly in Harmony.
Edit	
Cut cells from Xsheet	Removes selected objects. You can then paste the object or its properties to another object.
Copy cells from Xsheet	Copies selected objects and properties.
Paste	Places an object you cut or copied into the location you select in a view.
Paste Special	Lets you copy and paste selected drawings into a different layer or paste the selection in the same layer to duplicate the drawings.
Paste Special Again	Pastes new drawings with the previous Paste Special settings.
Paste Cycle	Cycles a portion of an animation. You can increase or decrease the number of cycles to paste and select a type of cycle: Normal, Reverse, Forward-Reverse and Reverse-Forward.
Paste Reverse	Reverses the timing of drawings or keyframes in range of selection after copying.
Delete	Removes selected objects.
Select All	Selects all drawing objects in the current drawing window in the Drawing, Timeline and Camera views. This helps you manage multiple objects as one when moving them.
Deselect All	Deselects all selected objects in the Drawing and Camera views.
Insert Mode	Adds a new value or a new value sequence over existing ones, the new values are inserted between the old ones. The existing timing sequence is pushed down the column. The Insert mode opposite of the Overwrite mode, which is the Xsheet default mode.

Gestural Drag Mode	Lets you drag a cell to any other frame in the same column or into another column. This feature does not apply to Annotation columns.
Send to Function View	Sends selected objects to the Function view where you can edit and adjust its function curve and parameters.
View	
Zoom In Xsheet	Zooms in the view.
Zoom Out Xsheet	Zooms out the view.
Reset Zoom	Resets the view's zoom to its default position.
Reset Pan	Resets the view's pan to its default position.
Reset View	Resets the view to its default position.
Set Tempo Marker	
Expand/Collapse	**Collapse Selection**:
	Expand Selection:
	Collapse All:
	Expand All:
Column Properties	Lets you rename a column, and enable or disable a column. To view additional properties, select **Edit > Preferences** from the top menu. In the Preferences dialog box, select the **Advanced** tab, then select the **Advanced Element Mode** option.
Show Column List	
Column Types Manager	Lets you add advanced column types to create particular animation paths. When you create these columns, they are not linked automatically to any particular drawing layer. You can create a motion path using these columns and then link or unlink several drawing or peg layers to it.
Show Thumbnails	Displays column thumbnails making it easier to identify a particular column. This option displays a small thumbnail picture of the current frame below the column header.
Show Selection	
Set Columns Width	Lets you change the column width (in pixels) and set it as the default.
All Columns to Default Width	Returns all columns to their default width of 100 pixels.
Change Columns Colour	Lets you customize the colour of the column by selecting one from the Select Colour dialog box. The colour you select is also reflected in the correspondng layer in the Timeline view.
Default Column Colour	Removes the colour you assigned to a column (if any).
Hide Selected Columns	Hides selected columns.
Unhide All Columns	Displays all columns.
Show Hidden Columns	Displays columns that were previously hidden.
Empty Cells	

Row Units	
Held Exposures	
Preview Selected Drawings	
Enable Playback	Plays back your animation in the Top, Side or Perspective views.
Columns	
Add Columns	Lets you add a column. You can specify the column name, type, and set drawing layer options in the Add Column dialog box that opens.
Delete Columns	Removes the selected column. You have the option to delete the associated drawing files and element folders.
Clone Selected Columns: Drawings Only	Creates a copy of the selected column that is linked to the original. If a drawing is modified in the original or cloned column, both will be updated. However, cloned columns can have different timings. You can clone the drawings only or both the drawings and timing–see *Cloning Layers and Columns* on page 1.
Clone Selected Columns: Drawings and Timing	
Duplicate Selected Columns	Creates an independent copy of the selected column. This useful when you need to modify the element independently, including the timing (exposure). Changes to the original element do not propagate to the duplicate.
Merge Selected Columns	There are two methods of merging drawings. • You can merge selected drawings in adjacent elements. The columns and layers will be left intact, and each new merged drawing will reside in the frames of the left-most column or lower layer. • You can merge elements. All drawings will be merged. Unused columns and layers will be deleted, but the original drawing files are still accessible. See *Merging Drawings* on page 1.
Rename	
Convert	
Frames	
Add Frames At Start	Adds the number of frames you specify to be added at the beginning or end of the scene.
Add Frames At End	
Add Frames Before Selection	Adds the number of frames you specify before or after your selection.
Add Frames After Selection	
Remove Selected Frames	Deletes the selected frames from your scene.
Drawings	
Create Empty Drawing	Creates a drawing in the selected cell, replacing any drawing that may already be exposed in that cell and the following ones until it meets another drawing,

	key exposure or a blank cell.
Duplicate Drawings	Lets you duplicate the drawing and work on a copy of it. This lets you modify an existing drawing but retain the original. When duplicating a drawing, the selected cell is replaced with the new drawing. The exposure of the original drawing that was on the current cell is removed. The original drawing is not deleted from the project folder or other cells in which it is exposed.
Rename Drawing	Lets you give a selected drawing a new name.
Rename Drawing with Prefix	
Rename by Frame	
Delected Selected Drawings	
Merge Selected Drawings	
Vectorize Line Art in Selected Drawings	
Mark Drawing As	Marks selected drawings as one of the following: Key, Breakdown, In-between, RetakeKey, RetakeBD or RetakeIB. This helps to keep the Xsheet well organized while animating. When working with several animators, directors or even other studios, the necessity for retakes will often arise. Harmony gives you the possibility to mark new drawings as either Retake Key, Retake Breakdown, or Retake In-betweens. See *Drawing Identification* on page 1.
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the previous or next drawing.
Substitute Drawing Next	
Send Drawings to Desk	
Add Drawings to Desk	
Exposure	
Increase	Adds one more exposure to a selected cell; repeating this action adds an extra cell each time. This is an efficient way to extend a drawing's exposure and is always set in Insert mode. Increasing an exposure pushes the existing exposure forward.
Decrease	Decreases exposure of a selected cell by one; repeating this action decreases one exposure adds an extra cell each time. This is an efficient way to shorten a drawing's exposure. Decreasing an exposure pulls in the existing exposure.
Set Exposure to	Lets you set the exposure to 1, 2, 3 or a custom exposure.
Extend Exposure	Lets you extend the length of a selected cell.

Add Key Exposure	Adds a key exposure to the selected cell.
Remove Key Exposure	Removes only the key exposure (key frames) not all the exposures. The existing key exposure is replaced by the preceding exposure.
Remove Duplicate Key Exposure	When working with drawings to adjust the timing of a mouth in a lipsync, for example, and forcing the use of specific key exposures, unnecessary key exposures will be created. You can delete these duplicates without affecting the rest of the drawing. The first drawing of the selection will be used for the range. **NOTE:** Duplicate key exposures may occur when pasting with the Enforce Key Exposure option selected.
Fill Empty Cells	Lets you fill empty cells to extend the exposure of single frame drawings to fill the range of empty cells after each one.When creating drawings on cells that are not side-by-side, the exposure of the first drawing no longer fills automatically. You must select the frame range where you want your drawings to hold their exposure up to the next drawing and use the Fill Empty Cells command.
Insert Blank Cell	Adds an empty cell between other cells.
Clear Exposure	Removes the exposure from the selected cell.
Clear Exposure and Pull	Replaces the exposure from the selected cell with exposures that follow it.
Create Cycle	
Fill Selection	Lets you fill the same value over an entire selection. The selection can be over one cell, a cell range in one column, a cell range over many columns, an entire column, or many columns. You can use numbers, words, letters, or any alphanumeric value.
Sequence Fill	Lets you create a numbered sequence over a selection. The sequence can be forward, backward, single, double or higher increment, as a cycle, and so on. The selection can be over one cell or a cell range in one column or more or an entire column or many entire columns.
Fill Cells Randomly	Lets you fill in random values over a selection. You can give a maximum and a minimum value and create a range for Harmony to choose the random values from. The selection can be over one cell or a cell range in one column or more or an entire column or many entire columns.
Hold Exposure	Lets you expose a drawing for three, four, or five cells and so on.
Motion	
Insert Keyframe	
Insert Keyframe and Duplicate Drawing	
Delete Keyframes	Deletes the selected keyframe.
Go to Previous Keyframe	

Go to Next Keyframe	
Set Stop-Motion Keyframe	Sets a stop-motion keyframe which there is no computer-generated motion between two keyframes. The segment is constant or flat. The drawing remains still until the playback reaches the next keyframe, then the drawing pops to its new location.
Set Motion Keyframe	Sets a motion keyframe. In motion keyframes, there is no automatic interpolation created between the selected point and the next one. The layer will maintain its position until the animation reaches the frame of the next point and will then jump to the new position. Deselect this option to generate interpolation and get the layer to progressively move to the next position.
Morphing	
Create Morphing	Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
Delete Morphing	Once a cell is selected in a morphing sequence, deletes the entire sequence between the two keyframes.
Insert Morphing Key Drawing	Creates a morphing keyframe from a selected morphing frame.
Convert Morphing to Drawing	Lets you convert your morphing inbetweens to real drawings you can edit. This is useful when manually editing a morphing sequence or if you prefer to have animation timing in double frame (on twos) instead of single frame (on ones).
Lip-Sync	
Change Mouth Shape to	Lets you change the mouth shape to one of the following: A, B, C, D, E, F, G, X.
Auto Lip-Sync Detection	Generates a sound detection for lip-sync.
Map Lip-Sync	Automatically maps drawings in an element to the mouth chart you have generated for a sound. This can save time when you are lip-synching a voice track.
Sound Display	
Sound Name	Shows the name of the sound file, as well as the file format. The line running vertically through the column frames between the same file name indicates a continuity of the same sound file in these frames.
Mouth Shapes	Shows the letter (or name depending on the way you named your character's different mouth positions) in the column's frames. There is only one mouth position allotted per frame and this position should correspond to the sound file after performing a lip-sync.
Waveform	Shows a vertical display of the sound file's actual waveform. In the column header, in the field under the column name, you can type in a percentage to zoom in or zoom out on the waveform, or pass the scroll cursor over the Zoom Waveform icon.
Sound Edit	
Insert Blank Cell	Places an empty cell between other cells.
Clear Exposure and Pull	Replaces the exposure from the selected cell with exposures that follow it.

Annotation	
Import File	Lets you import an image file in an Annotation column.
Change Pen Colour	Lets you change the pen colour by selecting one from the Select Colour dialog box.
Pen Width	Lets you select a pen preset or change the pen width (in pixels).
Eraser Width	Lets you modify the width of the Eraser tool.
Erase All	Removes all text and drawn annotations. Annotations that you type in cannot be erased using this method.
Erase Selected Images	Removes images you select in the Annotation column.
Erase Selected Texts	Removes text you select in the Annotation column.
Enable Drawing	Lets you draw in the Annotation column using your mouse or pen tablet.

Chapter 4: Toolbars

Harmony contains toolbars which, by default, are located at the top of the interface. Some views also have a toolbar which you can reposition to suit your work style. You can show or hide toolbars, as well as customize it with the tools you use most often and hide the ones you don't.

Main Toolbars

View Toolbars

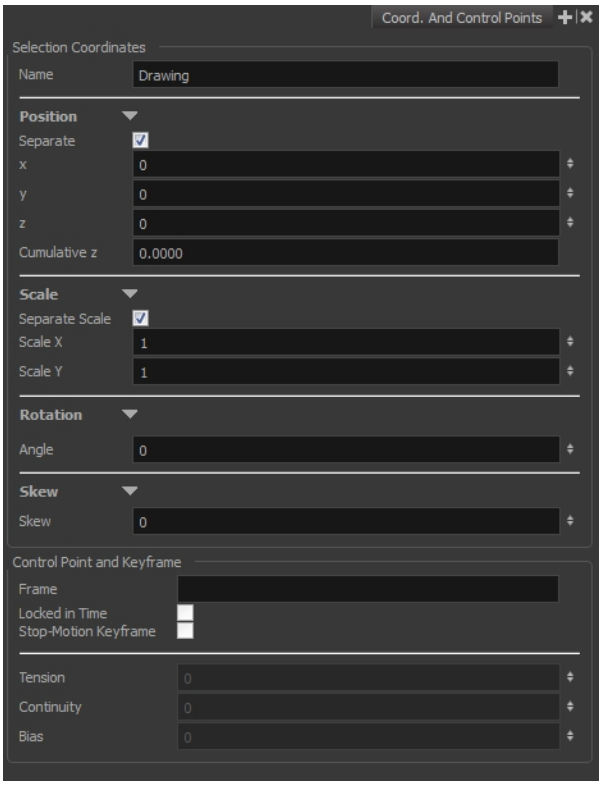
Chapter 5: Views

Intro...

Coordinates and Control Points View

The Coordinates and Control Points view displays the parameters of keyframes or control points selected in the Camera, Timeline or Xsheet view. You can also see the same information in the Coordinate and Control Point toolbars.

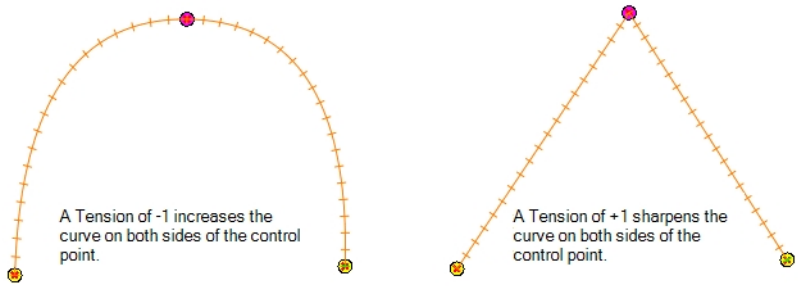
In this view, you can edit keyframes and control point parameters, such as the position, continuity, bias, tension and lock-in-time.



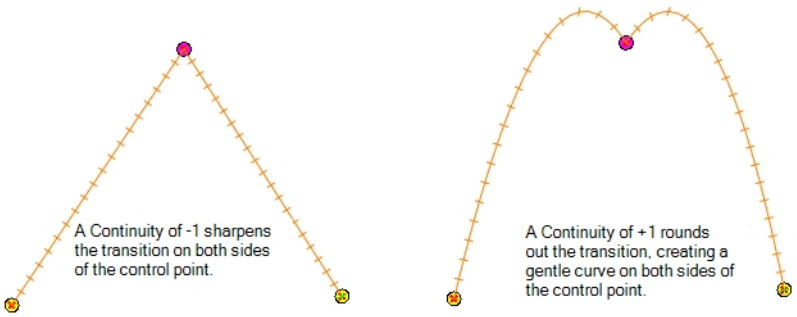
Parameter	Description
Name	The name of the function curve to which the select point is linked.
Position	
Separate	Modifies modify the X, Y and Z coordinates independently. When this option is deselected, all three parameters are linked. If one is deleted, all others will also be deleted.
Cumulative Z	When a layer is parented to other layers that are moved forward or backward on the Z-axis, the currently selected layer's Z position value may not be accurate since its parent will also have an offset on the Z-axis. The Cumulative Z value is a compilation of all the Z-axis offsets to give the real Z-axis offset value related to the (0,0) centre.
Scale	
Separate Scale	Modifies the width and height values independently. When this option is selected,

	the width and height are locked to the same value, forcing the scale to be on a 1:1 ratio. If the option is deselected, you have the ability to squash and stretch your layer at will.
Rotation	
Angle	The rotation angle value from the permanent pivot of the element.
Skew	
Skew	This is the skewing value.
Control Point and Keyframe	
Frame	The frame at which the select point is set.
Locked in Time	Indicates if the point is locked to a specific frame (keyframe) or only locked to a specific position and the curve can flow through it freely as other points are being added, moved, or adjusted (control point).
Stop-Motion Keyframe	When this option is selected, the keyframe is set as a stop-motion point. This means that there is no automatic interpolation created between the selected point and the next one. The layer will maintain its position until the animation reaches the frame of the next point and will then jump to the new position. Deselect this option to generate interpolation and get the layer to progressively move to the next position.
Tension	Controls how sharply the path bends as it passes through a control point or keyframe.
Continuity	Controls the smoothness of a transition between the segments joined by a point.
Bias	Controls the slope of the path so it flows towards one side of the motion point or the other.

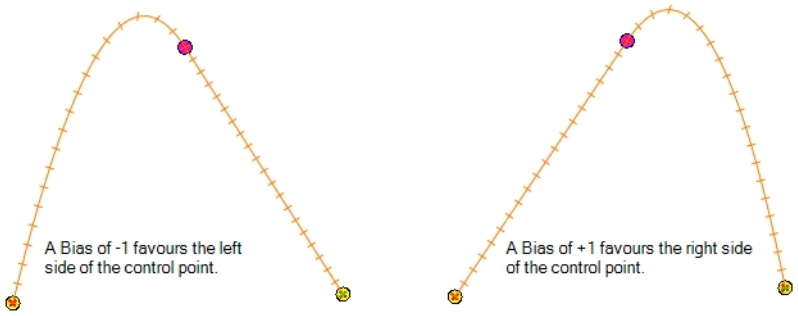
Tension



Continuity



Bias



Layer Properties

The Layer Properties editor or view lets you adjust the properties of a layer in the Timeline view or a node in the Node view. The Layer Properties can be viewed as a floating window or as a view (docked).

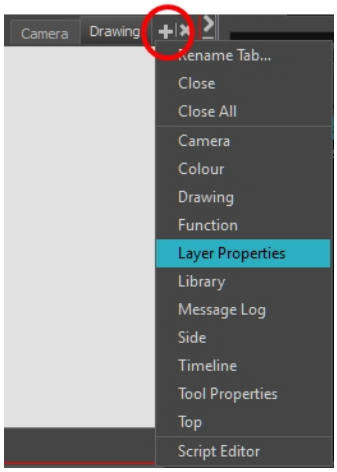
Each layer has its own set of properties that can be modified, including effect and peg layers. Display the Layer Properties editor or view if you want to modify some of the layer's properties, such as the name or the antialiasing quality.

How to access the Layer Properties editor

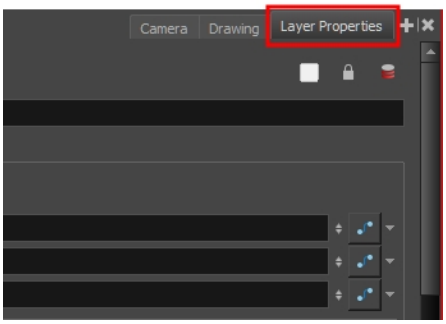
- Double-click on a layer in the Timeline view or a node in the Node view.
- Right-click on a layer in the Timeline view or a node in the Node view and select **Layer Properties**.
- Select a layer in the Timeline view or a node in the Node view and press Shift + E.

How to access the Layer Properties view

1. Do one of the following:
   - Select the view you want to add from **Windows > Layer Properties**.
   - In the top-right corner of a view, click the Add View + button and select Layer Properties from the list.



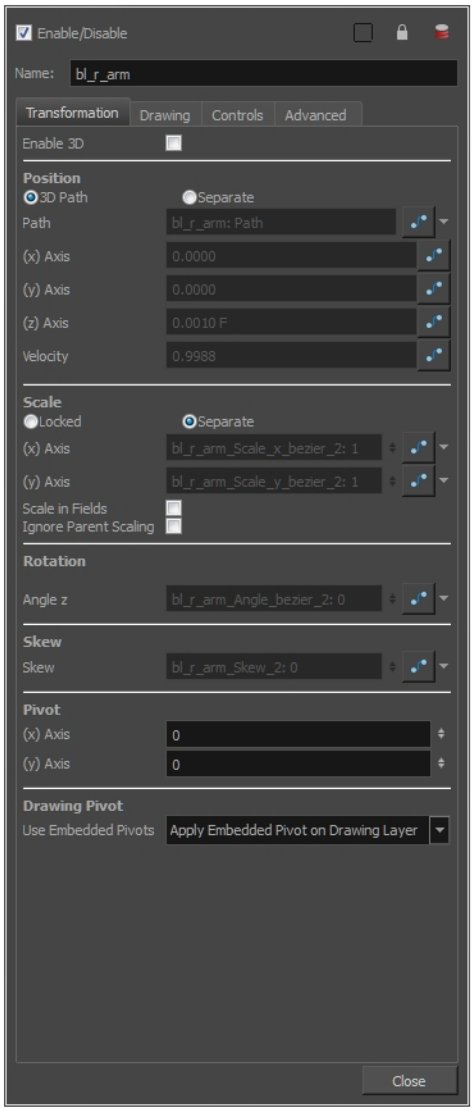
By default, the Layer Properties view appears as a tab.



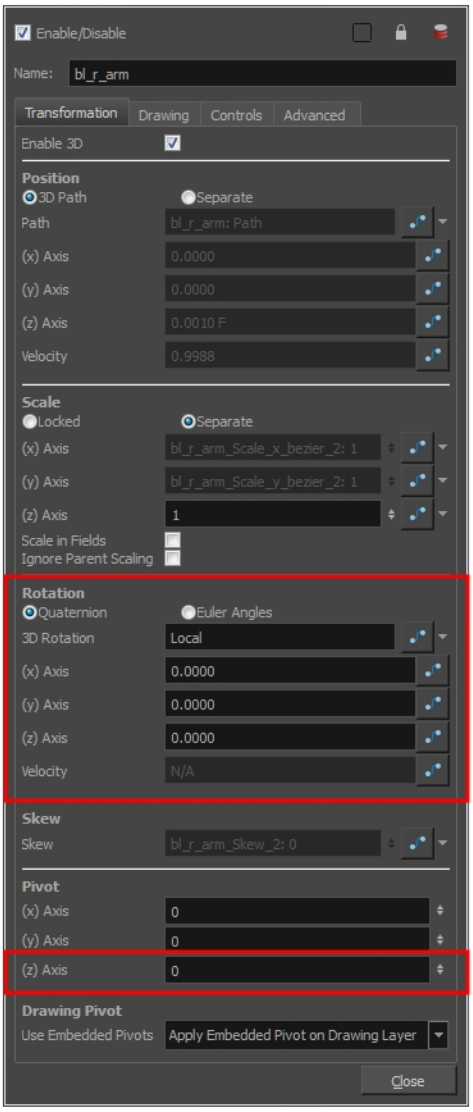
Transformation Tab

The Transformation tab contains parameters for adjusting the position, scale, rotation, skew and pivots of an element.

When the Enable 3D option is selected, additional parameters appear in the Rotation and Pivot sections to rotate objects on 3 axis in the 3D space.



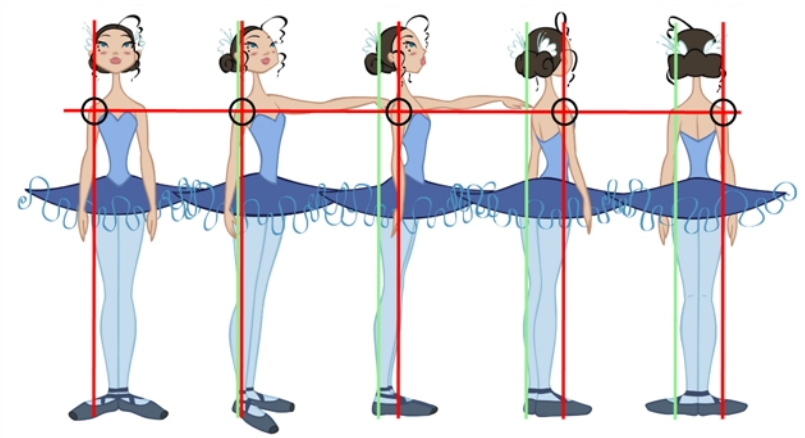
Transformation tab with the Enable 3D option deselected



Transformation tab with the Enable 3D option selected

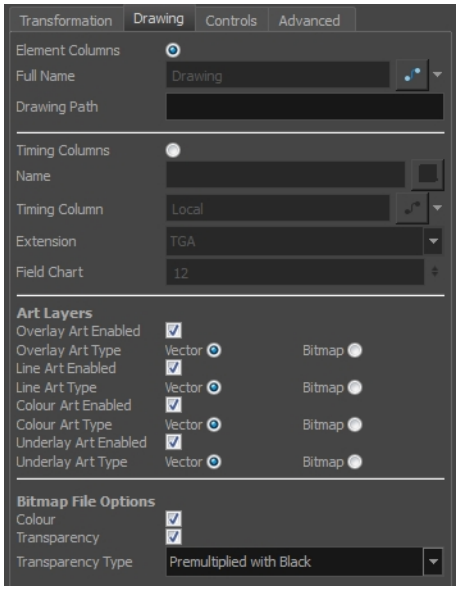
Parameter	Description
Enable 3D	Displays additional parameters for working with 3D objects.
Position	**3D Path**: Lets you use a 3D path function to animate an element. **Separate**: Lets you independently edit the different coordinate fields. **Path (x) Axis**: Lets you type in a new East/West coordinate corresponding to the desired position. **Path (y) Axis**: Lets you type in a new North/South coordinate corresponding to the desired position. **Path (z) Axis**: Lets you ype in a new Forward/Backward coordinate corresponding to the desired position. **Velocity**: When the 3D Path option is selected, lets you set the speed at which

Scale	**Locked**: Resizes the element while keeping its ratio. The X and Y axes scale proportionally **Separate**: Resizes the element allowing to modify the ratio (squash and stretch). **(x) Axis**: Lets you type in the horizontal scale value. **(y) Axis**: Lets you type in the vertical scale value. **Scale in Fields**: Instead of using the standard scaling units, when this option is enabled, images are scaled using field units, based on the traditional animation field chart. **Ignore Parent Scaling**: When this option is enabled, any scaling value applied to a parent layer is ignored in the current layer. This can be handy in cut-out rigs when you need to scale an arm without affecting the forearm.
Rotation	**Angle z**: Lets you type in a degree value for the rotation angle. Note that you can enter values greater than 360 and -360 degrees. If you enter 720, the object will rotate twice.
Skew	**Skew**: Lets you type in a degree value between -90 to 90 for the skew angle.
Pivot	**(x) Axis**: Lets you type in a new East/West coordinate corresponding to the desired position. **(y) Axis**: Lets you ype in a new North/South coordinate corresponding to the desired position.
Drawing Pivot	**Use Embedded Pivots**: Harmony has three types of pivots: • **Permanent Pivot** This is a permanent pivot, sometime referred to as peg pivot, that is applied to the entire drawing or peg layer. If you modify its position, it will be changed for the entire layer, modifying the animation, scale and rotation interpolation. The permanent pivot is set using the Rotate, Translate or Scale tool. The Transform tool will only move that pivot temporarily for positioning purposes, but the animation interpolation will be done from the original permanent pivot's position. The Transform tool is designed to move the pivot temporarily during the animation process. It also permits you to select multiple pegs and apply a common temporary pivot. To permanently move a peg pivot, use the Rotate or Scale tool. You can also directly type the values in the Layer Properties window in the Pivot section's (x) Axis and (y) Axis fields. In the Layer Properties window, in the Drawing Pivot section, select the **Don't Use Embedded Pivot** option to use the permanent pivot. • **Drawing Pivot** The Drawing pivot is contained within each drawing. In one layer, each drawing can have its own pivot. If you have many different views of a character within one layer, the pivot can be different and the animation will adjust to the pivot. The Drawing pivot can also be referred to as *embedded pivot*. If you are not mixing different views within the same layers or are using pegs to animate your layers, it is recommended to use the

	permanent pivot.  You can set a different pivot for each one of your drawings. For example, if you have a series of drawings from different views, they are not likely to rotate from the same location. In that case, you can set a different pivot for these drawings by using the Drawing Pivot tool. In the Layer Properties window, in the Drawing Pivot section, select the **Apply Embedded Pivot on Drawing Layer** option to use the drawing pivot directly on the drawing layer. If you want to apply the drawing pivot to a parent peg to force the peg to follow the drawing pivot variations, enable the **Apply Embedded Pivot on Parent Peg** option. • **Symbol Pivot** The Symbol pivot is similar to the Drawing pivot. Each symbol cell can have its own pivot and act the same as the Drawing pivot. The Symbol pivot can also be referred to as *embedded pivot*. Inside a symbol, each drawing can have its own pivot. If you are not mixing different views within the same layers or are using pegs to animate your layers, it is recommended to use the Peg pivot. For a simple character rig, it is recommended to set the Peg pivot (even on drawing layers) using the Rotate tool.

Drawing Tab

The Drawing tab contains parameters for the element and timing columns, designating art layers, and setting bitmap options.

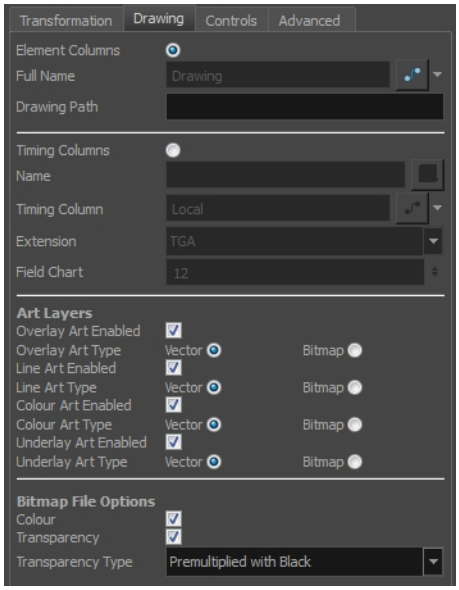


Parameter	Description
Element Columns	**Full Name**: Select which element to connect to the node from the list of elements that already exist in your scene. **Drawing Path**: Displays the full path to the current drawing.
Timing Columns	**Name**: Path to the file you want to link to. **Timing Column**: Link to the column that contains the desired timing. **Extension**: When linking to a background file, enter its file name extension. **Field Chart**: If you are importing traditional animation, select the size of the paper on which the animation was drawn.
Art Layers	**Overlay Art Enabled:** Enables the Overlay Art display. **Line Art Enabled:** Enables the Line Art display. **Colour Art Enabled**: Enables the Colour Art display. **Underlay Art Enabled**: Enables the Underlay Art display. **Overlay Art Type**: Allows you to set the Overlay Art as Vector or Bitmap type. **Line Art Type**: Allows you to set the Line Art as Vector or Bitmap type. **Colour Art Type**: Allows you to set the Colour Art as Vector or Bitmap type. **Underlay Art Type**: Allows you to set the Underlay Art as Vector or Bitmap type.
Bitmap File Options	When an image is created with an external software and that image has some transparency, there are several formats the software can use when writing the RBG channels. The purpose of the four import options for the transparency is for the user to tell Harmony how to interpret the RGB channels of the imported image. The correct option has to match the ouput format of the software that

	was used to create the image in the first place. For instance, if the you used Adobe Photoshop and exported an image as Straight, then it should be imported in Harmony as Straight in order to get the correct result. Note that if the image has no alpha channel or if it does have an alpha channel and all the pixels are 100% opaque, it does not make any difference which option is selected. **Colour**: Controls the production of colour information from bitmap images. If this module reads 3 or 4-channel bitmaps, this selection determines whether the colour should be read or ignored. If this module reads 1-channel bitmaps, this selection determines whether the channel should be read as colour. When this option is selected with 1-channel images, the resulting image will be a greyscale image. **Transparency**: Controls the production of alpha information from bitmap images. If this module reads a 1 or 3-channel image, this option will create a matte from the colour values in the image. If the module reads a 4-channel image and this option is not selected, the alpha information in the image will be ignored.
	Transparency Type **Premultiplied with Black**: Semi-transparent pixels in the original image are blended with black. **Premultiplied with White**: Semi-transparent pixels in the original image are blended with white. **Straight**: Semi-transparent pixels in the original image are left as is (unmatted). **Clamp Colour to Alpha**: Semi-transparent pixels in the original image are blended with black. On import, each of the RGB channels is clamped so that a color value never exceed the alpha value for a given pixel. When the RGB values are multiplied with the alpha value, that is to say, if you have a pixel of value R=247, G=188, B=29 and the alpha is 50% or the image has a 50% transparency, then the actual RGB values output would be half of the amounts listed above.

Drawing Tab

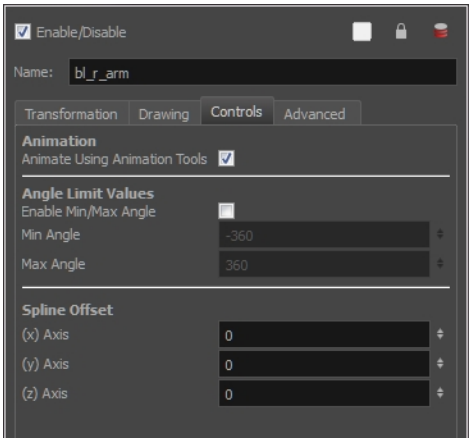
The Drawing tab contains parameters for the element and timing columns, designating art layers, and setting bitmap options.



Parameter	Description
Element Columns	**Full Name**: Select which element to connect to the node from the list of elements that already exist in your scene. **Drawing Path**: Displays the full path to the current drawing.
Timing Columns	**Name**: Path to the file you want to link to. **Timing Column**: Link to the column that contains the desired timing. **Extension**: When linking to a background file, enter its file name extension. **Field Chart**: If you are importing traditional animation, select the size of the paper on which the animation was drawn.
Art Layers	**Overlay Art Enabled:** Enables the Overlay Art display. **Line Art Enabled:** Enables the Line Art display. **Colour Art Enabled**: Enables the Colour Art display. **Underlay Art Enabled**: Enables the Underlay Art display. **Overlay Art Type**: Allows you to set the Overlay Art as Vector or Bitmap type. **Line Art Type**: Allows you to set the Line Art as Vector or Bitmap type. **Colour Art Type**: Allows you to set the Colour Art as Vector or Bitmap type. **Underlay Art Type**: Allows you to set the Underlay Art as Vector or Bitmap type.
Bitmap File Options	When an image is created with an external software and that image has some transparency, there are several formats the software can use when writing the RBG channels. The purpose of the four import options for the transparency is for the user to tell Harmony how to interpret the RGB channels of the imported image. The correct option has to match the ouput format of the software that

	was used to create the image in the first place. For instance, if the you used Adobe Photoshop and exported an image as Straight, then it should be imported in Harmony as Straight in order to get the correct result. Note that if the image has no alpha channel or if it does have an alpha channel and all the pixels are 100% opaque, it does not make any difference which option is selected. **Colour**: Controls the production of colour information from bitmap images. If this module reads 3 or 4-channel bitmaps, this selection determines whether the colour should be read or ignored. If this module reads 1-channel bitmaps, this selection determines whether the channel should be read as colour. When this option is selected with 1-channel images, the resulting image will be a greyscale image. **Transparency**: Controls the production of alpha information from bitmap images. If this module reads a 1 or 3-channel image, this option will create a matte from the colour values in the image. If the module reads a 4-channel image and this option is not selected, the alpha information in the image will be ignored.
	Transparency Type **Premultiplied with Black**: Semi-transparent pixels in the original image are blended with black. **Premultiplied with White**: Semi-transparent pixels in the original image are blended with white. **Straight**: Semi-transparent pixels in the original image are left as is (unmatted). **Clamp Colour to Alpha**: Semi-transparent pixels in the original image are blended with black. On import, each of the RGB channels is clamped so that a color value never exceed the alpha value for a given pixel. When the RGB values are multiplied with the alpha value, that is to say, if you have a pixel of value R=247, G=188, B=29 and the alpha is 50% or the image has a 50% transparency, then the actual RGB values output would be half of the amounts listed above.

Controls Tab

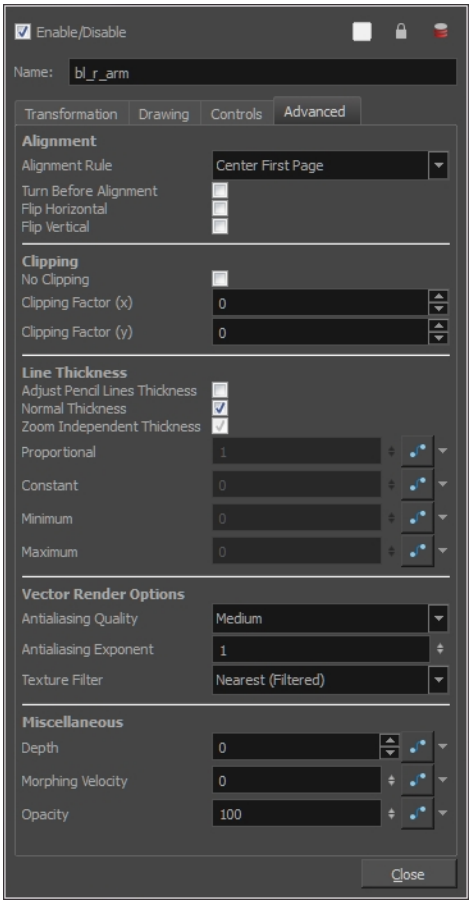


The Controls tab contains animation control options.

Parameter	Description
Animation	**Animate Using Animation Tools**: By default, a drawing layer can be animated using the same parameters as a peg, but you can disable this feature. Being able to switch your drawing layers so they can no longer be animated without a peg has certain advantages. In cut-out animation, it is easier to separate your drawing exposure and keyframes to change timing easier and rearrange keyframe position in the Timeline view. This feature is also available for backward compatibility when bringing in templates created in older versions of the software, so as not to lose their offset keyframes or drawing substitution keyframes.
Angle Limit Values	Lets you set a maximum and minimum rotation angle for a drawing. This option is used mainly for a cut-out character when you do not want an elbow to bend too far in or out. **Enable Min/Max Angle**: Activates the minimum and maximum angle constraints. **Min Angle**: Type the minimum angle you want the drawing to rotate too. **Max Angle**: Type the maximum angle you want the drawing to rotate too.
Spline Offset	In the X, Y and Z axis fields, type the coordinates of where you want to offset the visual trajectory. By default, the trajectory is displayed at the centre drawing, using the layer's pivot position. If you want to move it so it corresponds better with your drawing, either type new coordinates or use the Spline Offset tool available in the Advanced Animation toolbar. To display the trajectory in the Camera view, select your drawing and select **View > Show > Control**. You can also press Shift + F11 (Windows/Linux) or ⌘ + F11 (Mac OS X).

Advanced Tab

The Advanced tab contains options for setting the alignment of drawings, clipping, line thickness, vector render options, and more.



Parameter	Description
Alignment	**Alignment Rule**: The alignment rule selections are intended to deal with drawings that were created on paper of a different size or orientation from the default alignment rule (set up in the Scene Settings dialog box) or imported bitmap images. The drawings are then scaled to match the Harmony alignment rectangle. Note that alignment rules are not based on the camera frame, but on the scene frame. Refer to the Fundamentals Guide to learn more about scene alignment and scene settings. • **Left**: The default alignment for drawings; aligns the drawings to the left side of the scene's alignment rectangle. Harmony scales the drawings to match their height to the alignment rectangle of the scene. • **Right**: Aligns the drawings to the right side of the alignment rectangle. Harmony scales the drawings to match their height to the height of the alignment rectangle of the scene. • **Top**: Aligns the drawings to the top of the alignment rectangle. Harmony scales the drawings to match their widths to the width of the alignment rectangle of the scene. • **Bottom**: Aligns the drawings to the bottom of the alignment rectangle. Harmony scales the drawings to match their widths to the width of the alignment rectangle of the scene.

	• **Centre Fit**: Centers the drawings. • **Centre Fill**: Centers the drawings and then scales them so the width or height fills the available space. • **Centre LR**: Aligns the drawings in the left-right centre of the alignment rectangle. Harmony scales the drawings to match their height to the height of the alignment rectangle of the scene. • **Centre TB**: Aligns the drawings in the top-bottom centre of the alignment rectangle. Harmony scales the drawings to match their widths to the width of the alignment rectangle of the scene. • **Stretch**: Scales the drawings so they fit within the alignment rectangle of the scene. This is particularly useful for images that you will manipulate with a Quadmap node. If the drawings in the Quadmap node do not have the same aspect ratio as the alignment rectangle of the scene (from the Scene Settings dialog box), the handles on the quadmap will not appear on the corners of the image, making it difficult to manipulate the quadmap. In this case, you would set the drawing layer of the quadmap images to Stretch to make the handles appear on the corner of the image. This can have the effect of distorting the images, but it is not an issue with images that will be distorted through the Quadmap node anyways. • **As Is**: Leaves the drawings aligned as they are. • **Centre First Page**: Aligns the centre of the first part of a standard pan cel with the centre of the field chart.
	Turn Before Alignment: Rotates the drawings in the selected element 90 degrees to the left before scaling and aligning them according to the alignment rule, and before performing any offset, rotation or scaling for the element or peg. This and the Alignment Rule are intended for drawings that were created on paper of a different size or orientation than the other paper in the scene, and requires alignment so they are treated accurately.
	Flip Horizontal: Flips the drawing on the X-axis.
	Flip Vertical: Flips the drawing on the Y-axis.
Clipping	**No Clipping**: Select this option if you do not want to clip the images in this node before an effect is applied to it.
	Clipping Factor (X)/(Y): This is an option for rendering images that are larger than the final frame. With this option enabled, images can be moved by an **Apply Peg Transformation** node without black entering into the composite as a result of early clipping. In addition, this option is useful for images that have a blur that should appear in the frame even though the image itself is not in frame–see Apply Image Transformation and Apply Peg Transformation.
Line Thickness	As you move the camera in your scene along the Z-axis, notice that, logically, the lines of the elements become thicker the closer the camera gets to the drawing. If you prefer the lines to remain the same size or become thicker at a different speed, you can use the thickness feature to adjust your brush stroke and pencil line thickness. You can modify the size of the lines even if the camera is not animated.

	To learn how to use this feature, see Camera Truck-ins and Line Thickness. **Adjust Pencil Lines Thickness**: Lets you work with pencil lines and adjust their thickness. You will not see any changes to lines in the Camera view OpenGL mode. You must switch to the Render mode. **Normal Thickness**: Disables all overrides on the brush stroke line thickness. This option must be enabled in order for the pencil line thickness parameter and pencil lines to appear. If you want to modify the brush stroke thickness, deselect this option. To enable brush strokes to work with the line thickness feature, you must first create central strokes in the Colour Art layer. The central strokes control the line variation of your brush strokes in the Line Art layer. Select **Drawing > Create Colour Art from Line Art**. **Zoom Independent Thickness**: Select this if you want your line thickness to remain constant independently from the camera move. Everything else will increase in size, but the line thickness will stay the same. **Proportional:** Enter a multiple by which you want to increase the line thickness base on its original thickness. A value of 1 will result in no change; a value of 0 (zero) will hide the lines. **Constant**: Enter a value in pixels (based on a 720x540 screen resolution) to indicate the amount of pixels you want to add around the existing line. **Minimum:** Enter a value in pixels (based on a 720x540 screen resolution) for the minimum line thickness allowed. **Maximum**: Enter a value in pixels (based on a 720x540 screen resolution) for the maximum line thickness allowed.

Vector Render Options	• **Antialiasing Quality**: A smoothness (antialiasing) setting applied to the final rendered image.
	  • **Low**: No antialiasing
	  • **Medium Low**: Basic antialiasing
	  • **Medium**: Improved antialiasing (blurs the textures)
	  • **High**: High quality antialiasing (does not blur the textures)
	  Higher quality images require more time to render and more system memory. Choose a lower quality if you are rendering a pencil test.
	• **Antialiasing Exponent**: Controls the size of the area around the final image edges used in the antialiasing process. A higher value uses less area, resulting in sharper edges, while a lower value uses more area, resulting in softer edges. If the Antialiasing Quality value is set to Low (no antialiasing) or Medium Low, this value is ignored. Values: Between 0 and 1.
	• **Texture Filter:** This option changes the way coloured pixels of TVG textures are calculated when rendered for different degrees of accuracy.
	  • **Bilinear**: This option takes the four pixels around each point and makes a bilinear interpolation between them. (Medium Quality)
	  • **Nearest**: This option chooses the colour of the closest pixel to a point. (Lower Quality)

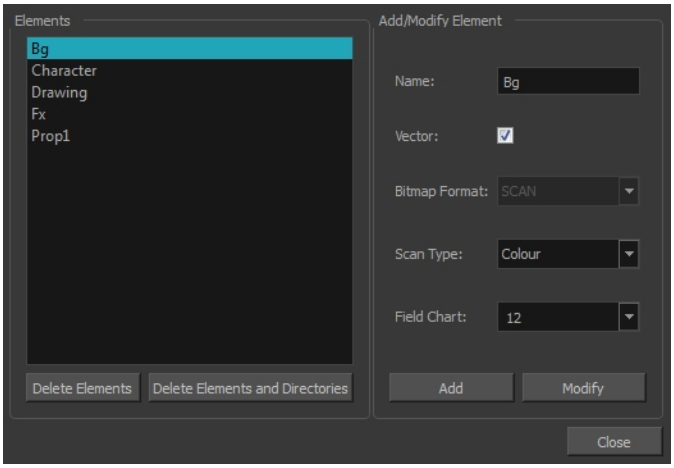
	• **Nearest (Filtered)**: This option is an improved version of Bilinear and improves the quality when zooming on a texture. (Best Quality)
Miscellaneous	• **Depth**: Overrides the order of cables in the node system to determine the forward/backward order in which this element is rendered. The Z position value overrides the depth value. • **Morphing Velocity**: Creates a velocity function curve for morphing sequences in the layer. This function modifies the interpolation percentage between the 2 drawings. If set, the morphing between the two drawings will not be linear over time between the two drawings but will be modulated according to this curve. This can be used to create a periodic morphing over a long period of time. • **Opacity**: Lets you quickly change the transparency of the selected element. Opacity settings here will be reflected in both **OpenGL** preview, and full render.

Chapter 6: Windows

Intro...

Element Manager Window

The Element Manager window lets you add, delete or modify elements (drawing folders) in your scene. If you have drawing folders that are not linked to a column in your scene, use the Element Manager to delete them if needed.



For more information on working with this window, see *Modifying Layers and Columns* on page 1.

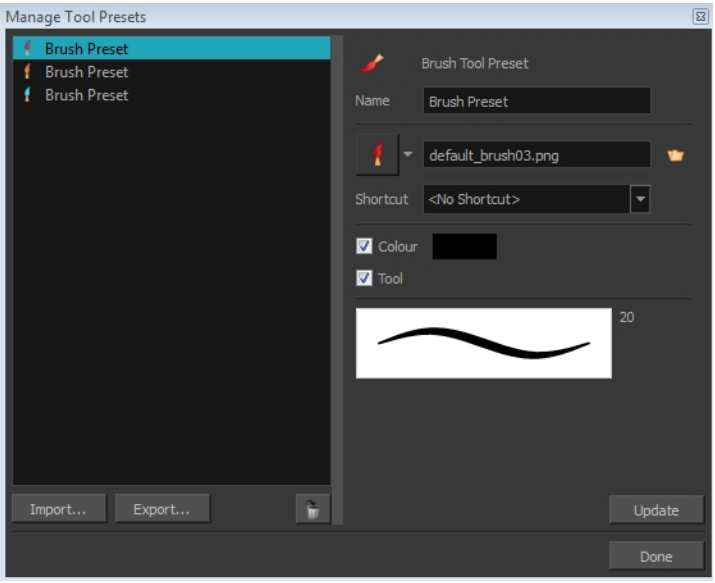
How to access the Element Manager window

1. From the top menu, select **Scene > Element Manager**.

Parameter	Description
Elements	
Delete Elements	Deletes the selected elements.
Delete Elements and Directories	Deletes the selected layer and its directories (drawing folder).
Add/Modify Element	
Name	Type in a new name in this field to create an element or to rename the selected element.
Vector	Select this option if the new element is a vector drawing or if you want to enable the parameters on the selected element in the Elements list.
Bitmap Format	Lets you select the file format of the bitmap layer.
Scan Type	If you're planning to scan elements with the Toon Boom Harmony Scan module, select the scan type from the list.
Field Chart	If you're importing traditional animation, select the size of the paper on which the animation was drawn.
Add	Creates a new element with the current parameters entered in the **Add/Modify Element** section.
Modify	Applies the parameter changes made to the selected element.

Manage Tool Presets Window

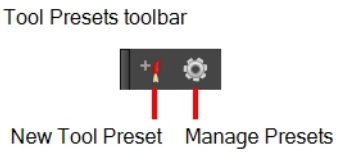
The Tool Presets window lets you create new tool presets and manage them.



For more information on working with this window, see *Working with Tool Presets* on page 1.

How to access the Manage Tool Presets window

1. Do one of the following:
   - From the top menu, select **Windows > Toolbars > Tool Presets**.
   - Right-click an empty area below the top menu and select **Tool Presets**.



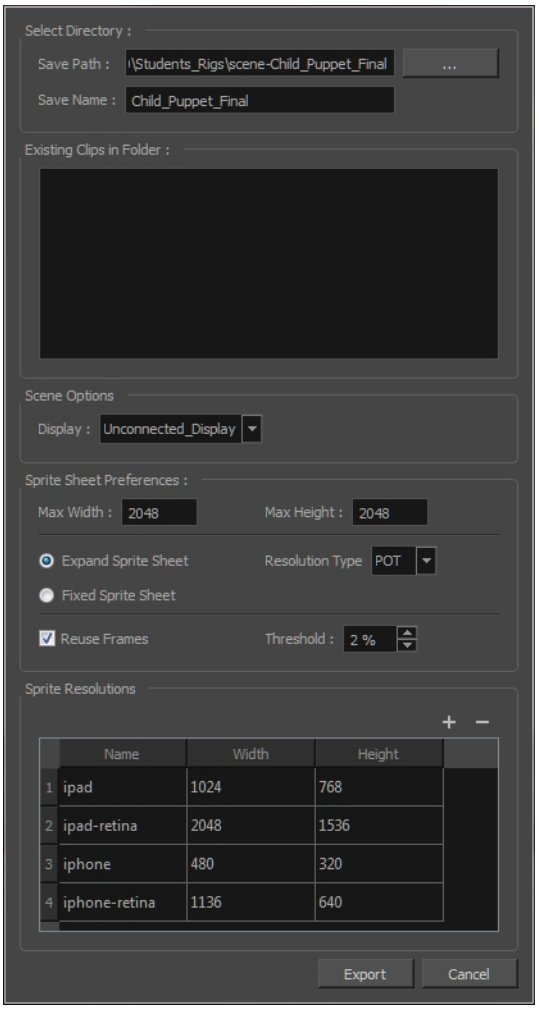
2. In the Tool Presets toolbar, click the Manage Presets button.

Parameter	Description
Icon	Lets you select a preset to manage.
Import	Lets you import an existing preset.
Export	Lets you export a preset for use in other projects.
Delete	Removes the preset from the list of tool presets.
Name	Lets you change the name of the preset.
Icon list	Lets you select an icon for the preset.
Folder icon	Lets you select an image for the preset.
Shortcut	Lets you assign a keyboard shortcut to the new preset.

Colour	Saves the current colour into the tool preset.
Tool	If you disable this option, only the colour will be associated. You could, for example, set three different colours with shortcuts not associated with any tool. The colour preset would then work on any selected tool. Selecting the brush tool was only a vehicle to get into the New Tool Preset dialog box.
Update	After adjusting the settings for a preset, the current properties are applied to the presets, as well as any other changes you made in the Manage Tool Presets window.

Export to Easel JS

The Export to Easel JS window lets you a flattened image sequence of your animation. Even if you have a fully rigged puppet or a single drawing layer with your animation sequence, the outcome will still be a flattened output of each frame, grouped together in your sprite sheet. This allows for more flexibility and freedom of work as you have access to any tools or effect modules you want to use. However, this can result in heavier files depending on the length, complexity and export size of your animation.



How to access the Export to Easel JS window

1. From the top menu, select **Windows > Toolbars > Game**.

   The Game toolbar appears above the Camera view, to the left.

2. Click the Export to Easel JS button.

Parameter	Description
Select Directory	
Save Path	The folder path where you want to save your export.
Save Name	The folder name in which you will save your export. This will also be the name of your asset in Unity. Your scene file name will be used as the clip name.
Existing Clips in Folder	Displays the clips in the folder.
Scene Options	
Display	Here, you must select the Display of your character. This is the one that will be used to render out all of the information attached to that Display node. If the Unconnected_Display option is selected, all of the visual information in your scene will be rendered out.
Sprite Sheet Preferences	
Max Width	This is a value, in pixels, for the maximum width and height the exported sprite sheet should be. By default, both values are set to 2048 pixels.
Max Height	
Expand Sprite Sheet	Uses the minimum size necessary up until it reaches the maximum resolution.
Fixed Sprite Sheet	Creates a texture of the specified size (Max Width and Max Height) even if it does not fill it up completely by all the drawings in your scene.
Resolution Type	**POT**: Exports to sprite sheets with sizes that are a power of 2. For example: 1024 x 1024. This is optimized for many graphics cards, but consumes more memory. **NPOT**: Some game engines are optimized specifically to render to non powers of two, so that it will avoid those numbers. Example: 1000 x 1000.
Reuse Frames	This option works in tandem with the Threshold option. The export will compare the drawings in your project to reuse a maximum of similar drawings and reduce the amount of information found in the sprite sheet, making it lighter. The export will omit the creation of new drawings if the difference is less than the threshold percentage.
Threshold	Calculates the differences between multiple drawings. A 2% threshold will prevent the creation of a new drawing if the drawing is too similar to an existing drawing. For instance, with a 2% threshold, and my drawing is 100 pixels big,

	only 2 of those pixels need to be different from my other drawing in order to create a new one. The higher the threshold, the fewer similar drawings you will have.
Sprite Resolutions	Size of the render of the individual sprite, when it exports each drawing out.

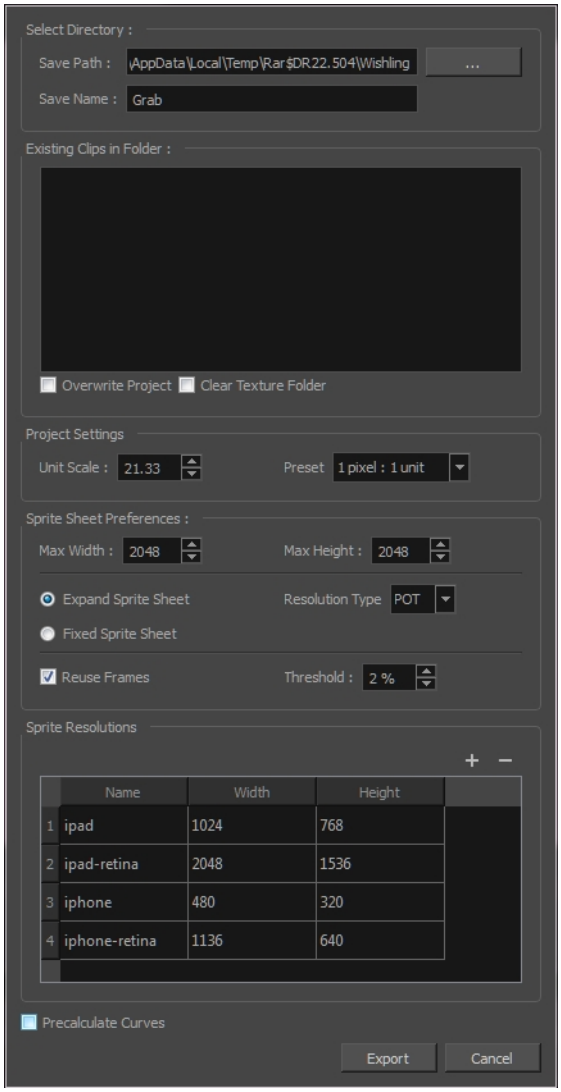
Export to Sprite Sheets

The Export to Sprite Sheets window export to multiple resolutions, generating multiple .xml files and one or multiple sprites sheets depending how many sprite resolutions you defined.

This saves different animations of the same character into the same name. For example, if there's an idle, run, and jump animation, these should all share the same Save Name. You can think of it as the overall collection of animations. Inside are the different saved scene versions whose drawings you can reuse for all the animations in that character set. Each scene version will be displayed as an item in the list.

When you export an animation, only the drawings used in that scene are exported. All the drawings are exported individually first and then atlased together into a sprite sheet.

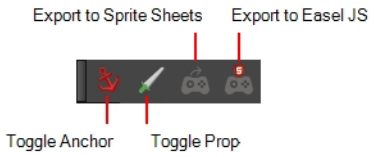
If you saved multiple animations to the same Save Name (i.e. SpaceDuck: run, idle), then it will reatlas the sprite sheet to include all the drawings from all the animations in that folder, creating a new animation file, but reusing the same skeleton.



How to access the Export to Sprite Sheets window

1. From the top menu, select **Windows > Toolbars > Game**.

   The Game toolbar appears above the Camera view, to the left.



2. Click the Export to Sprite Sheets button.

Parameter	Description
Select Directory	
Save Path	The folder path where you want to save your export.

Save Name	The folder name in which you will save your export. This will also be the name of your asset in Unity. Your scene file name will be used as the clip name.
Existing Clips in Folder	
Overwrite Project	The folder name in which you will save your export. This will also be the name of your asset in Unity. Your scene file name will be used as the clip name.
Clear Texture Folder	Removes any information from the texture folder within the Harmony file. This has no incidence towards the Unity export but contributes to a lighter Harmony file.
Project Settings	
Unit Scale	Lets you change the scale when exporting to Unity to accommodate the size of the export without it affecting the Harmony scene. This helps you resize assets properly for Unity without having to resize them in Harmony. The basic scale is one Animation Field for one Unity unit.
Sprite Sheet Preferences	
Max Width	This is a value, in pixels, for the maximum width and height the exported sprite sheet should be. By default, both values are set to 2048 pixels.
Max Height	Makes linear values for interpolation. This increases the amount of memory used but frees up the calculation so it is not done on the fly.
Expand Sprite Sheet	Uses the minimum size necessary up until it reaches the maximum resolution.
Fixed Sprite Sheet	Creates a texture of the specified size (Max Width and Max Height) even if it does not fill it up completely by all the drawings in your scene.
Resolution Type	**POT**: Exports to sprite sheets with sizes that are a power of 2. For example: 1024 x 1024. This is optimized for many graphics cards, but consumes more memory. **NPOT**: Some game engines are optimized specifically to render to non powers of two, so that it will avoid those numbers. Example: 1000 x 1000.
Reuse Frames	This option works in tandem with the Threshold option. The export will compare the drawings in your project to reuse a maximum of similar drawings and reduce the amount of information found in the sprite sheet, making it lighter. The export will omit the creation of new drawings if the difference is less than the threshold percentage.
Threshold	Calculates the differences between multiple drawings. A 2% threshold will prevent the creation of a new drawing if the drawing is too similar to an existing drawing. For instance, with a 2% threshold, and my drawing is 100 pixels big, only 2 of those pixels need to be different from my other drawing in order to create a new one. The higher the threshold, the fewer similar drawings you will have.
Sprite Resolutions	Size of the render of the individual sprite, when it exports each drawing out.
Precalculate Curves	Makes linear values for interpolation. This increases the amount of memory used but frees up the calculation so it is not done on the fly.

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