



HARMONY

TOON BOOM HARMONY 14.0
PREMIUM EDITION
Reference Guide

Legal Notices

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Chapter 1: Reference

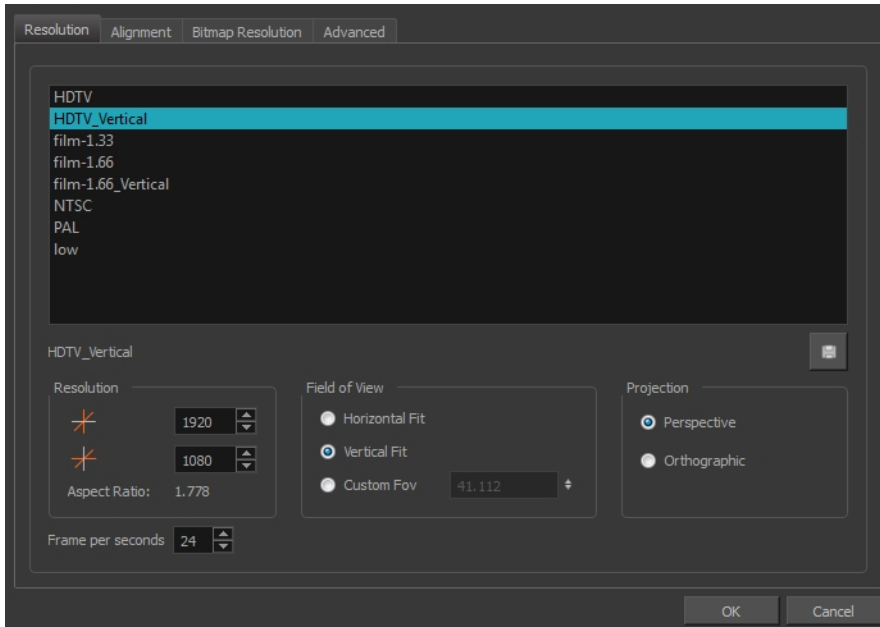
Harmony has several commands, dialog boxes, and buttons. The Reference section lists all of them along with the matching definition. To understand how to use these functions in a production context, read the User guide.

In the Reference guide, you will learn about the various parameters available in dialog boxes, menus, nodes, toolbars, views, and windows.

The Preferences guide provides additional details about each individual preference.

Chapter 2: 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:



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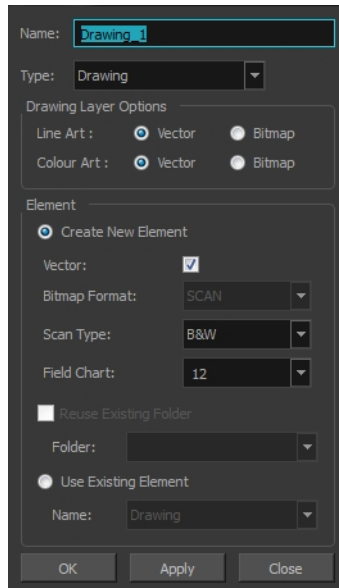
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Add Column Dialog Box


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.



How to access the Add Column dialog box

- 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.

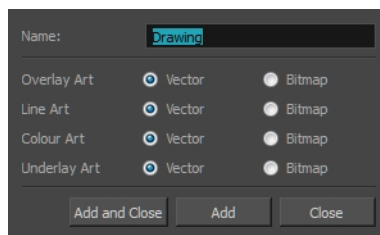
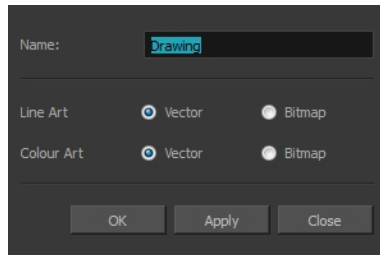
Drawing Layer Options	
Line Art	Creates a vector or bitmap drawing column in the Line Art layer.
Colour Art	Creates a vector or bitmap drawing column in the Colour Art layer.
Element	
Create New Element	Creates an independent column with its own drawing folder.
Vector	Select this option if you want the 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.



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.
Overlay Art	Creates a vector or bitmap drawing layer in the Overlay Art layer.
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.
Underlay Art	Creates a vector or bitmap drawing layer in the Underlay 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.
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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.

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.

	Drawing_3	Drawing_2	Drawing_1	Drawing
1	13	15	1	1
2	14		2	
3	1		3	
4			4	
5		1	5	1
6		2	6	
7		3		
8	2	4		

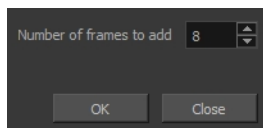
- In the Timeline view, select the frame to which you want to add frames before or after.



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).

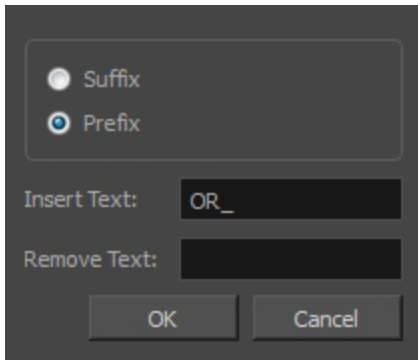
The Add Frames dialog box opens.



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

Add Prefix or Suffix Dialog Box



The Add Prefix or Suffix dialog box lets you add or remove a prefix or suffix for a multi-layer or multi-node selection.



How to access the Add Prefix or Suffix dialog box

1. In the Network or Timeline view, select all the nodes or layers to rename or press Ctrl + A (Windows/Linux) or ⌘ + A (Mac OS X).



2. In the Scripting toolbar, click the Add Prefix or Suffix Script  button. If the Scripting toolbar is not visible, you can display it by selecting **Windows > Toolbars > Scripting** from the top menu. If the Add Prefix or Suffix Script  button is not visible in the Scripting toolbar.

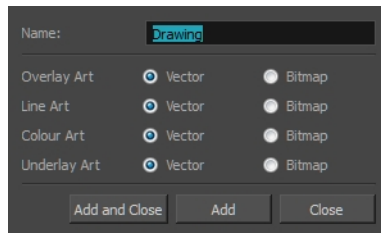
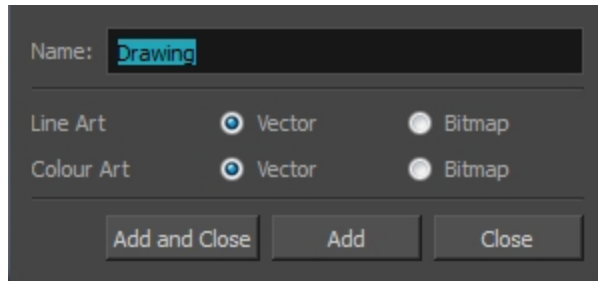
The Add Prefix or Suffix dialog box opens.

Parameter	Description
Suffix	Allows you put a defined set of characters (letters, numbers, symbols) after the pre-existing layer or node name.
Prefix	Allows you put a defined set of characters (letters, numbers, symbols) before the pre-existing layer or node name.
Insert Text	Enter a set of characters to be added to the selected layers or nodes.
Remove Text	Enter a set of characters to be removed from the selected layers or nodes.

Add Synced Drawing Layer Dialog Box

The Add Synced Drawing Layer dialog box lets you add a drawing layer to your project that will automatically be synced with the currently selected layer.

Depending on whether the Support Overlay and Underlay Arts option was selected in the Advanced tab of the Preferences panel, the Add Synced Drawing Layer dialog box may look one of two ways.



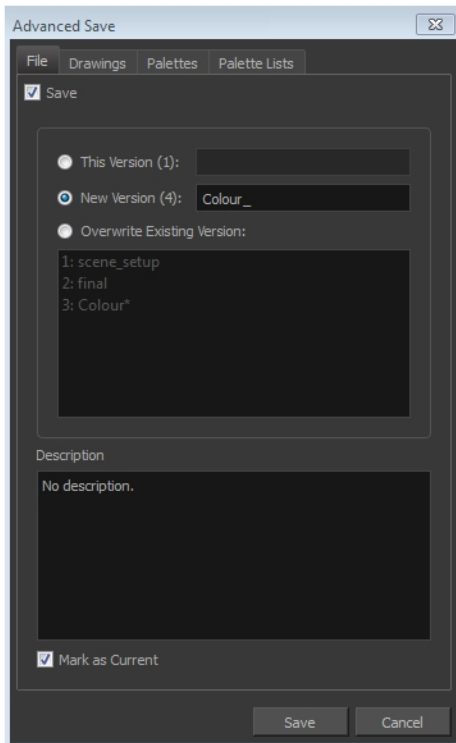
How to access the Add Synced Drawing Layer dialog box

1. In the Timeline view, right-click on the drawing layer you would like to sync with another layer.
2. From the right-click menu, select **Add Synced Drawing Layer**.

Parameter	Description
Name	Lets you give the new layer a meaningful name.
Overlay Art	Creates a vector or bitmap drawing layer in the Overlay Art layer.
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.
Underlay Art	Creates a vector or bitmap drawing layer in the Underlay 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.

Advanced Save Dialog Box

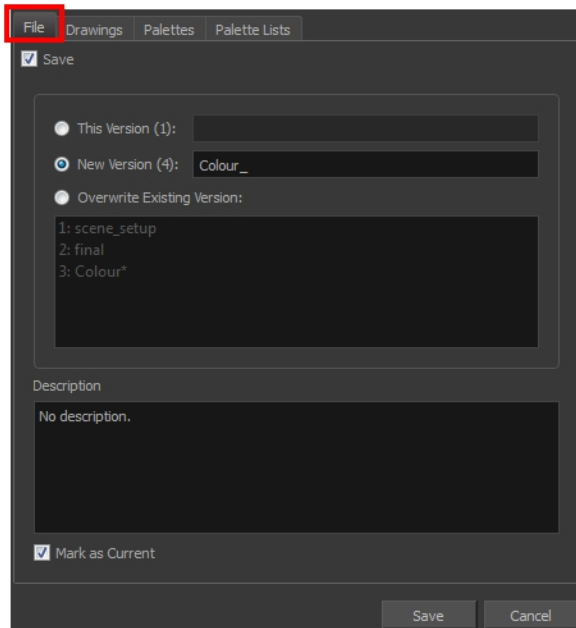
In Harmony Server, the Advanced Save dialog box lets you save the scene as a new version, overwrite an existing version, set a new current version, display a list of modified drawings, colour palettes, and modified colour palette lists.



How to access the Advanced Save dialog Box

1. Make sure that you have the necessary rights to save the current scene version. If you do not, you can acquire the rights by selecting **File > Rights to Modify Scene Version** or **Rights to Modify Scene**.
2. From the top menu, select **File > Advanced Save**.

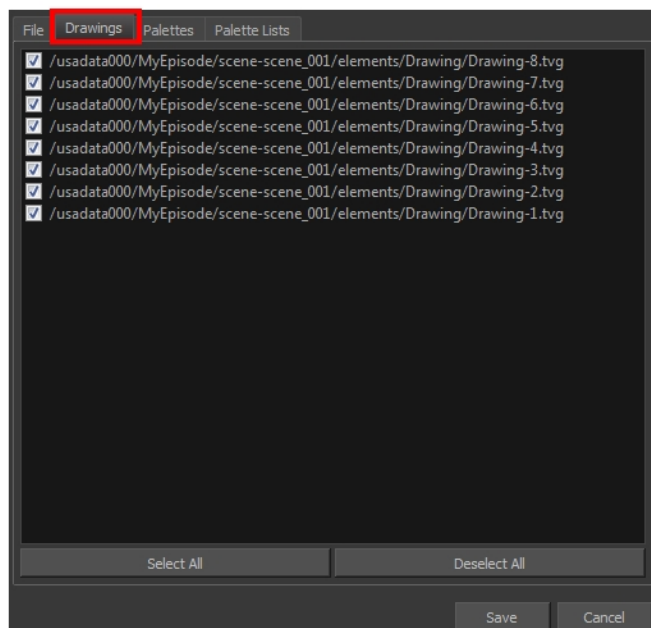
File Tab



Parameter	Description
Save	<ul style="list-style-type: none"> ▶ Enable this option if you want to save the modifications made to the current scene. ▶ Deselect the Save option if you only want to save specific components of your scene listed in the Drawings, Palettes or Palette Lists tabs. This will disable all option in the File tab.
This Version (number)	Saves the current version of the scene. You can rename the current version by typing a new name into the field.
New Version (number)	Saves the current scene as a new version. You can name this new version by typing a name into the field.
Overwrite Existing Version	Lets you select an existing version of your scene from the list to overwrite it.
Description	Use this field to add or edit an existing description for the scene version you want to save.
Mark as Current	Lets you set this scene version as the current one. This version will be automatically selected as the default current version when the scene is selected in the Database Selector dialog box

Drawings (Harmony Server only)

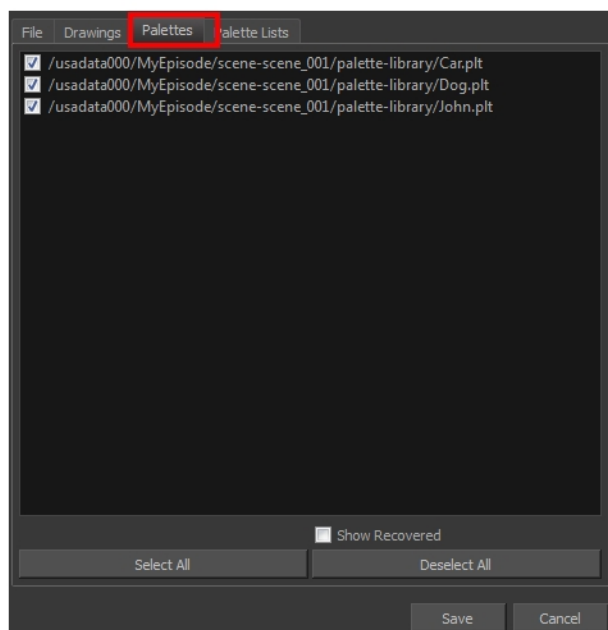
The Drawings tab lists the modified drawings.



Parameter	Description
Drawing list	Lets you select the modified drawings to save, and deselect the ones you do not want to save.
Select All	Selects all modified drawings in list.
Deselect All	Deselects all modified drawings in the list.

Palettes Tab

The Palette tab lists the modified colour palettes.

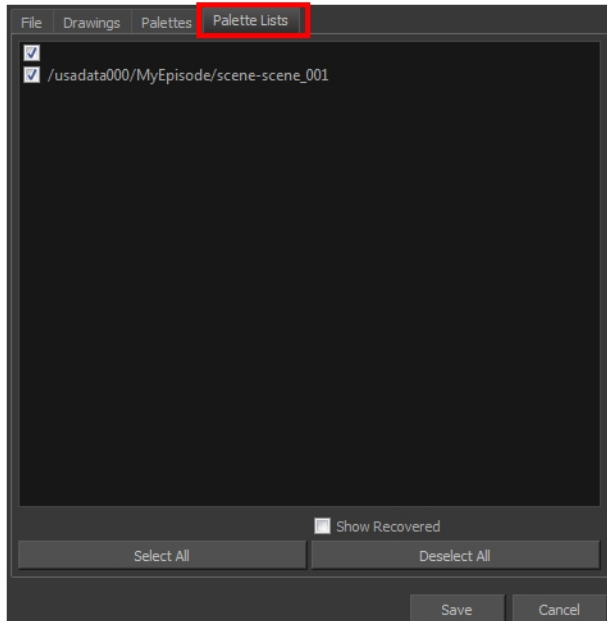


Parameter	Description
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Colour Palette list	Lets you select the colour palette to save, and deselect the ones you do not want to save.
Show Recovered	Displays the recovered palettes in the list of modified palettes.
Select All	Selects all modified colour palettes in the palette list.
Deselect All	Deselects all modified colour palettes in the palette list.

Palette Lists Tab

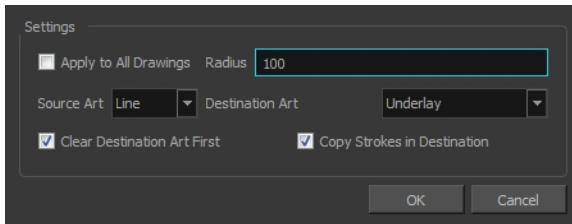
The Palette Lists tab lists all the modified colour palette lists.



Parameter	Description
Palette Lists	Lets you select the modified palette list to save, and deselect the ones you do not want to save.
Show Recovered	Displays the recovered palettes in the list of modified palettes.
Select All	Selects all modified palette lists in the list.
Deselect All	Deselects all modified palette lists in the list.

Auto-Matte Dialog Box

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



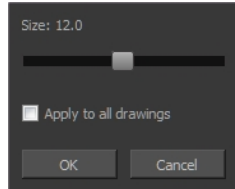
How to access the Auto Matte dialog box

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.



How to access the Close Gaps dialog box

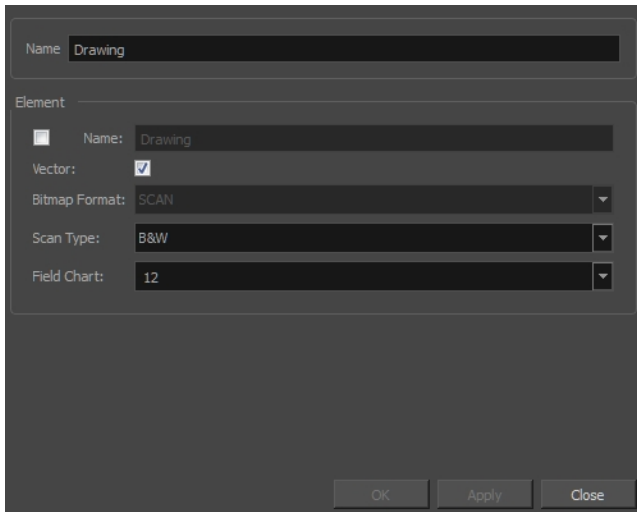
1. Select **View > Show > Show Strokes** or press K to see a preview of the result.
2. To flatten the strokes you draw, click the Auto-Flatten  button in the Tool Properties view.
3. Select **Drawing > Clean Up > Close Gaps** or press Shift + F10 (Windows/Linux only).

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 Properties Dialog Box

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



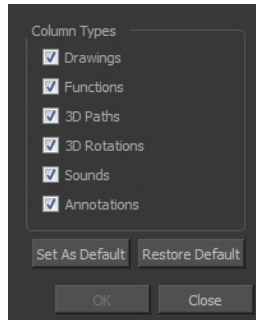
How to access the Drawing dialog box

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.

Column Types Dialog Box

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



How to access the Columns Types dialog box

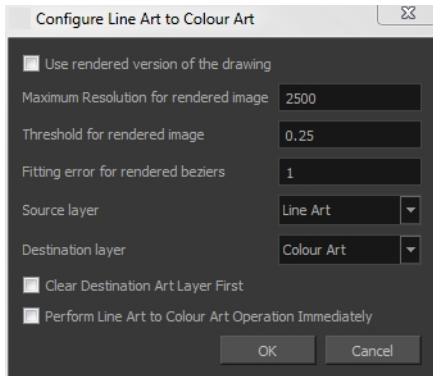
1. In the Xsheet view, select **View > Column Types Manager**.

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.



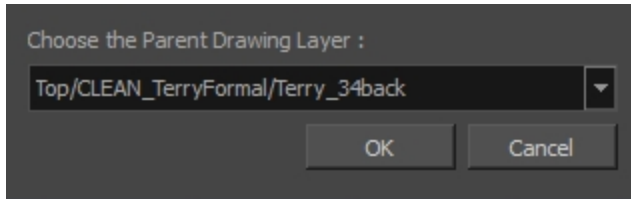
How to access the Configure Line Art to Colour Art dialog box

1. In the Tools toolbar, select the Select tool.
2. In the Tool Properties view, hold down the Shift key and click on the Create Colour Art from Line Art button.

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.

Convert to Synced Drawing Layer Dialog Box

The Sync Layer feature allows for drawings to be separated on different layers, but to have the same timing.



How to access the Convert to Synced Drawing Layer dialog box

1. Right-click on a drawing layer you would like to sync with another layer.
2. From the right-click menu, select **Sync Layers With**.

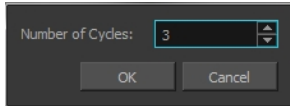
In the Choose the Parent Drawing Layer drop-down list, with the exception of the selected layer, every layer in your scene is listed.

3. To sync a layer with your currently selected layer, from the drop-down list, select a parent drawing layer and click OK. The child layer immediately updates to the parent layer's timing.

Create Cycle Dialog Box

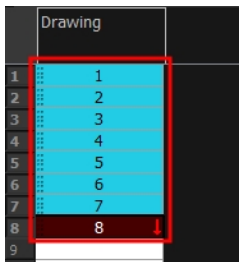
The Create Cycle dialog box lets you create cycles from a series of drawings and exposures.


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.



How to access the Create Cycle dialog box

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



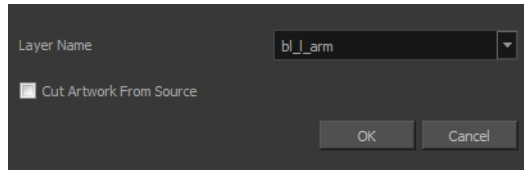
2. In the Timeline toolbar, click the Create Cycle  button (you may have to customize the toolbar to display it).

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 cut a part of a drawing and send it to a new or existing layer.



How to access the Create Drawing from Drawing Selection dialog box

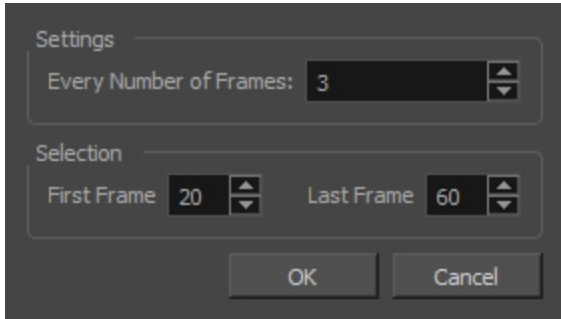
1. From the top menu, select **Edit > Create Drawing From Drawing Selection** or press F9 (Windows/Linux) or $\text{⌘} + \text{F9}$ (Mac OS X).

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 Function Step On Dialog Box

The Create Function Step On dialog box lets you hold the same value over a selected number of frames for multiple parameters (pos x, scale y, etc.). This works well when you are animating drawings on 2s or 3s, for example, and you want to hold the same value for a function over those two or three frames.



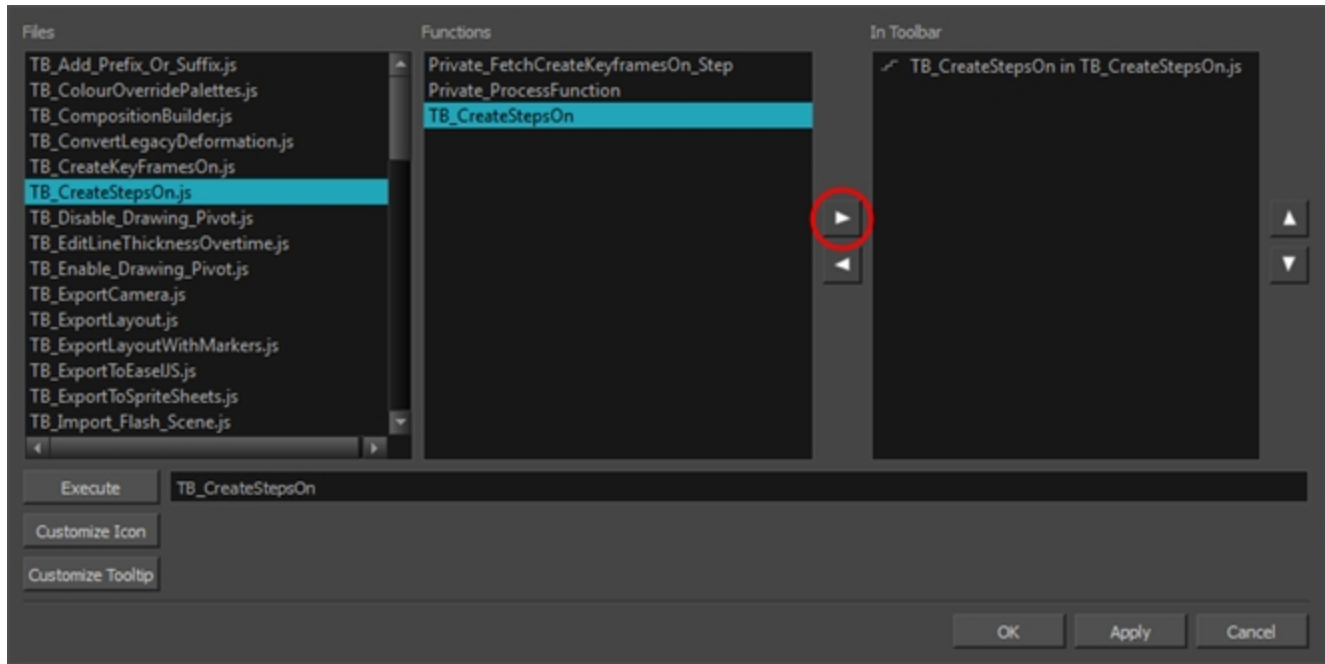
How to access the Create Function Step On dialog box

1. Add the Scripting toolbar to your interface:
 - Go to the top menu and select **Windows > Toolbars > Scripting**.
 - Right-click on the empty space near the top of the interface and from the quick-access menu selecting **Scripting**.
 - Right-click on the empty space near the top of a view and from the quick-access menu selecting **Scripting**.
2. In the Scripting toolbar, click on the Manage Scripts  button to open the Scripts Manager window.
3. In the Scripts Manager, in the Files section, select the file **TB_CreateStepsOn.js**.

The functions associated with that file appear in the Functions section.


4. In the Functions section, select **TB_CreateStepsOn**.

The Add script to toolbar  button becomes active.

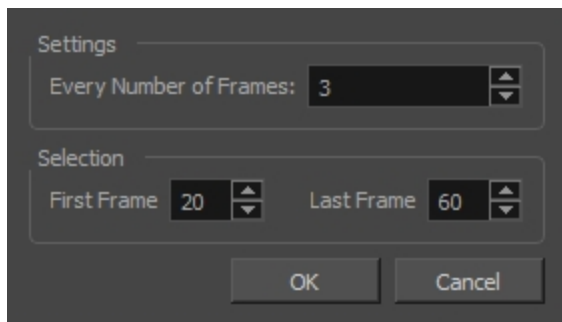


5. Click on the Add script to toolbar > button.

The TB_CreateStepsOn script  button is added to the Scripting toolbar.

6. Click **Apply**.
7. Click **OK**.
8. In the Timeline view, select the layer whose parameter values you would like to hold.
9. In the Scripting toolbar, click on the TB_CreateStepsOn script  button.

The Create Function Step On dialog box appears.

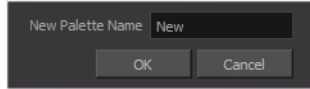


Parameter	Description
Settings	
Every Number of Frames	Enter in the number of frames you would like to hold your functions.
Selection	
First Frame	Enter in the frame number of where you would like the stepped holds to start. The playhead location determines the lowest value you can enter for the first frame. You need to move the playhead to frame one if you would like to set frame one as the lowest possible starting value.

Last Frame	Enter in the frame number of where you would like the stepped holds to stop.
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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.



How to access the Create Palette dialog box

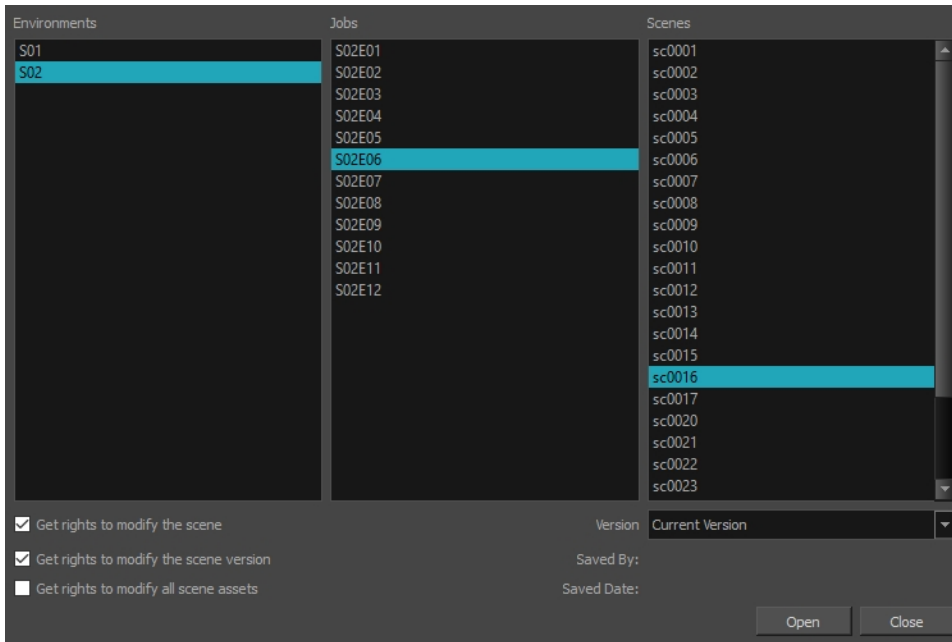
1. From the Colour view menu, select **Palettes > New** or click the New Palette **+** button.
 - Make sure you have the rights to modify the palette list. If not, select **Edit > Edit Palette List Mode**.

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

Database Selector Dialog Box

The Database Selector dialog box lets you connect to your studio's central database when working on Harmony Server.

When you connect to the database, you cannot create new scenes directly from Harmony Premium. The available scenes will be the ones that were previously created using the Control Center module.



How to access the Database Selector dialog box

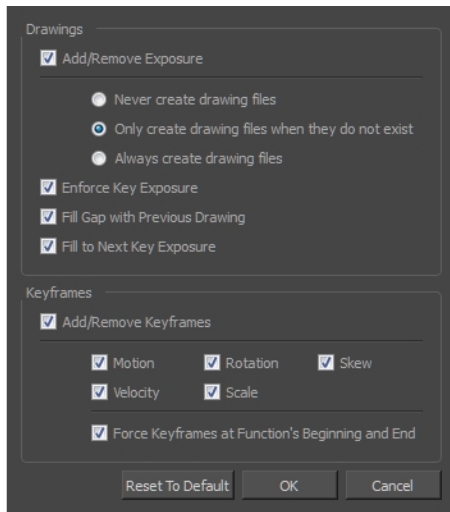
1. Start Harmony Server.

The Database Selector dialog box opens.

Parameter	Description
Environments	Lets you select the scene's environment (project, movie).
Jobs	Lets you select the scene's job (episode, sequence).
Scenes	Lets you select the scene.
Get rights to modify the scene	Allows you to modify the selected version of the scene and access the version manager during the opened session
Get rights to modify the scene version	Allows you to modify the currently selected scene version, but locks access to the version manager during the opened session.
Get rights to modify all scene assets	Automatically gets the rights to modify the scene and its assets. The user locking the scene using this option is the only one that can edit and save the scene version, all the drawings in that scene, all the palettes in the palette-list, both palette-lists, but not the library folders.
Version	If you saved different versions of a scene, this lets you select one to open.

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

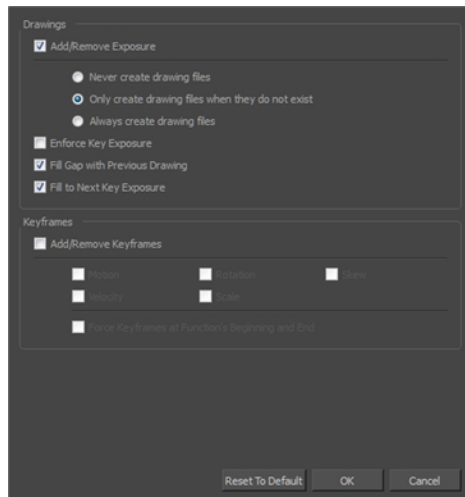
1. From the Timeline menu, select **Edit > Modify Paste Presets > All or Key Frame or Exposure**.

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.



How to access the Edit Exposure Paste Preset dialog box

1. From the Timeline view menu, select **Edit > Modify Paste Presets > Exposure**.

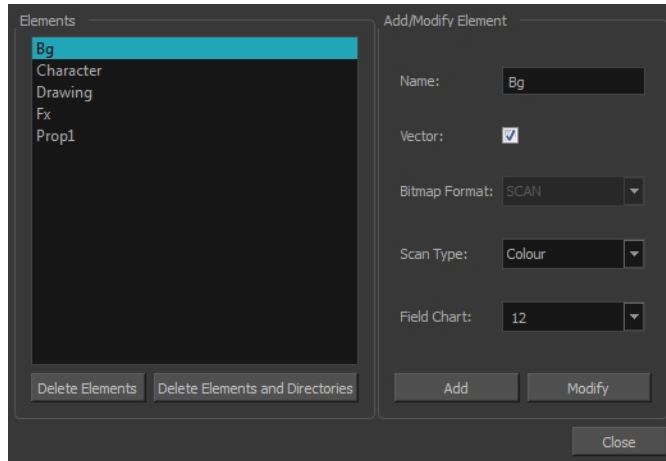
The Edit Exposure Paste Preset dialog box opens.

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 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.
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.
Reset to Default	Return all values to their defaults.

Element Manager Dialog Box

The Element Manager window lets you 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. See xref Reference > Windows > Element Manager.



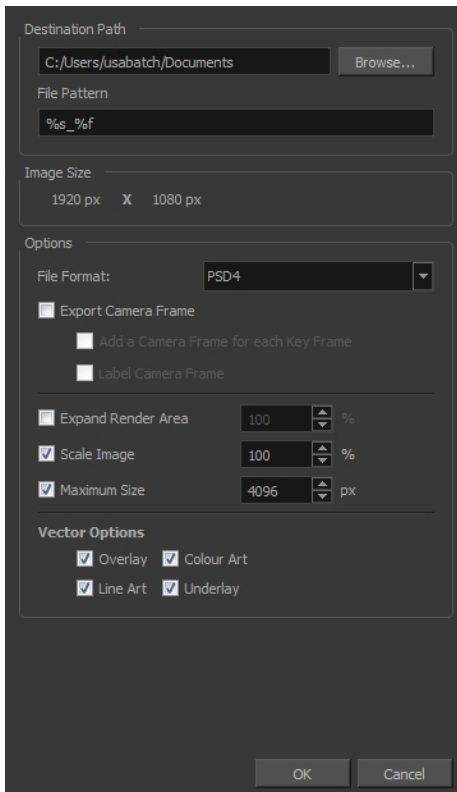
How to access the Element Manager window

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.

Export Layout Image Dialog Box

The Export Layout Image dialog box allows you to export your drawings as bitmap images matching the scene resolution size, taking camera motions into account, to paint them in an external bitmap editing software.

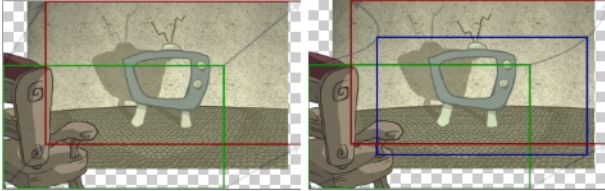
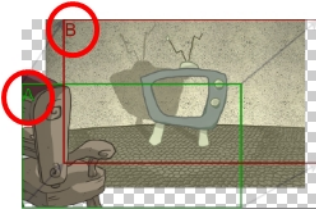
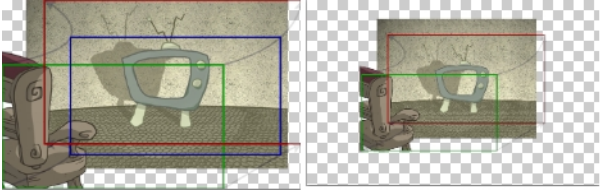


Access Method

- From the top menu, select one of the following:
 - File > Export > Layout Image** to export all the elements in your scene to the layout .psd file.
 - File > Export > Layout Image from Selection** to export only the selected elements.

The Export Layout Image dialog box opens.

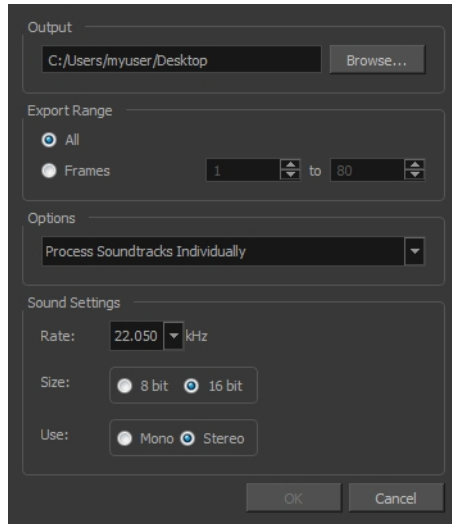
Parameter	Description
Destination Path	Use the Browse button to select a location to save your layout and name the resulting .psd file.
File Pattern	Automatically puts the name of the scene and/or the frame number in the name of the file you create.
Image Size	The size of the .psd image file that will be exported. The resulting image will be 72 dpi as the standard television resolution and its size in pixel will fit your scene resolution settings. i.e HDTV, NTSC, PAL, etc. Note that if you have a camera movement going over the normal camera frame limit, for example a pan, the image will be bigger.
Options	File Format: Lets you select the format to export your layout.

	<p>Export Camera Frame: Prints the first and last camera frame of each scene into the exported layout images. If exporting in .psd format, the camera frames will be printed on a separate layer.</p> <p>Add a Camera Frame for Each Keyframe: If a scene contains complex camera movements, this prints each camera keyframe into the layout.</p>  <p>Label Camera Frame: Adds the camera position label in the top-left corner of each camera frame. Camera frames are labeled with a letter of the alphabet indicating their respective order.</p> 
	<p>Expand Render Area: Expands the area to render into the layouts. By default, only the area of the scene that is covered by the camera is rendered, and exported layout images are cropped at the edges of the camera frames. If enabled, this option adds space around the render area and captures extra details outside the camera frames. By default, the render area is expanded by 10%. You can use the input field to the right of the option to change this ratio.</p>  <p>Scale Image: Ensures that when a camera close-up is included in a scene, the exported image is larger so that the closest camera frame is at least the size of the chosen image size. This way, the layout does not appear pixelated when zooming in on the closest camera frame. If disabled, the size of the exported images will be based off the chosen Base Image Size and Expand Render Area options.</p> <p>Maximum Size: If the Scale Image Up to Smallest Camera Frame option is enabled, this ensures images do not get scaled up too much. If enabled, images will be limited to 4096 pixels in width and height by default.</p>
	<p>Vector Options</p> <p>If you export one or more vector-based drawing layers in your layout image, you have the option to export only the drawing layers you want. Enable or disable the following options to export or prevent the export of the corresponding art layers.</p>

	<p>Overlay: Exports the art in the Overlay layer of the drawings to be exported to the layout image.</p> <p>Line Art: Exports the art in the Line layer of the drawings to be exported to the layout image.</p> <p>Colour Art: Exports the art in the Colour layer of the drawings to be exported to the layout image.</p> <p>Underlay: Exports the art in the Underlay layer of the drawings to be exported to the layout image.</p>
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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.



How to access the Export Soundtracks dialog box

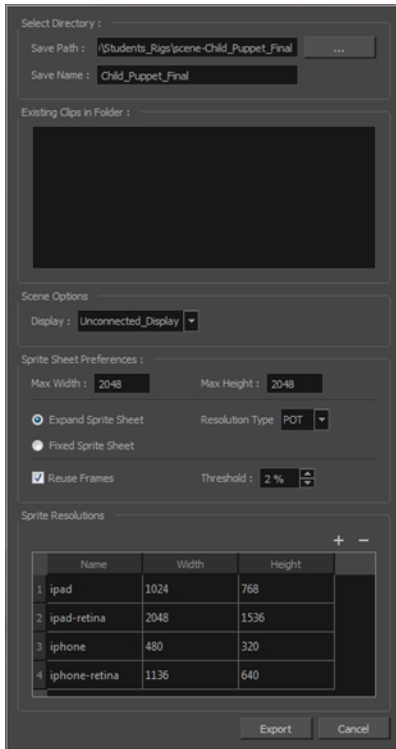
1. From the top menu, select **File > Export > Soundtrack**.

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.

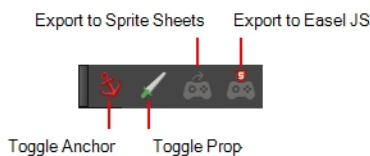
Export to Easel JS Dialog Box


The Export to Easel JS window lets you flatten an 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. Select **Windows > Toolbars > Game**.



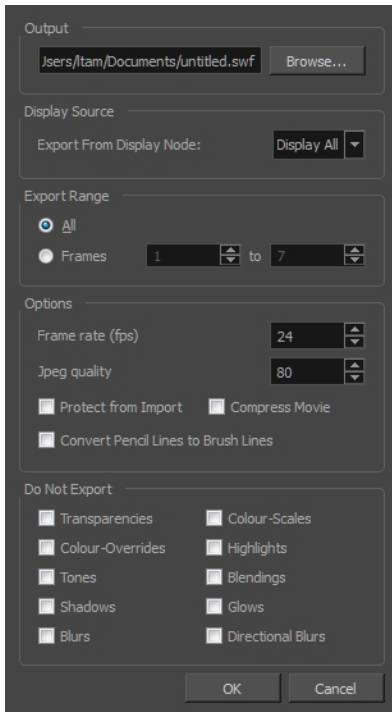
2. Click the Export to Easel JS  button.

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 Flash Movie Dialog Box

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



How to access the Export to Flash Movie dialog box

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

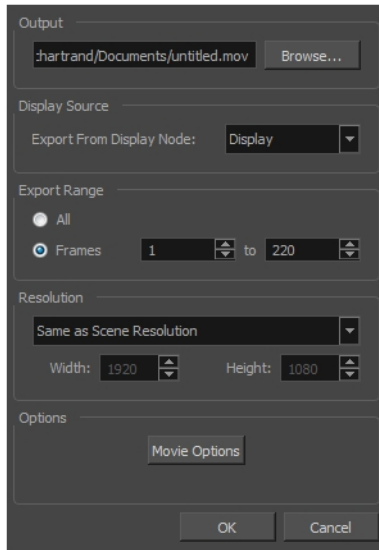
The Export to Flash Movie (.swf) dialog box opens.

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: <ul style="list-style-type: none"> ▶ 100 = Full quality ▶ 50 = Average quality at about 1/5th of the size. ▶ 25 = Medium quality where loss of high image resolution starts to

	<p>occur.</p> <ul style="list-style-type: none">▶ 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	<p>Lets you select the effects you do NOT want to be rendered in the SWF movie.</p> <hr/> <p>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.</p> <hr/>

Export to QuickTime Movie Dialog Box

The Export to QuickTime Movie dialog box lets you export your animation as a QuickTime movie. If you want to render a QuickTime movie with lossless compression and transparency, you can use the Animation video codec with the colour depth set to Millions of Colours +.



If you added burn-in information to your scene, it will be included in your exported file—see [Burn-In Node](#) on page 407.

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 your scene, the only available option will be Display All. This renders nodes in your scene, including ones that are not connected to anything, in the order in which they're listed in the Timeline view. Hence, it is always recommended to have a Display node connected to your scene's main composite, and to render from that Display node, so as to have control over what is rendered.
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 .

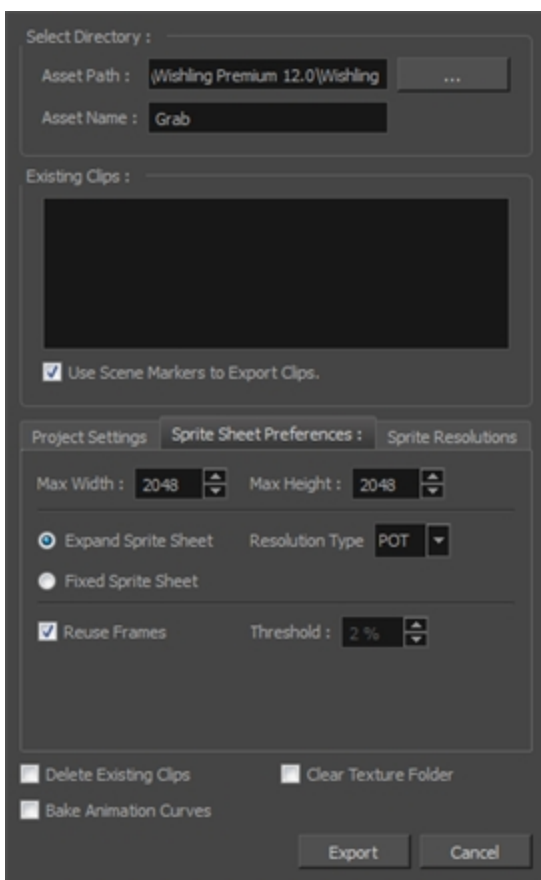
Export to Sprite Sheet Dialog Box

The Export to Sprite Sheets window exports to multiple resolutions, generating multiple .xml files and one or multiple sprite sheets depending on 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.

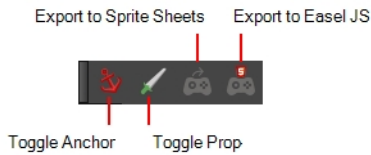
When you export an animation, only the drawings used in that scene are exported. All the drawings are exported individually first and then atlased together into a sprite sheet.

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. Select **Windows > Toolbars > Game**.



2. Click the Export to Sprite Sheets  button.

Parameter	Description
Select Directory	
Asset Path	The folder path where you want to save your export.
Asset 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	
Preview Window	Displays a list of pre-existing clips in the same export folder location, most likely exported there from a previous time.
Use Scene Markers to Export Clips	Uses scene markers to define the export range, instead of exporting the entire scene.
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.
Preset	Lets you select the unit conversion from Harmony to Unity, by selecting one of 4 presets. Note: a field is a unit of measure in traditional animation grid.
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

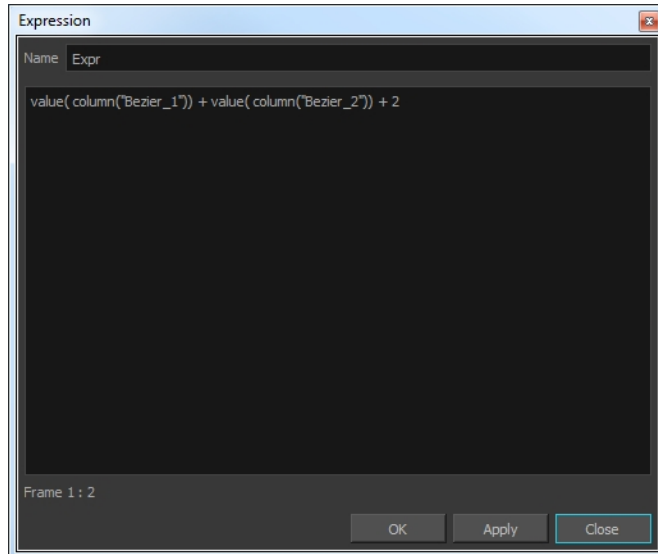
	prevent the creation of a new drawing if the drawing is too similar to an existing drawing. For instance, with a 2% threshold, and my drawing is 100 pixels big, only 2 of those pixels need to be different from my other drawing in order to create a new one. The higher the threshold, the fewer similar drawings you will have.
Sprite Resolutions	Size of the render of the individual sprite, when it exports each drawing out.
Delete Existing Clips	Select this option to delete any pre-existing clips in the export location.
Bake Animation 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.
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.

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.

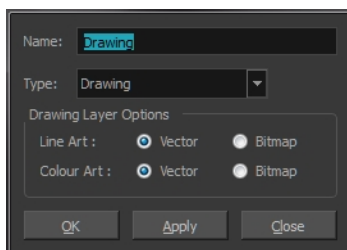
The Expression editor evaluates the current script at the current global frame and reports any errors or returns the numerical result of the program.



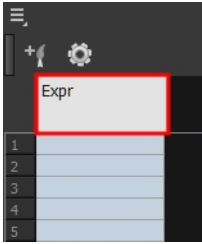
How to access the Expression dialog box

1. In the Xsheet view menu, select **Columns > Add Columns** 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.

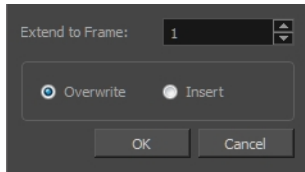


The Expression dialog box opens.

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.



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. You can expose the drawing in the frames and replace the drawings that were originally there or move the subsequent frames forward in time.
Overwrite	Lets you expose the drawing in the frames and replace the drawings that were originally there.
Insert	Lets you expose the drawing in the frames and move the subsequent frames forward in the Timeline view.

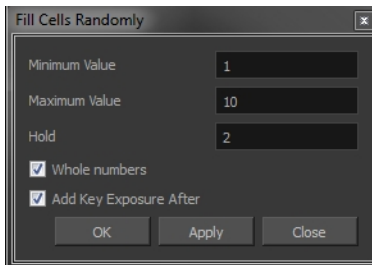
Fill Cells Randomly Dialog Box

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.

How to access the Fill Cells Randomly dialog box

1. 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).

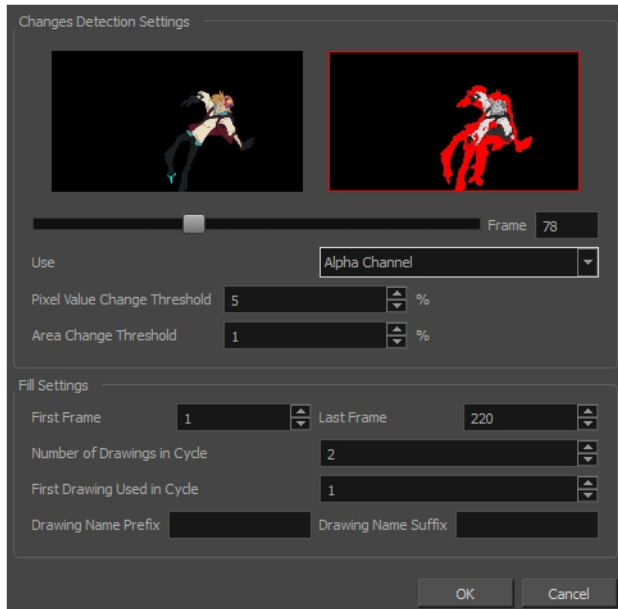
The Fill Cells Randomly dialog box opens.



Parameter	Description
Minimum Value	The lowest value to be used in the randomized exposure or keyframe value.
Maximum Value	The highest value to be used in the randomized exposure or keyframe 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 on the frame following the last cell of the selection.

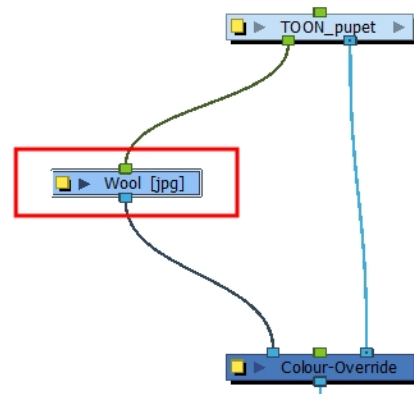
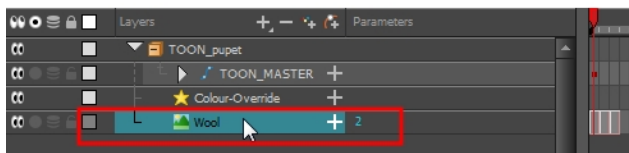
Fill Exposure Using Render Changes Dialog Box

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.



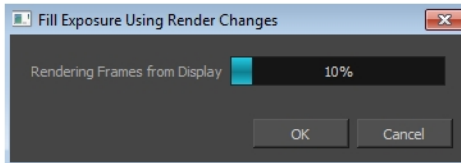
How to access the Fill Exposure Using Render Changes dialog box

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.

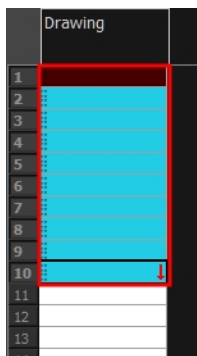
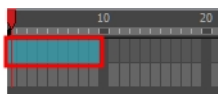
Parameter	Description
Changes Detection Settings	Frame: Use the slider to see when a change is necessary. A red edge indicates there is a large enough motion for the texture to change.
	Use: Lets you use either the Red, Green, Blue, or Alpha channel, or Luminance difference between frames to analyze 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, <i>texture_01</i> , <i>texture_02</i> and so on.
	Drawing Name Suffix: Adds a suffix after the number. For example, <i>01_texture</i> , <i>02_texture</i> 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.

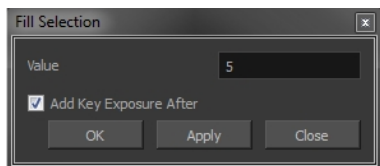
How to access the Fill Selection dialog box

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).

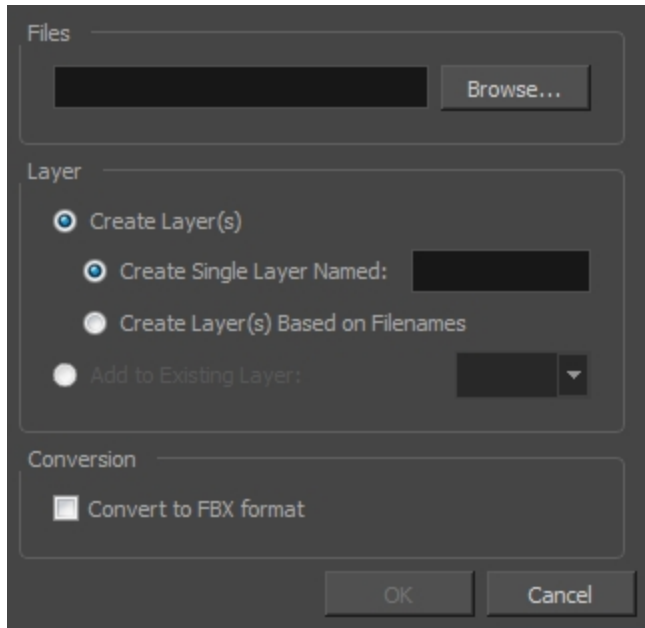
The Fill Selection dialog box opens.



Parameter	Description
Value	This is the value to be used in the filled selection.
Add Key Exposure After	Inserts a key exposure on the frame following the last cell of the selection.

Import 3D Models Dialog Box

Use the Import 3D Models dialog box to import 3D models into Harmony.



How to open the Import 3D Models dialog box

1. From the top menu, select **File > Import > 3D Models**.

The Import 3D Models dialog box opens.

Parameter	Description
Files	
Browse	Lets you locate and select 3D model file formats from a location on your computer or a location accessible from your computer (network, server, etc.).
Layer	
Create Layer(s)	This option is selected by default. A new layer will be created for the selected 3D model files for the import. You have two choices:
Create Single Layer Named	Creates a new layer for your 3D model that you can name. Name the new layer immediately by entering a name into the provided field.
Create Layer(s) Based on Filenames	Creates a layer based on each unique filename prefix. For example, the filenames a-1.obj, a-2.obj and b-1.obj will create layers named "a" and "b", where "a" has two 3D models and "b" has one. When creating a single layer from these three filenames, all three models will be imported to the new layer.
Add to Existing Layer	Imports the selected files to an existing layer in the scene. Once this option is selected the adjacent drop-down list becomes active. Select an existing layer name from the drop-down list. Note that if you select a vector layer, it will encapsulate the 3D model inside a symbol.
Conversion	
Convert to FBX format	Select this option if your file isn't already a *.fbx file and you would like it to be.

	This format incorporates all associated files, such as the texture files.
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T-HFND-007-011

Import Images Dialog Box

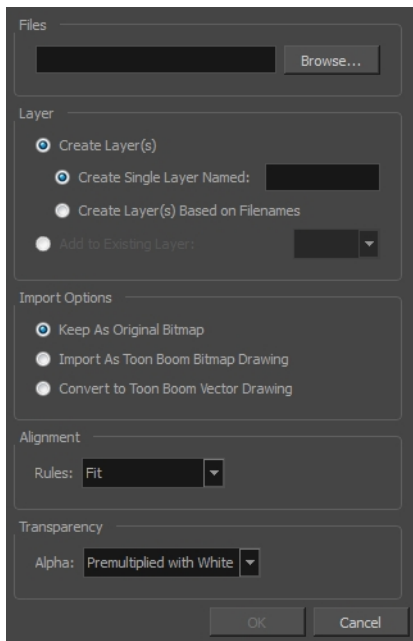
The Import Images dialog box lets you import bitmap images and vectorize them, making the images editable. Then you can use a variety of drawing tools to edit the image. Or you can always keep the original bitmap image as is.

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

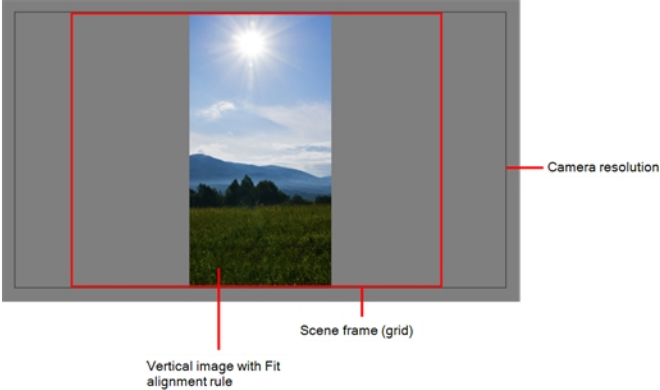
How to open the Import Images dialog box

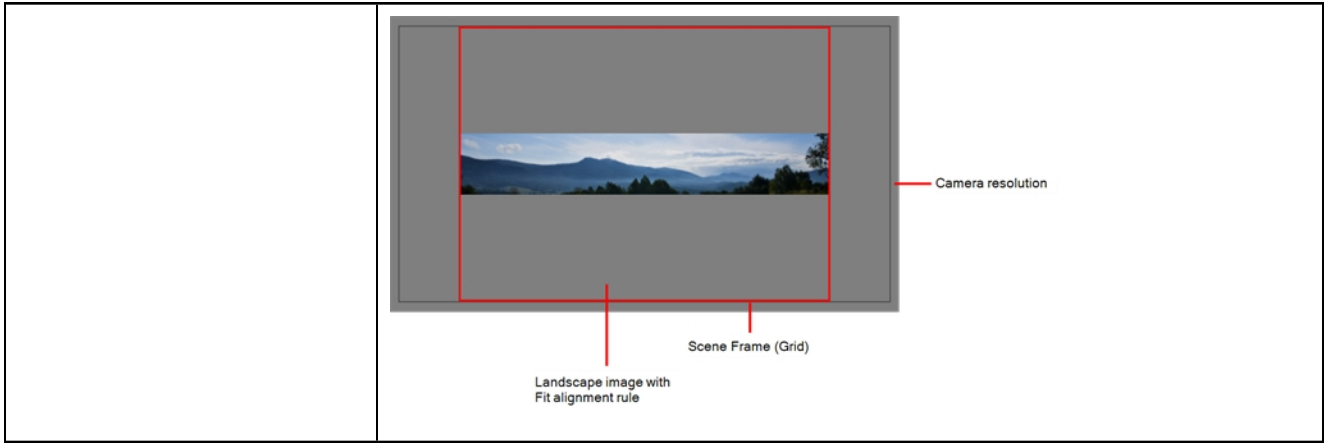
1. Do one of the following:
 - From the top menu, select **File > Import > Images**.
 - In the File toolbar, click the Import Images  button.
 - In the Xsheet view, right-click anywhere in the frame area and select **Import > Images**.

The Import Images dialog box opens.



Parameter	Description
Files	
Browse	Lets you find and select images on your computer.
Layer	
Create Layers(s)	Create layers for imported images.
Create Single Layer Named	Creates a new layer with the specified name and imports the images into it.
Create Layer(s) Based on Filenames	Creates a layer based on each unique filename prefix. For example, if you import three files named a-1.tga, a-2.tga and b-1.tga, this will create two layers, one named "a" and one named "b". Layer "a" will contain the two first images and "b" will contain the third one.

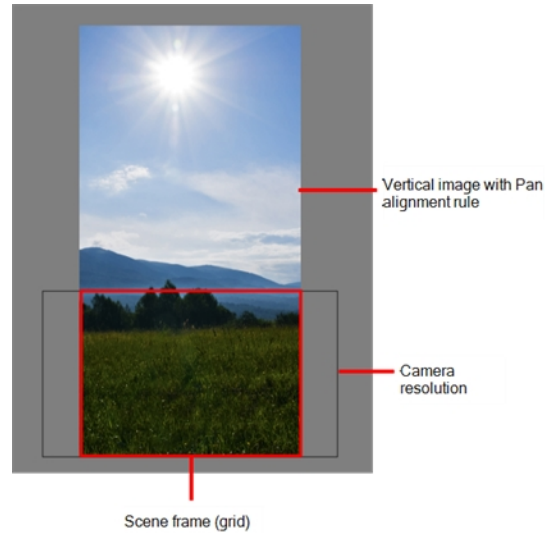
<p>Add to Existing Layer</p>	<p>Imports the images into the specified layer. Note that you can only import into layers that are compatible with your import options. For example, if you're importing images as vector drawings, you can only import them into vector drawing layers.</p>
<p>Import Options</p>	<p>Depending on how you choose to import images, the Alignment section offers different options.</p>
<p>Keep as Original Bitmap</p>	<p>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.</p>
<p>Import as Toon Boom Bitmap Drawing</p>	<p>Imports a drawing into a vector layer where you can edit the image using the drawing tools.</p>
<p>Convert to Toon Boom Vector Drawing</p>	<p>Imports a drawing and converts it to a Toon Boom vector drawing.</p>
<p>Alignment (Keep As Original Bitmap)</p>	
<p>Rules</p>	<p>Fit:</p> <p>Adjusts the image's size to fit completely within the scene's field, both vertically and horizontally, making sure the entire image is visible.</p> <p>If the image's orientation is portrait, then it will adjust the image's height to fit the field's height, without affecting the image's aspect ratio:</p>  <p>If the image orientation is landscape, then it will adjust the image's width to fit the field's width, without affecting the image's aspect ratio:</p>



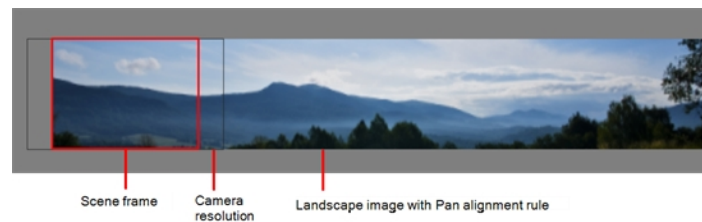
Pan:

This has the opposite effect to the fit parameter. The image's smallest dimension will be made to fit the scene frame's matching dimension, and the image's largest dimension will be adjusted proportionally, making the image fill the entire scene field, and bleed past its boundaries if its aspect ratio does not match the field's aspect ratio. This option can be used to import a panning background image, also referred to as a *pan*.

If the image's orientation is portrait, it will adjust the image's width to fit the field's width, without affecting its aspect ratio:



If the image's orientation is landscape, it will adjust the image's height to fit the field's height, without affecting its aspect ratio:



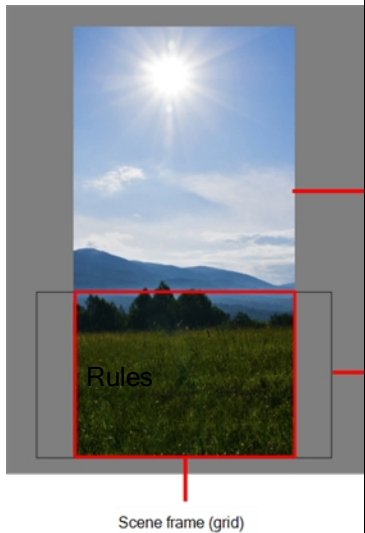
This has the opposite effect to the fit parameter. The image's smallest dimension will be made to fit the scene frame's matching dimension, and the image's largest dimension will be adjusted proportionally, making the image fill the entire scene field, and bleed past its boundaries if its aspect ratio does not match the field's aspect ratio. This option can be used to import a panning background image, also referred to as a *pan*.

If the image's orientation is portrait, it will adjust the image's width to fit the field's width, without affecting its aspect ratio:

Project Resolution scales the image to fit the scene's resolution. The image's smallest dimension will be made to fit the scene frame's matching dimension, and the image's largest dimension will be adjusted proportionally, making the image fill the entire image field and bleed past its boundaries if its aspect ratio does not match the field's aspect ratio. This option can

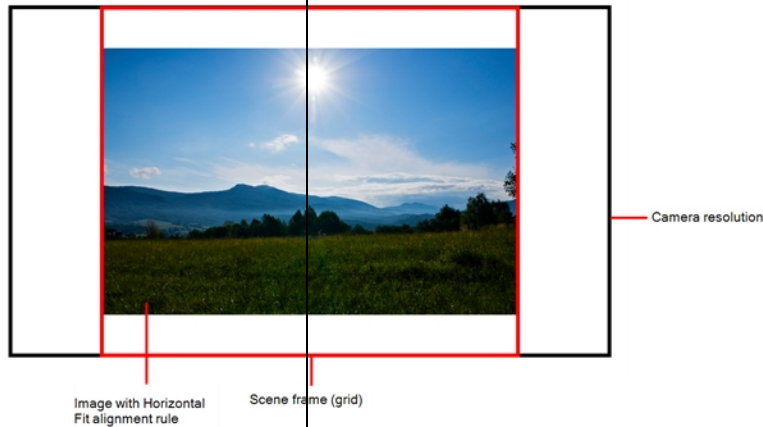
Alignment (Import as Toon Boom Bitmap Drawing)

background image, also referred to as a *pan*.
If the image's orientation is portrait, it will adjust the image's width to fit the field's width, without affecting its aspect ratio:

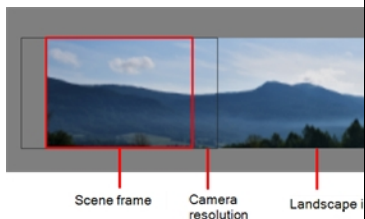


Horizontal Fit:

Adjusts the image's size so that its width matches the scene's width, without affecting its aspect ratio.

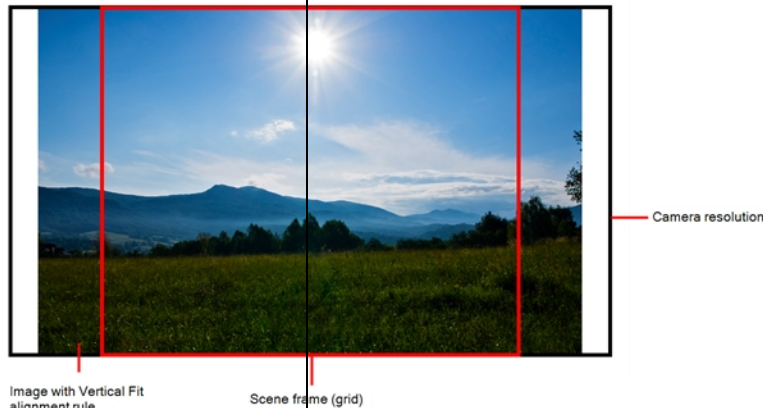


If the image's orientation is landscape, it will adjust the image's height to fit the field's height, without affecting its aspect ratio:



Vertical Fit:

Adjusts the image's size so that its height matches the scene's height, without affecting its aspect ratio.



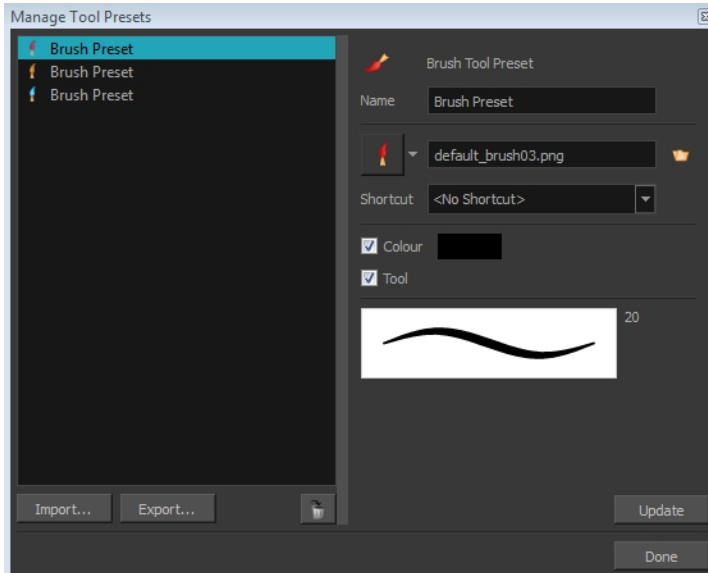
Actual Size: Imports the image in its actual size, without adjusting its size

This has the opposite effect to the fit parameter. The image's smallest dimension will be made to fit the scene frame's matching dimension, and the image's largest dimension will

	relative to the scene's resolution. For example, if the image's dimensions in pixels are half of the scene's resolution in pixels, then the image's dimensions will appear to be half of the scene field's dimensions.
Transparency	
Alpha	Premultiplied with White: Individual pixels at the edge of an image are blended with white.
	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.
	Clamp 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 amounts listed above.
Vectorization	
Black and White	Vectorizes drawings with a solid black line. This creates a 100% vector-based drawing and paints it with the Vectorized Line colour swatch from your scene's palette.
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.
New Preset	Lets you create a new preset.
Delete Preset	Lets you delete any preset in the list.
Edit Preset	Lets you edit the vectorization parameters for the selected preset.

Manage Tool Presets Dialog Box

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



How to access the Manage Tool Presets window

- 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**.

Tool Presets toolbar



New Tool Preset Manage Presets

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

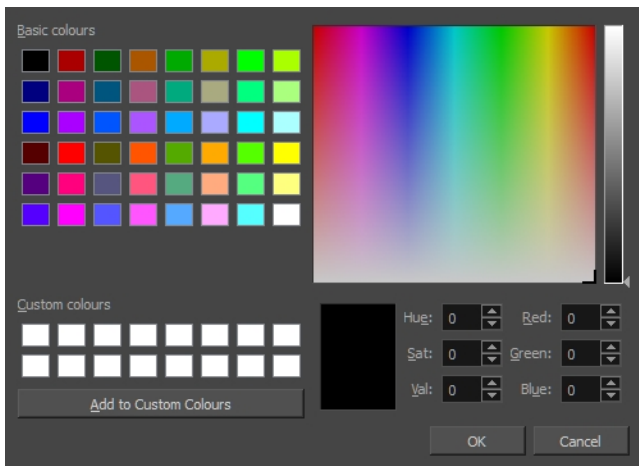
Parameter	Description
Icon	Lets you select a preset to manage.
Import	Lets you import an existing preset.
Export	Lets you export a preset for use in other projects.
Delete	Removes the preset from the list of tool presets.
Name	Lets you change the name of the preset.
Icon list	Lets you select an icon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

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.



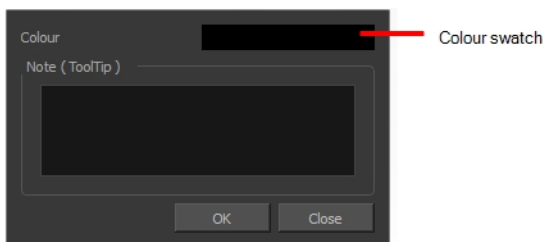
How to access the Marker Colour dialog box

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.

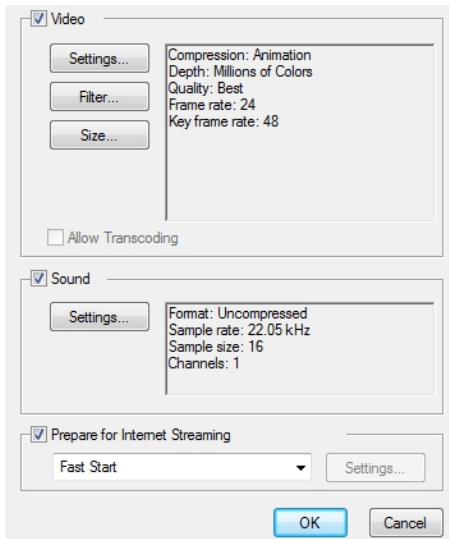
The Marker Colour dialog box opens.

Parameter	Description
Basic colours	A basic set of colours to choose from.
Custom colours	Displays the custom colours you previously stored using the Add to Custom

	Colours button.
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.



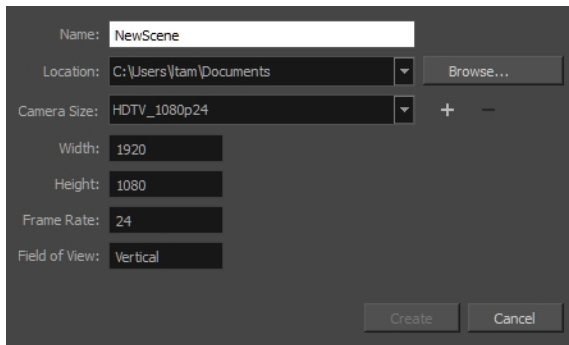
How to access the Movie Settings dialog box

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 120 .
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 119 .

New Scene Dialog Box

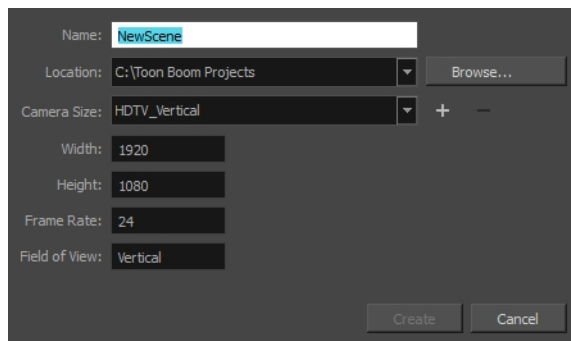
The New Scene window lets you create a new scene.



How to access the New Scene window

- Do one of the following:
 - From the top menu, select **File > New**.
 - In the File toolbar, click the New  button.
 - Press Ctrl + N (Windows/Linux) or ⌘ + N (Mac OS X).

The New Scene dialog box opens.



Parameter	Description
Name	Lets you type in a name for the new scene.
Location	Lists the locations you used most frequently for storing scenes.
Browse	Opens a browser in which you can specify a location for the new scene that is not listed in the Location list.
Camera Size	Opens a list of resolutions.
+ (Create Custom Resolution)	Opens the New Resolution window in which you can create a custom resolution that is added to the Camera Size list.
- (Delete Custom Resolution)	Lets you remove a custom resolution from the Camera Size list.
Width	Indicates the width of the resolution you chose from the Camera Size list.

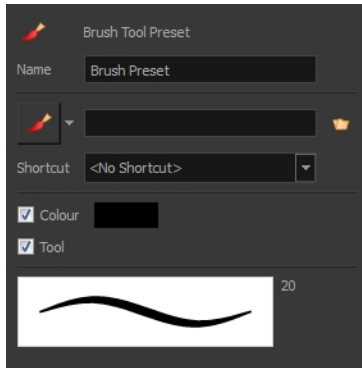
Frame Rate	Indicates the frame rate of the resolution you chose from the Camera Size list.
------------	---

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 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.

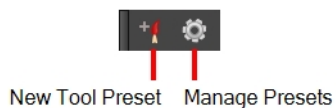
The difference between a tool preset and a brush preset is that when you save a tool preset, you have the option of saving the colour and assigning a shortcut, which you cannot do with brush presets.



How to access the New Tool Preset dialog box

- 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**.

Tool Presets toolbar

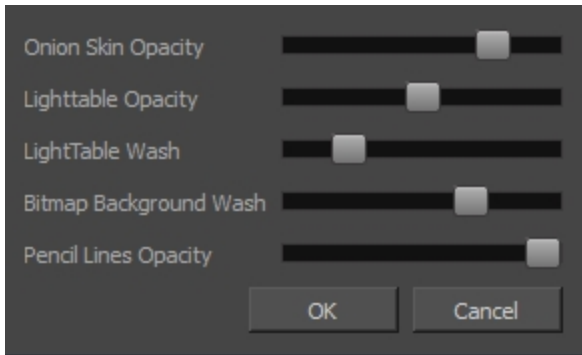


- In the Tool Presets toolbar, click the New Tool Preset button.

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.

Onion Skin and Light Table Transparency Dialog Box

This dialog box lets you adjust the Onion Skin and Light table transparency parameters.



How to access the Onion Skin and Light Table Transparency dialog box

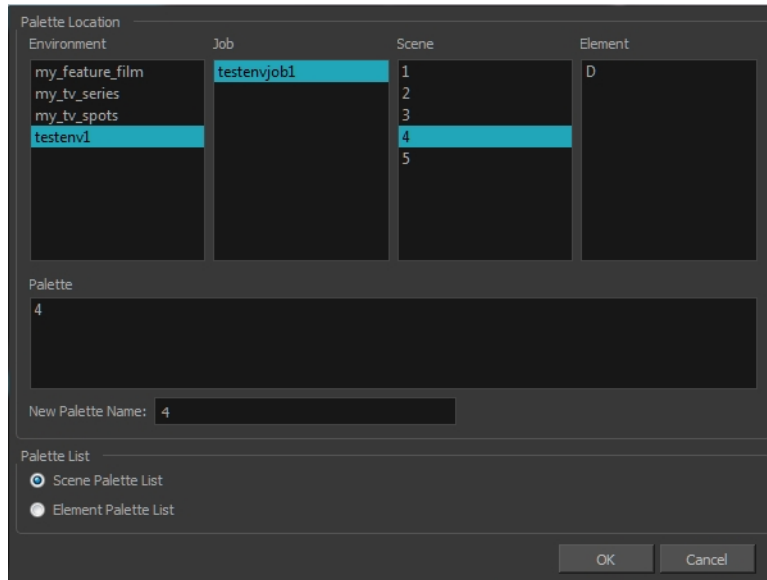
- In the Drawing view toolbar, click on the Top Light  button to open the Onion Skin and Light Table Transparency dialog box.

Command	Description
Onion Skin Opacity	Sets the maximum opacity value for the onion skin opacity display. Moving the slider all the way to the left = 0% opacity. Moving the slider all the way to the right = 100% opacity.
Lighttable Opacity	Sets the maximum opacity value for the light table display. Moving the slider all the way to the left = 0% opacity. Moving the slider all the way to the right = 100% opacity.
LightTable Wash	Sets the washed-out value for the light table display. Moving the slider all the way to the left = 0% opacity. Moving the slider all the way to the right = 100% opacity.
Bitmap Background Wash	Sets the maximum opacity value for the background wash. Moving the slider all the way to the left = 0% opacity. Moving the slider all the way to the right = 100% opacity. Only works for bitmap layers.
Pencil Lines Opacity	Sets the maximum opacity value for central vector lines (lines made by the Pencil or Shape tools). Moving the slider all the way to the left = 0% opacity. Moving the slider all the way to the right = 100% opacity.

Palette Browser Dialog Box

When you start Toon Boom Harmony connected to the database, you can access the Palette Browser dialog box from the Palette Operations dialog box when you want to clone palettes.

In Harmony, palettes are individual *.p1t files that can be copied, transferred and stored. When a palette is created from Harmony, it needs to be stored somewhere. By default, the palette file is stored in the scene directory in a palette-library folder unless you specify a different location.



How to access the Palette Browser dialog box

1. Start Harmony and log in.
2. Close the Database Selector dialog box.
3. From the top menu, select **Tools > Palette Operations**.
 1. In the Palette Operations dialog box that opens, select the palette you want to clone at the location and level in which it was stored.
 2. Click **Clone**.

Parameter	Description
Palette Location	
Environment	The production, project, feature film or series.
Job	The episode and sequence from each environment.
Scene	The scenes from each job.
Element	The layers and columns in each scene.
Palette	The scene palettes.
New Palette Name	Lets you enter a name for the new palette. There is no need to add the suffix "palette" to the name as it is always recognized as a palette file.

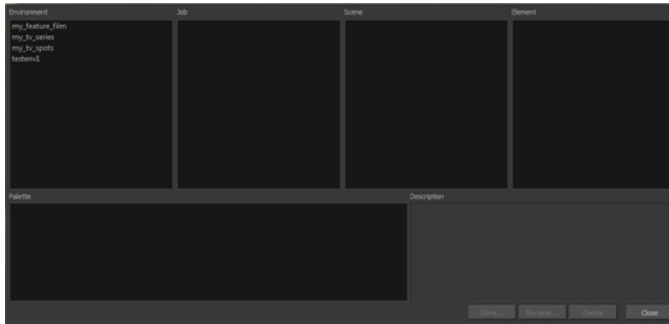
Palette List	
Scene Palette List	<p>The Scene Palette List is mainly used with cut-out animation. A cut-out character will often be divided in twenty to thirty different drawing elements that use the character's master palette.</p> <p>The palette list is stored at the scene level instead of the Element directory. This way, all palettes linked to this list will appear in every drawing element created in the scene. There is no need to manually load the palette in each element.</p>
Element Palette List	<p>The Element Palette List is mainly used with traditional and paperless animation. Unlike cut-out animation, all columns (drawing elements) contain different characters, props, backgrounds and effects. The Element Palette List is used because you do not necessarily want all of the palettes for all of your elements linked in every column.</p> <p>The palette list is stored in the drawing element's directory instead of directly in the Scene level. This ensures that the links to the palettes appear only in the appropriate element. If you prefer to access a global palette list, link your palettes to the Scene Palette List.</p>

Palette Operations Dialog Box

When you start Toon Boom Harmony connected to the database, you can access the Palette Operations dialog box which lets you clone, rename, or delete palettes.

In Harmony, palettes are individual *.p1t files that can be copied, transferred and stored. When a palette is created from Harmony, it needs to be stored somewhere. By default, the palette file is stored in the scene directory in a palette-library folder unless you specify a different location.

There are four locations where you can find palette-library folders: Element, Scene, Job and Environment.



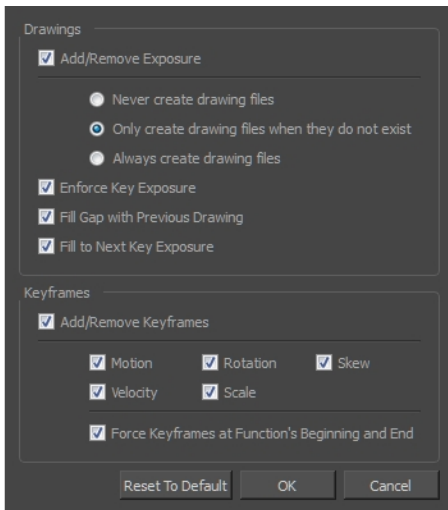
How to access the Palette Operations dialog box

1. Start Harmony and log in.
2. Close the Database Selector dialog box.
3. From the top menu, select **Tools > Palette Operations**.

Parameter	Description
Environment	The production, project, feature film or series.
Job	The episode and sequence from each environment.
Scene	The scenes from each job.
Element	The layers and columns in each scene.
Palette	The scene palettes.
Description	Notes, if any, of the project.
Clone	Opens the Palette Browser dialog box from which you can select the level in which to store the palette file.
Rename	Lets you rename a palette.
Delete	Lets you delete a palette. NOTE: It is not recommended to disable the warning message that appears when you are attempting to delete a palette as this operation cannot be undone.
Close	Closes the Palette Operations dialog box.

Paste Preset Dialog Box

When pasting key frames and exposures, you can modify the existing presets to your liking. There are three presets you can modify: the default presets for both key frames and exposures, key frames only and exposures only.



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.
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Paste Special Dialog Box

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

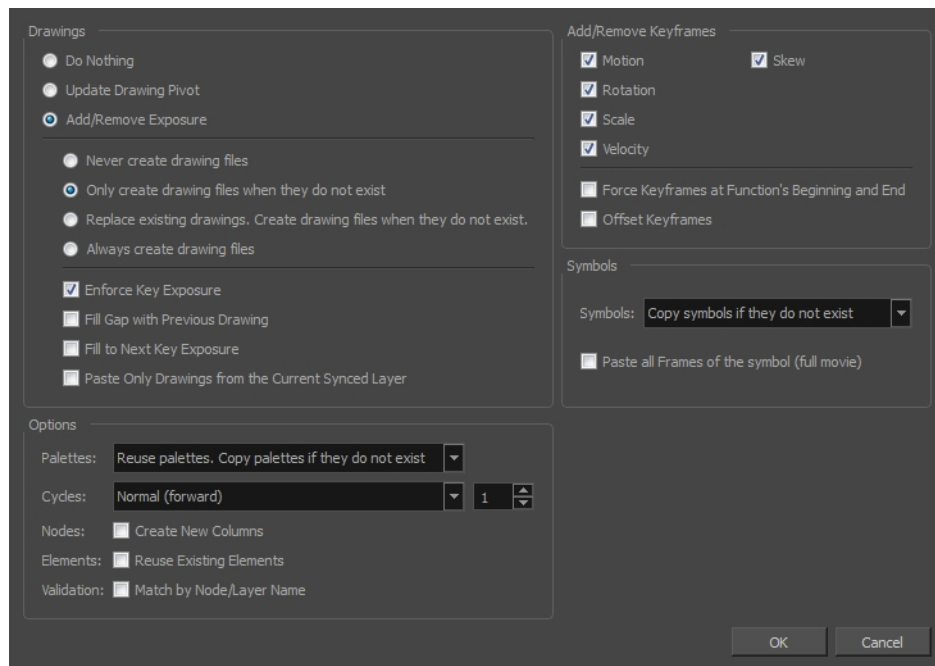
When you import a template in the Timeline view, all layers are created as well as drawings and keyframes. You can choose to import only the keyframes without the drawings or import only the drawings that are not already in your layers. You can adjust the behaviour using the Paste Special dialog box. 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.

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.



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.

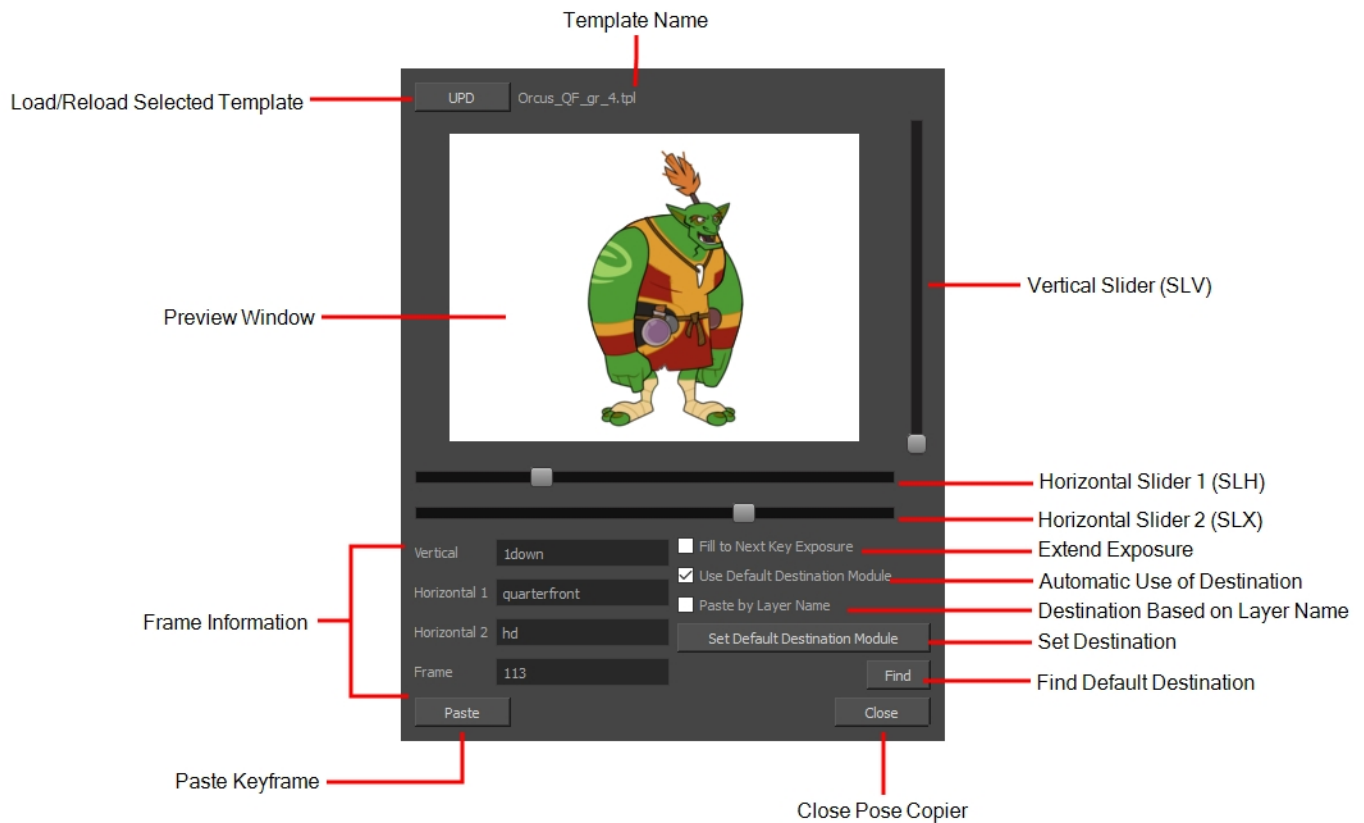
Add/Remove Exposure	Never create drawing files: When adding exposures to a drawing layer, drawing files will not be created.
	Only create drawing files when they do not exist: When adding exposures to a drawing layer, new drawings will be created only when drawings with the same name do not already exist 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.
	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.
	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.
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.
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.
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	<p>Do nothing: Does not create, overwrite, merge or link palettes.</p> <p>Reuse palettes. Copy palettes if they do not exist: Palettes in the destination drawings are left as they are.</p> <p>Copy and overwrite existing palettes: Overwrites destination palettes with the palettes from the source drawings.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
Cycles	<p>Normal (forward): Pastes your selection as is, starting with the first cell and ending with the last.</p> <p>Reverse: Pastes your selection in reverse, starting with the last cell and ending with the first.</p> <p>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.</p> <p>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.</p>
Nodes	<p>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.</p>
Elements	<p>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.</p>
Validation	<p>Match by Node/Layer Name: When pasting a template with a hierarchy onto</p>

	<p>another hierarchy, this option looks to match the pasting elements with the same layer or node name, rather than the same hierarchical structure. This means that even if the two hierarchies are different, a new pose of a character's body part will still be pasted on the correct body part layer, as long as both layers are named the same.</p>
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Pose Copier Dialog Box

The pose copier contains many buttons and other information to facilitate the insertion of poses in the animation.



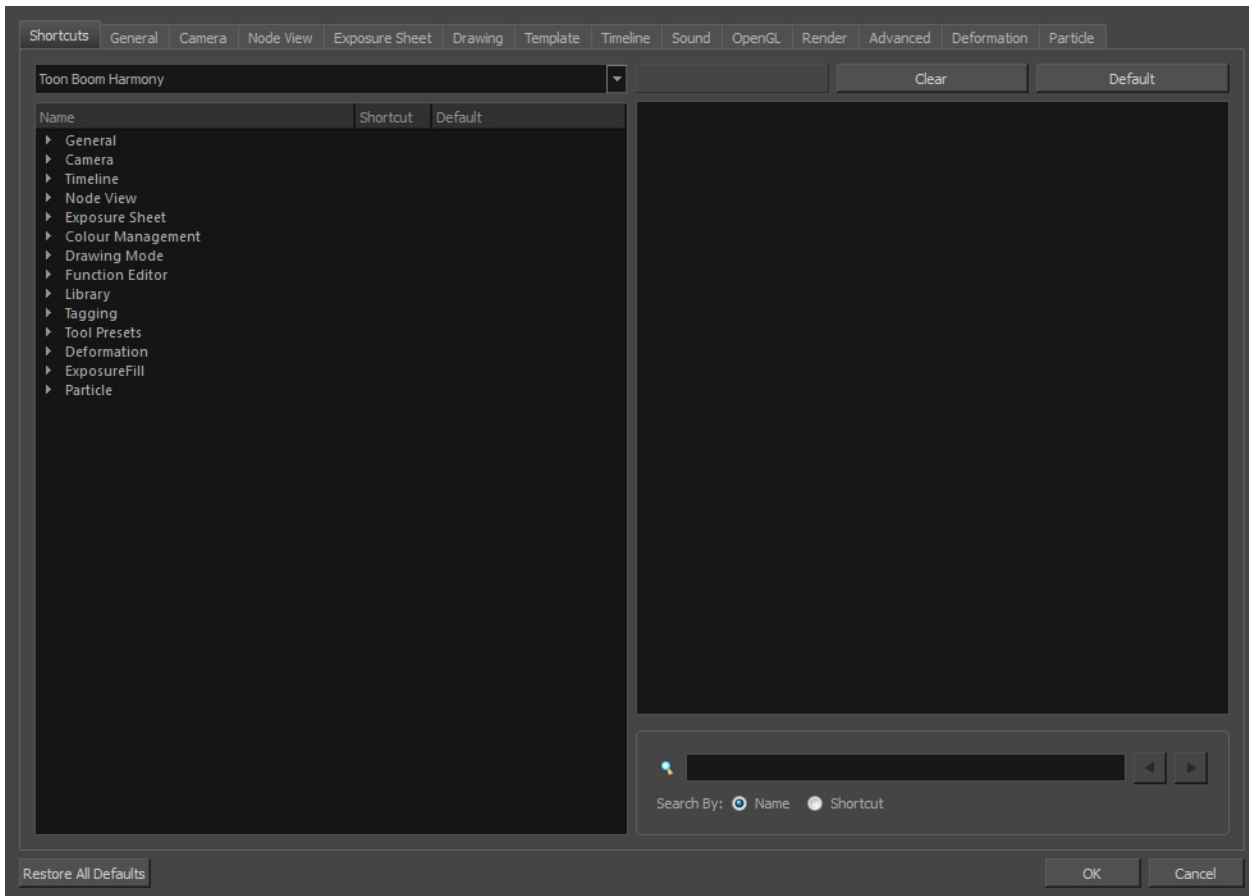
Parameter	Description
Preview Window	Based on master template's generated thumbnails, previews currently selected frames.
UPD	Updates the template with the newly selected template.
RST	Reset the template's cache, getting rid of default destination information and excluded modules.
Template Name	Name of the currently selected template.
Vertical Slider (SLV)	Linked to the slv- node of the node system.
Horizontal Slider 1 (SLH)	Linked to the slh- node of the node system. Default slider for the pose copier if no guide layers are created.
Horizontal Slider 2 (SLX)	Linked to the slx- node of the node system.
Fill to Next Key Exposure	Having this option checked will automatically extend the exposure of the pasted frame up to the next key.
Use Default Destination Module	When enabled, the pasted keys will automatically refer to the destination defined in the option Set Default Destination Module.
Paste by Layer Name	When this option is checked the pasted layers will look for the individual layer

	name instead of matching the hierarchy of the template.
Set Default Destination Module	Instead of selecting the destination every time, the layer set as default destination will automatically paste the keys onto those layers.
Find	This will center on the default destination in the timeline.
Paste	Paste the current position of the pose copier onto the destination.
Vertical	Currently selected frame on the vertical slider. (based on frame name in sly-node)
Horizontal 1	Currently selected frame on the horizontal slider 1. (based on frame name in slh-node)
Horizontal 2	Currently selected frame on the horizontal slider 2. (based on frame name in slx-node)
Frame	Frame number of the selected frame within the master template.

Preferences Dialog Box

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

NOTE: To learn more about the individual preferences, refer to the Preferences guide.



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

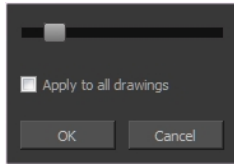
How to access the Preferences dialog box

Do one of the following:

- Select **Edit > Preferences** (Windows/Linux) or **Harmony Premium > Preferences** (Mac OS X).
- Press **Ctrl + U** (Windows/Linux) or **⌘ + U** (Mac OS X).

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.

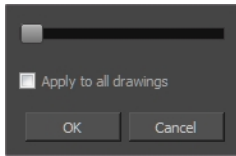
How to access the Remove Dirt dialog box

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	<p>Lets you adjust the amount of detail removed from the layer.</p> <p>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.</p> <p>During this process, the dirt that will be removed is highlighted in red.</p>
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.

How to access the Remove Hair dialog box

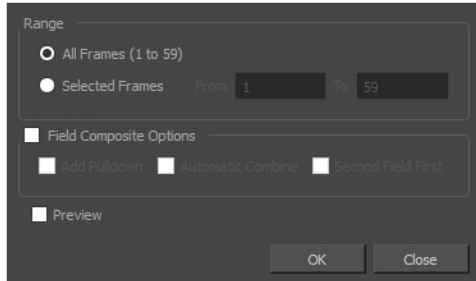
1. In the Timeline or Xsheet view, select the drawing containing the drawing to clean.
2. From the top menu, select **View > Show > Show Strokes** to display the invisible lines or press K.
3. In the top menu, select **Drawing > Clean Up > Remove Hair**.

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.

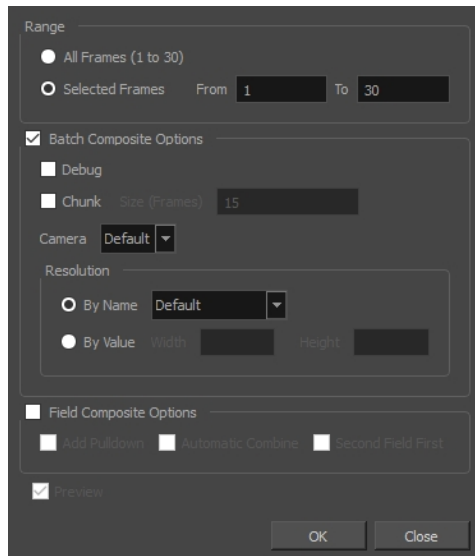
Render Write Nodes Dialog Box

The Render Write Nodes dialog box lets you configure your scene to render locally or sent it to a render farm so other computers can render your scenes while you continue working on your station.

In Harmony Stand Alone, the Render Write Nodes dialog box will look as follows:



In Harmony Server, the Render Write Nodes dialog box will have an additional section, **Batch Composite Options**, which allows to set parameters for the server's batch rendering service:



There are two approaches to rendering a scene in Harmony Server:

- **Local Rendering** is done directly by your machine in your Harmony session. Hence, it uses your machine's resources and will prevent you from working on the scene until the render is done. You will see the render progress in real time and will be able to preview the results right after it's finished.
- **Batch Rendering** is done by sending a scene to the server's render queue so it can be processed by the render farm. This allows you to keep working on your scene while the render is being done. The rendering progress can be monitored in Control Center and, when finished, the results can be previewed in Play.

In either case, the render will be output in the same folder and in the same file formats, as those are determined by the scene's Write nodes. However, batch rendering supports additional options, such as rendering in chunks, or in different resolutions than the scene's resolution.

How to access the Render Write Nodes dialog box

- Do one of the following:
 - From the top menu, select **File > Export > Render Write Nodes**.
 - Press **Ctrl + Shift + Y** (Windows/Linux) or **⌘ + Shift + Y** (Mac OS X).

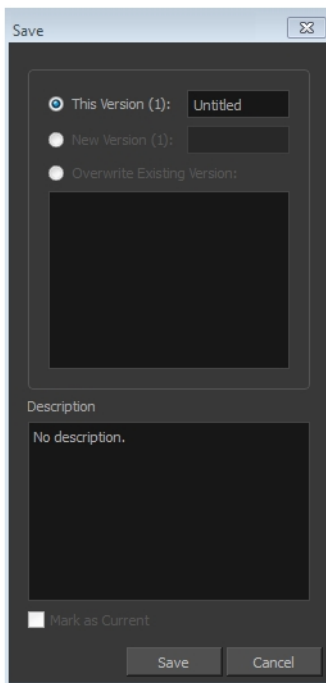
The Render Write Nodes dialog box opens.

Parameter	Description		
Range			
All Frames	Sends all the frames in the scene to be rendered.		
Selected Frames	Sends the specified range of frames to be rendered.		
Batch Composite Options	Check this to send the scene to batch rendering and unlock batch rendering options. Otherwise, the scene will be rendered locally.		
Debug	Instructs the batch rendering service to log debug information. When this is checked, the machine that processes the render will have more information about the compositing process in its batch rendering service's log.		
Chunk	When checked, this splits the render job sent to the server's render queue into several smaller render jobs, allowing it to be processed by several machines in the render farm. Note that this only affects Frame renders. If the render includes a movie file, the movie will still be exported as a single file once all the frames have been rendered.		
Size (Frames)	Specifies the amount of frames each chunk will include. For example, when rendering a 50 frames scene by chunks of 30, this will make the first render job render frames 1 to 30, and the second render job render frames 31 to 50.		
Camera	If you created a scene with several Camera nodes, this allows you to specify which one to use for the render.		
Resolution	This allows you to set the width and height of the rendered images or movie, either: By Name: Allows you to select between Default or one of the available resolution presets. If Default is selected, the scene will be rendered in its own resolution. By Value: Allows you to set the width and height of the rendered images in pixels.		
Field Composite Options			
Add Pulldown	Renders using the 3:2 pull-down approach. Every odd-numbered frame will be rendered on 3 images, and every even-numbered frame will be rendered on 2 images. Images will be named in pairs to indicate that they are to be combined together. Therefore, the output will look like this: <table border="1" data-bbox="511 1816 1166 1864"> <tr> <td>Exported Image File</td> <td>Rendered Frame</td> </tr> </table>	Exported Image File	Rendered Frame
Exported Image File	Rendered Frame		

	<table border="1"> <tbody> <tr> <td>final-0001-f1.tga</td> <td>Frame 1 of the scene</td> </tr> <tr> <td>final-0001-f2.tga</td> <td>Frame 1 of the scene</td> </tr> <tr> <td>final-0002-f1.tga</td> <td>Frame 1 of the scene</td> </tr> <tr> <td>final-0002-f2.tga</td> <td>Frame 2 of the scene</td> </tr> <tr> <td>final-0003-f1.tga</td> <td>Frame 2 of the scene</td> </tr> <tr> <td>final-0003-f2.tga</td> <td>Frame 3 of the scene</td> </tr> <tr> <td>final-0004-f1.tga</td> <td>Frame 3 of the scene</td> </tr> <tr> <td>final-0004-f2.tga</td> <td>Frame 3 of the scene</td> </tr> </tbody> </table> <p>This makes a scene animated in 24 frames per second output in 60 images per second. Hence, once the paired images are combined, this will make a 30 frames per second render.</p>	final-0001-f1.tga	Frame 1 of the scene	final-0001-f2.tga	Frame 1 of the scene	final-0002-f1.tga	Frame 1 of the scene	final-0002-f2.tga	Frame 2 of the scene	final-0003-f1.tga	Frame 2 of the scene	final-0003-f2.tga	Frame 3 of the scene	final-0004-f1.tga	Frame 3 of the scene	final-0004-f2.tga	Frame 3 of the scene
final-0001-f1.tga	Frame 1 of the scene																
final-0001-f2.tga	Frame 1 of the scene																
final-0002-f1.tga	Frame 1 of the scene																
final-0002-f2.tga	Frame 2 of the scene																
final-0003-f1.tga	Frame 2 of the scene																
final-0003-f2.tga	Frame 3 of the scene																
final-0004-f1.tga	Frame 3 of the scene																
final-0004-f2.tga	Frame 3 of the scene																
Automatic Combine	Combines each pair of images rendered with Pulldown by interlacing them together.																
Second Field First	By default, when images rendered with Pulldown are combined, the first image in a pair is rendered on odd lines (referred to as the first field), and the second is rendered on even lines (referred to as the second field). This does the opposite: The second image in a pair is rendered on odd lines and the first one is rendered on even lines.																
Preview	When rendering locally, this opens the rendered image sequence in Play immediately after the render is done.																

Save Dialog Box

The Save dialog box lets you save a scene for the first time in Harmony Server.



How to access the Save dialog Box

1. Make sure you have the necessary rights to save the current scene version. If you do not, you can acquire the rights by selecting **File > Rights to Modify Scene Version** or **Rights to Modify Scene**.
2. From the top menu, select **File > Save** or press Ctrl + S (Windows/Linux) or ⌘ + S (Mac OS X).

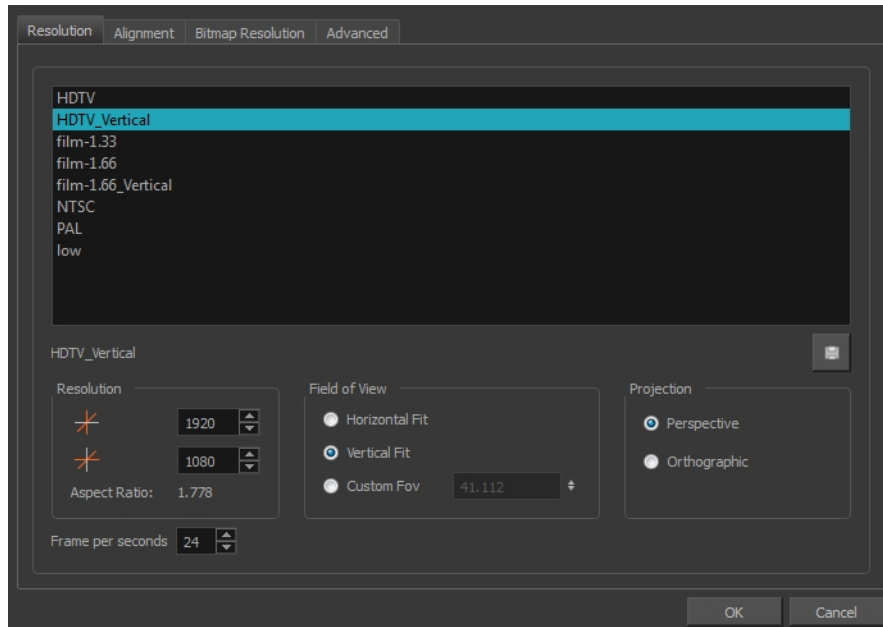
When saving the scene for the first time, the Save dialog box opens, prompting you to name the version.

Parameter	Description
This Version	Lets you enter a relevant name for the current version.
New Version	Lets you enter a relevant name to save your scene as a new version. Note that the drawing files are shared between versions. Only a new version of the timing, Xsheet, and Node view are saved (information contained in the xstage file).
Overwrite Existing Version	Allows you to save the current state of your scene over an existing scene version.
Description	Enter a short description of the current version.
Mark as Current	After selecting an existing version of your scene, you can make that version the current one that will open by default.

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.



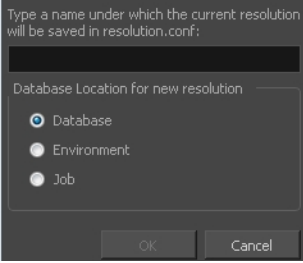
How to access the Scene Settings dialog box



1. Select **Scene > Scene Settings**.

The Scene Settings dialog box opens.

Resolution Tab

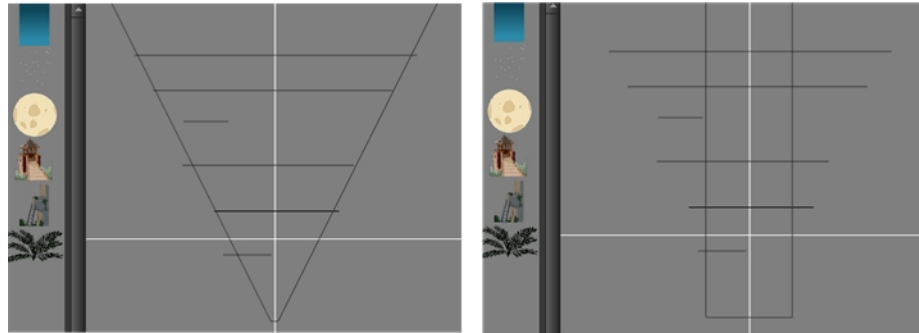
Parameter	Description
Resolution Presets	<p>You can select your project's resolution (camera frame size) from this preset list.</p> <ul style="list-style-type: none"> ▶ HDTV: High definition television delivers a higher quality image than standard television (4:3) does, because it has a greater number 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

	<p>images with the top and bottom of the scene grid.</p> <ul style="list-style-type: none"> ▶ 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	<p>Click the Save Resolution button after you define your new resolution to save it as a preset.</p> <p>If you are working in Harmony Server, you will be prompted a dialog box asking you to name the new resolution as well as the level at which you want to save the resolution.conf file.</p> 
Pixel Dimensions	<p>Displays the pixel dimensions for your project resolution.</p> <p>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.</p>
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 play. 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

<p>Field of View</p>	<p>frames per second to perceive a fluid animation.</p> <p>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.</p> <ul style="list-style-type: none"> Horizontal Fit: The camera resolution is set to fit the left and right edges of the scene grid.  <ul style="list-style-type: none"> Vertical Fit: The camera resolution is set to fit the top and bottom edges of the scene grid.  <ul style="list-style-type: none"> Custom Fov: After selecting this option, enter 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 will make the grid and all elements appear farther away. Decreasing the default value will create the opposite effect.
	<p>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).</p> <ul style="list-style-type: none"> 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



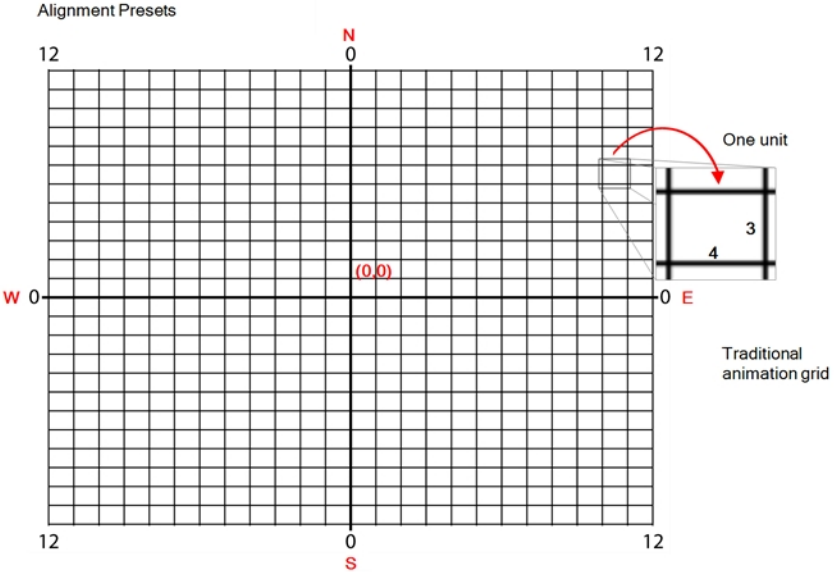
Perspective camera



Orthographic camera

Alignment Tab

Parameter	Description
Alignment	<p>The Alignment presets give you two preset options:</p> <ul style="list-style-type: none"> ▶ 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

	<p>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.</p>  <p>The diagram illustrates a 24x24 grid with axes labeled North (N), South (S), East (E), and West (W). The origin (0,0) is at the center. A callout shows a single grid unit with a width of 4 units and a height of 3 units, labeled 'One unit' and 'Traditional animation grid'.</p> <p>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.</p>
<p>Number of Units</p>	<p>In the Number of Units fields, enter the number of horizontal, vertical and depth units for your scene's grid.</p> <p>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.</p> <p>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.</p>
<p>Coordinates at Centre</p>	<p>In the Coordinates at Centre, you can enter a new coordinate for the centre of your scene.</p> <p>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.</p>
<p>Save</p>	<p>Saves your current Alignment settings and be able to select them later from the list.</p>

NOTE: If you change your scene's alignment from 4:3 12 Fields to Square 12 Fields part way through 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

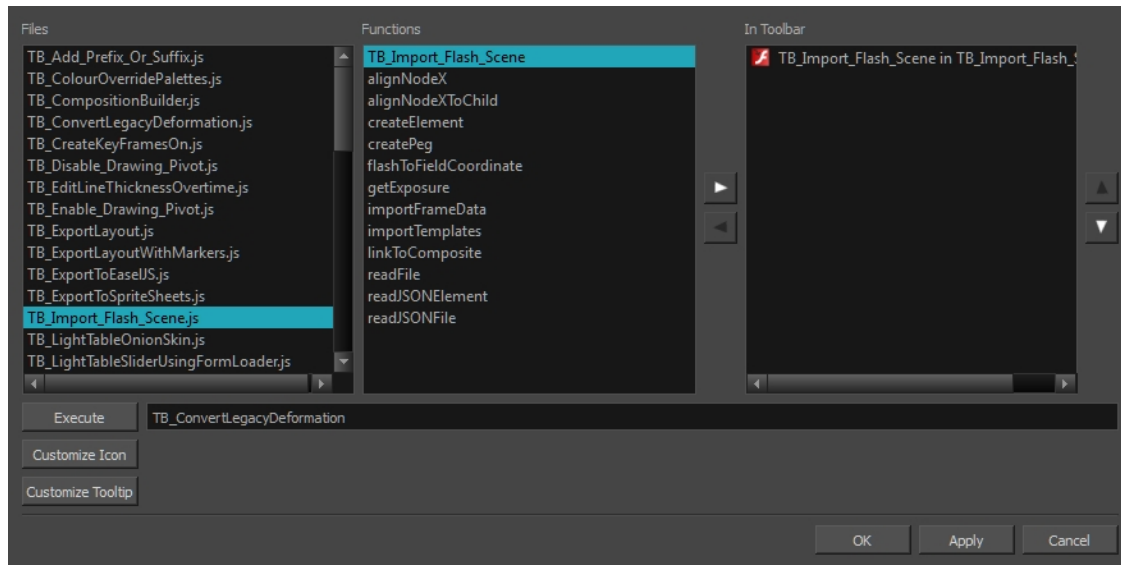
The Advanced tab contains an option for Toon Boom Digital Pro release 7.3 and Harmony release 7.3.

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.



How to access the Scripts Manager Dialog Box

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

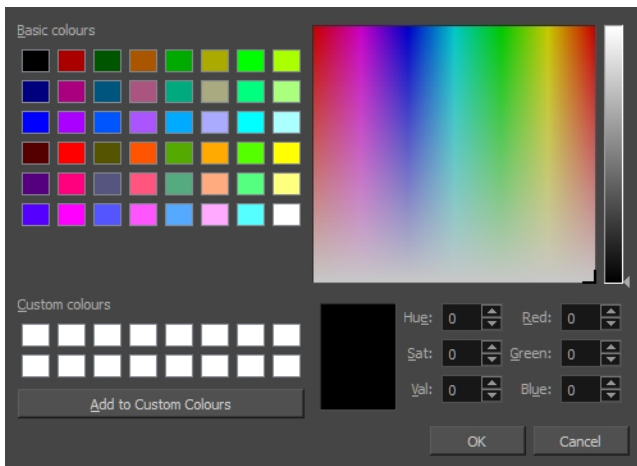
The Scripts Manager dialog box opens.

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

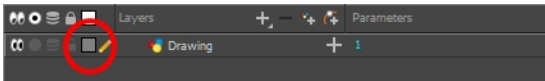
The Select Colour dialog box lets you set the colour of layers and columns. Using colours for layers and columns helps to differentiate them visually, making them easy to identify. The colours you choose will be reflected in the Node view.

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.



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**.

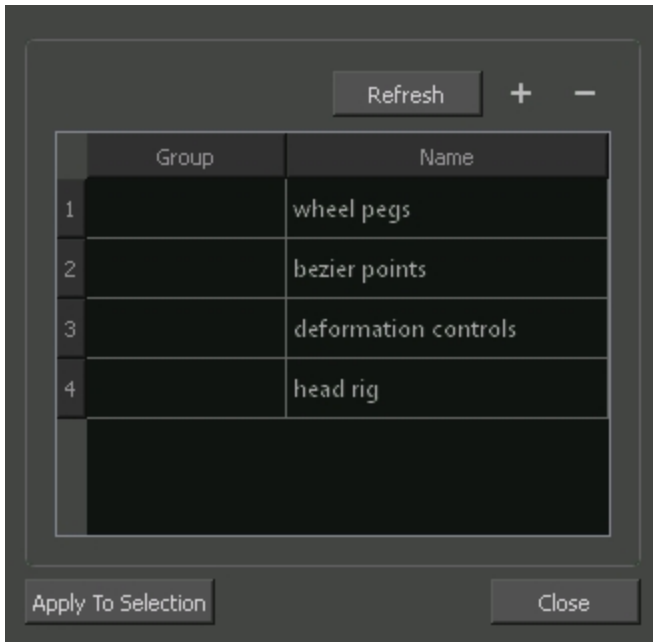
The Select Colour dialog box opens.

Parameter	Description
Basic colours	A basic set of colours to choose from.
Custom colours	Displays the custom colours you previously stored using the Add to Custom Colours button.
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.

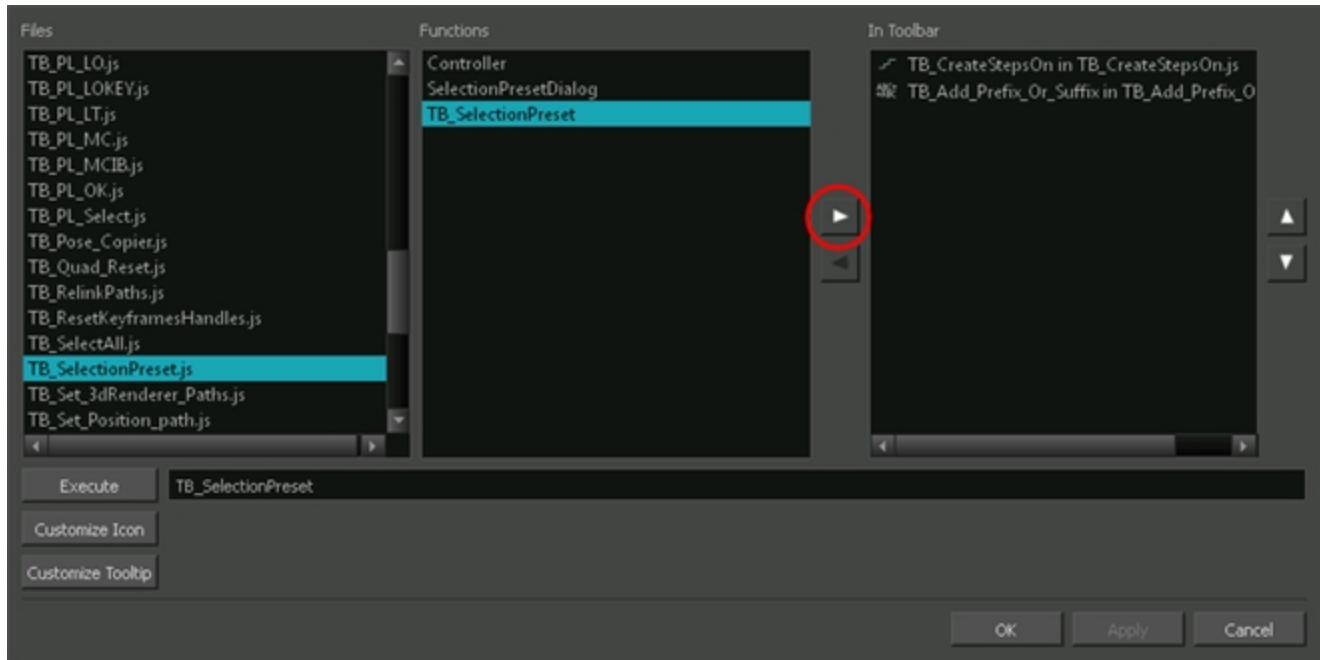
Selection Presets Dialog Box

As you're animating, you might find that you are constantly selecting the same pegs, drawing layers, bezier points on a deformation envelope, part of a character rig, etc. You can create a preset that automatically selects any defined element or group of elements.




How to access the Selection Presets dialog box

1. Add the Scripting toolbar to your interface:
 - Go to the top menu and select **Windows > Toolbars > Scripting**.
 - Right-click on the empty space near the top of the interface and from the quick-access menu selecting **Scripting**.
 - Right-click on the empty space near the top of a view and from the quick-access menu selecting **Scripting**.
2. In the Scripting toolbar, click on the Manage Scripts  button to open the Scripts Manager window.
3. In the Scripts Manager, in the Files section, select the file `TB_SelectionPreset.js`.
The functions associated with that file appear in the Functions section.
4. In the Functions section, select `TB_SelectionPreset`.
The Add script to toolbar  button becomes active.





- Click on the Add script to toolbar \triangleright button.

The TB_SelectionPreset script  button is added to the Scripting toolbar.

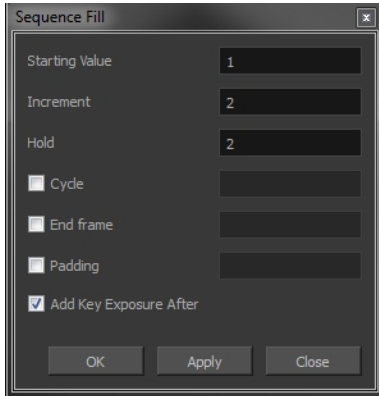
- Click **Apply**.
- Click **OK**.
- In the Scripting toolbar, click on the TB_SelectionPreset  button.

The Selection Presets window opens.

Parameter	Description
Refresh	Removes any highlighted zones from the Group column.
 Add Selection Preset	Opens the Save Selection As Preset dialog box. After entering a name for the new preset and clicking OK, a new Selection Preset is added to the Selection Presets list. Note: before clicking on the Add button, make a selection in your scene of the elements for which you wish to create a Selection Preset.
 Delete Selection Preset	Deletes the selected Selection Preset from the list.
Group	Double-click in this area, next to the Selection Preset you wish to use, to select the elements defined by the preset.
Name	Displays the name of the preset.
Apply to Selection	Selects the elements defined by the selected preset from the Name list.
Close	Closes the Selection Presets window.

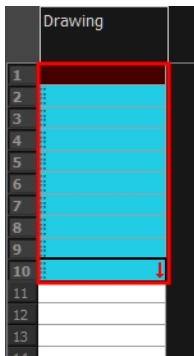
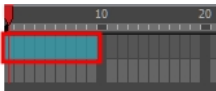
Sequence Fill Dialog Box

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.




How to access the Sequence Fill dialog box

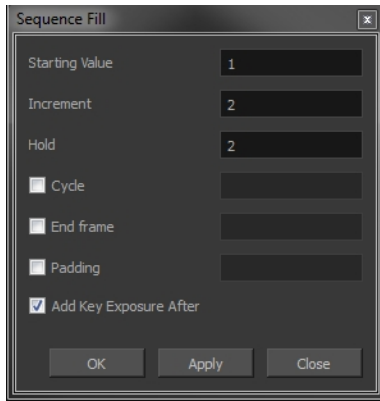
1. In the Timeline or Xsheet view, select a cell range.



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).

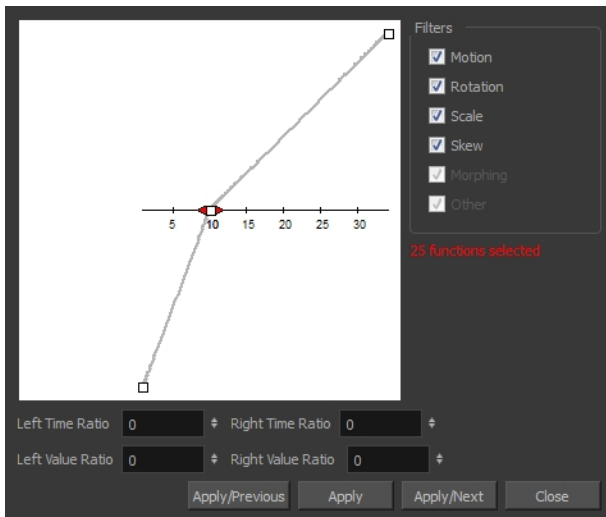
The Sequence Fill dialog box opens.



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	Enable this option to cycle the values and enter the number of cycles in the Cycle field.
End Frame	Enable this option to stop the fill at a specific frame within the selection. Indicate the frame number in the End Frame field.
Padding	Enable this option to add a 0 padding before the drawing name. In the Padding field, enter as many hash symbols (#) as digit you want in your drawing name, including the value itself.
Add Key Exposure After	Inserts a key exposure on the frame following the last cell of the new fill selection.

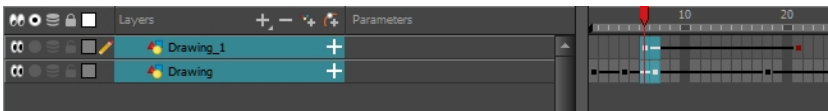
Set Ease for Multiple Parameters Dialog Box


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.



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.

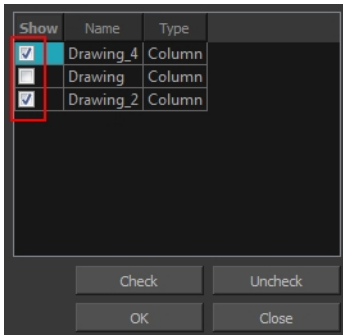
The Set Ease For Multiple Parameters dialog box opens.

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.

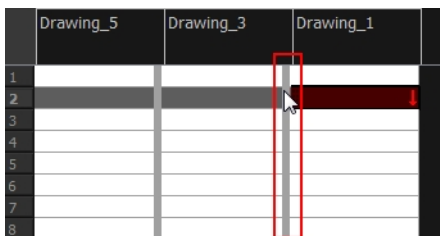
Show Hidden Columns Dialog Box

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.

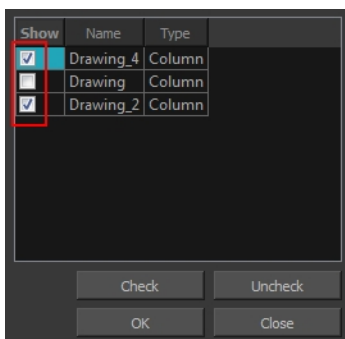


How to access the Show Hidden Columns dialog box

- 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.

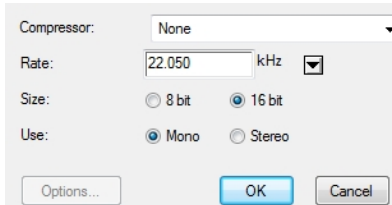


Parameter	Description
Show	Lets you select the hiddens columns to display in the Xsheet view.
Name	Name of the drawing.

Type	Indicates the column type such as column, timing, and expression.
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.



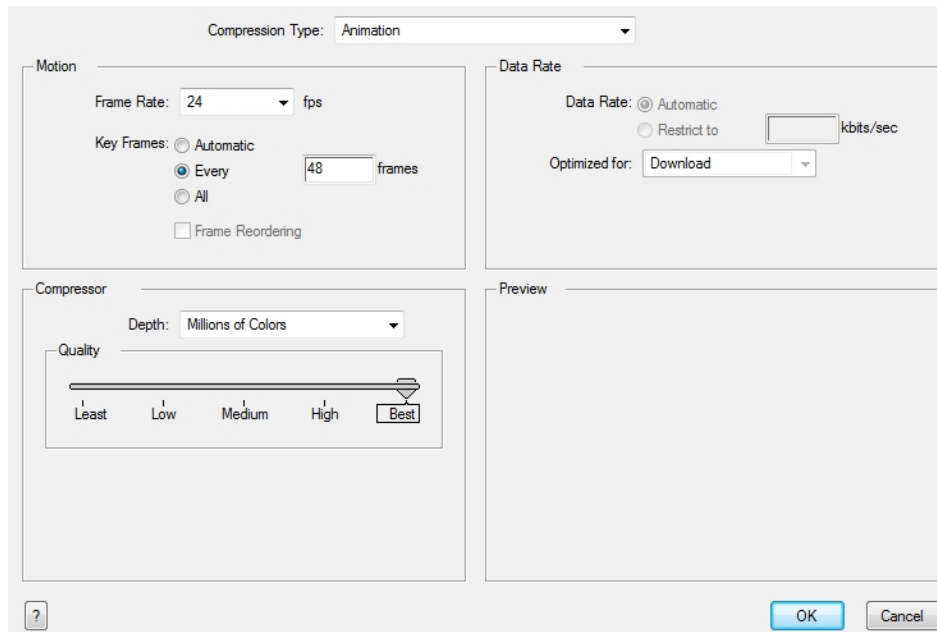
How to access the Sound Settings Dialog Box

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 exports your audio as is without performing any lossy compression or conversion, preserving its fidelity. Other compressors can be used if you need your movie's audio track to be exported in a specific format, or if disk space or download speed is critical, but they may impact the quality of your movie's soundtrack negatively.
Rate	Lets you select the audio rate at which to export. It is best to export your audio at a rate that matches the rate of your original sound files. 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 higher frequencies will be missing, making it sound muffled. For reference, the standard sound quality is 44.1 kHz for films, and 48 kHz for DVD. Lower rates are liable to impact the quality of your movie's soundtrack negatively, but they can be useful if disk space or download speed is critical.
Size	Lets you select the encoding size. Also known as <i>Bit Depth</i> , this determines the amount of precision used to record each wavelength in the soundtrack. The standard size is 16-bit . If you choose 8-bit , the amount of disk space your sound track requires is halved, but the audio will sound muffled.
Use	Lets you decide whether to use the Mono or Stereo channel mode. Stereo sound has a separate sound track for the left and the right speakers, allowing to make the origin of each sound realistically match the origin of their corresponding action. If you choose Mono, your sound track may use less disk space, but both the left and right channels will be merged into a single track.

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.



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.

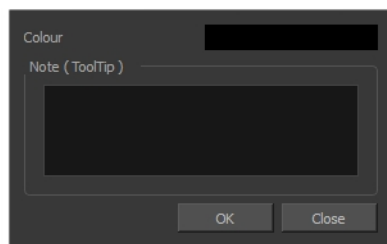
Compressor	
Depth	Lets you select a depth based on your movie's needs. For example, Millions of Colours+ houses an alpha channel.
Quality	Lets you choose a quality setting. The higher the quality of the export, the larger the resulting file.
Data Rate	
Date Rate	Automatic: Lets the system automatically 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.

How to access the Timeline Scene Marker dialog box

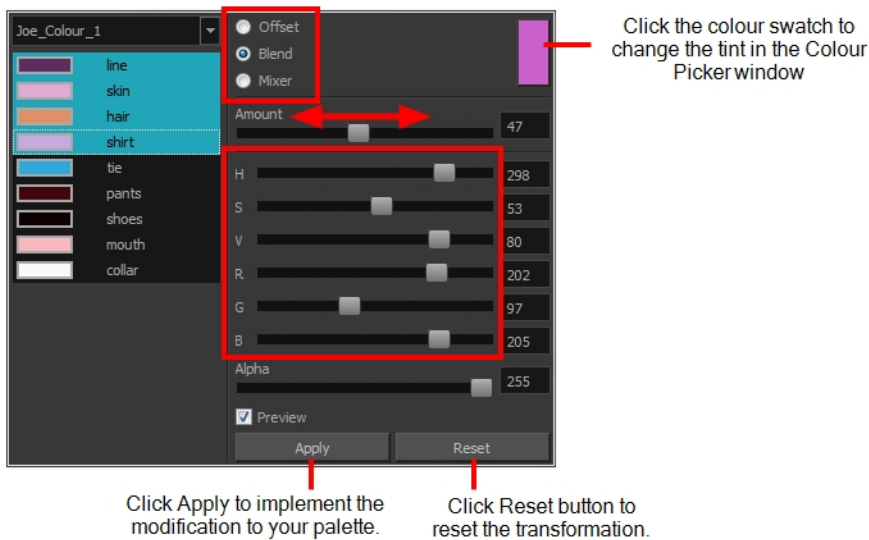
1. In the frame counter area of the Timeline view, do one of the following:
 - ▶ Drag to select the frame range to mark.
 - ▶ Right-click and select **Scene Markers > Mark Current Frame**.



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.

Tint Offset/Blend Dialog Box

You can offset, blend, or mix the colours in a colour palette using the sliders and increasing the Amount value.



How to access the Tint Offset/Blend dialog box

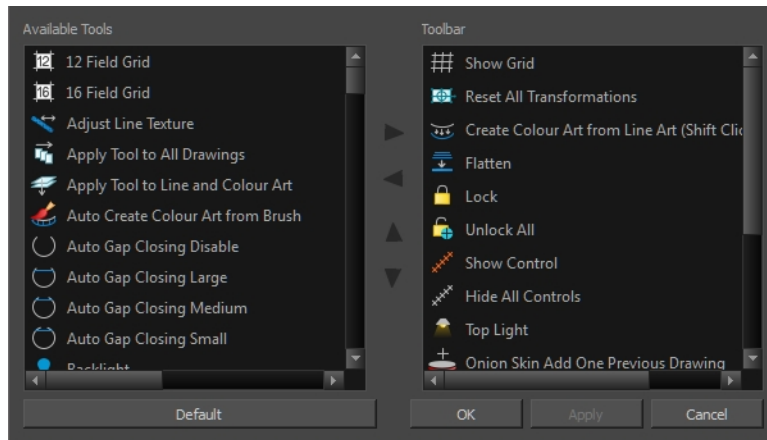
1. From the Colour View menu, select **Palettes > Tint Panel** or right-click and select **Tint Panel**.

The Blend/Offset Tint panel opens.

Parameter	Description
Offset	Offsets the selected colours by the adjustments made using the HSB and RGB sliders. Use the Amount slider to adjust the degree of offset. Use the Alpha slider to adjust the opacity of the selected colour.
Blend	Blends the selected colours with the colour swatch in the top-right corner. Use the Amount slider to adjust the degree of blend. A blend of 100% turns the selected colours into the same colour as the swatch. Adjusting the HSB and RGB sliders affect the swatch colour, which in turn affects the selected colours on the left. Use the Alpha slider to adjust the opacity of the swatch.
Mixer	Select a Base and Tint colour to form a third colour swatch. Use the slider just beneath to mix the Base and Tint colours by different amounts. This will affect the mixed swatch whether it is selected or not. Select either the Tint or Base swatch and use the HSB and RGB sliders to adjust its colour. This will affect the mixed swatch colour, which in turn affects the selected colours on the left.

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.



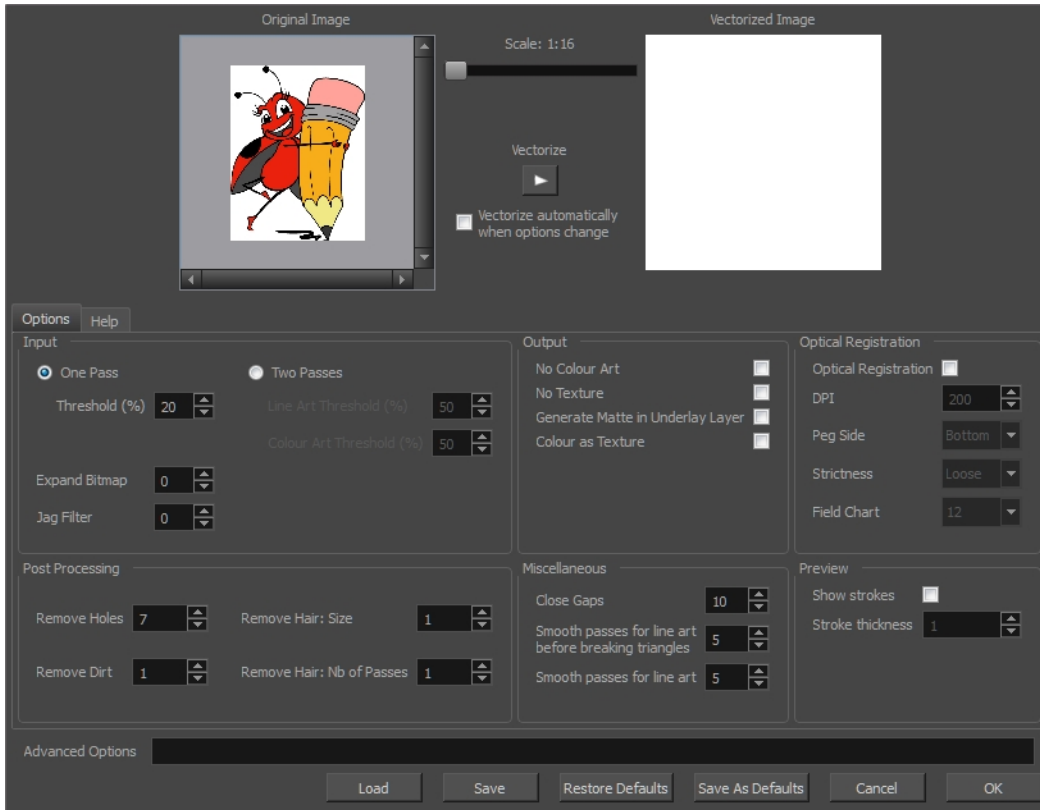
How to access the Toolbar Manager dialog box

1. Right-click on a toolbar in any view and select **Customize**. Note that the menu will not appear if you right-click on a disabled icon.


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.

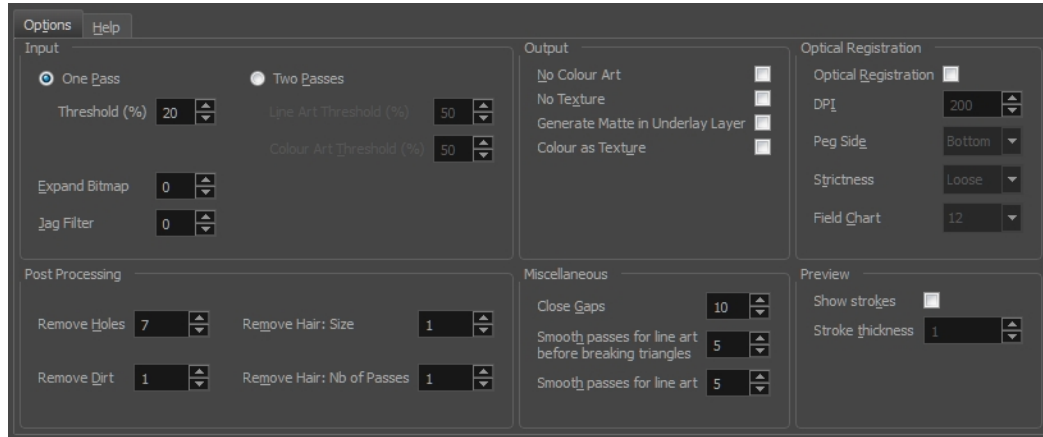


How to open the Vectorization Parameters dialog box

- 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).
- 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**.
- 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.

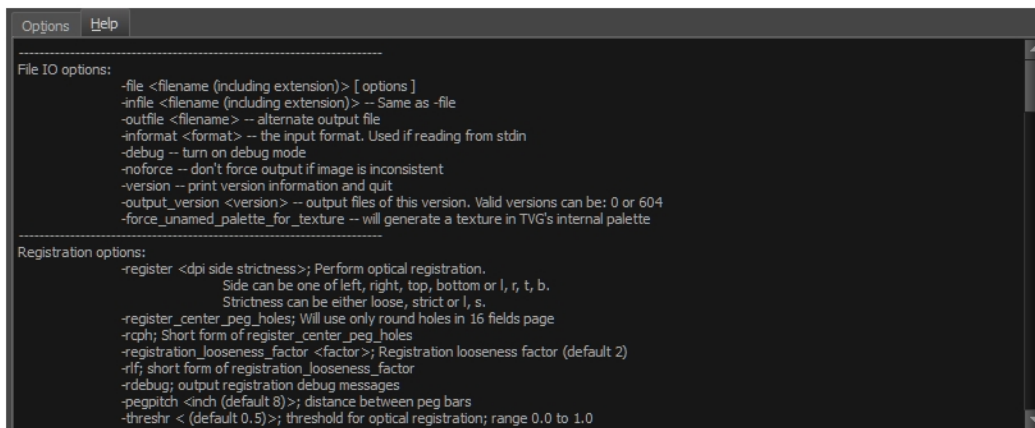


Parameter	Description
Input	The input filters are applied to the bitmap image before it is vectorized.
One Pass	One threshold value is applied to both the Line and Colour Art. For drawings with distinct vector-style lines of mattes, you only need one pass.
Two Passes	Applies a different threshold value 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 and 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 (%)	Determines which values in the scanned image are considered part of the Line 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.
Colour Art Threshold (%)	Determines which values in the scanned image are considered part of the 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.
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_unnamed_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]

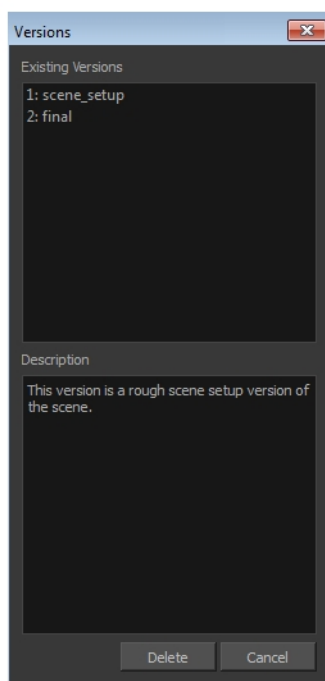
NOTE: There must be no space between the colon and the key/value. For example: `-4colours rgbdiff:20 dark:20 grey:120 white:250 dirt:200 rt:240 gt:240 bt:240`

Versions Dialog Box

The Versions window lets you delete any unnecessary versions of scenes when working with Harmony Server. When working with multiple versions of a scene, you may want to clean up the database by deleting the ones you no longer need.

How to access the Versions window

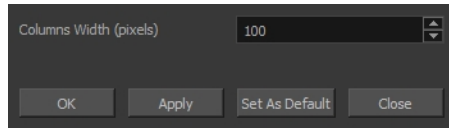
1. Make sure you have the necessary rights. If you do not, select **File > Rights to Modify Scene**.
2. Select **File > Manage Versions**.



Parameter	Description
Existing Versions	Displays the different versions of a scene that you can delete.
Description	Displays information about the selected version.
Delete	Removes the selected version of a scene. IMPORTANT: This operation cannot be undone.

Xsheet Column Width Dialog Box

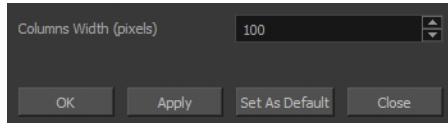
The Xsheet Column Width dialog box lets modify the width of a column in the Xsheet view and use it as the default column width.



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.

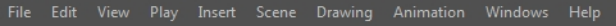
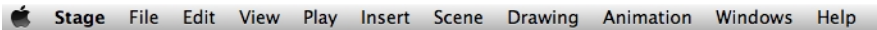
Chapter 3: Menus

The Menus section covers all the menu entries available in Harmony. There are several types of menus in Harmony: main menus, quick-access menus and view menus. Menus contains most of the functions available. They may also have a toolbar button or keyboard shortcut equivalent.

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Main Menu

The main menu 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 Harmony Premium category that contains the following commands: Preferences, About, and Quit.

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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 records the position, rotation, scale, skew, etc. of objects as keyframes in the Timeline view. Turn off the Animate mode to reposition objects for the entire scene. When the Animate mode is disabled, keyframes are not created when an object's parameters change.
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 keyframes.
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	<p>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.</p> <hr/> <p>NOTE: Duplicate key exposures may occur when pasting with the Enforce Key Exposure option selected.</p>
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. You can also convert the Elliptic zone of influence to a shape. 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	Convert deformation animations to drawing sequences, so you can adjust the drawings using the drawing tools. You may also want to change the timing and set it on double frames 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.
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

	<p>flag is not waving properly.</p> <p>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.</p> <p>Contour Hint points are yellow.</p>
Zone Hint	<p>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.</p> <p>Zone Hint points are cyan in colour.</p>
Pencil Hint	<p>A Pencil Hint point is used to control a pencil line, also known as <i>central vector</i>. 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.</p> <p>Pencil Hint points are magenta in colour.</p>
Appearing Point Hint	<p>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.</p> <p>Appearing Point Hint points are violet in colour.</p>
Vanishing Point Hint	<p>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.</p> <p>Vanishing Point Hint points are green in colour.</p>
Switch Between Morphing Key Drawings	<p>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.</p>
Go to First Frame	<p>Goes to the first frame of your morphing sequence.</p>
Go to Previous Frame	<p>Goes to the previous frame of the selected frame in the morphing sequence.</p>
Go to Next Frame	<p>Goes to the next frame of the selected frame in the morphing sequence.</p>
Go to Last Frame	<p>Goes to the last frame of your morphing sequence.</p>
Suggest Hints	<p>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.</p>
Hide Hints	<p>Temporarily hides the hint points from the key drawings. Use this</p>

	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.
Flip Vertical	Flips the 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.
Linear Motion	Switches between a linear and curved corner.
Lock in Time	Indicates whether 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 constant 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 drawing.
Substitute Drawing Next	Replaces the drawing or cell's symbol on the current frame by the next drawing.
Go to Previous Keyframe	Goes to the previous keyframe.
Go to Next Keyframe	Goes to the next keyframe.
Select Previous Keyframe /Point	Select the previous keyframe/point.
Select Next Keyframe /Point	Select the 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 starting value. 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	<p>Activates a drawing tool including:</p> <p>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.</p> <p>These drawing tools are available on the Tools toolbar.</p>
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	<p>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.</p>

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.
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;

	<p>one layer per stroke. If artwork is composed of several strokes, you must group them to put them on the same layer.</p> <p>This operation cannot be done in the Drawing view.</p>
Create Colour Art from Line Art	<p>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.</p> <p>You can also configure this option to create the invisible strokes on any of the four embedded layers.</p>
Create Breaking Triangles	<p>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.</p> <p>This makes it easier to soft trace lines in different colours when there are flattened or unflattened clean brush strokes.</p>
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	<p>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.</p> <p>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.</p> <hr/> <p>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.</p> <hr/> <p>NOTE: The small thumbnail size can be changed in Preferences (Camera tab).</p>
Previous Drawing	When a cell is selected in the Timeline or Xsheet view, displays the previous drawing.
Next Drawing	When a cell is selected in the Timeline or Xsheet view, displays the next drawing.
Previous Layer	When a cell is selected in the Timeline or Xsheet view, displays the previous layer.

Next Layer	<p>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.</p> <p>When a cell is selected in the Timeline or Xsheet view, displays the next layer.</p>
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 selects 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.
Auto-Apply	Automatically applies changes you make to a property window or dialog box. Harmony applies the modification automatically and displays the result in the Camera view. When working on a heavy scene, it is useful to turn off this option. 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.
Open Merge Editor	Lets you bring together (merge) the layer or drawings from different versions of the same scene.
Expand Symbol	<p>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.</p> <p>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.</p>
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.
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 is 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	<p>There are two methods of merging drawings.</p> <ul style="list-style-type: none"> 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.
Edit Drawing Mode	When the Auto-Get Rights to Modify Drawings option is selected in the Preferences dialog box (General tab), the system automatically gets the rights to modify drawings when you select a drawing. Otherwise, you must manually get the rights to modify drawings.
Edit Palette List Mode	When the Auto-Get Rights to Modify Palette option is selected in the Preferences dialog box (General tab), the system automatically gets the rights to modify palettes and palette lists when you select a colour from a palette. Otherwise, you must manually get the rights to modify a palette or palette list.
Get Rights to Modify Drawing	Manually releases the rights to modify a selected drawing.
Release Rights to Modify Drawing	Manually releases rights to modify a selected drawing.
Force Release Rights to Modify Drawing	This option is always available even if the Get Rights to Modify All Scene Assets option is not selected in the Database Selector dialog box.
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.
Advanced Save	Lets you do the following: <ul style="list-style-type: none"> • Save the scene as the current version. • Save different versions representing different stages of the production of your scene. • Save different versions representing different scene setups. • Choose specific assets that you want to save, such as drawings or palettes.
Rights to Modify Scene Version	Allows you to modify the selected version of the scene and access the version manager during the opened session
Rights to Modify Scene	Allows you to modify the currently selected scene version, but locks access to the version manager during the opened session.
Read Changed Drawings	Determines which drawing files have been modified on disk since you loaded them. All updated drawings will be reloaded. <p>NOTE: Reloading a locked drawing will discard unsaved changes.</p>
Manage Versions	Allows you to manage all the versions of the current scene.
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

	<p>the new scene.</p> <hr/> <p>NOTE: The scene name cannot exceed 23 characters.</p>
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.
Update Database Scene	Updates your database with only the changes you made to the scene. To do this, you must enter your host name and host port in the Preferences dialog box, General tab.
Download Database Changes	If any changes were made to the scene you downloaded, you can perform an update by downloading these changes, which will be integrated into your scene.
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.
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).
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.
Render Write Nodes	Renders all the Write nodes in a node structure. When working with Harmony Server, you can send your scene to batch processing and to a render farm.
Soundtrack	Exports a sound file as a merged soundtrack or series of individual files. The exported soundtracks are generated as *.wav files.
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).
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.
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.
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	Prints 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 Toon Boom website, which features a Support and Community > Forum section.
Customer Experience Improvement Program	<p>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.</p> <p>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.</p>
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.
Shortcuts	Displays the complete list of keyboard shortcuts for Harmony.

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 view.
Side View	Plays back your animation in the Side view.
Perspective View	Plays back your animation in the 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 the beginning of the scene.
Add Frames at End	Adds the number of frames you specify to the end of the scene.
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, Perspective, and Timeline views.
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. See xref Reference > Windows > Element Manager.
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	<p>Cycles through the following display modes:</p> <ul style="list-style-type: none"> • Normal Full-Screen: The main application window becomes full screen. • View Full-Screen: The selected view becomes full screen and all other views are collapsed. • Normal: The main application window is restored to its original size and collapsed views are expanded.
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 dis-

	played 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 <i>embedded pivot</i> . 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.
Save Workspace	Saves the current workspace along with any modifications you made.
Save Workspace As...	Saves the workspace as a new version to avoid overwriting the current one.
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: Tool Presets, Art Layer, Playback, File, Edit, Advanced Animation, Scripting, Coordinate, Control Point, Display, Tools, Flip, Onion Skin, Mark Drawing, Easy Flipping, Workspace, Deformation, Drawing View, Camera View, Xsheet View and Timeline View.
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.
Model	Shows or hides the Model view.
Node Library	Shows or hides the Library view.
Node View	Shows or hides the Node view.
Perspective	Shows or hides the Perspective view.
Side	Shows or hides the Side view.
Timeline	Shows or hides the Timeline view.

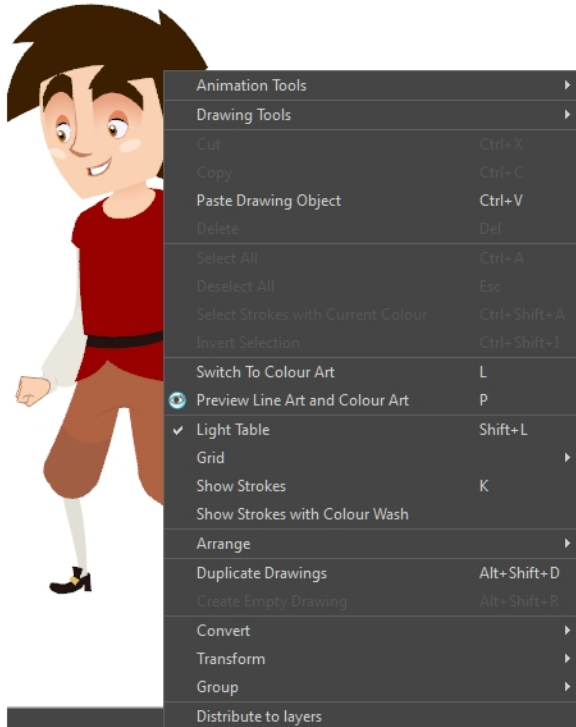
Tool Properties	Shows or hides the Tool Properties view.
Top	Shows or hides the Top view.
Xsheet	Shows or hides the Xsheet view.
3D Graph	Shows or hides the 3D Graph view.
Integrated Help	Shows or hides the Integrated Help view.
Metadata Editor	Shows or Hides the Metadata Editor view.
Script Editor	Shows 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.



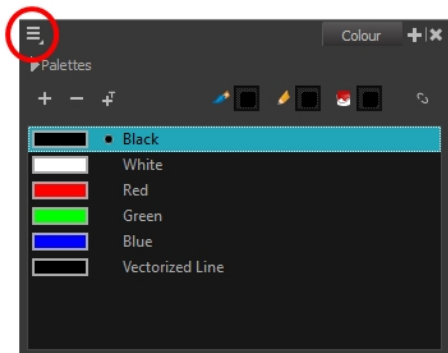
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View Menus

A view menu contains commands specifically related to that view.

How to access a view menu

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



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3D Graph View Menu

The 3D Graph View menu lets you access commands related to the 3D Graph view, such as selecting different subnodes, disabling and enabling subnodes and inserting the 3D Kinematic Output node.

How to access the 3D Graph menu

- In the upper-left corner of the 3D Graph view, click the menu  button.


Command	Description
Edit	
Copy Subnode Name	Copies the name of the selected subnode for pasting in the Subnode Name field in the Layer Properties of the 3D Kinematic Output node. You need to enter the name of the subnode into the 3D Kinematic Output node if you add it to the Node view from the Node Library. If you use the Add 3D Kinematic Output button or menu command, the 3D Kinematic Output node will automatically be added and connected in the Node view, with the selected subnode name in the Subnode Name field.
Select All	Selects all the items in the 3D graph (all the parts of the 3D model).
Deselect All	Deselects all the items in the 3D graph (all the parts of the 3D model).
Select Parent Subnode	Jumps to the parent subnode of a selected child subnode.
Select Child Subnodes	Jumps to the first child subnode of a selected parent subnode. Use the Select Next Sibling Subnode menu option to continue down the list of children.
Select Next Sibling Subnode	Selects the next child subnode, after the selected child subnode in the list.
Select Previous Sibling Subnode	Selects the child subnode previous to the selected child subnode in the list.
Subnodes	
Enable	Enables the selected subnode in the 3D graph list. Enabling the subnode displays the corresponding part of the 3D model in the Camera and Perspective views. You can make a multi-selection with this command. You can also use the Enable Subnode button in the 3D Graph view toolbar to preform the same function.
Disable	Disables the selected subnode in the 3D graph list. Disabling the subnode hides the corresponding part of the 3D model in the Camera and Perspective views. You can make a multi-selection with this command. You can also use the Disable Subnode button in the 3D Graph view toolbar to preform the same function.
Insert	
Make Properties Available	Adds the subnode to list of activated subnodes in the Layer Properties of the Subnode-Animation node, in the Node and Timeline views. This means that function columns (position x, y, z, velocity, scale, etc.) have been created for the subnode and that it is now animatable. You can also use the Make Properties Available button in the 3D Graph view toolbar to preform the same

	function.
3D Kinematic Output	Adds a 3D Kinematic Output node under the selected node and sets it to use the selected subnode's transformation values. You can use the 3D Kinematic Output node to move another layer in sync with the moves done on the 3D subnode. An asterisk appears beside the subnode name in the 3D graph list to indicate the connection of the 3D Kinematic Output node. You can also use the Add 3D Kinematic Output node button in the 3D Graph view toolbar to preform the same function.

Camera View Menu

The Camera View 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 selects 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	Displays all Art layers.
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 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.

	<p>Add to Onion Skin: Adds Adds a series of selected elements to the onion skin preview.</p> <p>Remove from Onion Skin: Removes Removes a series of selected elements from the onion skin preview.</p> <p>Remove Unselected from Onion Skin: Removes Removes all elements except the ones selected from the onion skin preview.</p> <p>Add All to Onion Skin: Adds Adds all of the scene's elements to the onion skin preview.</p> <p>Remove All from Onion Skin: Removes Removes all of the scene's elements from the onion skin preview.</p> <p>Onion Skinning by Drawing:</p> <p>No Previous Drawing:</p> <p>Previous Drawing: Displays the previous drawing.</p> <p>Previous Two Drawings: Displays the previous two drawings.</p> <p>Previous Three Drawings: Displays the previous three drawings.</p> <p>No Next Drawing: Displays no next drawing.</p> <p>Next Drawing: Displays the next drawing.</p> <p>Next Two Drawings: Displays the next two drawings.</p> <p>Next Three Drawings: Displays the next three drawings.</p> <p>Reduce One Previous Drawing: Reduces the number of previous visible drawings by one.</p> <p>Add One Previous Drawing: Adds one drawing to the number of previous visible drawings.</p> <p>Reduce One Next Drawing: Reduces the number of next visible drawings by one.</p> <p>Add One Next Drawing: Adds one drawing to the number of next visible drawings.</p>
Light Table	Turns on the light table so you can see 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 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	<p>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 <i>embedded pivot</i>. Inside a symbol, each drawing can have its own pivot.</p> <p>Safe Area: Displays 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.</p>

	<p>Camera Mask: Displays 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.</p> <p>Control: Displays the controls of the selected element.</p> <p>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.</p> <p>Outline Locked Drawings: Drawings that are locked in the Timeline view (cannot be selected in the Camera view) are displayed as wireframes.</p> <p>Show Current Drawing on Top: Displays 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.</p> <p>Show Strokes: Displays the strokes in your drawings so that the invisible lines stand out.</p> <p>Show Strokes with Colour Wash: Displays strokes with washed-out colours.</p> <p>Highlight Selected Colour:</p> <p>Show Scan Information: Displays a status bar showing the scanning information at the bottom of the Drawing and Camera view.</p>
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

	<p>need to trace directly over the gap. You can draw it a few millimeters away. The two closest points automatically close the gap.</p> <p>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.</p> <p>Remove Art Inside Selection On All Drawings: Removes any art inside all drawings selected with the Permanent Selection option in the Select tool.</p> <p>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.</p> <p>Remove Art Outside Selection On All Drawings: Removes any art outside all drawings selected with the Permanent Selection option in the Select tool.</p>
Paint	<p>Unpaint Selection: Unpaints any art existing inside a selection.</p> <p>Unpaint Selection on All Drawings: Unpaints all art contained inside a selection on all the drawings within the same layer.</p> <p>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.</p> <p>Unpaint Outside Selection on All Drawings: Unpaints all art outside a selection on all the drawings within the same layer.</p> <p>Repaint Selection: Repaints any art inside a selection.</p> <p>Repaint Selection on All Drawings: Repaints any art inside a selection on all the drawings contained within the same layer.</p> <p>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.</p> <p>Repaint Outside Selection on All Drawings: Repaints any art outside a selection on all the drawings contained within the same layer.</p>
Convert	<p>Pencil Lines to Brush Strokes: Converts the selected centreline pencil strokes into contour strokes brush lines.</p> <p>Brush Strokes to Pencil Lines: Converts selected contour strokes into centreline pencil strokes. The brush stroke thickness will be lost.</p> <p>Strokes to Pencil Lines: Converts the selected invisible line to a pencil line.</p> <p>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.</p>
Optimize	<p>Flatten: Merges 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.</p> <p>Smooth: Smooths selected drawing strokes and removes extra points.</p>

	<p>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.</p> <p>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.</p> <p>Remove Extra Strokes: Removes strokes inside painted area. This option only works after the painted drawing is flattened.</p> <p>Optimize: Reduces 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.</p> <p>Crop Brush Textures: Crops 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.</p> <p>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.</p>
Arrange	<p>Bring to Front: Moves the selected art to the front (on top).</p> <p>Bring Forward: Moves the selected art one level forward (closer to the front).</p> <p>Send Backward: Moves the selected art one level lower (behind).</p> <p>Send to Back: Moves the selected art behind everything (bottom / back).</p>
Transform	<p>Flip Horizontal: Flips the current selection horizontally.</p> <p>Flip Vertical: Flips the current selection vertically.</p> <p>Rotate 90 CW: Rotates the current selection 90 degrees clockwise.</p> <p>Rotate 90 CCW: Rotates the current selection 90 degrees counter-clockwise.</p> <p>Rotate 180: Rotates the current selection 180 degrees.</p>
Create Empty Drawing	<p>Creates 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.</p>
Duplicate Drawings	<p>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.</p> <p>When duplicating a drawing, the selected cell is replaced with the new drawing.</p>

	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 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.
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 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	Adds a control point to a 3D path function.
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	Flips the position of an element on its axis.
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	Transforms a curved path to a linear path removing tension, bias, and continuity.
Lock in Time	Indicates whether 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 constant 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 next drawing.
Substitute Drawing Next	
Select Previous Keyframe/Point	Select the previous keyframe/point.
Select Next Keyframe/Point	
Lock	Locks a layer so it cannot be selected in the Camera view.
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 starting value. 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 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	<p>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.</p> <p>When adding a Contour Hint point, make sure to place it far enough away from</p>

	<p>the contour so you can see it snap to the contour.</p> <p>Contour Hint points are yellow.</p>
Zone Hint	<p>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.</p> <p>Zone Hint points are cyan in colour.</p>
Pencil Hint	<p>A Pencil Hint point is used to control a pencil line, also known as <i>central vector</i>. 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.</p> <p>Pencil Hint points are magenta in colour.</p>
Vanishing Point Hint	<p>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.</p> <p>Vanishing Point Hint points are green in colour.</p>
Appearing Point Hint	<p>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.</p> <p>Appearing Point Hint points are violet in colour.</p>
Switch Between Morphing Key Drawings	<p>Toggles 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.</p>
Suggest Hints	<p>Automatically sets 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.</p>
Hide Hints	<p>Temporarily 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.</p>

Colour View Menu

The Colour View 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.
Link to External	Lets you you link an external palette to your scene without copying it in your project.
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	Displays the colour palette containing the pencil line textures.
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 pick and edit colour swatches.
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.
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: 075c:f5b552401130.

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	Pastes a copied colour to a new palette as a clone of the original one. Both colour use the same colour ID. They have to be in different palettes.
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	Opens the browser to replace the texture used in a textured colour swatch. All zones using the swatch will be updated with the new texture.
Scale Down Texture	Lets you set a new maximum texture size or scaling factor.
New Default Colour	Creates a new colour using the default colour set in the preferences.
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 selection is independent from the vector colour selection.
Bitmap Colour Sliders	
RGB	Displays the colour picking sliders as RGB (red, green, blue).
HSV	Displays the colour picking sliders as HSV (hue, saturation, value).

Drawing View Menu

The Drawing View 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 selects 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	Displays all Art layers.
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 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: Displays 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 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 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	When using the Morphing tools, this displays the source or destination drawing as a reference in the bottom corner of the Drawing view.
Show Scan Information	Displays a status bar showing the scanning information at the bottom of the Draw-

	ing 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.

	<p>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.</p>
	<p>Repaint Outside Selection on All Drawings: Repaints any art outside a selection on all the drawings contained within the same layer.</p>
Convert	<p>Pencil Lines to Brush Strokes: Converts the selected centreline pencil strokes into contour strokes brush lines.</p>
	<p>Brush Strokes to Pencil Lines: Converts selected contour strokes into centreline pencil strokes. The brush stroke thickness will be lost.</p>
	<p>Strokes to Pencil Lines: Converts the selected invisible line to a pencil line.</p>
	<p>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.</p>
Optimize	<p>Flatten: Merges 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.</p>
	<p>Smooth: Smooths selected drawing strokes and removes extra points.</p>
	<p>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.</p>
	<p>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.</p>
	<p>Remove Extra Strokes: Removes strokes inside painted area. This option only works after the painted drawing is flattened.</p>
	<p>Optimize: Reduces 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.</p>
	<p>Crop Brush Textures: Crops 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.</p>
	<p>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.</p>
Arrange	<p>Bring to Front: Moves the selected art to the front (on top).</p>
	<p>Bring Forward: Moves the selected art one level forward (closer to the front).</p>

	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 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	<p>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.</p> <p>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.</p>
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	<p>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.</p> <p>You can also configure this option to create the invisible strokes on any of the four embedded layers.</p>
Generate Auto-Matte	<p>Automatically creates a matte from a selected drawing or all drawings on a layer.</p> <p>Opens the auto-Matte dialog box where you can set the radius of the lines depending on how precise or rough your line is.</p> <p>You can also select the source and destinatin layers from which the matte will be created.</p>
Adjust Line Texture Opacity	Lets you adjust the contrast and opacity of textured lines in a drawing.
Change Bitmap Drawing Resolution	Lets you 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.
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 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	<p>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.</p> <p>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.</p> <p>Contour Hint points are yellow.</p>
Zone Hint	<p>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.</p> <p>Zone Hint points are cyan in colour.</p>
Pencil Hint	<p>A Pencil Hint point is used to control a pencil line, also known as <i>central vector</i>. 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.</p> <p>Pencil Hint points are magenta in colour.</p>
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

	<p>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.</p> <p>Vanishing Point Hint points are green in colour.</p>
Appearing Point Hint	<p>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.</p> <p>Appearing Point Hint points are violet in colour.</p>
Switch Between Morphing Key Drawings	<p>Toggles 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.</p>
Go to First Frame	<p>Goes to the first frame of your morphing sequence.</p>
Go to Previous Frame	<p>Goes to the previous frame of the selected frame in the morphing sequence.</p>
Go to Next Frame	<p>Goes to the next frame of the selected frame in the morphing sequence.</p>
Go to Last Frame	<p>Goes to the last frame of your morphing sequence.</p>
Suggest Hints	<p>Automatically sets 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.</p>
Hide Hints	<p>Temporarily 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.</p>

Function View Menu

The Functions View 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 View Menu

The Library View 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	<p>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.</p> <p>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.</p> <p>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.</p>
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	<p>Places you inside the symbol where you can edit it.</p> <p>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).</p>
Remove Unused Files	Removes any files not in use in the selected template.
Rename Template	Lets you rename a selected template.
Import Files	Imports vector files such as AI, PDF, and SWF. You requires the right to modify the library in which you want to import the files.
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	Unlinks a library folder from your library list.
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Model View Menu

The Model View 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	Shows the previous model loaded in the Model view.
Next Model	Shows the next model loaded in the Model view.
Import Model	Imports a TVG drawing as a model in the Model view.
Use Current Drawing as Model	Loads the currently selected drawing in the scene as a model in the Model view.
Load Default Models	Loads TVG drawings placed in a custom <code>models</code> folder located in the scene folder.
Clear Model	Removes the model from the Model 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.
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 tool is also available on the Tools toolbar.
Cutter Selection	Allows to cut a section of the model to paste it in your scene.
Dropper	Activates the Dropper tool. This tool is also available on the Tools toolbar.
Zoom	Activates the Zoom tool. This tool is also available on the Tools toolbar.

Node View Menu

The Node View 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 selects 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.
	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.
Clone Selected Nodes: Drawings Only	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.
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.
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Node Library View Menu

The Node Library View 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 View Menu

The Perspective View 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 selects 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 into the view, towards the view's pivot point, up to 80,000%.
Zoom Out	Zooms out of the view, away from the view's pivot point, up to 1%.
Move Forward	Moves infinitely forward into the view, using the direction set by the current position and angle of rotation.
Move Backward	Moves infinitely backwards out of the view, using the direction set by the

	current position and angle of rotation.
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.
Face Selected to Draw	Resets any rotations made and brings the selected object to the center of the view. Displaying the drawing object at this perspective is intended to facilitate drawing on the object.
Look at Selected	Resets view to have the selected object at the center, without resetting the rotation angles or zoom.
Layer Properties	Shows or hides the Layer Properties view.
Light Table	Turns on the light table so you can see 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 Perspective view.
Animation	
Animate	Enables the Animate mode which records the position, rotation, scale, skew, etc. of objects as keyframes in the Timeline view. Turn off the Animate mode to reposition objects for the entire scene. When the Animate mode is disabled, keyframes are not created when an object's parameters change.
Insert Keyframe	Adds a keyframe to the currently selected frame in the Timeline view.
Insert Control Point	Adds a control point to the motion path at the currently selected frame. This control point does not appear in the Timeline, but can be used to reshape the motion path—see Coordinates and Control Points View on page 685 . In order for this command to work, layers must be set to 3D Path.
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	Straightens out the motion path on either sides of the selected control point.
Lock in Time	Indicates whether 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	Locks the Z value when you're animating in 3D space. This means you can only reposition your object along the x and y axes.
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the next drawing.
Substitute Drawing Next	
Select Previous Keyframe /Point	Select the previous keyframe/point.
Select Next Keyframe /Point	Select Next Keyframe /Point
Lock	Lock: Locks Locks one or a multiple selection of layers.
	Unlock: Unlocks Unlocks one or a multiple selection of locked layers.
	Lock All: Locks Locks all the layers in the Timeline view.
	Unlock All: Unlocks Unlocks all the layers in the Timeline view.
	Lock All Others: Locks Locks every layer except the selected ones.
Reset	Returns 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 Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the starting value. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets 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 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 View Menu

The Side View menu lets you position elements in 3D space, set parameters for animation and access animation tools—see [Side View on page 708](#).

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 selects 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 Perspective view.
Animation	
Animate	Enables the Animate mode which records the position, rotation, scale, skew, etc. of objects as keyframes in the Timeline view. Turn off the Animate mode to reposition objects for the entire scene. When the Animate mode is disabled, keyframes are not created when an object's parameters change.
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	Transforms a curved path to a linear path removing tension, bias, and continuity.
Lock in Time	Indicates whether 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 constant 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 next drawing.
Substitute Drawing Next	
Select Previous Keyframe /Point	Select the previous keyframe/point.

Select Next Keyframe /Point	Select Next Keyframe /Point
Lock	Lock: Locks Locks one or a multiple selection of layers.
	Unlock: Unlocks Unlocks one or a multiple selection of locked layers.
	Lock All: Locks Locks all the layers in the Timeline view.
	Unlock All: Unlocks Unlocks all the layers in the Timeline view.
	Lock All Others: Locks Locks every layer except the selected ones.
Reset	Returns 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 Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the starting value. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets 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 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 View Menu

The Timeline View menu lets you modify layers, keyframe and timing.

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.
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.
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 selects 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 Synced Layers	Selects all the layers synced to the selected layer. The selected layer must be a synced in order for this option to be enabled.
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 Locks one or a multiple selection of layers.
	Unlock: Unlocks Unlocks one or a multiple selection of locked layers.
	Lock All: Locks Locks all the layers in the Timeline view.
	Unlock All: Unlocks Unlocks all the layers in the Timeline view.
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.
	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 .
	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 <u>entire</u> length of the scene marker, otherwise the Timeline Scene Marker dialog box will not open for editing.
Delete Scene Marker	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.
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 many layers in the Timeline view, you may find it hard to locate which one is selected.
Change Track Colour	Opens the colour picker window to modify the colour of the selected layer.
Default Track Colour	Resets the layer colour.
Collapse/Expand	Toggles between expanding and collapsing all parent layers in the Timeline view.
Collapse All	Collapses all parented layers in the Timeline view.
Expand All	Expands all parented layers in the Timeline view.
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 .
Layers	
Add Synced Drawing Layer	Creates a new drawing layer whose timing is synced immediately with the currently selected drawing layer.
Sync Layer With	Opens the Convert to Synced Drawing Layer dialog box. In this dialog box, every other drawing layer in the project can be selected, parented and have its timing synced to the currently selected layer.
Unsync Layer	Unsyncs the parent layer of a synced pairing, when the child layer is selected.

Top View Menu

The Top View menu lets you position elements in 3D space, set parameters for animation and access animation tools—see [Top View](#) on page 718.

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 selects 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 Perspective view.
Animation	
Animate	Enables the Animate mode which records the position, rotation, scale, skew, etc. of objects as keyframes in the Timeline view. Turn off the Animate mode to reposition objects for the entire scene. When the Animate mode is disabled, keyframes are not created when an object's parameters change.
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 whether 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 next drawing.
Substitute Drawing Next	
Select Previous Keyframe /Point	Select the previous 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 Locks all the layers in the Timeline view.
	Unlock All: Unlocks Unlocks all the layers in the Timeline view.
	Lock All Others: Locks Locks every layer except the selected ones.
Reset	Returns 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 Resets all transformations on the current frame in a selected layer. Your keyframe will remain, but all the values will return to the starting value. All transformations are reset regardless of the tool you're using.
Reset All Except Z	Resets 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 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 View Menu

The Xsheet View menu lets you modify columns, keyframe and timing.

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.
	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 corresponding 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.
Enable Playback	Plays back your animation in the Perspective view.
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.
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	<p>There are two methods of merging drawings.</p> <ul style="list-style-type: none"> 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.
Frames	
Add Frames At Start	Adds the number of frames you specify to the 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 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	<p>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.</p> <p>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.</p>
Rename Drawing	Lets you give a selected drawing a new name.
Mark Drawing As	<p>Marks selected drawings as one of the following: Key, Breakdown, In-between, RetakeKey, RetakeBD or RetakeIB.</p> <p>This helps to keep the Xsheet well organized while animating.</p>

	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.
Substitute Drawing Previous	Replaces the drawing or cell's symbol on the current frame by the next drawing.
Substitute Drawing Next	
Exposure	
Increase	Adds 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	<p>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.</p> <hr/> <p>NOTE: Duplicate key exposures may occur when pasting with the Enforce Key Exposure option selected.</p> <hr/>
Fill Empty Cells	Lets you 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 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 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 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 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 keyframes.
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 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 Automatically maps drawings in an element to the mouth

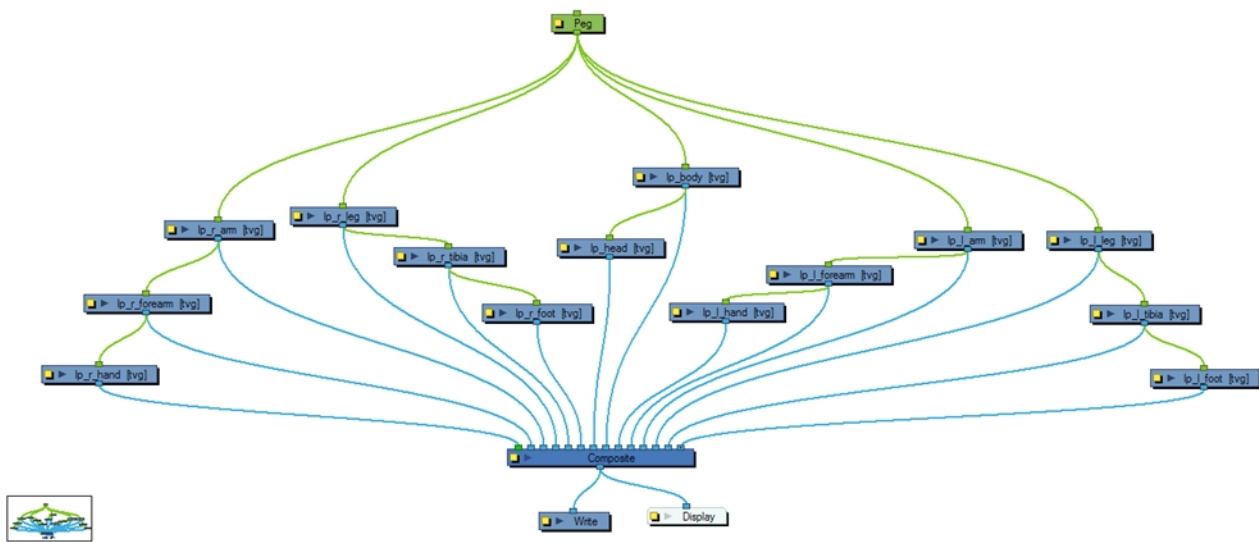
	chart you have generated for a sound. This can save time when you are lip-synching a voice track.
Sound Display	
Sound Name	Shows the name of the sound file, as well as the file format. The line running vertically through the column frames between the same file name indicates a continuity of the same 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: Nodes

The Node view uses a visual set of connections (nodes) to show how each element in the scene is connected and brought to the final image. It allows you to add extra elements and effects, and to move beyond the possibilities offered by the Timeline and Xsheet views. Each node corresponds to a layer in the Timeline view. Very few nodes are only visible in the Node view.

The basic rules of the Node view are quite simple. Once you understand them, a lot can be accomplished.

Each node used to build a node system is available in the Node Library view as well as through the Insert menu in the Node view. In addition, each time you create a layer from the Timeline or Xsheet views, the corresponding node is created in the Node view.



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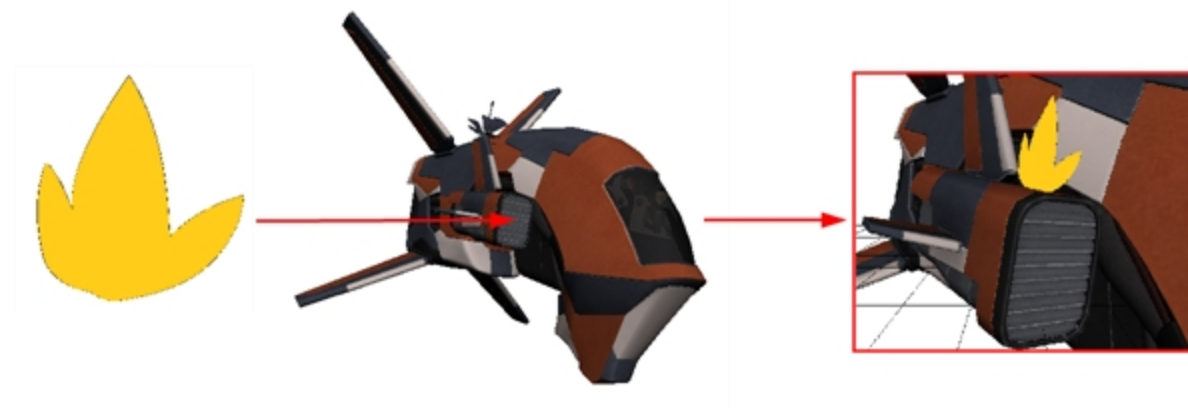
3D Nodes

The nodes found in the 3D category are used to handle and render 3D objects such as animating the sub-nodes or rendering using Maya.

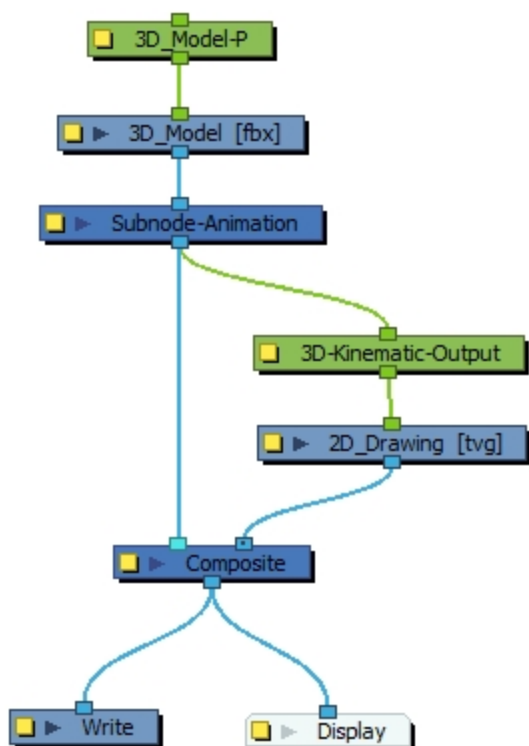
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3D Kinematic Output Node

You can link 2D drawing layers, pegs, other 3D models and more to follow the movements of a part of a 3D model. To do this, you need to add a 3D Kinematic Output node to your 3D model setup in the Node view. More specifically, you need to link the 3D Kinematic Output node to both a specific 3D model subnode (part) and to the object that you would like to follow that subnode.



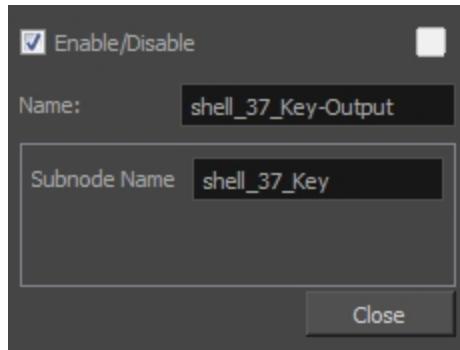
Refer to the following example to connect this node.



By default, all parts of an imported 3D model are visible for display, but not setup for animation. You need to setup the part of the 3D model to be animated before you can link another object to its movements.

Properties

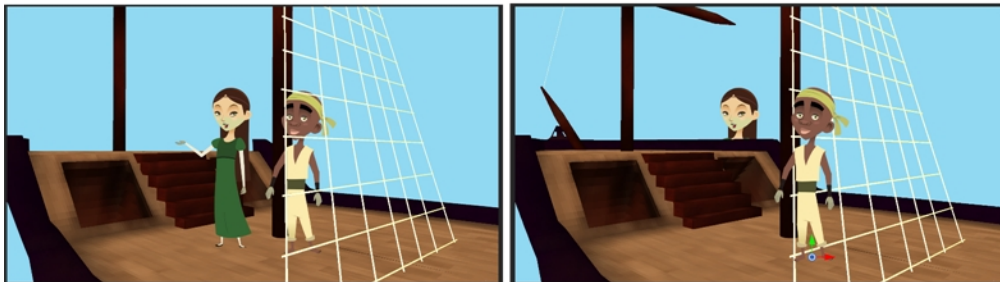
Use the 3D Graph view to obtain the name of the 3D model's subnode.



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node. It is recommended to use the Subnode Name + -Output .
Subnode Name	Use this field to enter in the part of the 3D model whose movements you would like to track. Entering the name of the 3D model subnode into this field is what lets the 3D Kinematic Output node know which part of the model to read.

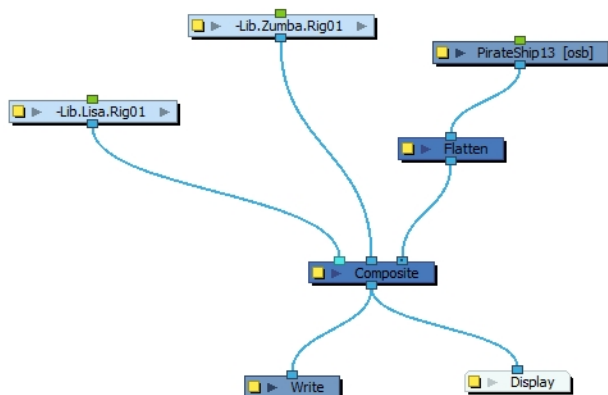
Flatten Node

The Flatten node is used to transform 3D objects into flat planes when ordered in the Composite node. That plane can then be moved around like any other drawing. Instead of intersecting with 2D layers, the 3D object will either be behind or in front.



When all objects are at the same distance (z value) from the camera, the order is based on the Composite ports. When elements are placed at different distances from the camera, the z axis value overrides the composite port ordering.

Refer to the following example to connect this node.



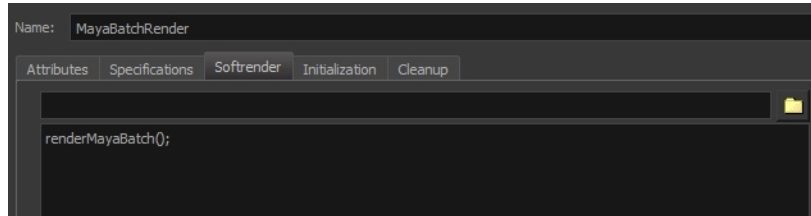
Properties

Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.

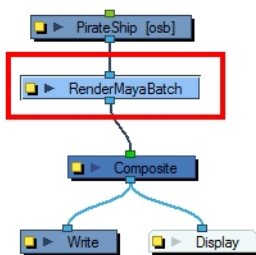
Render Maya Batch Node

This node uses the script `renderMayaBatch ()` ;

This script starts a Maya Batch session, renders the 3D elements on that frame, and then closes the session. It will open and close the session for every frame to be rendered.



Refer to the following example to connect this node.



Properties

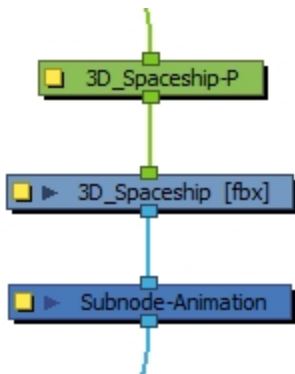
Parameter	Description
Name	Use this field to rename the node.
Tabs	
Attributes	In this field, specify the renderer you would like Maya to use. If it is not the default, Maya must have this renderer plug-in installed. Check the Specifications tab for the list of renderers supported by Harmony.
Specifications	View the renderers supported by Harmony.
Softrender	Enter or browse for script to be used by the Render Maya Batch node.
Initialization	Enter or browse for script that will run once per session, when the scene is loading.
Cleanp	Enter or browse for script that will run once per session, when the scene is being closed.

Subnode Animation Node

A typical 3D model is comprised of many parts (subnodes). Not all of these parts need to be animated; most are just used for display. However, if you would like to animate a specific part, you need to add a Subnode Animation node under your 3D model.

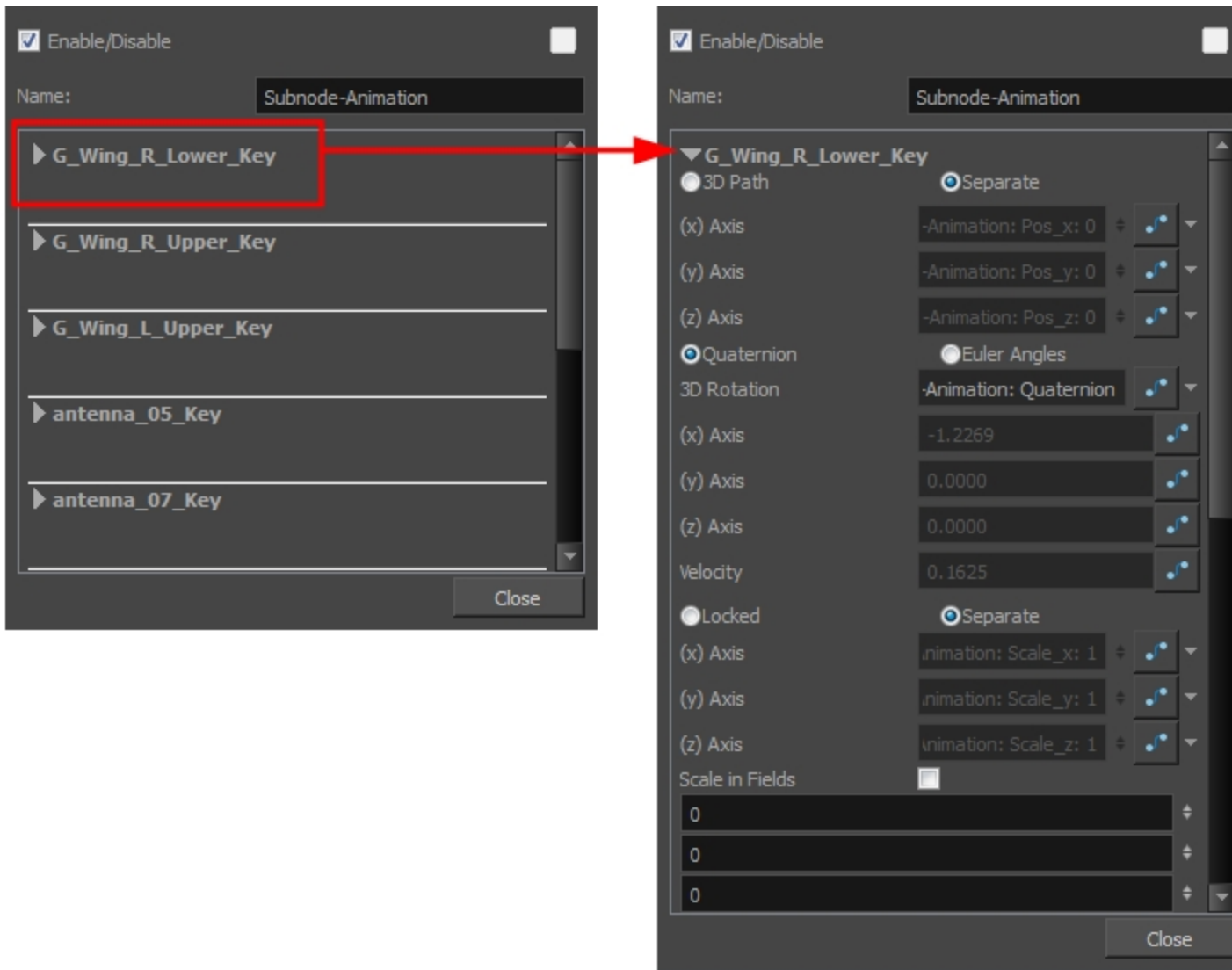



Refer to the following example to connect this node.




Properties


All animatable 3D model subnodes appear in a list in the Subnode Animation Layer Properties. Expand any of the subnodes in the list to view its individual properties.



Click on any of the Function buttons  to open the Function Editor for that parameter.

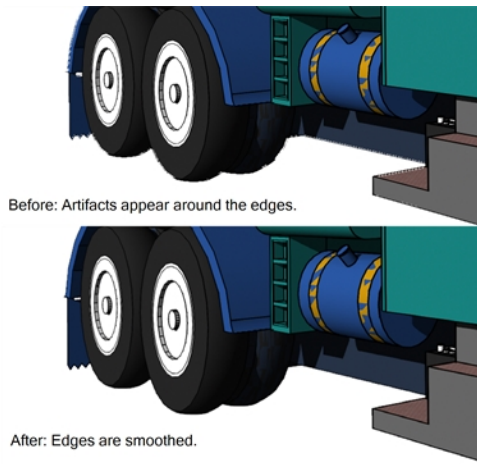
If movements have already been created in the Camera view, you may not be able to edit some of the fields. They just display the value of that parameter at the given position in the Timeline. If you would like to edit these fields, change the field type to Local.

Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Position	<p>3D Path: Lets you use a 3D path function to animate an element.</p> <p>Separate: Lets you independently edit the different coordinate fields.</p> <p>Path: When the 3D Path option is selected, lets you choose the path type. You can do this from the field menu, located after the Function button .</p> <p>Path (x) Axis: Lets you type in a new East/West coordinate corresponding to</p>

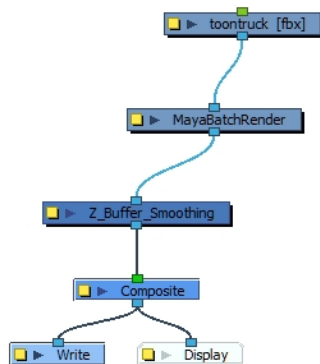
	<p>the desired position.</p> <p>Path (y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p> <p>Path (z) Axis: Lets you type in a new Forward/Backward coordinate corresponding to the desired position.</p> <p>Velocity: When the 3D Path option is selected, lets you set the speed at which movement occurs across the X, Y and Z axes.</p>
Rotation	<p>Quaternion: Rotations made on the X, Y and Z axes are linked, as is the velocity which acts on the three rotation functions simultaneously.</p> <p>Euler Angles: Rotations can be made on the X, Y and Z axes independent of each other; each has its own velocity.</p> <p>3D Rotation: When the Quaternion option is selected, lets you choose the path type. You can do this from the field menu, located after the Function button .</p> <p>(x) Axis: Lets you enter the horizontal rotation value in degrees.</p> <p>(y) Axis: Lets you enter the vertical rotation value in degrees.</p> <p>(z) Axis: Lets you enter the depth scale value in degrees.</p> <p>Velocity: When the Quaternion option is selected, lets you set the speed at which rotation occurs across the X, Y and Z axes.</p>
Scale	<p>Locked: Resizes the element while keeping its ratio. The X and Y axes scale proportionally</p> <p>Separate: Resizes the element allowing to modify the ratio (squash and stretch).</p> <p>(x) Axis: Lets you enter the horizontal scale value.</p> <p>(y) Axis: Lets you enter the vertical scale value.</p> <p>(z) Axis: Lets you enter the depth scale value.</p> <p>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. Enter in the x, y, z values respectively in the fields below.</p>

Z Buffer Smoothing Node

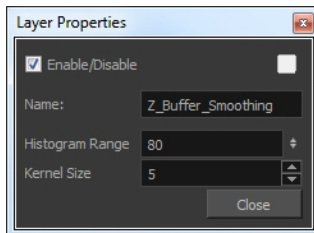
When batch rendering 3D models originating from Maya, some unwanted artifacts may appear, particularly on models with outlines. This is due to problems with the depth information. You can use the Z-Buffer Smoothing node to smooth out the edges.



Connect the node following the example below.



Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.

Name	Use this field to rename the node.
Histogram Range	<p>Lets you define the range of clean pixels in the depth histogram when rendering 3D models. Only opaque or semi-transparent values are considered.</p> <p>A low value means fewer pixels are used in the depth calculations and may flatten your object, while a higher value uses more pixels in the depth calculations, but may not eliminate all the image artifacts.</p>
Kernel Size	<p>Lets you determine the size of the matrix used for calculating the depth of a single pixel. For example, for an operation with a kernel size of 3 pixels, Harmony uses the pixels within a 1-pixel radius to calculate the effect. A larger kernel size means longer calculations.</p>

Combine Nodes

The nodes found in the Combine category are used to take two or more elements and combine them into a new image.

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Blending Node

Effects nodes, like the Tone node and Highlight node, can control the colour and alpha composite operations for you. These nodes were created with preset colour and alpha composite operations to fit the most frequently used, composite operations.

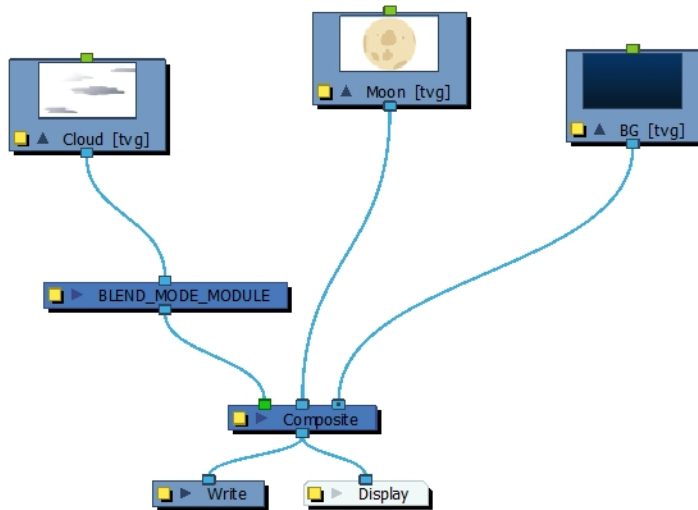


You might, however, still want to control the colour and alpha composite operation between two images using the Blending node, to create a multiplicity of lighting, shadow, filter or ambient effects. The Blending node combines two images into one output image, following the parameters you choose for your movie and images sequence or SWF movie exports.

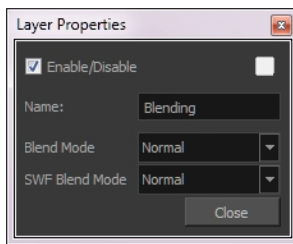
The drawing node connected to the Blending effect will act as the blending image and will be applied to all the drawing layers situated under them in the Composite node or Timeline view order.


NOTE: It is possible to select two different blending modes in the same Blending effect layer, in the event that you want to export your project to both a Bitmap and an SWF movie file with different results.

Refer to the following example to connect this node.



Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Lets you rename the node.
Blend Mode and SWF Blend Mode	Choose the blending effect mode you wish to apply to your layer. The Blend Mode type will only be visible when the Camera view is set to Render  mode and will only export to a bitmap movie file or sequence of images.
	Both the Blending node and Composite-Generic node have regular blending modes and legacy blending modes. The regular blending modes will take the source images and unmultiply them before blending the two inputs together. The images will be remultiplied when being output from the node. The legacy blending modes use the pre-multiplied source images as is in order to apply the effect. Unmultiplying the images before processing them will give a final result closer to what can be found in software such as Adobe Photoshop.
	<ul style="list-style-type: none"> Normal: The layer attached to the effect acts as a normal layer and will not create any blending mode effect. Multiply: This operation multiplies the blending element colour with the

	output image. This will darken the colour of the overlapping area.
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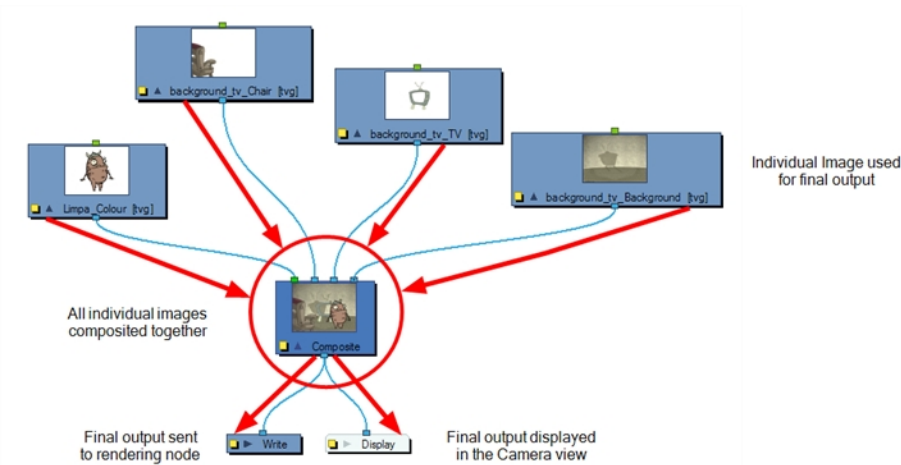
	<ul style="list-style-type: none"> • Screen: This operation multiplies the inverted colour of the blending element with the image. This will lighten the colour of the overlapping area.
	<ul style="list-style-type: none"> • Lighten (Lighten Legacy): This operation lightens the area of the output image which, is darker than the blending element's colours. The lighter colours will remain unchanged.
	<ul style="list-style-type: none"> • Darken: This operation darkens the area of the output image, which is lighter than the blending element's colours. The darker colours will remain unchanged.
	<ul style="list-style-type: none"> • Difference (Difference Legacy): This operation subtracts the blending elements colour from the output image colours or vice-versa, depending on which of them has more bright colours. The final result will be colours that are more vibrant.
	<ul style="list-style-type: none"> • Add (Add Legacy): This operation lightens the output image using the blending element.
	<ul style="list-style-type: none"> • Subtract (Subtract Legacy): This operation darkens the output image using the blending element.
	<ul style="list-style-type: none"> • Invert: This operation inverts the output image colours on the area overlapping the blending layer colours.
	<ul style="list-style-type: none"> • Overlay (Overlay Legacy): This operation multiplies or screens the colours from the blending image, with those of the output image, depending on the base colour. Colours from the blending element overlay the colours of the drawing elements, while preserving the highlights and shadows of the base colour. The base colour is not replaced, but mixed with the blend colour to reflect the lightness, or darkness, of the original colour.
	<ul style="list-style-type: none"> • Hardlight(Hardlight Legacy): This operation multiplies, or screens, the colours of the blending layer with those of the output image, depending on the blend colour. If the blend colour is lighter than 50% grey, the image is lightened, as if it were screened. This is useful for adding highlights to an image. If the blend colour is darker than 50% grey, the image is darkened, as if it were multiplied. This is useful for adding shadows to an image. Painting with pure black or white results in pure black or white. Play with the Opacity value to create a subtler look.
	<ul style="list-style-type: none"> • Alpha: This operation will blend the alpha value of the blending layer with the output image. This effect is not available for SWF Blend Mode.
	<ul style="list-style-type: none"> • Erase: This operation produces a cutter effect using the blending element. This effect is not available for SWF Blend Mode.
	<ul style="list-style-type: none"> • Divide (Divide Legacy): This operation divides the output image colour values by the blending layer colour values. The blending image colour values are inverted, creating a negative image. The negative image's colour values are then multiplied by the right image colour values. This effect is not available for SWF Blend Mode.
	<ul style="list-style-type: none"> • Replace: This operation replaces the output image by the blending layer. This effect is not available for SWF Blend Mode.
	<ul style="list-style-type: none"> • Softlight: This operation darkens or lightens the colours in a soft and

	<p>diffuse way, depending on the blend colour (image in left port). If the blend colour is lighter than 50% grey, the image is lightened. If the blend colour is darker than 50% grey, the image is darkened. Painting with pure black or white produces a distinctly darker or lighter area, but does not result in pure black or white.</p>
	<ul style="list-style-type: none"> • Linear Light: This operation burns or dodges the colours by decreasing or increasing the brightness depending on the colour of the underlying colour. If the blend colour is lighter than 50% grey, the colour is lightened because the brightness is increased. If the blend colour is darker than 50% grey, the colour is darkened because the brightness is decreased.
	<ul style="list-style-type: none"> • Pin Light: This operation will replace the colours, depending on the underlying colour. If the blend colour is lighter than 50% grey, pixels darker than the underlying colour are replaced, and pixels lighter than the underlying colour do not change. If the blend colour is darker than 50% grey, pixels lighter than the underlying colour are replaced, and pixels darker than the underlying colour do not change.
	<ul style="list-style-type: none"> • Vivid Light: This operation burns or dodges the colours by decreasing or increasing the brightness depending on the colour of the underlying colour. If the colour is lighter than 50% grey, the blend colour is lightened because the contrast is decreased. If the colour is darker than 50% grey, the blend colour is darkened because the contrast is increased.
	<ul style="list-style-type: none"> • Exclusion: This operation produces a similar result to the Difference mode, but with a lower contrast.
	<ul style="list-style-type: none"> • Dodge: This operation will lighten the colour.
	<ul style="list-style-type: none"> • Burn: This operation will darken the colour.
	<ul style="list-style-type: none"> • Hue: This operation will result in a colour that will take the luminosity and saturation of the underlying colour, and the hue of the source colour.
	<ul style="list-style-type: none"> • Saturation: This operation will result in a colour that will have the same luminosity and hue of the underlying colour, and the saturation of the source colour.
	<ul style="list-style-type: none"> • Colour: This operation will result in a colour that will have the luminosity of the underlying colour, and the hue and saturation of the source colour.
	<ul style="list-style-type: none"> • Luminosity: This operation will result in a colour which has the hue and saturation of the underlying colour, and the luminosity of the source colour. This mode is opposite to the Colour mode.

Composite Node

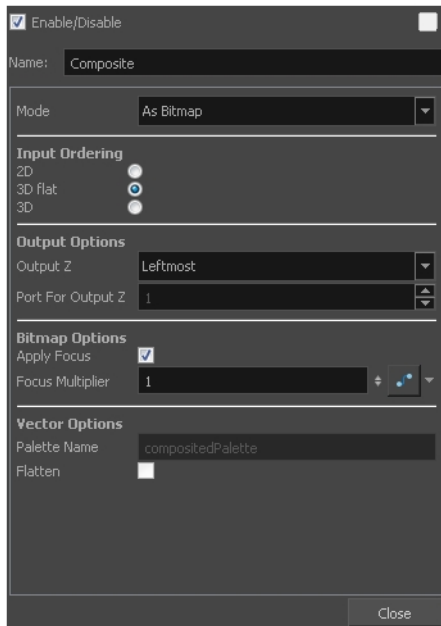
The Composite node allows you to use several images and output a single image. You can compare that to doing pre-compositions in editing software. You can connect several drawing, image generators and effect nodes in your Composite node and one bitmap (or vector in some cases) comes out of it.

Refer to the following example to connect this node.




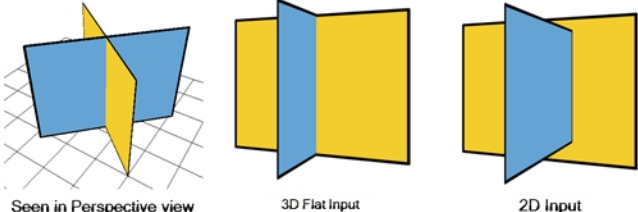
By default, the image resulting from the Composite node is a bitmap. The layers are composited together depending on their position on the Z-axis (forward-backward) first, then their order in the Composite node. If two images are at the same position on the Z-axis, their order in the Composite will determine which one is displayed in front and which one is displayed behind.

Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node

	views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Mode	<p>As Bitmap: Composites all images into a single, flat bitmap image. The Z value of the final image is based on the Output Z selection.</p> <p>As Vector: Composites all the images as a single vector image. The Z value of the final image is based on the Output Z selection. Bitmap elements are ignored and do not appear in the final frame.</p> <p>As Seamless Bitmap: Composites all the images into a single, flat bitmap image (just like the As Bitmap compositing mode). The main difference between the As Bitmap and As Seamless Bitmap modes is that the seamless version ensures that there is no visible seam between adjacent vector drawings that have matching geometries. This can be useful for cut-out animation, where multiple drawings may align perfectly like pieces of a puzzle (using masking/cutter). This can also be useful when building a 3D set out of flat drawings rotated in 3D. In this case, using the Seamless mode will produce the correct result when two drawings are intersecting or nearly intersecting. When using this mode, the following effects are not supported: Shadow, Glow, Blending and Focus.</p> <p>Pass Through: No compositing operations occur. No image is merged or flattened. Each individual image keeps its own properties. The compositing operations happen only in the next Composite node connected below. In this case, the port ordering is ignored.</p> <p>If a Composite set to Pass Through it is the last one in the compositing chain, it will act the same as the As Bitmap option. At that point, the Input Ordering options are considered.</p>
Input Ordering	<p>2D: Elements connected in the node are composited based on their port ordering. The Z-axis (forward-backward) values are ignored. The scaling value will be correct, but the actual position on the Z-axis is ignored.</p> <p>You can use the 2D composite type to create effects such as a camera recording overlay on your scene. Since you always want this element to be in front regardless of the other elements' Z-axis position, you can set the option to 2D.</p>  <p>3D Flat: The Z-axis value of the elements connected in the Composite node are considered, so the visual representation is correct in the Camera view. The</p>

	<p>output is a flat image.</p>  <p>3D: The Z-axis value of the elements connected in the composite node are considered, so the visual representation is correct in the Camera view. The image is not flattened. The 3D aspect of the elements are kept. For example, if you rotated elements on the three axes, the information is retained and elements composited in lower levels are able to intersect with the elements coming from a 3D Composite node. The 3D Composite node should only be used in advanced cases. It is better to use a Pass Through composite type than a 3D composite type. This way, all the elements are composited in the final Composite node.</p>
Output Options	<p>Output Z: Identifies which element's front-back value from the current composition is applied to the entire composited image in the next operation. If you select Portnumber, identify the appropriate port by its position using the Port For Output Z menu.</p> <p>Port for Output Z: When using the Portnumber option in the Output Z menu, you can select which port you want to use as the Z value for the Composite node. The port used appears in a bright green colour on the Composite node. By default, the leftmost port is displayed in front and the rightmost port is displayed behind.</p>
Bitmap Options	<p>These options are active when you select the As Bitmap mode.</p> <p>Apply Focus: Activates the Focus effect for this node in the composite operation.</p> <p>Focus Multiplier: The value entered in this field is used as a multiplier for the radius value specified in the Focus or Focus-Multiplier nodes.</p>
Vector Options	<p>These options are active when you select the As Vector mode.</p> <p>Palette Name: When you render files using As Vector Composite nodes, use this field to set the name of the palette files that Toon Boom Harmony will create for them.</p> <p>Flatten: Flattens vector drawings into one vector drawing file. Any transparency will be lost in the process. This creates smaller vector files, but might increase the time required to composite the drawings. This can be useful when reusing drawings. Because they will be vector files, you can still apply vector-based transformations and effects.</p>

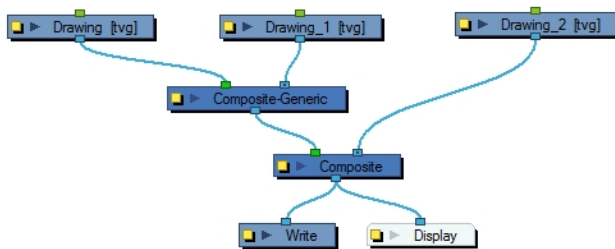
Composite-Generic Node

During the composition of images, colour and alpha values of an input image are combined with the image underneath to produce the output image.

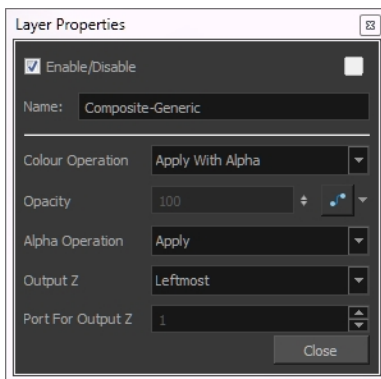
Effects nodes, like Tone and Highlight, can control the colour and alpha composite operations for you. A Composite node was created, in which the colour and alpha composite operation are preset to the standard, and more frequently used, composite operations.

You may, however, still want to control the colour and alpha composite operation between two images using the Composite-Generic Node which combines two images into one output image. The image linked to the left port of the node is layered on top of the image in the right port based on the selected colour and alpha composite operation.

Refer to the following example to connect this node.



Properties



The following abbreviations are used in the descriptions of composite operations:

- **ORGB**: RGB values of the Output Image
- The Output Image is the resulting image from a composite operation. In the formulas for the composite operations, this image is also processed through a composite operation, representing the bottom layer in the composited image.
- **LRGB**: RGB values of the Left Image
- **RRGB**: RGB values of the Right Image
- **LA**: Alpha of the Left Image

- **RA:** Alpha of the Right Image
- **OA:** Alpha of the Output Image

Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node. It is recommended to use the Subnode Name + -Output .
Colour Operation	<p>The colour values of the output image are determined based on the alpha and colour values of the left and right image.</p> <p>Both the Blending node and Composite-Generic node have regular blending modes and legacy blending modes. The regular blending modes will take the source images and unmultiply them before blending the two inputs together. The images will be remultiplied when being output from the node. The legacy blending modes use the pre-multiplied source images as is in order to apply the effect. Unmultiplying the images before processing them will give a final result closer to what can be found in software such as Adobe Photoshop.</p> <p>Right: The colour values in the output image are derived from the image in the right port. Colour values in the left port are ignored.</p> <p>Left: The colour values in the output image are derived from the image in the left port. Colour values in the right port are ignored.</p> <p>Apply With Alpha: $ORGB=[RRGB*(1-LA)]+LRGB$. This is a standard composite operation called "alpha blending." During this operation, colour values of the left and right images are combined based on the alpha value of the left image. Where the left image is completely opaque ($LA=1$), the ORGB will be replaced completely with LRGB. Where the left image is completely transparent ($LA=0$), the ORGB is unaffected. Where the left image is partially transparent, you get a blend of the RRGB and the LRGB, where the values are added together and clipped to 255. The LA is the opacity of the left image. This operation $(1-LA)$ calculates the amount of opacity to retain in the output image. The operation $[RRGB*(1-LA)]$ removes as much of the output image as you are about to add from the left image. Remember that LRGB has been pre-multiplied by the LA, so the equation is really $ORGB=[RRGB*(1-LA)]+(LRGB*LA)$, which is simply the weighted average of L and R, with LA supplying the weight.</p> <p>Apply Tone Highlight: $ORGB=RRGB+(LRGB*RA)$. This operation restricts the output of the tone to the region of the matte (RA), and uses the transparency and colour value of the input image to determine the colour values of the output. This is used to lighten or darken the output image. Darkening occurs when RRGB contains negative values.</p> <p>Apply Add (Apply Add Legacy): $ORGB=RRGB+LRGB$. This operation uses the transparency and colour value of the left image to determine the output values. Effects such as shadows and glows are calculated in this manner. Unlike the Apply Tone Highlight operation, the result is not clipped to the matte (RA) of the output image.</p>

Apply Matte For Overlay: $ORGB=RRGB*(1-LA)$. This operation prepares the output image using the overlay's matte; the matte's RGB values are ignored. This operation prepares the output image to receive the colour portion of the overlay. It is typically used when an overlay and its matte are stored in separate images.

Apply Overlay Into Matte: $ORGB=RRGB+(LRGB*RA)$. This operation maps an overlay into an area prepared by a matte. It is typically used when an overlay and its matte are stored in separate images, and Apply Matte For Overlay has been used to prepare the output image to receive the RGB portion of the overlay.

Apply Transparency: $ORGB=RRGB*(1-LA)$. This operation is used for a cutter matte to prepare the output image to receive the colour values of another image. It has the effect of increasing the transparency of ORGB (but not OA), based on the LA. This function is the equivalent to Apply Matte for Overlay. It is almost always used with Apply Transparency Matte, an Alpha Composite Operation.

Apply Multiplicative Tone: $ORGB=RRGB*(LRGB+1-LA)$. This operation multiplies the left and right images (see the Multiply colours selection), to be combined with the right image colour, creating a darker output colour. This effect created by this operation is identical to the Multiply Colour Blending effect in Photoshop.

Multiply Colours: $ORGB=RRGB*LRGB$. This operation multiplies the left and right image colours. Multiplying colours filters the colour values of the right image from the output image. For instance, to make the left image less blue, you can add a right image to this node with a blue colour value and select this option.

Linear Light: This operation burns or dodges the colours by decreasing or increasing the brightness depending on the colour of the underlying colour. If the blend colour is lighter than 50% grey, the colour is lightened because the brightness is increased. If the blend colour is darker than 50% grey, the colour is darkened because the brightness is decreased.

Pin Light: This operation will replace the colours, depending on the underlying colour. If the blend colour is lighter than 50% grey, pixels darker than the underlying colour are replaced, and pixels lighter than the underlying colour do not change. If the blend colour is darker than 50% grey, pixels lighter than the underlying colour are replaced, and pixels darker than the underlying colour do not change.

Vivid Light: This operation burns or dodges the colours by decreasing or increasing the brightness depending on the colour of the underlying colour. If the colour is lighter than 50% grey, the blend colour is lightened because the contrast is decreased. If the colour is darker than 50% grey, the blend colour is darkened because the contrast is increased.

Exclusion: This operation produces a similar result to the Difference mode, but with a lower contrast.

Dodge: This operation will lighten the colour.

Burn: This operation will darken the colour.

	<p>Hue: This operation will result in a colour that will take the luminosity and saturation of the underlying colour, and the hue of the source colour.</p> <p>Saturation: This operation will result in a colour that will have the same luminosity and hue of the underlying colour, and the saturation of the source colour.</p> <p>Colour: This operation will result in a colour that will have the luminosity of the underlying colour, and the hue and saturation of the source colour.</p> <p>Luminosity: This operation will result in a colour which has the hue and saturation of the underlying colour, and the luminosity of the source colour. This mode is opposite to the Colour mode.</p> <p>Divide Colours (Divide Colours Legacy): $ORGB=RRGB/LRGB$. This operation divides the right image colour values by the left colour values. The left image colour values are inverted, creating a negative image ($1/LRGB$). The negative's colour values are then multiplied by the right image colour values.</p> <p>Lighten (Lighten Legacy): This operation looks at the colour information coming from both the images in the left and right ports and selects the base or blend colour - whichever is lighter - as the result colour. Pixels darker than the blend colour are replaced, and pixels lighter than the blend colour do not change.</p> <p>Softlight (Softlight Legacy): This operation darkens or lightens the colours in a soft and diffuse way, depending on the blend colour (image in left port). If the blend colour is lighter than 50% grey, the image is lightened. If the blend colour is darker than 50% grey, the image is darkened. Painting with pure black or white produces a distinctly darker or lighter area, but does not result in pure black or white.</p> <p>Hardlight (Hardlight Legacy): This operation multiplies or screens the colours of the image in the left port with those of the image in the right port, depending on the blend colour. If the blend colour (left port image) is lighter than 50% grey, the image is lightened, as if it were screened. This is useful for adding highlights to an image. If the blend colour is darker than 50% grey, the image is darkened, as if it were multiplied. This is useful for adding shadows to an image. Painting with pure black or white results in pure black or white. Play with the Opacity value to create a subtler look.</p> <p>Overlay (Overlay Legacy): This operation multiplies or screens the colours from the image connected to the left port, with those on the right, depending on the base colour. Colours from the left-port element overlay the colours of the drawing elements connected to the right, while preserving the highlights and shadows of the base colour. The base colour is not replaced, but mixed with the blend colour to reflect the lightness or darkness of the original colour.</p>
Opacity	The level of transparency.
Alpha Operation	<p>Right: The transparency of the output image is derived from the alpha values of the image in the right port. The values in the left port are ignored.</p> <p>Left: The transparency of the output image is derived from the alpha values of the image in the left port. The values in the right port are ignored.</p> <p>Apply: $OA=[RA*(1-LA)]+LA$. This operation computes the output alpha of the</p>

	<p>output image based on the alpha values of the left and right images. This is the standard method of combining alpha channels. Notice its similarity to the Apply With Alpha colour Composite Operation.</p> <p>Add: $OA=RA+LA$. This operation adds the alpha values of the two images to produce the alpha value of the output image.</p> <p>Subtract: $OA=RA-LA$. This operation subtracts the alpha values of the input image from the alpha values of the output image. It is useful in situations where two tone levels have been drawn with overlap, but a double-darkening in the overlap is not wanted. This operation will reduce the opacity of overlapping regions.</p> <p>Apply Transparent Matte: $OA=RA*(1-LA)$. This operation is used to increase the transparency of the output alpha in the final composited image.</p> <p>Black: $OA=0$. Sets the matte of the entire output image to black, so that it is transparent.</p> <p>White: $OA=1$. Sets the matte of the entire output image to white, so that it is opaque.</p>
Output Z	<p>Leftmost: Indicates that the Z value for the output image will be taken from the node in the left port.</p> <p>Rightmost: Indicates that the Z value for the output image will be taken from the node in the right port.</p> <p>Backmost: Indicates that the Z value for the output image will be taken from the image that is the farthest back in the scene.</p> <p>Frontmost: Indicates that the Z value for the output image will be taken from the image that is closest to the front of the scene.</p> <p>Portnumber: Indicates that the Z value for the output image will be taken from the node in the selected port. Enter the appropriate port in the Port for Output Z field.</p>

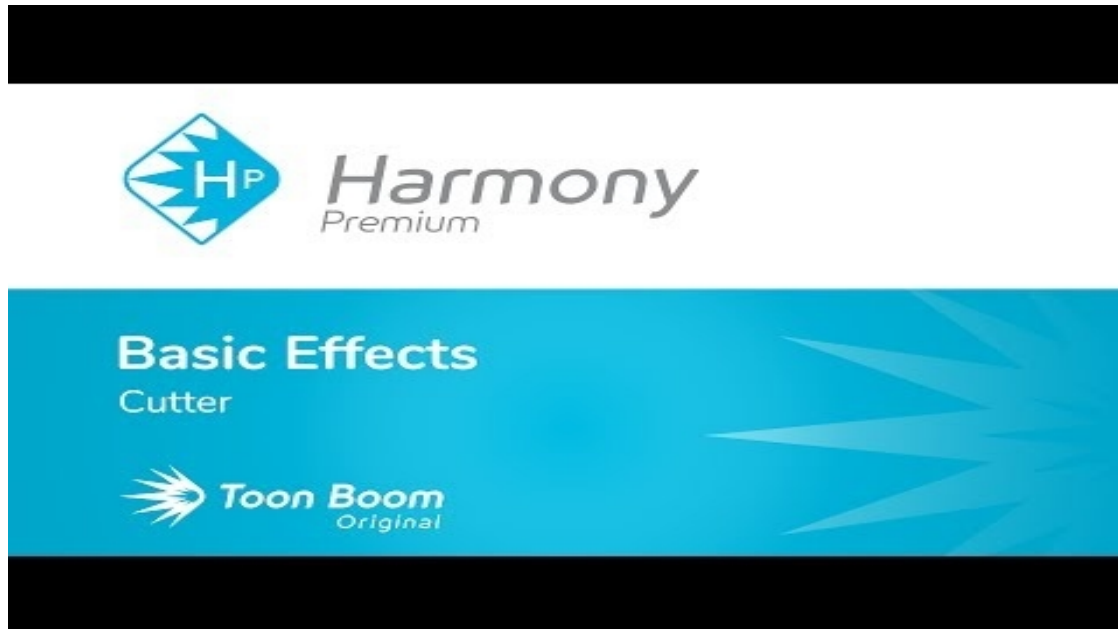
Cutter Node

T-HFND-010-009

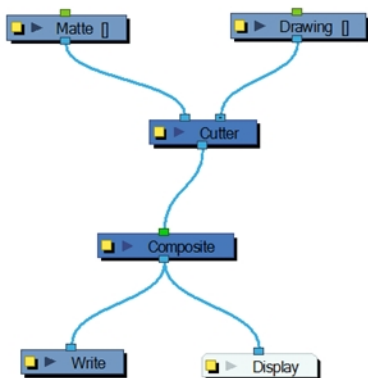
The Cutter effect cuts out a portion of an image. To accomplish this, it needs to be connected to the drawing it is intended to cut as well as to a matte layer. The cutter will take the shape of the drawing in its matte layer and cut this shape out of the drawing layer. This is especially useful if you want to make a character disappear between a background element, or if you want to cut out a hole in the middle of a character.

The Cutter effect has an Inverted parameter, which is disabled by default. When enabled, the Cutter will have the revert effect: Instead of cutting the matte's shape out of the drawing, it will cut everything outside of the matte's shape out of the drawing, leaving only the parts of the drawing that are covered by the matte.

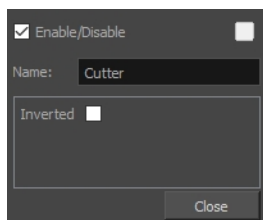
The Cutter effect can be used with 2D-3D integration. Rendered 2D drawings, integrated with 3D models, display soft, anti-aliased edges, even where the Cutter effect is applied.



Refer to the following example to connect this node.



Properties

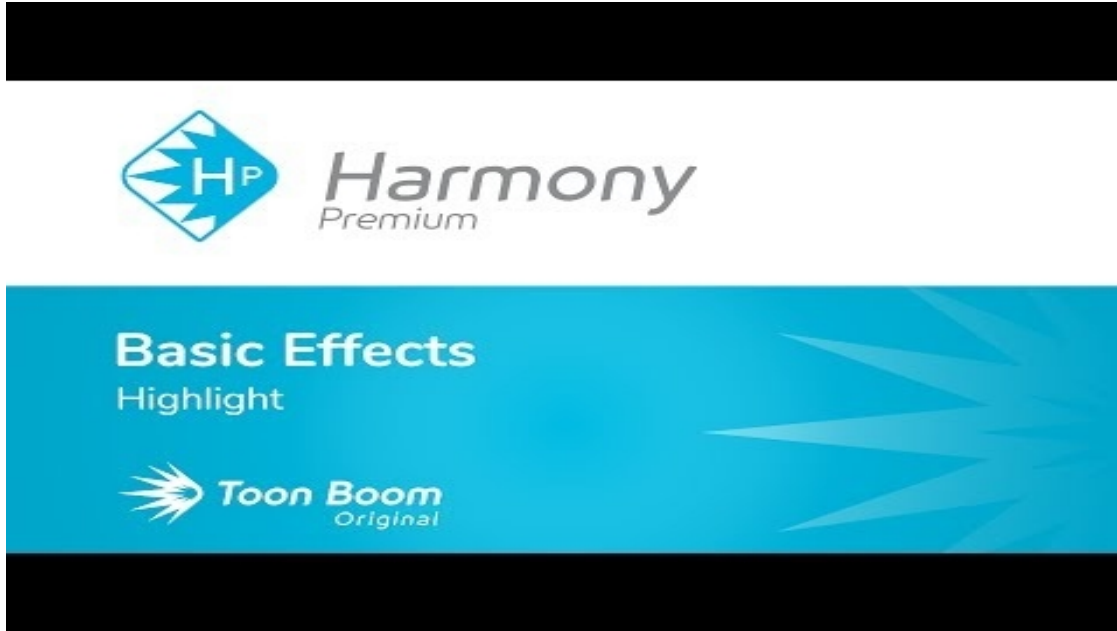


Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Allows you to change the node's name.
Inverted	When this option is enabled, the Cutter node will invert the matte shape to cut the drawing. Instead of cutting the image intersecting with the matte, it will cut any artwork outside of the matte shape.

Highlight Node

T-HFND-010-009C

The Highlight effect lets you to turn a drawing's area lighter to simulate a light source. For this effect, you will need to create a matte to determine the shape and position of the highlight on another element and so you can blur the edges to create a softer effect. By adjusting the Highlight properties, you can control the type and amount of blur, as well as the colour of the highlight effect.

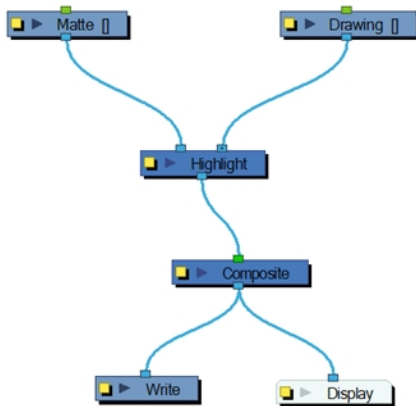


Author

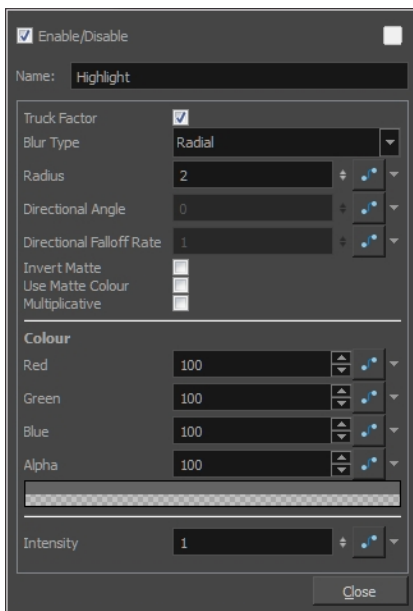
Christina Halstead
2D Animator and Character Designer
shadowbrushcreations.com



Refer to the following example to connect this node.



Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When disabled, the effect's values will remain unchanged regardless of depth or scale changes. It is recommended that this option be disabled when multiple drawings are composited and attached this effect.
Blur Type	Radial: The edges of the matte are blurred evenly around points that make up the edge of the matte. Directional: The matte is blurred in the direction you select.
Radius	Enter a value for the size of the blur. The larger the value, the greater the blur


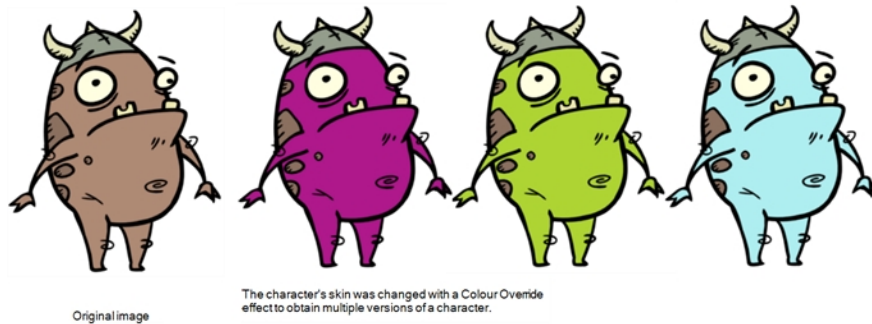
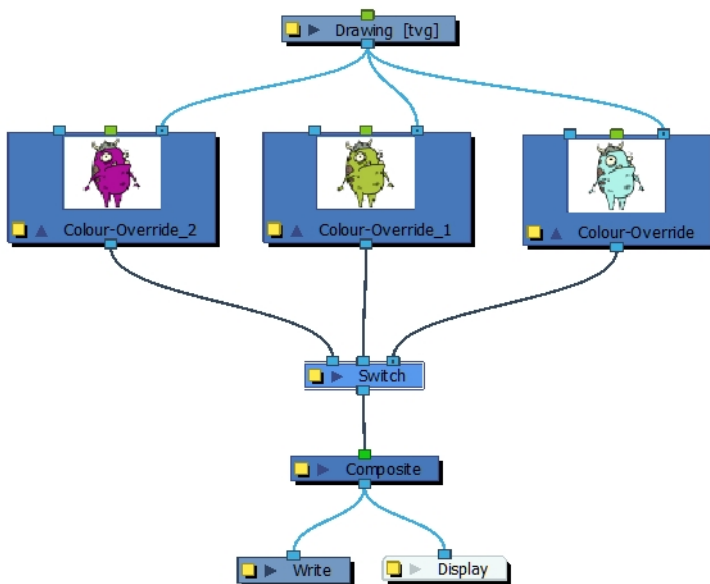
	effect. The blur radius is affected by the drawing scale and camera position.
Directional Angle	<p>If you selected the Directional Blur type, you can set the direction of the blur by entering a value from 0 to 360 in this field.</p> <p>0: Blurs the image to the west.</p> <p>90: Blurs the image to the south.</p> <p>180: Blurs the image to the east.</p> <p>270: Blurs the image to the north.</p>
Directional Falloff Rate	<p>The distance where the blur fades from the edge of the image. Select a value between 0 and 1.</p> <p>0: Makes the blur fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur.</p> <p>1: Makes the blur fade out quickly. The blur is heaviest closer to the edge of the image.</p>
Invert Matte	Inverts the matte used to create the tone, shadow, or highlight.
Use Matte/Source Colour	Creates the shadow or tone using the matte shape's colour. Be sure that you are in render mode  to see this effect and that your background is NOT white and that you do NOT have a white colour card node attached to the composite. As the matte only gives colour information, but no alpha, the matte is automatically multiplied with the background colours. If there is no colour card attached and the background appears black, you will see the matte colour at full opacity. If it is multiplied with a white background, the colours disappear into the full 255.
Multiplicative	Multiplies the tone or shadow colours with the background.
Colour	
RGBA	Enter a value to add or subtract from the colour channels in the drawings or attach these values to function curves.
Colour Swatch	Opens the Colour Picker where you can specify the colour.
Intensity	Lets you set a value to determine the strength of the effect or attach a function to animate the effect.

Image Switch Node

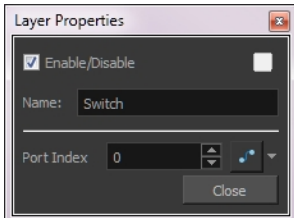
The Image Switch effect lets you use multiple effects, such as Colour Override, and choose which port will be sent to rendering if you want to apply different variations of an effect that cannot be changed over time. You then create multiple separate versions of the effect, connect them all to the Image Switch, and then if you want to change to a different version of the effect at different points in your scene, you would add a curve and animate the port number. Image Switch simply lets you change over time which port is being rendered.




Refer to the following example to connect this node.



Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.

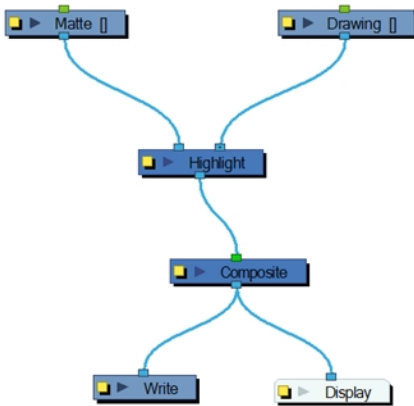
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Port Index	Switches from one image to another. There is no gradual animation from one colour to another as you are only changing (over time) which port will be rendered. Use whole values. Click the Function  button to open the Function editor to animate a parameter over time—see .

Tone Node

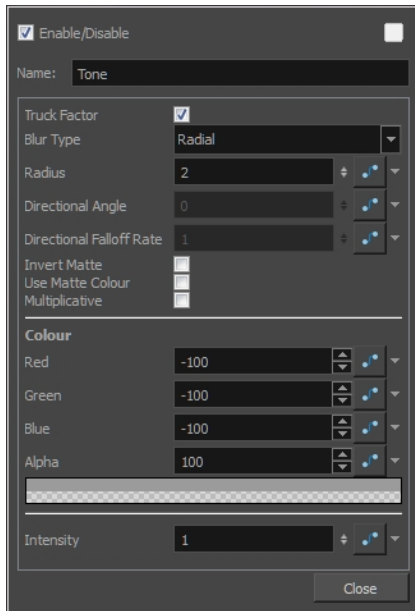
The Tone effect lets you add a dark-coloured region to your drawing and simulate the shaded area away from a light source. To produce the tone effect, create a drawing to control where the tone will appear. The Tone effect uses a matte to determine the shape and position of the tone on your drawing and can be blurred at the edges to create a softer effect.




Refer to the following example to connect this node.



Properties



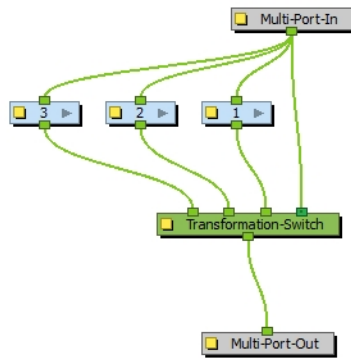
Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When disabled, the effect's values will remain unchanged regardless of depth or scale changes. It is recommended that this option be disabled when multiple drawings are composited and attached this effect.
Blur Type	Radial: The edges of the matte are blurred evenly around points that make up the edge of the matte. Directional: The matte is blurred in the direction you select.
Radius	Enter a value for the size of the blur. The larger the value, the greater the blur effect. The blur radius is affected by the drawing scale and camera position.
Directional Angle	If you selected the Directional Blur type, you can set the direction of the blur by entering a value from 0 to 360 in this field. 0: Blurs the image to the west. 90: Blurs the image to the south. 180: Blurs the image to the east. 270: Blurs the image to the north.
Directional Falloff Rate	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. 0: Makes the blur fade out slowly, distributing the blur evenly from the edge of

	<p>the character to the farthest edge of the blur.</p> <p>1: Makes the blur fade out quickly. The blur is heaviest closer to the edge of the image.</p>
Invert Matte	Inverts the matte used to create the tone, shadow, or highlight.
Use Matte/Source Colour	Creates the shadow or tone using the matte shape's colour. Be sure that you are in render mode  to see this effect and that your background is NOT white and that you do NOT have a white colour card node attached to the composite. As the matte only gives colour information, but no alpha, the matte is automatically multiplied with the background colours. If there is no colour card attached and the background appears black, you will see the matte colour at full opacity. If it is multiplied with a white background, the colours disappear into the full 255.
Multiplicative	Multiplies the tone or shadow colours with the background.
Colour	
RGBA	Enter a value to add or subtract from the colour channels in the drawings or attach these values to function curves.
Colour Swatch	Opens the Colour Picker where you can specify the colour.
Intensity	Lets you set a value to determine the strength of the effect or attach a function to animate the effect.

Transformation Switch Node

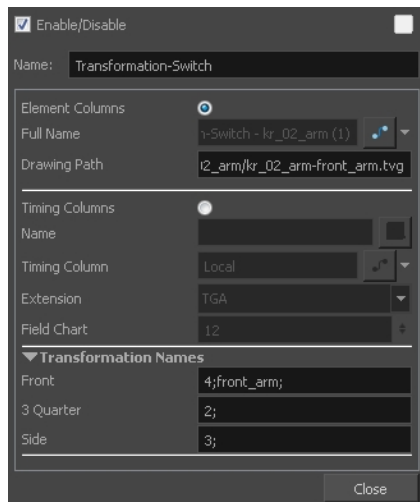
The Transformation-Switch node acts as a on and off switch for the deformation chains. It is used when building multi-pose (multiple deformation chains) rigs. the Transformation-Switch can also be used with other node types than Deformation nodes. It can be used with any transformation nodes such as Peg and Quadmap nodes.

Refer to the following example to connect this node.



The Transformation-Switch replaces the Deformation-Switch node.

Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
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.

	<p>Timing Column: Link to the column that contains the desired timing.</p> <p>Extension: When linking to a background file, enter its file name extension.</p> <p>Field Chart: If you are importing traditional animation, select the size of the paper on which the animation was drawn.</p>
Transformation Names	List the drawing names associated to each transformation chain. You can enter additional drawings and separate the names with semi-colons (;).

Deformation Nodes

The deformation rigs are composed of several different types of nodes. Additional ones such as the Kinematic Output node can be used to enhance the results.

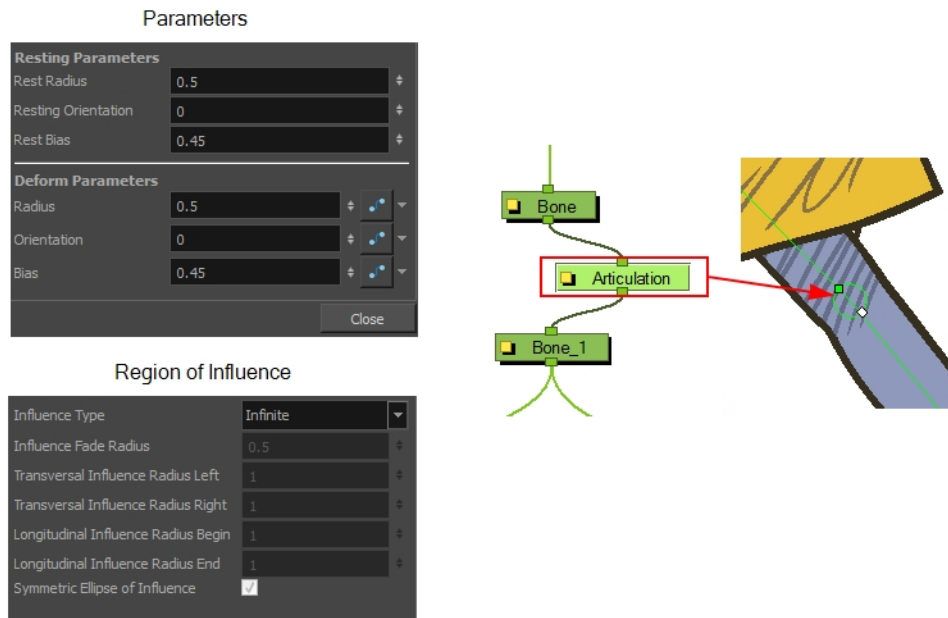
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Articulation Node

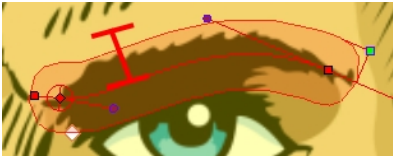



The Articulation node is no longer used in the current release of Harmony. This node is still available for compatibility purposes with previous deformation rigs.

The Articulation node is used between two bones (legacy) to create a joint where the limb or element will rotate. The current Bone and Game Bone nodes include the articulation parameters.

Properties



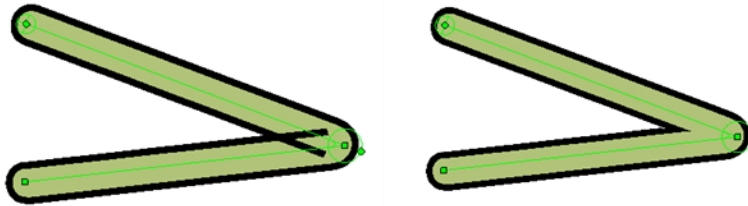
Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Resting Parameters	
Rest Radius	Lets you set the resting radius of the articulation (size of the circle).
Resting Orientation	Lets you set the resting rotation angle value of the articulation.
Rest Bias	Lets you set the resting bias value of the articulation, which can also be seen as the steepness of the articulation. The smaller the bias value, the smoother the articulation angle, and the larger the bias value, the more angular the articulation is.
Deformation Parameters	
Radius	Lets you set the radius of the articulation (size of the circle). When animated, this value will be connected to a function.
Orientation	Lets you set the rotation angle value of the articulation. When animated, this value will be connected to a function.

Bias	Lets you set the bias value, which can also be seen as the steepness of the articulation. When animated, this value will be connected to a function.
Region of Influence	
Influence Fade Radius	This defines the size of the fade area around the actual region of influence's boundaries.
Transversal Influence Radius Left	<p>When the Symmetric Ellipse of Influence option is enabled, this field controls the Left and Right transversal radius values. When disabled, it controls the size of the left transversal radius. By default, this value is set to 2.</p> 
Transversal Influence Radius Right	<p>When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The Left Transversal radius value is automatically applied to the Right Transversal. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Right Transversal radius. By default, this value is set to 2.</p> 
Longitudinal Influence Radius Begin	<p>When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The End Longitudinal value is automatically applied to the Begin Longitudinal value. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Begin Longitudinal radius. By default, this value is set to 0.25.</p> 
Longitudinal Influence Radius End	<p>When the Symmetric Ellipse of Influence option is enabled, this field controls both the Begin and End Longitudinal radius values. When this option is disabled, it controls the size of the End Longitudinal radius. By default, this value is set to 0.25.</p> 
Symmetric Ellipse Influence	Enabled by default. The shape of the ellipse will be symmetrical on both the transversal and longitudinal radii. In this case, use the Transversal Influence Radius Left field to set the transversal radius value and use the Longitudinal

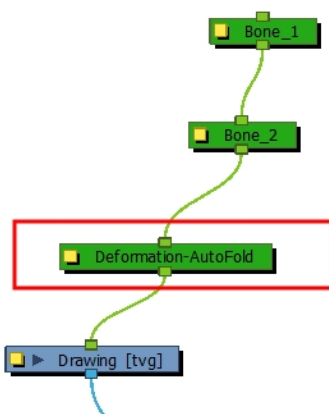
	<p>Influence Radius End field to set the longitudinal radius value. The two other fields will remain unused unless you disable the Symmetric Ellipse Influence option. In that case, you can set up different radius sizes for the four radii directions.</p>
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Auto Fold Node

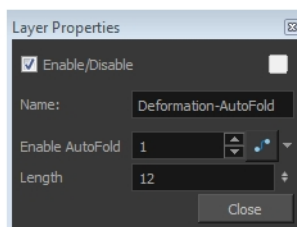
The AutoFold node lets you automatically fix the folding area of a deformer, so no line overlap occurs. If your drawing pieces are separated on different layers, you will not need the AutoFold node. The AutoFold node is similar to the Fold node, but since it's automated, it is optimized to fit the most standard folding point with fewer controls to set up. You can also avoid this issue by separating your drawing onto two layers or separating your drawing in two pieces using the Cutter tool and repasting it in place in the same drawing.



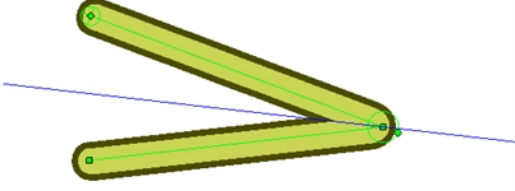
Connect the AutoFold node directly under the Deformation node which is causing the unwanted line effect, for example the forearm.



Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Name this field to rename the node.
Enable AutoFold	Type 1 to enable it or 0 to disable the effect.

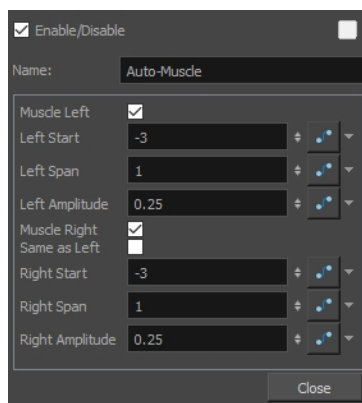
	<p>If you connect this option to a function, then you can enable or disable the effect at a specific point in your animation.</p>
Length	<p>Sets the length of the fold axis line.</p>  <p>The diagram shows a V-shaped object, possibly a piece of paper or a fold, with a green outline and a light green fill. A blue line, representing the fold axis, extends from the vertex of the V to the left. A green dot is located at the vertex of the V, and another green dot is located at the end of the blue line. A green line connects these two dots, indicating the length of the fold axis line.</p>

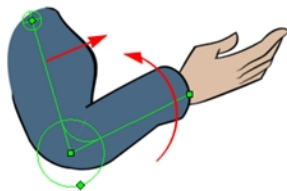
Auto Muscle Node

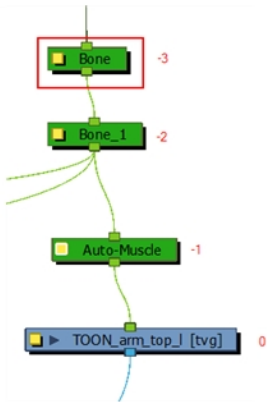
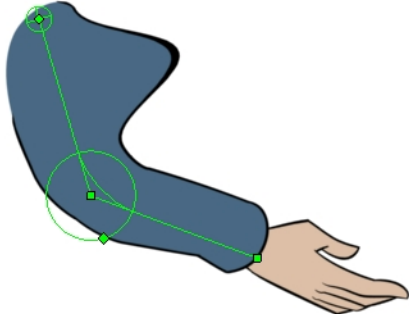
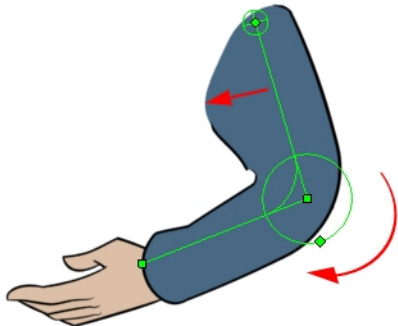
The Auto-Muscle node is used to simulate muscle movement. This will allow your characters to flex their muscles when they lift something or to create muscle tone when they move. When the Auto-Muscle node is connected to a Bone Deformer that is rotated, the drawing is automatically inflated to simulate muscle movement in the limb.

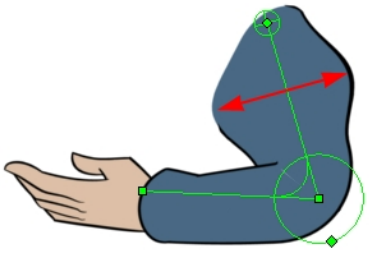
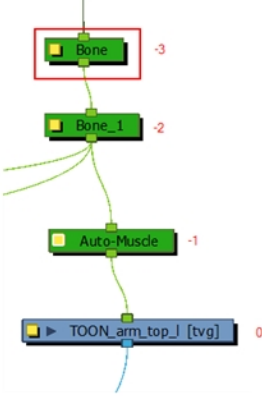
NOTE: Connect the Auto-Muscle node above the drawing you want to add a muscle to and after the Bone chain.

Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Muscle Left	<p>This option is enabled by default. When enabled, the left side of the Bone Deformer will inflate as the articulation is rotated toward the direction of the Bone Deformer. Disable this option if you do not want the left side of the bone to inflate.</p> 
Left Start	The default value of the starting position of the left muscle is set to -2. This means it will start at the deformer situated two steps before the position where the Auto-Muscle is connected. You can change the starting point by typing the number corresponding to the deformer node.

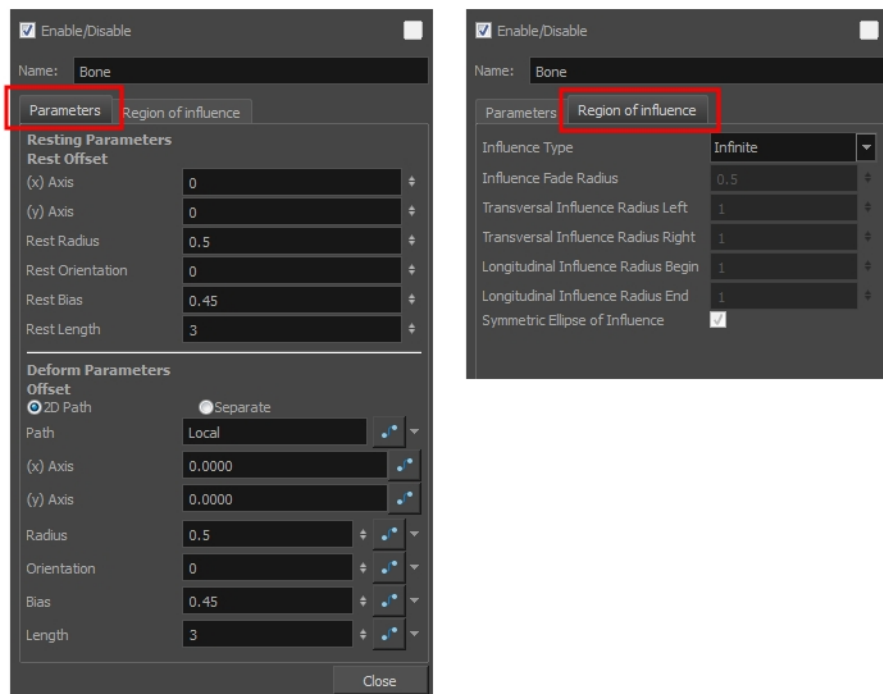
	
<p>Left Span</p>	<p>This parameter controls the length (muscle length) over which the effect node will be applied to the left side of the deformer. By default the setting is 1, representing the length of the deformer to which it is applied.</p>
<p>Left Amplitude</p>	<p>This parameter controls the physical size of the left muscle. Increase the value to make the muscle bigger, decrease the value to make it smaller.</p> 
<p>Muscle Right</p>	<p>This option is enabled by default. When enabled, the right side of the Bone Deformer will inflate as the articulation is rotated toward the direction of the Bone Deformer. Disable this option if you don't want the right side of the bone to inflate.</p> 
<p>Same as Left</p>	<p>This option is enabled by default, allowing each side of the Bone Deformer to inflate to follow the rotation of the articulation. Enable this option to synchronize the right muscle</p>

	<p>with the left so both muscles inflate when the articulation is rotated to the left.</p> 
Right Start	<p>The default value of the starting position of the right muscle is set to -2. This means it will start at the deformer situated two steps before where the Auto-Muscle is connected, in this case, Bone. You can change the starting point by typing the number corresponding to the deformer node.</p> 
Right Span	<p>This parameter controls the length (muscle length) over which the effect node will be applied to the right side of the deformer. By default the setting is 1, representing the length of the deformer to which it is applied.</p>
Right Amplitude	<p>This parameter controls the physical size of the right muscle. Increase the value to make the muscle bigger, decrease the value to make it smaller.</p>

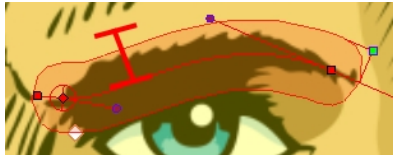
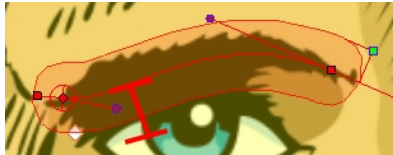
Bone Node

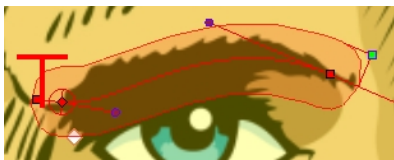
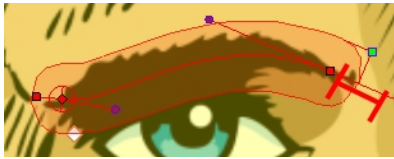
The Bone node is one of the main nodes used to build a deformation rig. Each Bone node consists of a bone and an articulation. You can chain Bone nodes to create a skeleton chain for your character. The Rigging tool can be used to create and connect those nodes automatically.

Properties



Parameter	Descriptions
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Resting Parameters Rest Offset	
(x) Axis	This is the bone x-axis (horizontal) coordinates for the resting position.
(y) Axis	This is the bone y-axis (vertical) coordinates for the resting position.
Rest Radius	This is the articulation's radius value (articulation size) for the resting position.
Rest Orientation	This is the bone's orientation angle for the resting position.
Rest Bias	This is the articulation's bias (roundness and smoothness) for the resting position.
Rest Length	This is the bone's length for the resting position.
Deform Parameters Offset	
2D Path	When this option is enabled, the X and Y-axis parameters are controlled by the same 2D path function.
Separate	When this option is enabled, the X and Y-axis parameters are individual one

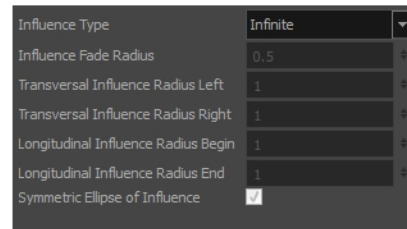
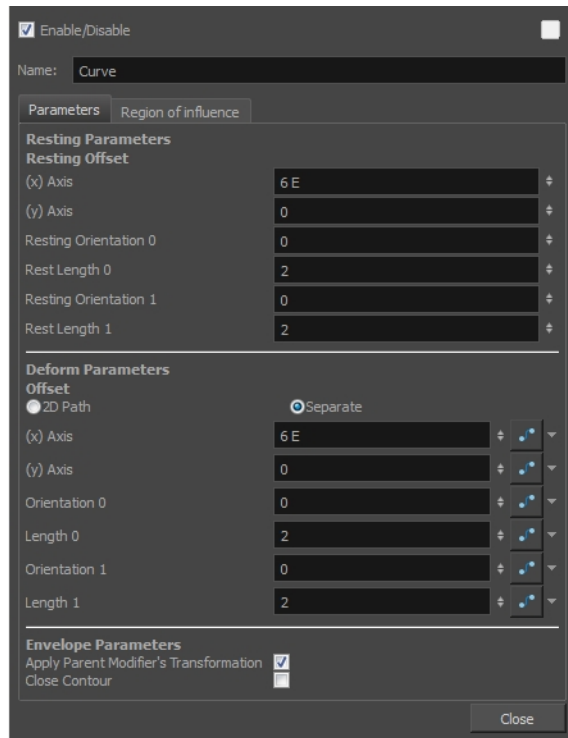
	from another.
Path	When using a 2D Path, this field displays the name of the function.
(x) Axis	This is the bone X-axis (horizontal) coordinates for the animation position. This parameter can be linked to a function to be animated over time.
(y) Axis	This is the bone y-axis (vertical) coordinates for the animation position. This parameter can be linked to a function to be animated over time.
Radius	This is the articulation's radius value (articulation size) for the animation position. This parameter can be linked to a function to be animated over time.
Orientation	This is the bone's orientation angle for the animation position. This parameter can be linked to a function to be animated over time.
Bias	This is the articulation's bias (roundness and smoothness) for the animation position. This parameter can be linked to a function to be animated over time.
Length	This is the bone's length for the animation position. This parameter can be linked to a function to be animated over time.
Region of Influence	
Influence Fade Radius	This defines the size of the fade area around the actual region of influence's boundaries.
Transversal Influence Radius Left	When the Symmetric Ellipse of Influence option is enabled, this field controls the Left and Right transversal radius values. When disabled, it controls the size of the left transversal radius. By default, this value is set to 2. 
Transversal Influence Radius Right	When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The Left Transversal radius value is automatically applied to the Right Transversal. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Right Transversal radius. By default, this value is set to 2. 
Longitudinal Influence Radius Begin	When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The End Longitudinal value is automatically applied to the Begin Longitudinal value. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Begin Longitudinal radius. By default, this value is set to 0.25.

	
<p>Longitudinal Influence Radius End</p>	<p>When the Symmetric Ellipse of Influence option is enabled, this field controls both the Begin and End Longitudinal radius values. When this option is disabled, it controls the size of the End Longitudinal radius. By default, this value is set to 0.25.</p> 
<p>Symmetric Ellipse Influence</p>	<p>Enabled by default. The shape of the ellipse will be symmetrical on both the transversal and longitudinal radii. In this case, use the Transversal Influence Radius Left field to set the transversal radius value and use the Longitudinal Influence Radius End field to set the longitudinal radius value. The two other fields will remain unused unless you disable the Symmetric Ellipse Influence option. In that case, you can set up different radius sizes for the four radii directions.</p>

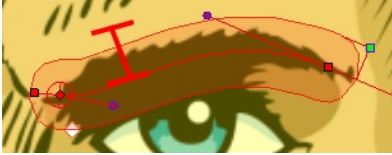
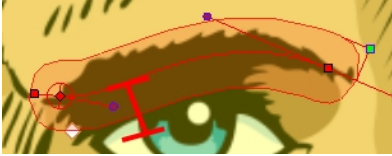
Curve Node

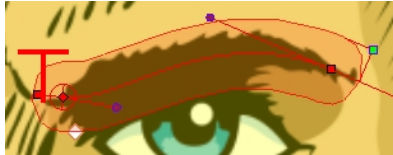

The Curve node is one of the main nodes for building a deformation rig. You can chaining Curve nodes to create a Bezier handles skeleton. The Rigging tool can be used to create and connect the nodes automatically.

Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Resting Parameters Resting Offset	
(x) Axis	This is the curve x-axis (horizontal) coordinates for the resting position.
(y) Axis	This is the curve y-axis (vertical) coordinates for the resting position.
Resting Orientation 0	This is the orientation for the first Bezier handle for the resting position.
Rest Length 0	This is the length for the first Bezier handle for the resting position.
Resting Orientation 1	This is the orientation for the second Bezier handle for the resting position.
Rest Length 1	This is the length for the second Bezier handle for the resting position.
Deform Parameters Offset	
2D Path	When this option is enabled, the X and Y-axis parameters are controlled by the same 2D path function.
Separate	When this option is enabled, the X and Y-axis parameters are individual one from another.

(x) Axis	This is the curve X-axis (horizontal) coordinates for the animation position.
(y) Axis	This is the curve Y-axis (vertical) coordinates for the animation position.
Orientation 0	This is the orientation for the first Bezier handle for the animation position.
Length 0	This is the length for the first Bezier handle for the animation position.
Orientation 1	This is the orientation for the second Bezier handle for the animation position.
Length 1	This is the length for the second Bezier handle for the animation position.
Envelope Parameters	
Apply Parent Modifier's Transformation	When this option is disabled, the deformation from the parent curves are no longer affecting the current curve. Interesting effects can be achieved when disabling this effect on the last child curve and rotating the Offset point. The curve tail end will remain pinned on the spot while the rest of the curves deforms.
Close Contour	When this option is enabled, the extrimity of the curve is snapped to the initial chain's Offset point. This creates an Envelope deformation. More than one curve can be linked to the Offset point.
Region of Influence	
Influence Fade Radius	This defines the size of the fade area around the actual region of influence's boundaries.
Transversal Influence Radius Left	<p>When the Symmetric Ellipse of Influence option is enabled, this field controls the Left and Right transversal radius values. When disabled, it controls the size of the left transversal radius. By default, this value is set to 2.</p> 
Transversal Influence Radius Right	<p>When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The Left Transversal radius value is automatically applied to the Right Transversal. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Right Transversal radius. By default, this value is set to 2.</p> 
Longitudinal Influence Radius Begin	When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The End Longitudinal value is automatically applied to the Begin Longitudinal value. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Begin Longitudinal radius. By default, this value is set to 0.25.

	
<p>Longitudinal Influence Radius End</p>	<p>When the Symmetric Ellipse of Influence option is enabled, this field controls both the Begin and End Longitudinal radius values. When this option is disabled, it controls the size of the End Longitudinal radius. By default, this value is set to 0.25.</p> 
<p>Symmetric Ellipse Influence</p>	<p>Enabled by default. The shape of the ellipse will be symmetrical on both the transversal and longitudinal radii. In this case, use the Transversal Influence Radius Left field to set the transversal radius value and use the Longitudinal Influence Radius End field to set the longitudinal radius value. The two other fields will remain unused unless you disable the Symmetric Ellipse Influence option. In that case, you can set up different radius sizes for the four radii directions.</p>

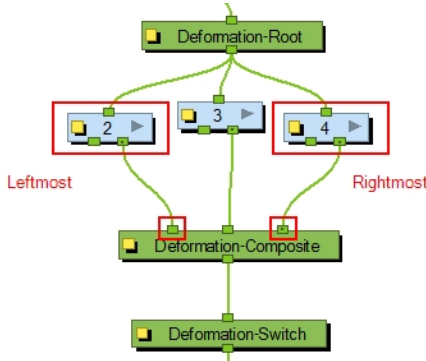
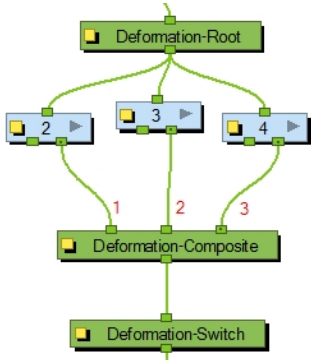
Deformation Composite Node

Just like a standard Composite node, the Deformation-Composite node is used to bring together all the elements that are connected to it, allowing you to customize parameters that will influence the result of the output. The Deformation-Composite links the deformation chain to the graphic element to which it is related.



Properties

Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Output Kinematic Only	This option is disabled by default, allowing the deformation chain to output deformation and position information. This option should be enabled in order to output the chain information position only. This will allow you to connect a part to the hierarchy without it undergoing the deformation applied to the rest of the chain.
Output Selected Port Only	This option is important if you have several deformation chains for one element, as in the case of a character with multiple poses. <ul style="list-style-type: none"> When this option is enabled, it will only use the selected chain, which you will be able to define in the Output Kinematic Chain options of the Deformation-Composite. In some situations, this option is enabled and setup automatically (For example, when you are working with the Create Posed Deformer in Create Deformation Above/Under enabled)—see Creating a Full Character Turnaround Deformation Rig on page 1. When this option is disabled, all the different chains for this element will be used at once.
Output Kinematic Chain	Lets you select a deformation chain option to use. This parameter is used when the Output Selected Port Only option is enabled.

	 <p>Rightmost: Only the first chain connected to the right of the composite node will be used.</p> <p>Leftmost: Only the first chain connected to the left of the composite node will be used.</p> <p>Select: If you select this option, you can define which chain to output according to the order they are connected from left to right.</p> <p>Use First Connected Element's Exposure as Key: Allows the deformation effect to automatically detect which deformation chain to use (sub-group) by detecting the exposure of the first element connected to the deformation. This option is used in the case of a multiple pose rig—see Creating a Full Character Turnaround Deformation Rig.</p> <p>Use Parent Composite's Connected Element Exposure: When the Output Kinematic Only option enabled, the information from the parent element's exposure is used to attach the child to the correct chain, following which pose is exposed—see</p>
<p>Output Kinematic Chain Selection</p>	<p>When the Output Selected Port Only option is selected AND the Select option is used as the Output Kinematic Chain setting, this field defines which deformation chain you want to use on your element. Select the number which corresponds to the left to right order that the chains are connected to the Deformation-Composite node.</p>  <p>You can attach this value to a function and enable different chains over a period of time on specific frames. This value can be modified in the Timeline view by using the Deformation-Switch layer. Since the Deformation-Composite node is only visible in the Node view, the layer has a reference to this parameter enabling you to easily edit the value</p>

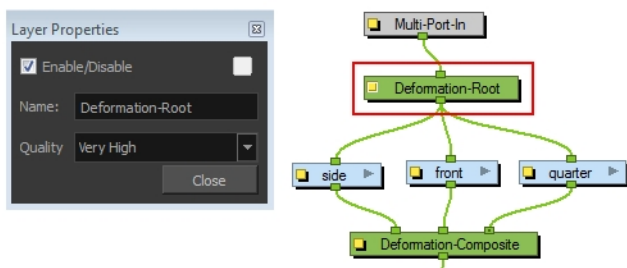
	when working in the Timeline view.
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Deformation Root Node

The Deformation-Root is used when creating manual legacy multi-pose rigs. It can be placed at the start of the deformation chains. This node is no longer used for the current multi-pose rig structure.

You can modify the quality level of the Deformation effect in the Deformation-Root Layer Properties window:

Properties



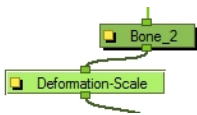
Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Quality	<p>Defines the number of slices the graphic is split into and used when undergoing a deformation. The higher the quality level, the more slices are created and the smoother the deformation applied to the graphic. There are five levels of quality:</p> <ul style="list-style-type: none"> • Low • Medium • High • Very High (default value) • Extreme

Deformation Scale Node

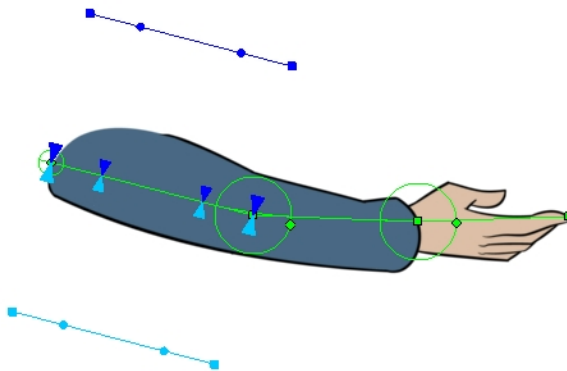
The deformers can only be scaled along the centre axis to adjust the length of the limb. The Deformation-Scale can be used in combination with a Bone or Curve deformer to scale a drawing so it follows the opposite direction of the deformer axis (the width). For example, when combined with function curves this can be used to create advanced muscle effects. All these settings can be animated over time.


How to set up the Deformation-Scale effect node

1. In the Node view, navigate to the node to which you want to add a Deformation-Scale effect.
2. In the Node Library view, select a Deformation-Scale node and drag it to the Node view.
3. Connect the Deformation-Scale node directly under the lower deformer node of your chain.



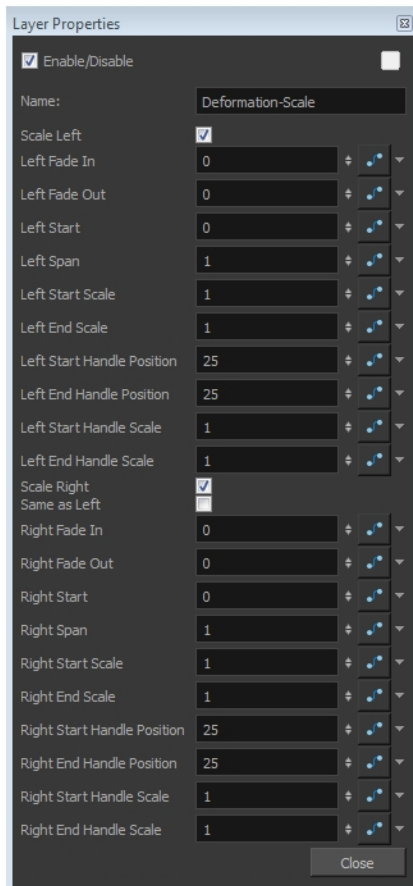
4. In the Node view, select the Deformation-Scale node and select **View > Show > Control** to display its controls in the Camera view.



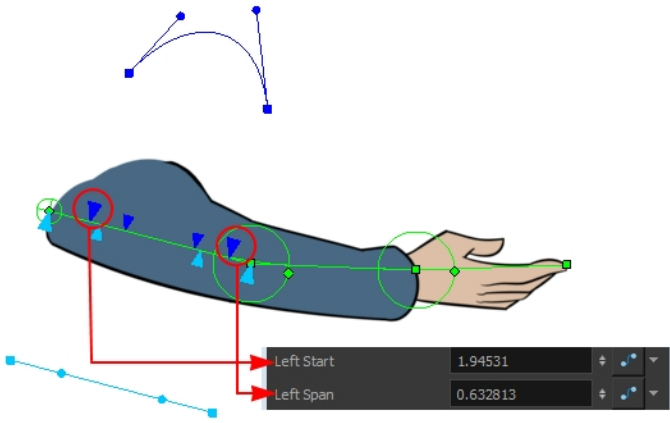
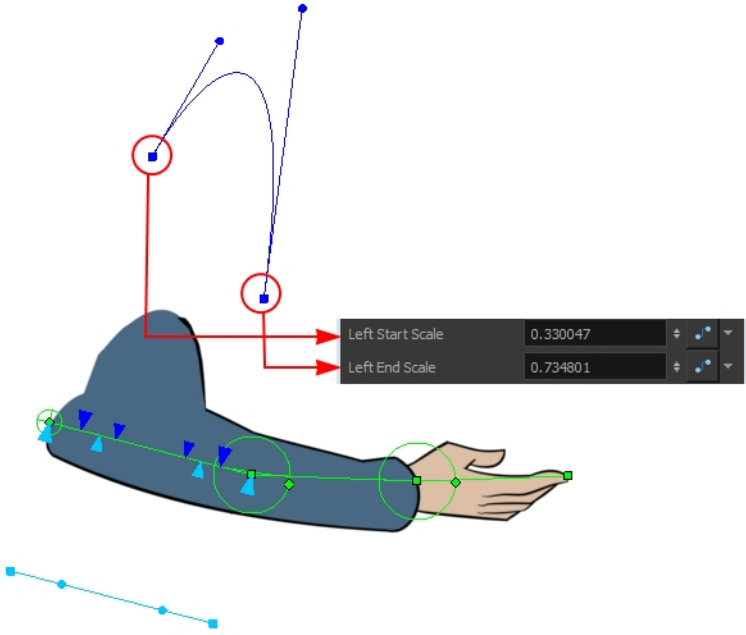
5. Click on the square yellow button of the Deformation-Scale node to open the Layer Properties window. You can animate the different parameters of the Deformation-Scale node by enabling the Animate  mode in the Tools toolbar and adding keyframes. In this case, different values will be connected to functions.

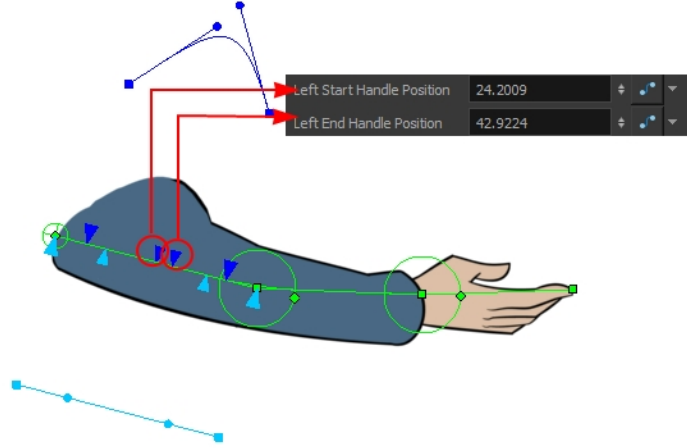
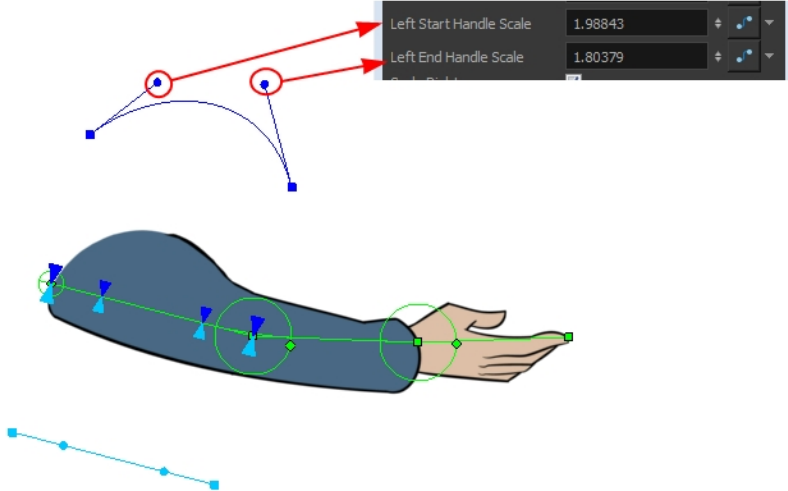
NOTE: If the controls are too far away from the deformer, you can change the default display of the Deformation-Scale and Deformation-Uniform-Scale controls in the Preferences dialog box to bring them closer.

Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
This series of options controls the left scaling deformation.	
Scale Left	This option is enabled by default. It allows the left side of the deformer to be scaled. In the Camera view, the dark blue controls are used for the left side. If you disable this option, the controls will be hidden and no scaling deformation will occur for this side.
Left Fade In	The value is set to 0 (no fade) by default. Increase the value to add a fade effect to smooth the transition between the starting point of the scale and the area before it.
Left Fade Out	The value is set to 0 (no fade) by default. Increase the value to add a fade effect to smooth the transition between the Left Span point of the scale and the area after it.
Left Start	Defines the starting point of the left scale deformation. The default value is 0 and represents the Deformation-Root. Each main control point count for +1. Move the first blue arrow along the deformer's central axis to set the starting point

	<p>of the Deformation-Scale and the last arrow to set the length (span) of the transformation.</p> 
<p>Left Span</p>	<p>Defines the length of the left scale effect.</p>
<p>Left Start Scale</p>	<p>Defines the start of the left scale effect.</p> <p>Drag the square scaling curve control points away and forward from the deformer axis to set the scaling value at the starting and ending point.</p> 
<p>Left End Scale</p>	<p>Defines the end of the left scale effect.</p>
<p>Left Start Handle Position</p>	<p>Defines the starting position of the left handle.</p> <p>Drag the two middle blue arrows along the deformer's centre axis to set the position of the curve handles.</p>

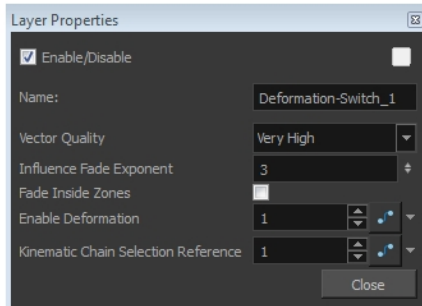
	
<p>Left End Handle Position</p>	<p>Defines the ending position of the left handle.</p>
<p>Left Start Handle Scale</p>	<p>Defines the starting position of the left scale handle.</p> <p>To modify the scaling value of the curve, drag the two control handles away and forward from the deformation axis.</p> 
<p>Left End Handle Scale</p>	<p>Defines the ending position of the left scale handle.</p>
<p>Scale Right</p>	<p>This option is enabled by default. It allows the right side of the deformer to be scaled. In the Camera view, the light blue controls are used for the right side. If you disable this option, the controls will be hidden and no scaling deformation will occur for this side.</p>
<p>Same as Left</p>	<p>This option is disabled by default. It means that the left and right sides will use different scaling parameters. If you enable this option, the right side controls will be hidden in the Camera view and the left parameters will be used for both side for a symmetrical scaling effect.</p>
<p>The right side parameters are a mirror of the left side parameters</p>	

Deformation Switch Node

The Deformation-Switch (Legacy) node acts as a on and off switch for the deformation chain. It is used when building legacy multi-pose rigs. It is also the node which controls the Region of Influence Fade area. The Deformation-Switch also displays a Kinematic Chain Selection Reference option, which allows you to modify the chain selection directly in the Timeline view.

The Deformation-Switch has been replaced with the Transformation-Switch node.

Properties



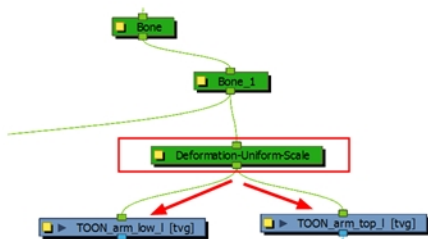
Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Vector Quality	Defines the quality of the deformation effect when your drawings are stretched and deformed. There are five levels of quality: <ul style="list-style-type: none"> • Low • Medium • High • Very High (default value) • Extreme
Influence Fade Exponent	A value of 1 is similar to a linear curve. A higher value will result in an ease-in type of curve. A lower value will result in an ease-out type of curve.
Fade Inside Region	This option is disabled by default. The fade effect will occur outside the zone of influence. Enable this option to have the fade effect inside the Zone of Influence.
Enable Deformation	Acts as an on/off switch for the deformation. The value of this field is set to 1 by default, which means the deformation is enabled. Enter a value of 0 to disable it.
Kinematic Chain Selection Reference	Determines which chain is selected and used at a specific frame. It is a reference to the option in the Deformation-Composite node. Having this reference in the Deformation-Switch node allows you to use and modify the chain selection value directly in the Timeline view since the Deformation-Composite node is only visible in the Node view.

Deformation Uniform Scale Node

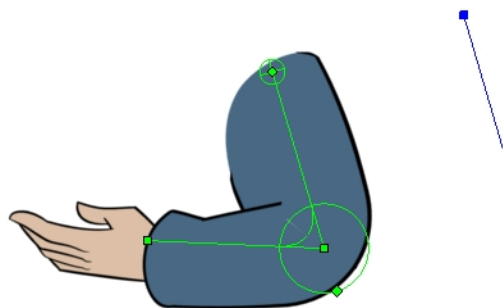
The Deformation-Uniform-Scale effect node let you create the squash and stretch effect on your animated deformation rig. You can scale the rigged element on the opposite axis of the deformer (width).

How to use the Deformation-Uniform-Scale node

1. In the Node view, navigate to the deformation node to which you want to add a Deformation-Uniform-Scale node.
2. In the Node Library view, select the Deformation-Uniform-Scale node and drag it to the Node view.
3. Connect the Deformation-Uniform-Scale node directly below the lowest deformation node in your chain.

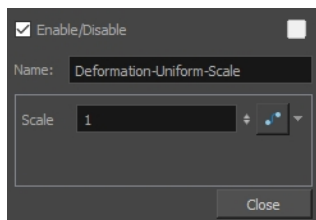


4. Connect the Deform-Uniform-Scale node to all the drawing nodes it should scale.
5. In the Node view, select the Deformation-Uniform-Scale node.
6. Display the Uniform Scale controls in the Camera view by pressing Shift + F11.
7. In the Camera view, drag the handle to resize the width of the limb. You can also use the Scale field to enter a specific value. These parameters can be animated over time.



NOTE: If the controls are too far away from the deformer, you can change the default display of the Deformation-Scale and Deformation-Uniform-Scale controls in the Preferences dialog box to bring them closer.

Properties



Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Scale	Use this field to type in the value to resize the width of the limb.

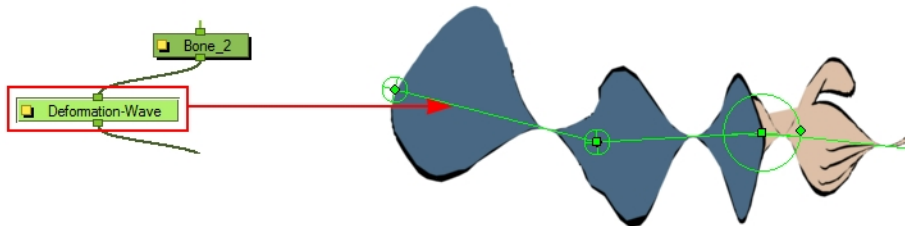
Deformation Wave Node

The Deformation-Wave effect deforms the chain by adjusting the scaling in a waveform style. It can be used to animate a wave deformation effect on your deformation chain over a period of time.

How to use the Deformation-Wave effect

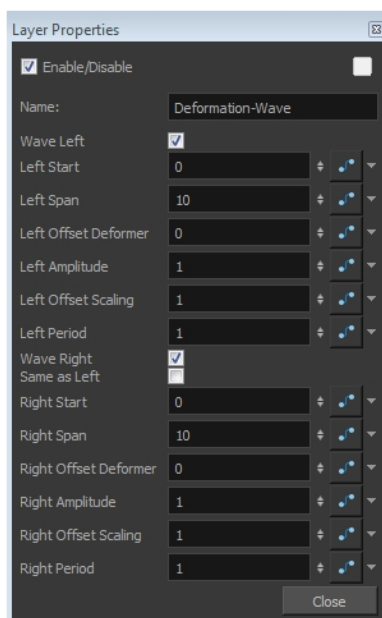
1. In the Node view, navigate inside the Deformation node to which you want to add a Deformation-Wave effect.
2. In the Node Library view, select an Deformation-Wave node and drag it to the Node view.
3. Connect the Deformation-Wave node to your deformation chain.

A wave deformation is applied to the limb or art connected to the deformation chain.



4. In the Node view, open the Layer Properties window of the Deformation-Wave node.

Properties



Parameter	Description
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Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Wave Left	This option is enabled by default, allowing the Deformation-Wave effect to be applied on the left side of the deformer chain. Disable this option to prevent the effect from being applied.
Left Start	Defines the length of the left wave effect.
Left Span	Defines the starting point of the left wave deformation. The default value is 0 and represents the root point. Each main control point count for +1.
Left Offset Deformer	This is the parameter you may want to connect to a function. It controls the offset of the deformation on the left side and allows you to create a fluid wave animation along the deformer axis.
Left Amplitude	Controls the height of the left wave effect.
Left Offset Scaling	Used to apply an offset value to the amplitude of the left wave. The wave will be lifted and become higher, or dropped and become lower, depending whether the value is increased or decreased.
Left Period	Controls the interval of occurrence of the left waves. By default the value is 1, meaning that a wave will occur for every deformer. If you decrease the value to 0.5, it will result in a wave occurring every half deformer.
Wave Right	By default this option is enabled, allowing the Deformation-Wave effect to be applied on the right side of the deformer chain. Disable this option to prevent the effect from being applied.
Same as Left	This option is disabled by default. It allows the left and right size of the Deformation-Wave to be controlled separately. Select this option if you want the effect to be symmetrical and controlled by the left side parameters.
Right Start	Defines the starting point of the right wave deformation. The default value is 0 and represents the Deformation-Root. Each main control point count for +1.
Right Span	Defines the length of the right wave effect.
Right Offset Deformer	This is the parameter you might want to connect to a function. It controls the offset of the deformation on the right side, allowing you to create a fluid wave animation along the deformer axis.
Right Amplitude	Controls the height of the right wave effect.
Right Offset Scaling	Used to apply an offset value to the amplitude of the right wave. The wave will be lifted and become higher, or dropped and become lower, depending whether the value is increased or decreased.
Right Period	Controls the interval of occurrence of the right side waves. By default the value is 1, meaning that a wave will occur for every deformer. If you decrease the value at 0.5 it will result in a wave occurring every half deformer.

Fold Node

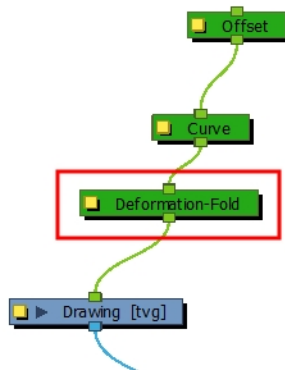
The Fold effect is used when bending a deformation further than the drawing is able to take it. This may result in an unwanted overlap of the line art at the junction of the articulation or deformation. The Fold effect lets you control certain parameters that will help eliminate the unwanted line effect. You can also avoid this issue by separating your drawing onto two layers or separating your drawing in two pieces using the Cutter tool and repasting it in place in the same drawing.




The Fold effect works best with the Curve deformers.

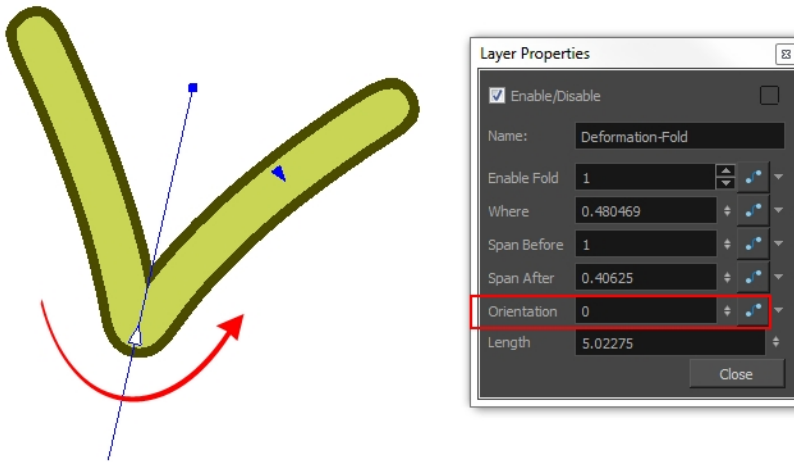
How to set up the Fold node

1. In the Node view, navigate to the Deformation node causing the unwanted overlap (in this case, an articulation).
2. In the Node Library view, select the **Fold** node and drag it to the Node view.
3. Connect the Deformation-Fold node directly under the deformation effect node which is causing the unwanted line effect.

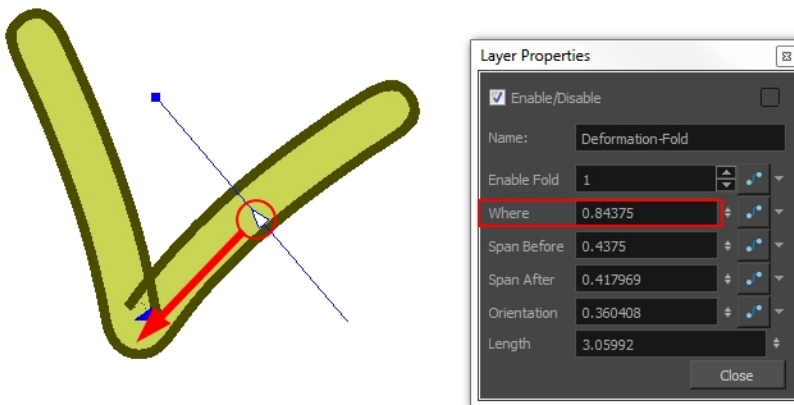


4. In the Node view, select the **Deformation-Fold** node.
5. From the top menu, select **View > Show > Control** or press Shift + F11 (Windows/Linux) or ⌘ + F11 (Mac OS X) to display its controls in the Camera view.
6. In the Tools toolbar, select the Transform  tool.
7. In the Camera view, set up the Deformation-Fold. You can also set these parameters directly in the Deformation-Fold properties:

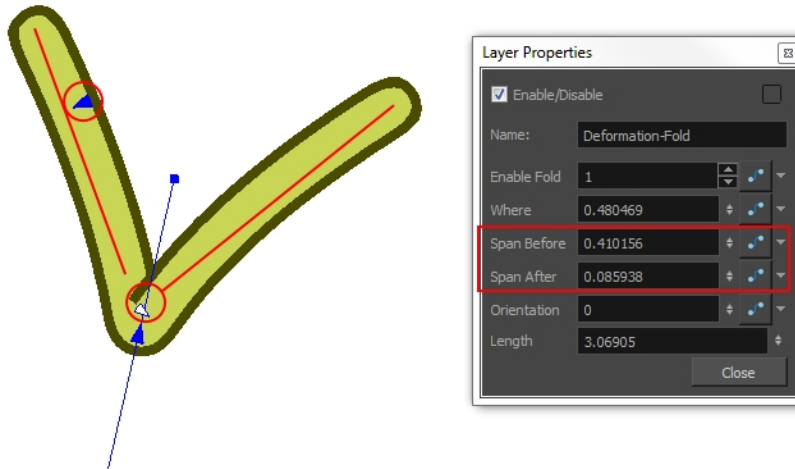
- ▶ Click on the fold axis and rotate it to match the angle of the bend articulation.



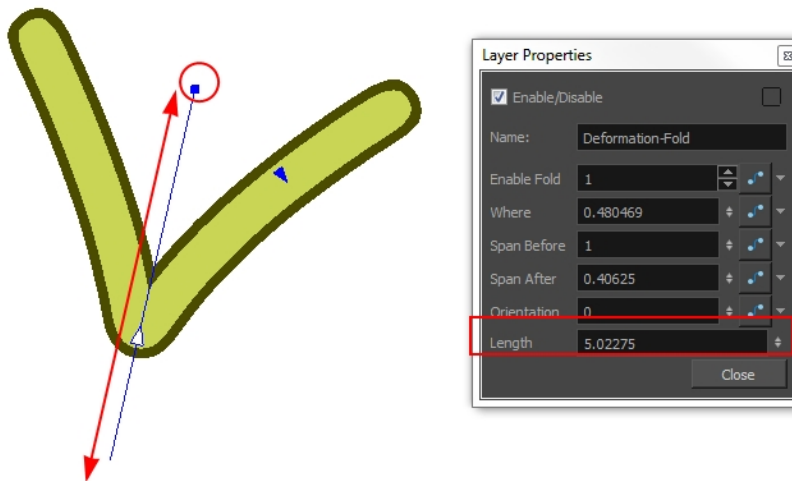
- ▶ Use the middle arrow to position the axis along the deformer's central line. It should be in the corner of the bending area.




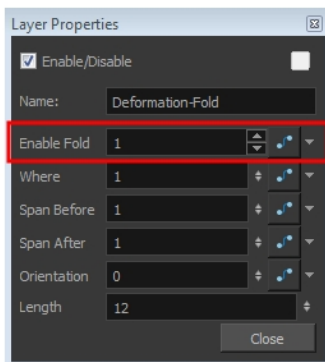
- ▶ Use the right and left arrows to control the appearance of the two overlapping lines.



- ▶ Use the axis's square handle to lengthen or shorten the axis.

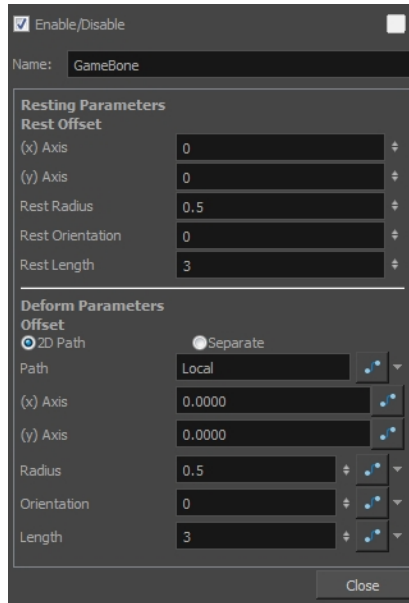


- If your character moves a lot and you need to adjust the fold at different positions to follow the limb animation, you can set up the Deformation-Fold node in a different position over time. To do this, enable the Animation  mode in the Tools toolbar and add keyframes. In this case, the different values will be connected to functions.
- You can also enable/disable the Deformation-Fold node over time by connecting a function to the Enable Fold parameter in the Layer Properties. A value of 1 enables the effect, a value of 0 disables the effect.



Game Bone Node

The Bone node is one of the main node used to build a deformation rig. Each Bone node consists of a bone and an articulation. Chaining Bone nodes will create a skeleton chain for your character. The Rigging tool can be used to create and connect those nodes automatically.



Parameter	Descriptions
Resting Parameters Rest Offset	
(x) Axis	This is the bone X-axis (horizontal) coordinates for the resting position.
(y) Axis	This is the bone Y-axis (vertical) coordinates for the resting position.
Rest Radius	This is the articulation's radius value (articulation size) for the resting position.
Rest Orientation	This is the bone's orientation angle for the resting position.
Rest Length	This is the bone's length for the resting position.
Deform Parameters Offset	
2D Path	When this option is enabled, the X and Y axis parameters are controlled by the same 2D path function.
Separate	When this option is enabled, the X and Y axis parameters are individual from each other.
Path	When using a 2D Path, this field displays the name of the function curve.
(x) Axis	This is the bone X-axis (horizontal) coordinates for the animation position. This parameter can be linked to a function curve to be animated over time.
(y) Axis	This is the bone Y-axis (vertical) coordinates for the animation position. This parameter can be linked to a function curve to be animated over time.
Radius	This is the articulation's radius value (articulation size) for the animation position. This parameter can be linked to a function curve to be animated over time.
Orientation	This is the bone's orientation angle for the animation position. This parameter can be linked to a function curve to be animated over time.

Length	This is the bone's length for the animation position. This parameter can be linked to a function curve to be animated over time.
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Glue Node

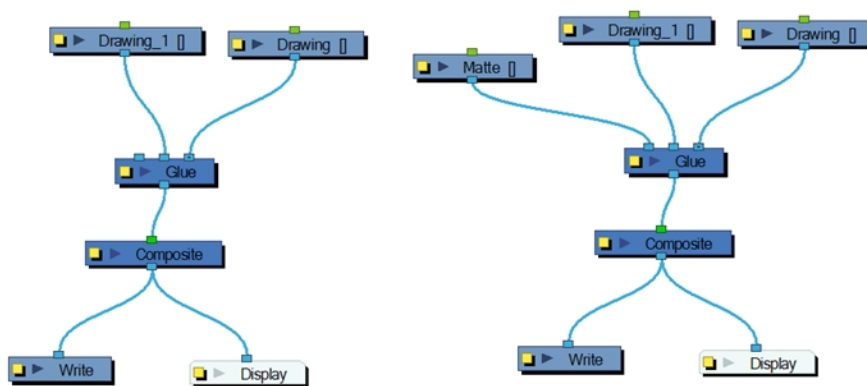


The Glue effect lets you repair the cracks that appear between joints during animation.

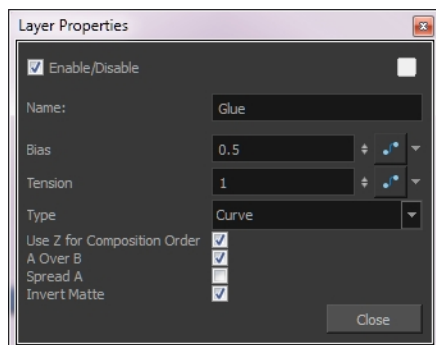


The Glue node has three ports:

- **Left Port (Matte):** Receives the matte.
- **Middle Port (Port A):** Receives the element that will not be used to fill the joint.
- **Right Port (Port B):** Receives the element that will be used to fill the joint.



For most effects with the Glue node, the default options are sufficient. However, you can modify these options using the Glue editor.



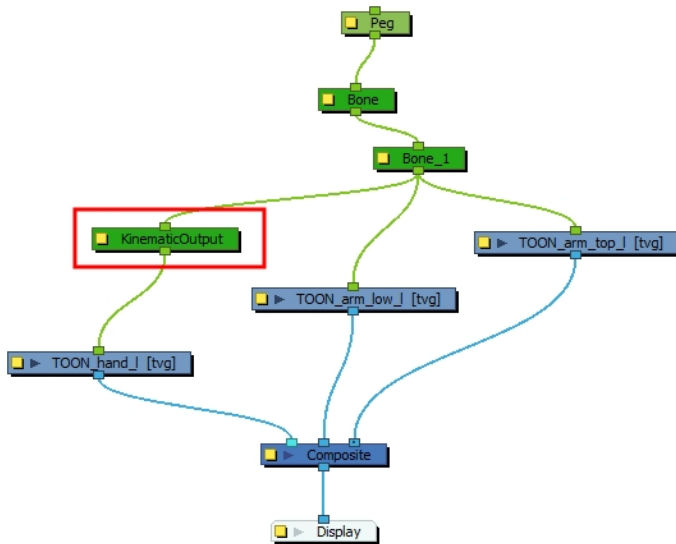
Glue Properties

Parameter	Description
Bias	Indicates the tendency to favour the static or moving element. Set to 0, it favours element A; set to 1 it favours element B; set to 0.5 it is in between A and B.
Tension	Indicates how tight the joint will be. Set to 1, the tension has no effect; set less than 1, the tension decreases; set greater than 1, the tension increases.
Type	From this menu, select the type of joint to create. You can choose from among Curve (default), Line and Corner.
Use Z for Composition Order	You can use this option to choose the drawing with the higher front-back value to create the joint.
A Over B	Indicates which image is rendered on top in the final image. By default, A is rendered on top of B, which indicates that the image in the middle port (A) is rendered on top of the image in the right port (B).
Spread A	By default, the image in port B is spread to fill the joint. You can use this option to choose the image in the A port to create the joint. If you select this option, the drawing node must receive position information from the "B" element. Thus, you must connect the Drawing node of the "B" element to the Drawing node of the matte.
Invert Matte	Activate this option to invert the matte used to fill the joint. If you want to use the "B" element as the matte, you must select this element.

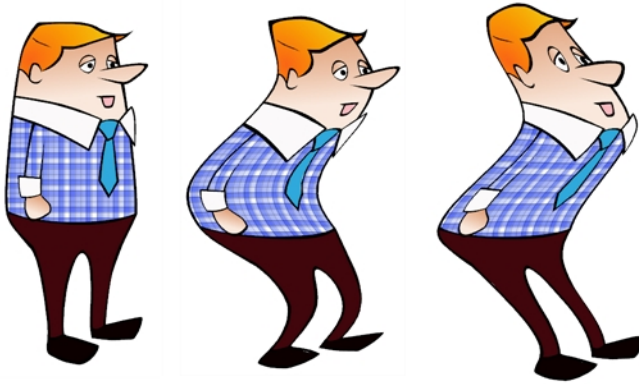
Kinematic Output Node

The Kinematic Output node lets you hook a separate element that you want to be linked to the deformation chain but not be part of the deformation, such as a hand to an arm or an arm to the body. These elements will follow the movement of the chain just like a regular cut-out character hierarchy piece without being influenced by the deformation of the arm. If you don't use the Kinematic Output, the piece's pivot will not follow the deformation.

Connect a Kinematic Output node below the deformation node you want your drawing to follow.

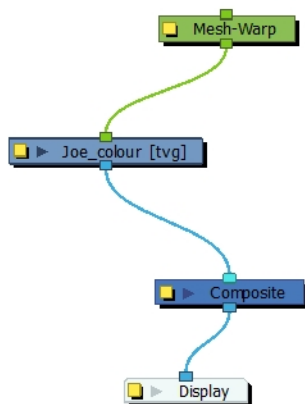


Mesh Warp Node



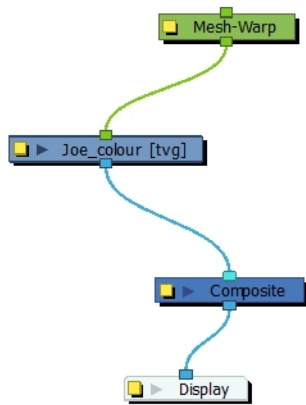
Use the Mesh Warp effect to distort your drawings. With this node you can create effects such as a character in a warped mirror and looking through a glass jar. You can also animate the position of the grid to perform the distortion over time.

The Mesh Warp node is a position node, same as a Peg node.

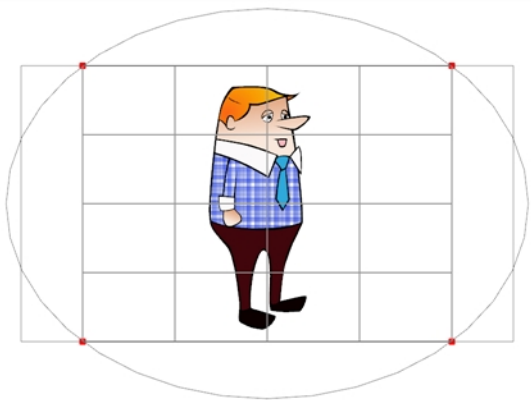


How to use the Mesh Warp Effect

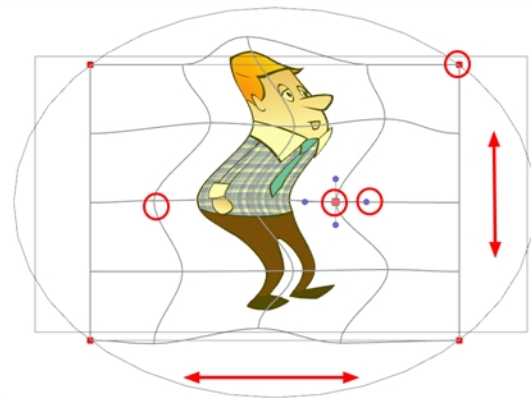
1. In the Node Library, under the Filter tab, select the Mesh Warp node and drag it to the Node view.
2. In the Node view, connect the Mesh-Warp node to your drawing or group nodes to deform.



3. In the Node view, select the Mesh Warp node.
4. Select **View > Show > Control** or press Shift + F11 (Windows/Linux) or ⌘ + F11 (Mac OS X) to display the deformation grid.



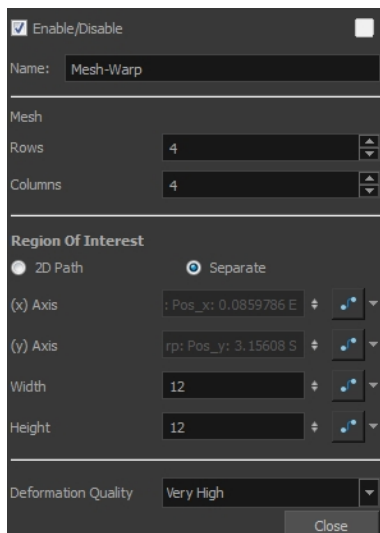
5. Move the intersection points and move the Bezier handles to deform the grid.



6. Grab the grid in the void spaces to pan it around. Using keyframes, you can animate its position over time.

Mesh Warp Properties

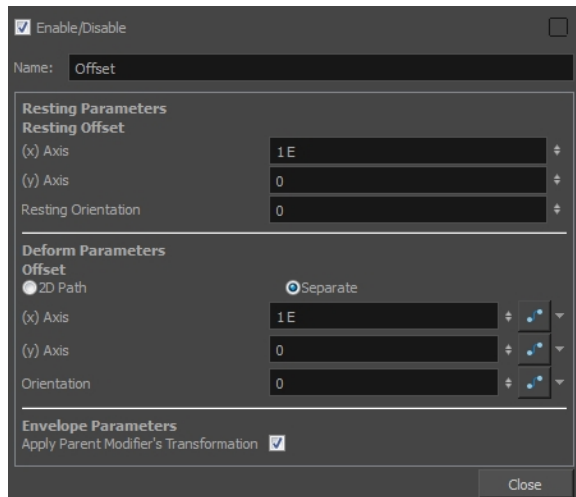
Use the Mesh Warp editor to adjust the grid size, deformation quality and the region of interest.



Parameter	Description
Rows	Increase or decrease the Rows value to change the amount of rows to use in the deformation grid.
Columns	Increase or decrease the Columns value to change the amount of columns to use in the deformation grid.
Region of Interest	Select the 2D Path option if you want both your X and Y curves to be controlled by the same velocity function. Select the Separate option if you want your X and Y curves to be independent and have independent velocity.
(x) Axis	This is the X position of the grid. This value can be animated overtime to move the grid horizontally.
(y) Axis	This is the Y position of the grid. This value can be animated overtime to move the grid vertically.
Width	This is the width value of the grid. This value can be animated overtime to squash or stretch the grid horizontally.
Height	This is the height value of the grid. This value can be animated overtime to squash or stretch the grid vertically.
Deformation Quality	This is the quality of the warm deformation. It ranges from Low to Extreme. The higher the quality, the better the formation will look, but the longer it will take to render.

Offset Node

The Offset node lets you position the root of your deformation chain. It is automatically added to your deformation rig when you create a Curve or Envelope deformation rig using the Rigging **IT** tool.



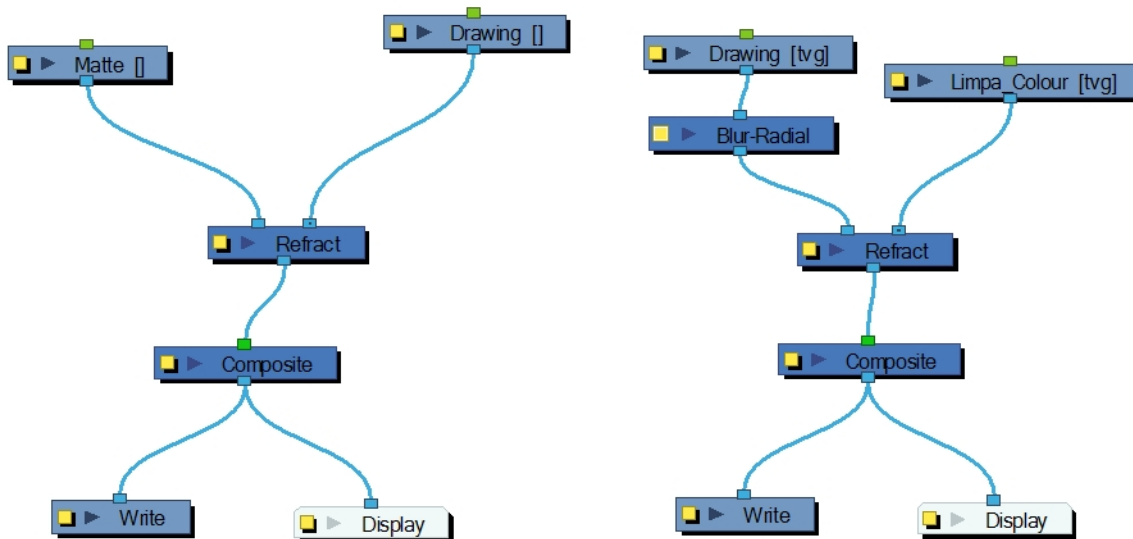
Parameter	Description
Name	Use this field to rename the node.
(x) Axis	Sets the resting position on the X (east/west) axis.
(y) Axis	Sets the resting position on the Y (north/south) axis.
Resting Orientation	Sets the rotation angle of the resting position.
Offset Type	Lets you choose the type of coordinates to use: Separate: The two coordinates are set separately. If they are connected to a function, each one will have its own function curve. This is the default setting. 2DPath: The two coordinates are set together within a single 2D path function.
(x) Axis (y) Axis	This option is only available when the Type is set to Separate. It is used to set the active position value of the Deformation-Root on the X (east/west) and Y (north/south) axis. You can enter the value, use the up and down arrow buttons to choose a value, or use the Transform tool, when Setup mode is NOT enabled, to move the deformation chain. Remember, that if you want to add a keyframe, you need to enable Animation mode from the Tools toolbar.
Path	This option is only available when the Type is set to 2D Path. It is used to set the active position value of both the Y and X axis. Use the Transform tool when Setup mode is NOT enabled to move the deformation chain along the 2D path. Remember, if you want to add a keyframe, you need to enable the Animation mode on the Tools toolbar.
Orientation	Sets the rotation angle of the active position of the Deformation-Root. You can enter the angle, use the up and down arrow buttons to choose the desired value, or use the Transform tool when Setup mode is NOT enabled to rotate the deformation chain. Remember, if you want to add a keyframe, you need to enable Animation mode on the Tools toolbar.

Apply Parent Modifier's Transformation	When this option is disabled, the parent's deformations no longer affect the current deformer.
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Refract



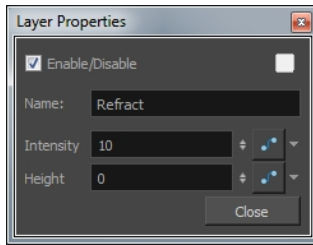
Use the Refract effect to create effects such as ripples and heat haze. This effect is based on the refraction of light, which occurs when a beam of light passes through media of different density, causing the light to refract or change angles. This effect makes objects appear distorted or offset from their actual positions. If you imagine an object in a pool of water the part beneath the surface of the water appears offset from its true position.



To create a refraction effect, you need a matte with alpha values. This creates the effect of a volume passing over an image, refracting the light that bounces off the contents below. For a ripple effect moving across an image, you must move the matte with a Peg layer.

If your matte is only black and white, meaning that there is no gradients and only solid colours in your matte drawing, you will need to connect a Blur Radial node after your matte Drawing node to soften the edges and get nicer waves.

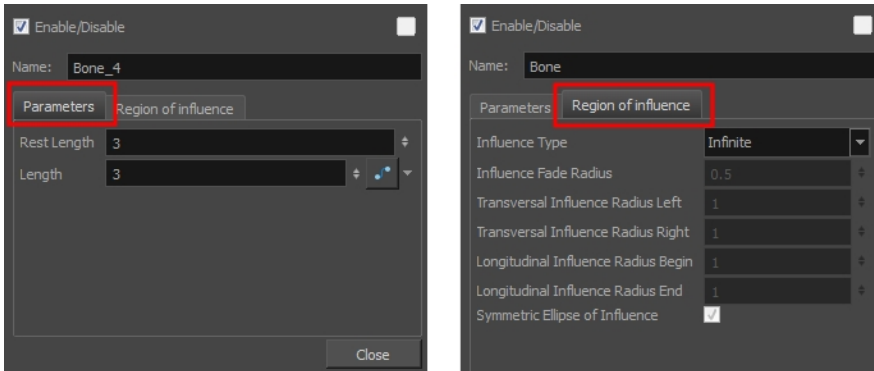
Refract Properties

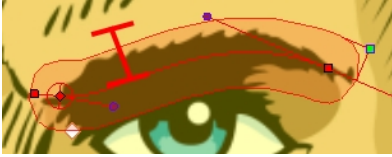
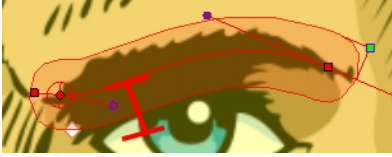


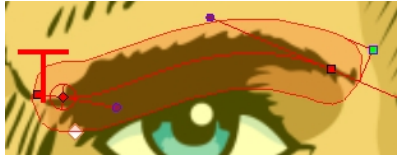
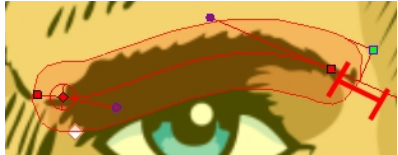
Parameter	Description
Name	Lets you rename the node.
Intensity	The amount of refraction to apply to the image. You can attach the value to a function curve to change its value over time.
Height	The amount of depth to add to the refraction effect. When coupled with the Intensity effect, this value can create the effect of bending the objects below the refraction matte. You can attach the value to a function curve to change its value over time.

Stick Node

The Stick node is available for compatibility with previous versions of deformation rigs. This node is the legacy Bone node. When the Stick node is imported in the Node view, it is renamed *Bone*.



Parameter	Descriptions
Rest Length	This is the bone's length for the resting position.
Length	This is the bone's length for the animation position. This parameter can be linked to a function to be animated over time.
Region of Influence	
Influence Fade Radius	This defines the size of the fade area around the actual region of influence's boundaries.
Transversal Influence Radius Left	When the Symmetric Ellipse of Influence option is enabled, this field controls the Left and Right transversal radius values. When disabled, it controls the size of the left transversal radius. By default, this value is set to 2. 
Transversal Influence Radius Right	When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The Left Transversal radius value is automatically applied to the Right Transversal. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Right Transversal radius. By default, this value is set to 2. 
Longitudinal Influence Radius Begin	When the Symmetric Ellipse of Influence option is enabled, this field becomes inactive. The End Longitudinal value is automatically applied to the Begin Longitudinal value. When the Symmetric Ellipse of Influence option is disabled, it controls the size of the Begin Longitudinal radius. By default, this value is set to 0.25.

	
<p>Longitudinal Influence Radius End</p>	<p>When the Symmetric Ellipse of Influence option is enabled, this field controls both the Begin and End Longitudinal radius values. When this option is disabled, it controls the size of the End Longitudinal radius. By default, this value is set to 0.25.</p> 
<p>Symmetric Ellipse Influence</p>	<p>Enabled by default. The shape of the ellipse will be symmetrical on both the transversal and longitudinal radii. In this case, use the Transversal Influence Radius Left field to set the transversal radius value and use the Longitudinal Influence Radius End field to set the longitudinal radius value. The two other fields will remain unused unless you disable the Symmetric Ellipse Influence option. In that case, you can set up different radius sizes for the four radii directions.</p>

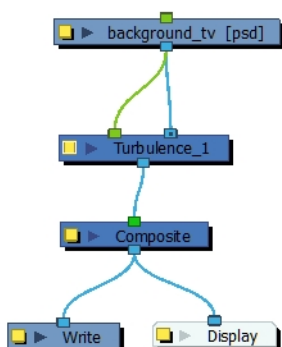
Turbulence Node

The Turbulence effect is a mathematically generated effect that uses fractal noise to create turbulent distortions in an image. You can see the effect when used with an image as the background. You can create flowing water, funhouse mirrors, and waving flags.

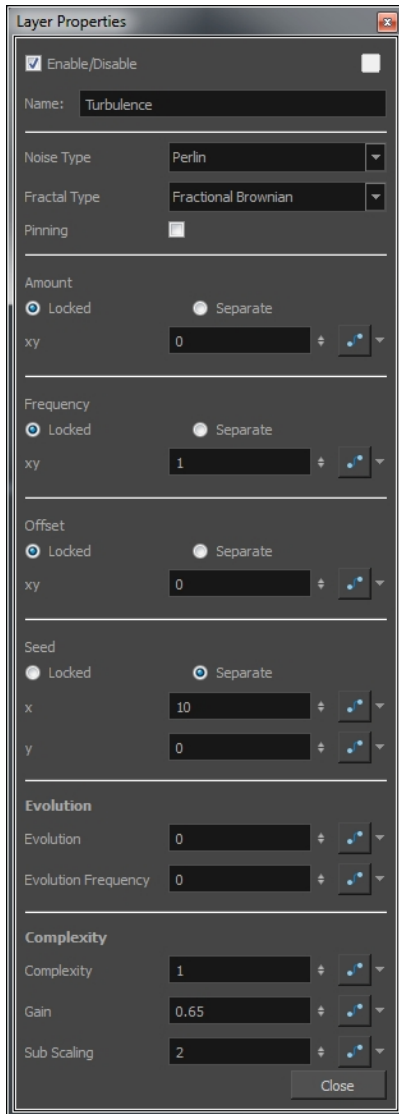


Image courtesy of Adam Phillips

For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.



Turbulence Properties



Parameter	Description
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Noise Type	Lets you select a type of noise pattern.
	Perlin : Creates pseudo random patterns. The greyscale contains a continuity between different tones of grey.
	Simplex : Creates a more contrasted noise pattern with more variation than Perlin. There is a smooth variation of intensity.
	Sinusoidal : Creates a repeated wavelike pattern.
	Sub Scaling : Applies Perlin noise twice. The second noise is added where dark areas appear in the original. The frequency of the second iteration is higher so the noise is smaller.
	Rocky : Uses the Perlin pattern but converts the very high and low values to more moderate values. For example, the whites become light greys and the blacks become dark greys.
	Small Bumps : Uses the Perlin pattern. The transitional grey areas between blacks and whites become inverted so they look like dark lines. The extremes, black and white areas, become whitish.
Fractal Type	Transforms the noise pattern, created by the Noise type and controls the way layers are composited. These are variations of the basic noise.
	Turbulent Twist : Applies a turbulent effect on the pattern so it changes the transition between black and white by adding more modulation.
	Fractional Brownian : Applies a basic application of noise and composites by adding subsequent layer with the Complexity parameter.
	Threshold : Changes the dark greys into black values so there is more black in the noise for higher contrast.
	Invert Threshold : Inverts all the values of the Threshold type so a negative image of it is created.
	Terrain : Adds contrast and converts the dark greys into white or light greys.
Pinning	Constrains the effect within the image boundaries.
Amount	Specifies the amplitude of displacement.
Frequency	The density of displacement appearing in the noise. A higher value produces a greater amount of displacement in a given area; a lower value produces a smaller amount.
Offset	Moves the entire image.
Seed	This value determines the starting noise pattern on the first evolution of the effect.
Locked	Applies parameter value while retaining the X and Y ratio.
Separate	Allows you to apply different parameter values to X and Y.
xy	When locked, applies parameter values to both X and Y. When separated, allows you to apply different value to X and Y.
Evolution	Determines the displacement pattern over time.
	Evolution Frequency : This factor makes the complexity iterations animate or transform at a higher speed. In other words, the second, third, etc. passes, controlled by the Complexity parameter, will mutate faster than the main one.

Complexity	Complexity: The number of noise layers that make up the noise. Each successive layer has a higher frequency, resulting in a smaller noise effect. You can have up to seven passes. Increasing this number increases the depth and amount of detail in the noise. Use Complexity with Sub Scaling when the value is 1 or greater. Note: Increasing the Complexity results in longer rendering times.
	Gain: Controls the amount of opacity present in the iteration of noise. This also affects the layer when using Sub Scaling. With a value of 0, you will not see the sub noise. A value of 1 will show the sub noise just as strong as the main one. For example, with water ripples, a higher amount of Gain will reveal more ripple or subripples.
	Sub Scaling: The factor by which the main noise is modified at each iteration of complexity. A value of 1 make the two noises identical. A value of 2 makes the sub noise twice as small. The next iteration would be 4 times smaller. Values must be greater than 1.

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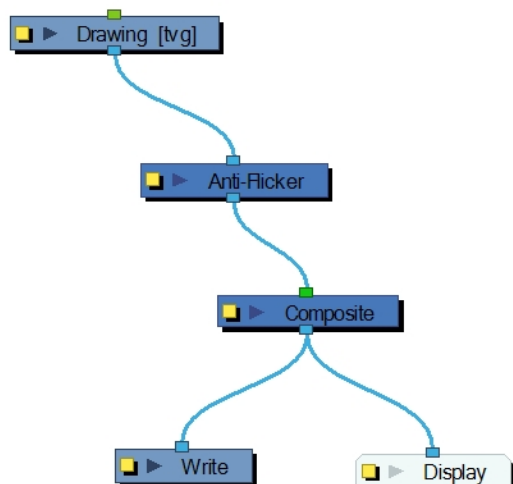
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Anti-Flicker Node

Use the Anti-Flicker to compensate for flickering in your output to TV formats. The Anti-Flicker effect applies a vertical blur to the rendered output. You should place the Anti-Flicker before a Write node in the Node view.

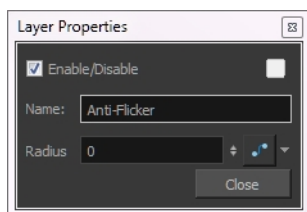


Refer to the following example to connect this node.



Use the Anti-Flicker editor to control the amount of blur that is applied to rendered output. In the Radius field, enter a value for the number of pixels to be considered in the blur.

Properties



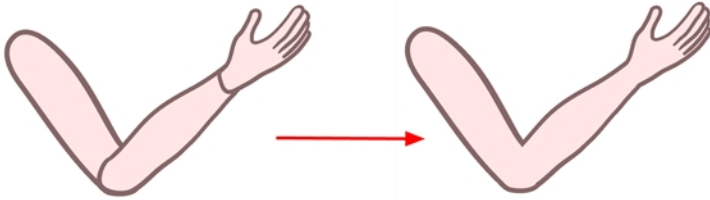
Parameter	Description
-----------	-------------

Name	Use this field to rename the node.
Radius	Size of the blur. The larger the value, the greater the strength or reach of the blur. The blur radius is affected by the drawing scale and camera position. Click the Edit Curve button to change these values over time by adjusting the function curve.

Auto-Patch Node

T-RIG-005-001

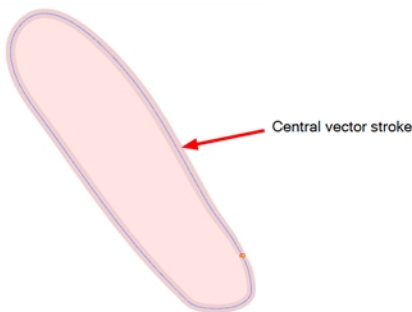
The Auto Patch node is used mainly when creating joint patches for cut-out puppets drawn with pencil lines and painted in the Colour Art layer. Instead of removing a portion of the outline to attempt to create a seamless joint, you can draw complete pieces, and with the Auto Patch node, automatically create a perfect articulation.



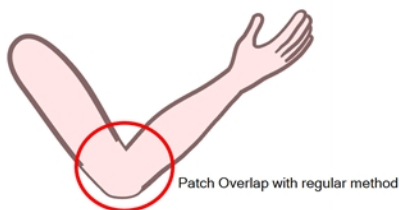
The requirements for this effect to work are:

- Drawing outlines must be drawn in pencil lines
- Drawing outlines must be drawn in the Line Art layer
- Drawing fill colours must be painted in the Colour Art layer

Pencil lines are central vector lines. The vector is located along the centre of the line. This means that when you paint a zone delimited by a pencil line, the colour fill will expand to the centre of the pencil line.



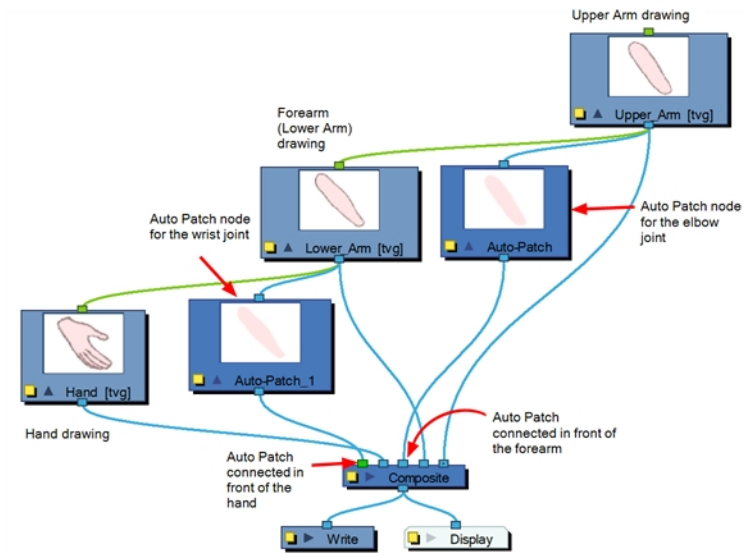
When using the regular patch technique, recommended for the brush line, the result with pencil lines is very odd looking because the colour fill zone is bigger than the pencil line inner contour.



Instead of using the regular patch method, you can use the Auto Patch node. It will automatically extract the Colour Art and clip it to the right size. Then, you can connect it in front of the piece to be covered.

The node connection for the Auto Patch is quite simple. Once your basic character rigging is done, add the Auto Patch node to the joints you want to cover. There is no need to set any parameters.

Refer to the following example to connect this node.

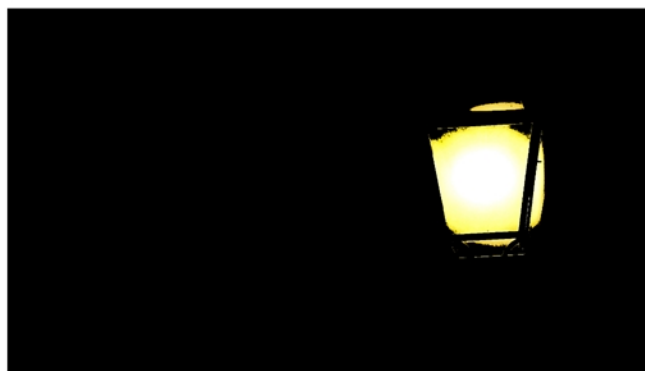


Properties

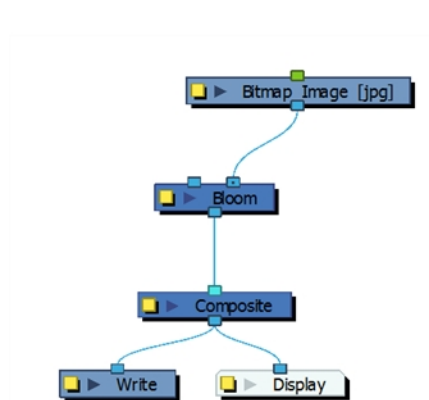
Parameter	Description
Name	Use this field to rename the node.

Bloom Node

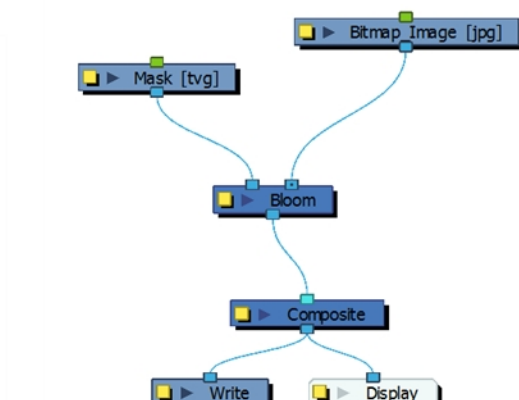
The Bloom effect is used to make a specular area blurrier on a bitmap image, such as street lamps at night.



Refer to the following example to connect this node.

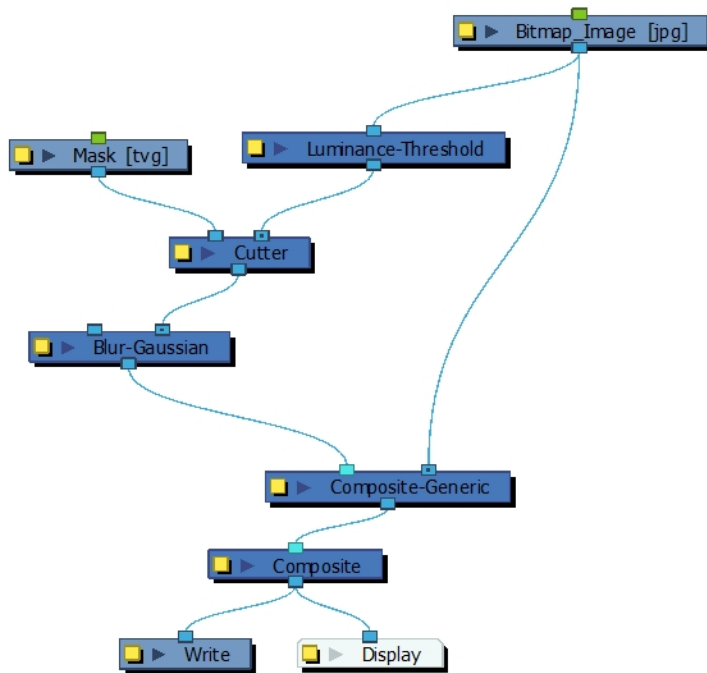


Basic Bloom node connection

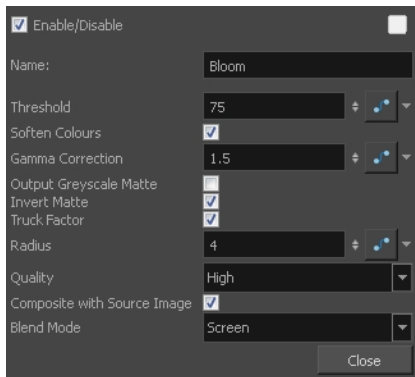


Bloom node connection with Matte input

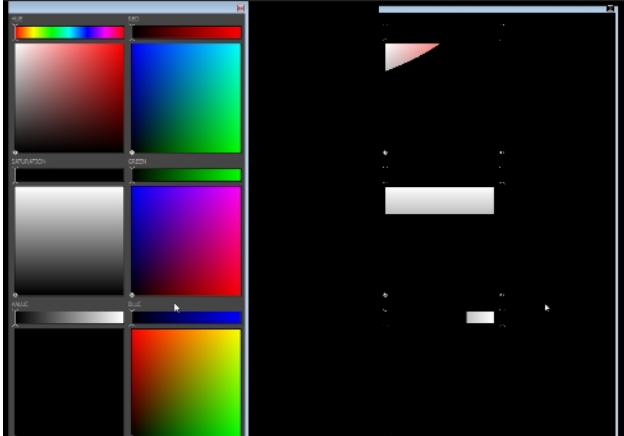
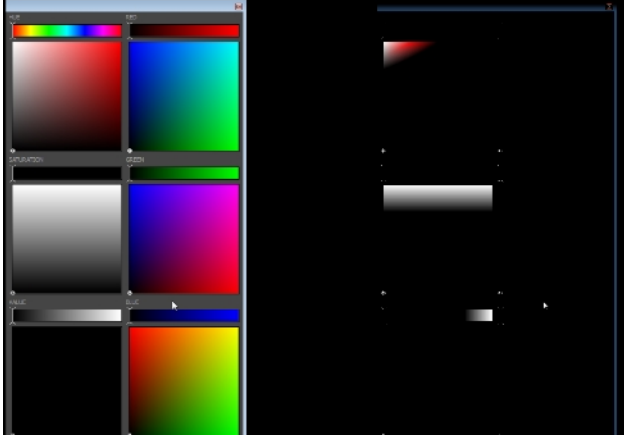
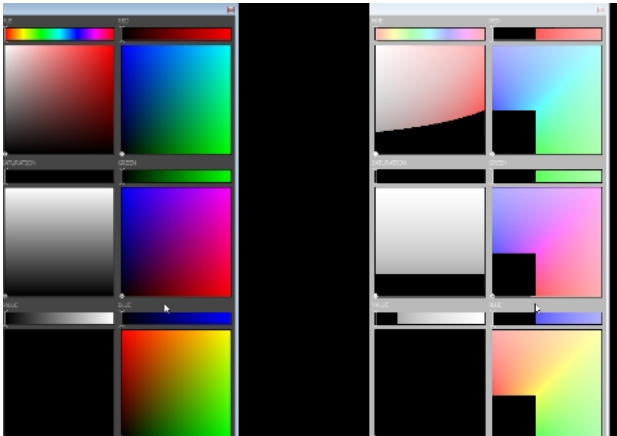
It's a combination of the Luminance Threshold, Cutter, Blur - Gaussian and Composite Generic nodes—see [Luminance Threshold Node on page 377](#), [Cutter Node on page 248](#), [Blur - Gaussian Node on page 325](#), and [Composite-Generic Node on page 243](#).




Properties



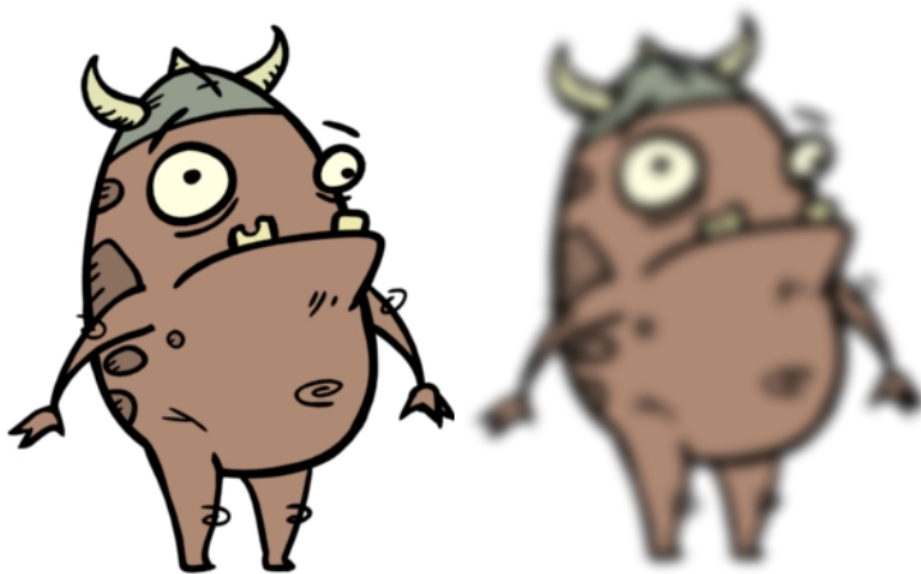
Parameter	Description
Name	Allows you to change the node's name.
Threshold	Controls how much of the dark value to clamp off. A high value will keep only the bright areas of your image.

	
Soften Colours	<p>Brings back the entire spectrum of luminance in areas defined by the threshold to avoid having only bright values.</p> 
Gamma Correction	<p>Multiplies the gamma value to make the area brighter or darker. A value of 1 keeps the gamma the same as the original image. You can use the gamma modification on the whole image if you use a threshold of 0 for example.</p> 
Output Greyscale Matte	<p>Allows you output an image in grey values to use in combination with a Blending or Cutter node elsewhere in the node structure.</p>

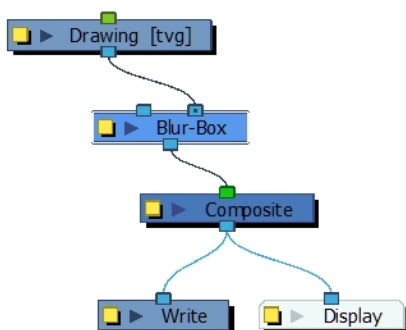
	
Invert Matte	Lets you invert the mask shape if you connected a mask image to the node's left port.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Radius	Adjusts the amount of blur applied to the image.
Quality	Controls the quality of the blur. A higher quality yields better results, but will be slower to render.
Composite with Source Image	Blends the area defined by the threshold with the original image.
Blend Mode	Defines the blending mode between the original image and the area defined by the threshold to avoid having to add a Composite Generic node after the Bloom node.

Blur - Box Node

The Blur - Box effect is a quick and easy way to create a blurring effect. The Box blur changes the colour value of each pixel based on the pixels next to it in the vertical and horizontal directions. The look of the blur is similar to the look achieved using Gaussian blur, but renders much faster. This effect is useful when a fast rendering time is important, and the quality of the blur is less important. Also, you can use a matte with this effect to isolate areas of the image.

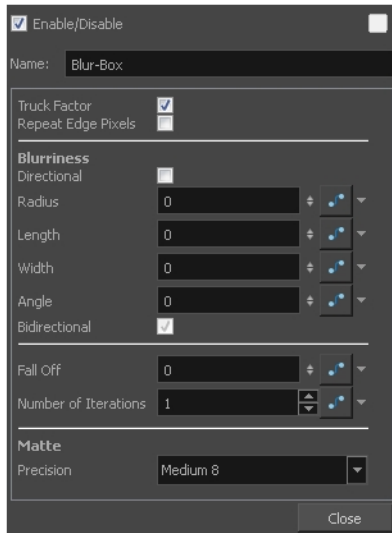


Refer to the following example to connect this node.



For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.

Properties



Parameter	Description
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Repeat Edge Pixels	Makes the blur algorithm operate as if the pixel values beyond the edge of the layer are the same as the values of the edge pixels. This keeps edges sharp, preventing them from darkening and becoming more transparent.
Blurriness	Amount of blur applied to the layer.
Directional	Blurs according to the length, width, and angle you specify. For example, if a character is walking east, the blur may fall to the west.
Radius	Size of the blur. The larger the value, the greater the strength or reach of the blur. The blur radius is affected by the drawing scale and camera position. Click the Edit Curve button to change these values over time by adjusting the function curve.
Length	Length of the blur.
Width	Thickness of the blur.
Angle	The direction in which the blur is applied: sideways, up, down, 90 degrees, 45 degrees, and so on.
Bidirectional	Applies the blur on both sides of the pixel.
Fall Off	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. A fall-off rate of 0 causes the blur to fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur. A fall-off rate of 1 causes the blur to fade out quickly, so the blur is heaviest closer to the edge of the image.

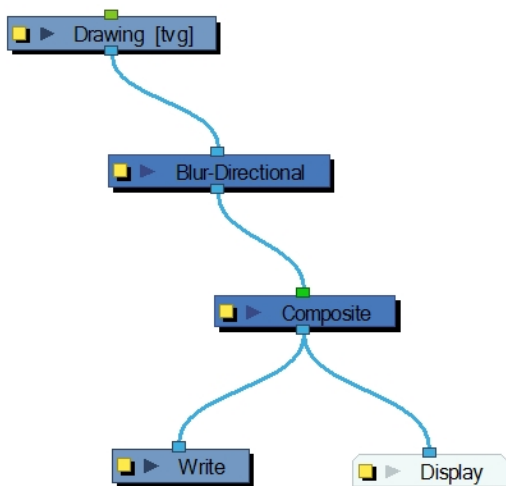
Number of Iterations	The number of times the blur is applied to the image. A higher number of iterations creates smoother transitions between colours and increases the blur, but also increases render time.
Precision	Precision: Blurs the image the number of times the precision indicates at different radius (between 0 and the specified radius).

Blur-Directional Node

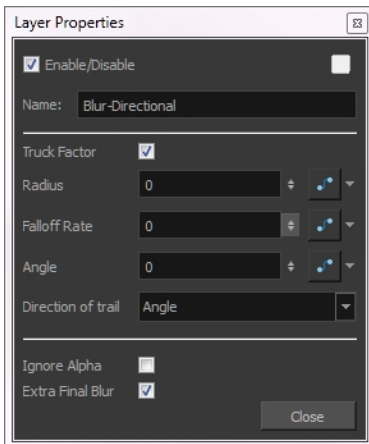
The Blur-Directional effect creates the effect of a motion blur that pulls and smears the image from one contour edge to a different direction or angle. This effect is useful in creating the impression of speed, such as the streaks of colour that follow a car travelling at high speed.



Refer to the following example to connect this node.



Properties

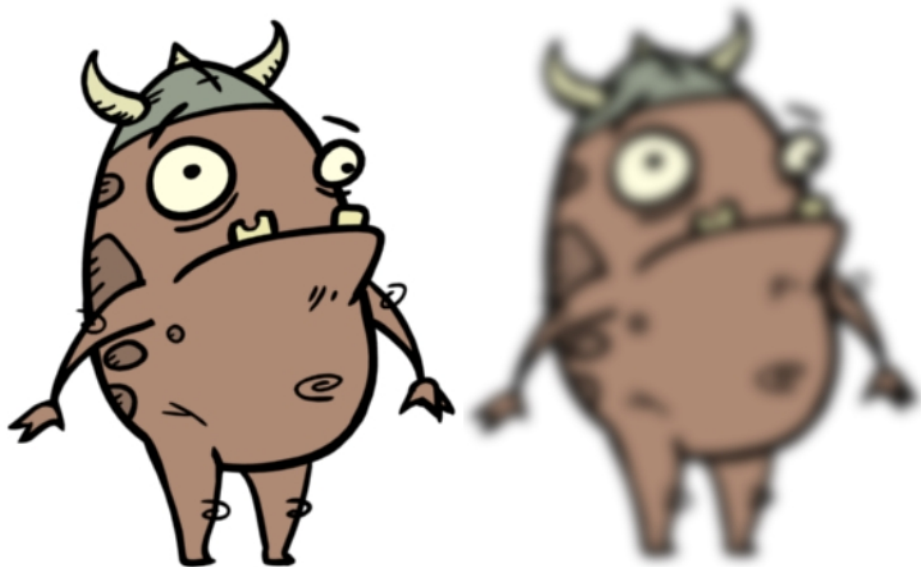


Parameter	Description
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Radius	Size of the blur. The larger the value, the greater the strength or reach of the blur. The blur radius is affected by the drawing scale and camera position. Click the Edit Curve button to change these values over time by adjusting the function curve.
Falloff Rate	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. A fall-off rate of 0 causes the blur to fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur. A fall-off rate of 1 causes the blur to fade out quickly, so the blur is heaviest closer to the edge of the image.
Angle	The direction of the blur. Enter a value from 0 to 360. 0: Blurs the image to the west. 90: Blurs the image to the south. 180: Blurs the image to the east. 270: Blurs the image to the north.
Direction of trail	If you do not set an Angle for the direction of the blur, you can select a direction (north, south, east, or west) from this menu. The calculations for this feature are faster than the calculations for the Angle setting.
Ignore Alpha	Controls the leading edge of the blur. Deselect this option for a solid or hard leading edge on the blur.
Extra Final Blur	Adds a second blur after the Blur-Directional is created. If you have a Blur-Directional that begins at 0 and gradually gets stronger, deselect this option to ensure a smooth progression.
Number of Iterations	The number of times the blur is applied to the image. A higher number of iterations creates smoother transitions between colours and increases the blur, but also

	increases render time.
--	------------------------

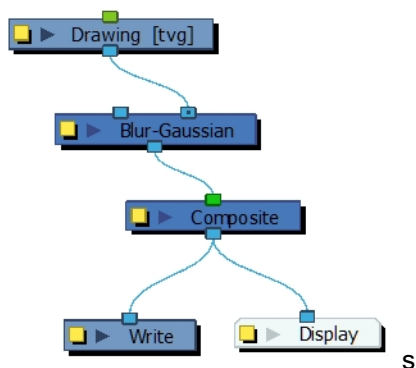
Blur - Gaussian Node

The Blur - Gaussian effect softens the image, reducing the amount of noise and detail. The look of the Gaussian blur is smooth, but does take some rendering time. This effect is useful when rendering time is less important, and quality is more important. Also, you can use a matte with this effect to isolate areas of the image.

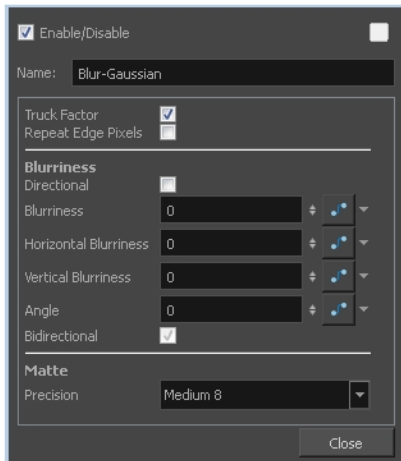


For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.

Refer to the following example to connect this node.



Properties

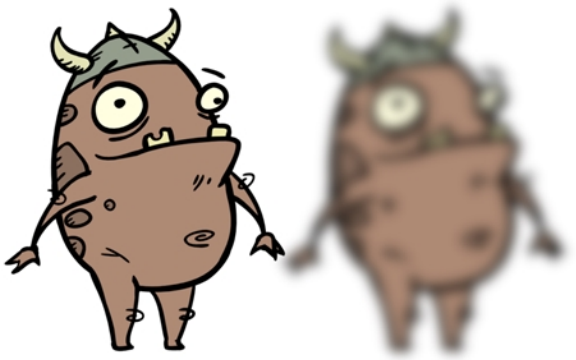


Parameter	Description
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Repeat Edge Pixels	Makes the blur algorithm operate as if the pixel values beyond the edge of the layer are the same as the values of the edge pixels. This keeps edges sharp, preventing them from darkening and becoming more transparent.
Blurriness	
Directional	Blurs according to the length, width, and angle you specify. For example, if a character is walking east, the blur may fall to the west.
Blurriness	Amount of blur applied to the layer.
Horizontal Blurriness	Length of the blur.
Vertical Blurriness	Thickness of the blur.
Angle	The direction in which the blur is applied: sideways, up, down, 90 degrees, 45 degrees, and so on.
Bidirectional	Blurs in both horizontal and vertical directions.
Matte	Precision: Blurs the image the number of times the precision indicates at different radius (between 0 and the specified radius).

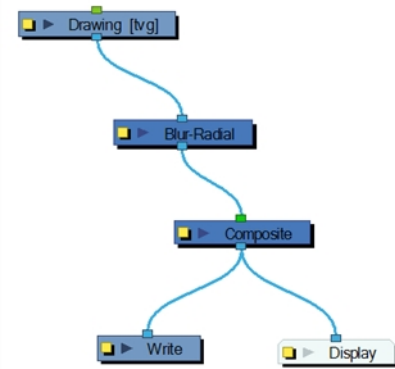
Blur - Radial Node

T-HFND-010-007

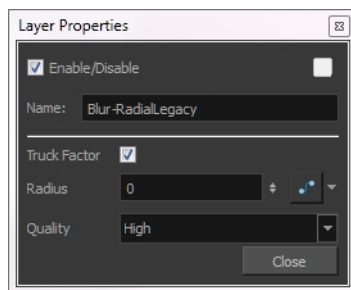
The Blur-Radial effect creates an effect that softens, fogs or obscures the image evenly in all directions. This effect is useful when you want to make cloudy images not realistically seen in detail, such as a drawing object that is farther back or in the background of your scene, usually blurry due to the laws of atmospheric perspective. Other uses include the general softening of objects such as snow, stars and shadows that do not naturally have a hard outline.



Refer to the following example to connect this node.



Properties



Parameter	Description
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Radius	Size of the blur. The larger the value, the greater the strength or reach of the blur. The blur radius is affected by the drawing scale and camera position. Click the Edit Curve button to change these values over time by adjusting the function curve.
Quality	Select High for a slow and accurate operation or Low for a faster operation with a more raw look.

Blur - Radial Zoom Node

The Blur - Radial Zoom effect creates blurs around a centre point, simulating the look of a zooming or rotating camera. You can use a matte to isolate the area of the image from which you want the effect to radiate from. For example, in the illustration below, a circular matte was created to mask the eyeball and a Negate effect was applied so the blur is outside the matte. Then the centre point was positioned on the character's iris, which is the centre of the matte.



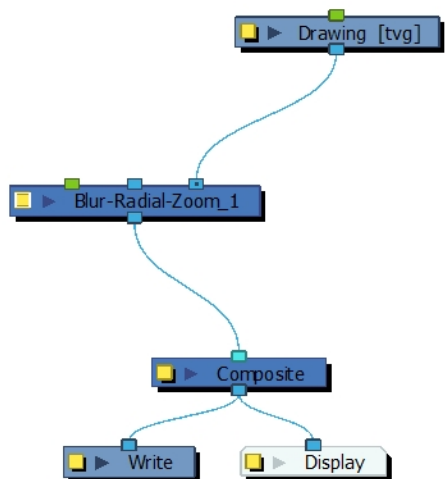
Original image



Image with Radial Zoom blur radiating from a centre point.

For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.

Refer to the following example to connect this node.



Properties

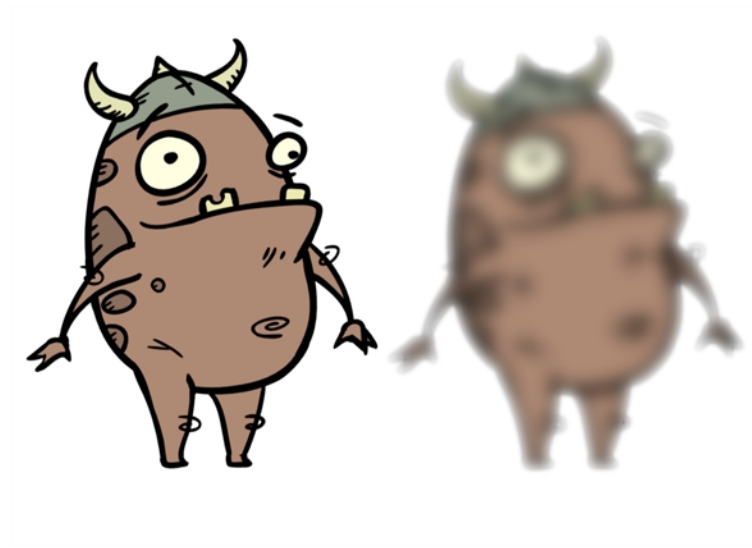


Parameter	Description
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Focus	2D Path: Lets you move the centre point visually in the Camera view. Separate: Lets you control the x and y axis by entering values in the fields or by moving the centre point visually in the Camera view.
(x) and (y) Axis	When the Separate type of centre is selected, lets you individually set the x and y coordinates for the centre.
Blurriness	Amount of blur applied to the layer.
Variation	Constant: An equal, constant blur is applied on all pixels. Linear: A gradual blur is applied on all pixels. Quadratic: An exponential blur is applied on all pixels.
Direction	Lets you select preset blur types or create a custom blur.
Presets	A set of preset radial, zoom, and spiral blurs to get you started. You can then adjust the type to customize the blur.
Custom	Create your own blur by entering a value for the direction of the blur lines.

Fall Off	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. A fall-off rate of 0 causes the blur to fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur. A fall-off rate of 1 causes the blur to fade out quickly, so the blur is heaviest closer to the edge of the image.
Bidirectional	Applies the blur on both sides of the pixel.
Quality	Affects the quality of the blur by defining how fine the reference radial grid is on the image. This determines the width of all the wedges. A higher quality yields achieve better results, but will be slower to render.
Matte	Precision: Blurs the image the number of times the precision indicates at different radius (between 0 and the specified radius).

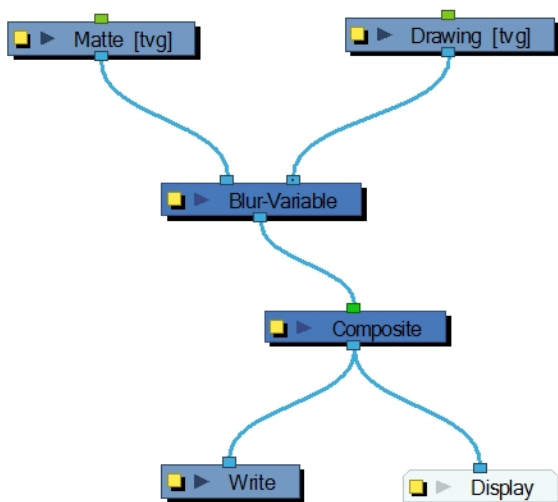
Blur-Variable Node

Use the Blur-Variable effect to create a radial blur that varies within a single image based on the white and black values in the matte you supply. You can set one blur value for the black regions in the matte, and another blur value for the white regions. The blur value for each grey region is interpolated between your black and white blur settings.

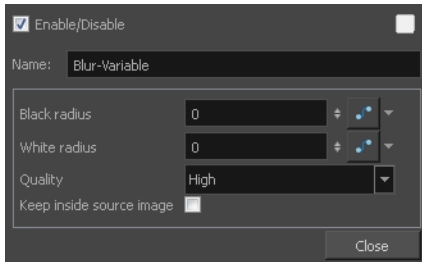


The following example is a network for a Variable Blur effect. A black and white copy of the character was used to create the effect. Use the Blur-Variable editor to control the blur value for the white and black radius.

Refer to the following example to connect this node.



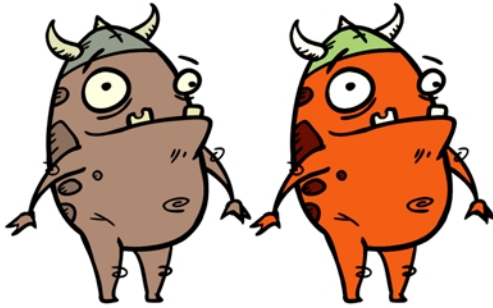
Properties



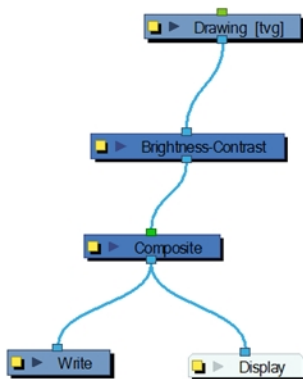
Parameter	Description
Name	Use this field to rename the node.
Black radius	The amount of blur to apply to the black (transparent) values in the matte. Higher values create more blur in the colour image's regions that correspond to the black matte region.
White radius	The amount of blur to apply to the white (opaque) values in the matte. Higher values create more blur in the colour image's regions that correspond to the white matte region.
Quality	Select High for a slow and accurate operation or Low for a faster operation with a more raw look.
Keep inside source image	This option confines the blur to the source image.

Brightness Contrast Node

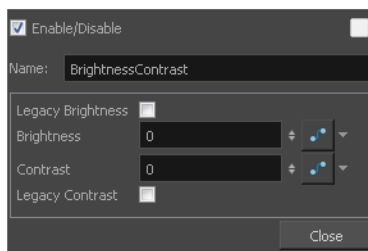
The Brightness and Contrast effect lets you modify the brilliance or dullness of an image or to create a greater difference between the lights and darks of an image by increasing their respective intensities. This effect can be used when an image appears too flat. Increasing the brightness or contrast can give a drawing a more attractive and 3D quality. This can be useful if you want to push your background to the rear by making it look dull and flat and pulling your foreground elements to the front by giving them a higher contrast.



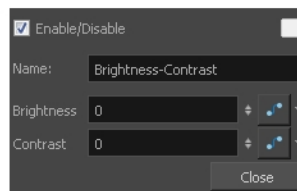
Refer to the following example to connect this node.



Properties



Brightness and Contrast standard node



Brightness and Contrast plugin

Parameter	Description
Name	Use this field to rename the node.
Brightness	A value less than 0 will darken the image; a value greater than 0 will brighten it. Attach a Bezier or Ease function to change the brightness over time.
Contrast	A value less than 0 will reduce contrast; a value greater than 0 will increase

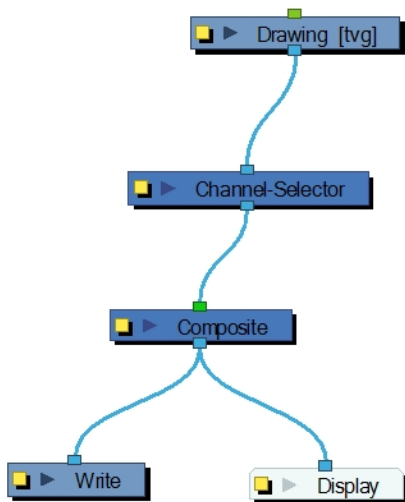
	contrast. Attach a Bezier or Ease function to change the contrast over time.
Legacy Brightness/Contrast	If you are using an older version of this effect, the Legacy Brightness and Legacy Contrast options are automatically selected. This ensures that the resulting effect looks the same as in older versions.

Channel Selector Node

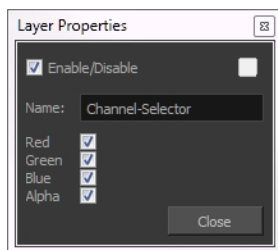
The Channel Selector effect lets you isolate one of the four colour channels of an image.



Refer to the following example to connect this node.



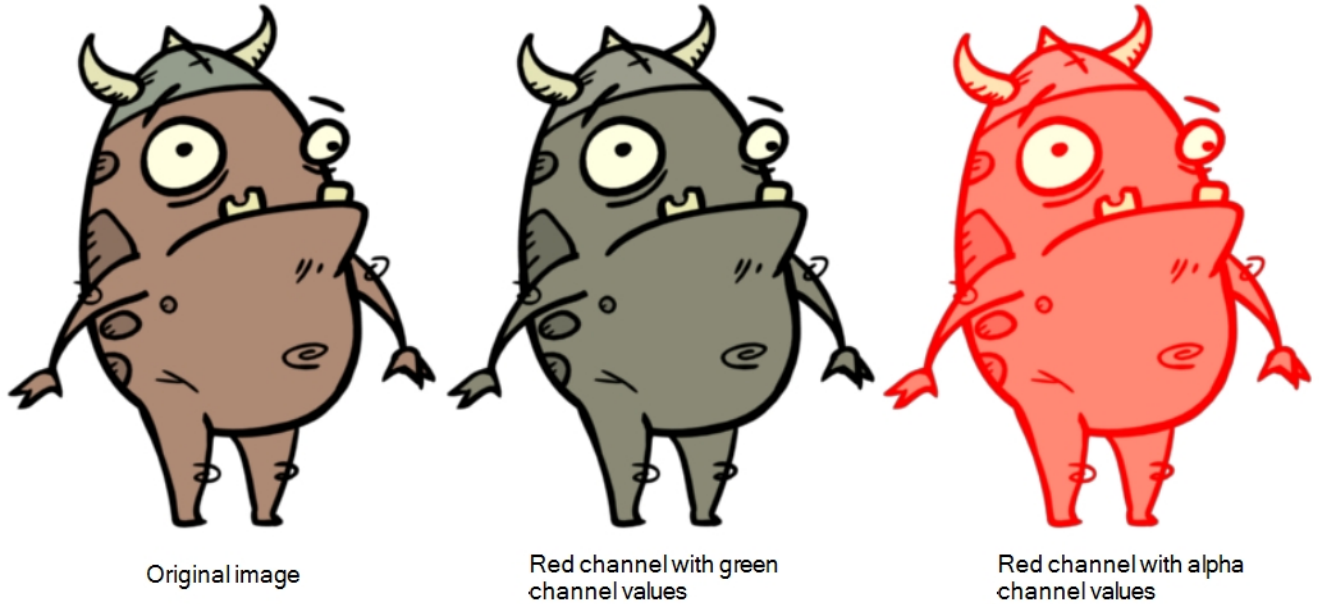
Properties



Parameter	Description
Name	Allows you to change the node's name.
Red	Lets you select the red channel of an image.
Green	Lets you select the green channel of an image.
Blue	Lets you select the blue channel of an image.
Alpha	Lets you select the alpha channel of an image.

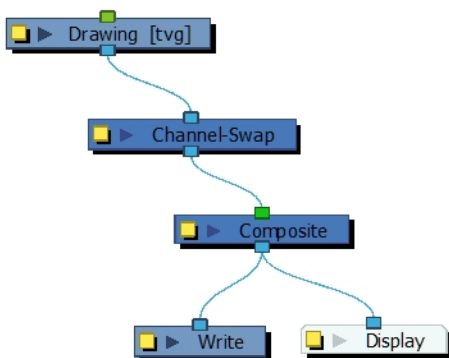
Channel Swap Node

The Channel Swap effect lets you take the image information from one channel and use it in another channel to achieve interesting effects. You can extract the following: red, green, blue, alpha values, hue, saturation, lightness, and luminance, as well as turn the information on or off.

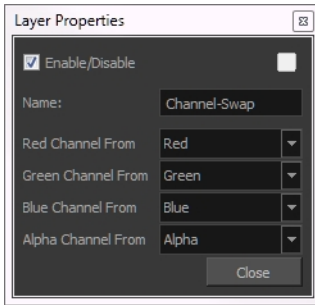


For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.

Refer to the following example to connect this node.



Properties



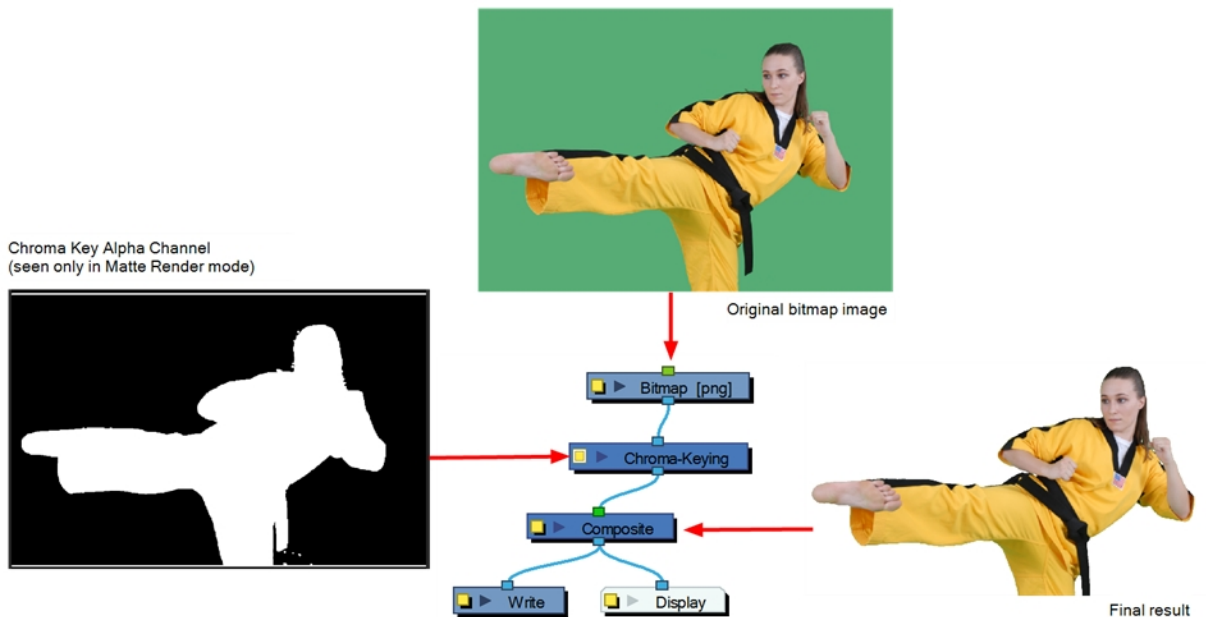
Parameter	Description
Name	Use this field to rename the node.
Red, Green, Blue, and Alpha Channel From	Lets you select the image information to feed into the red, green, blue, and alpha channels. Full On sets all values to 255 and Full Off sets all values to 0.

Chroma-Keying Node

The Chroma-Keying effect lets you create an alpha channel (transparency zone) for a bitmap image or image sequence. For example, if you have a series of bitmap images with a character filmed on a green or blue screen, you can use this node to create an alpha channel based on the screen colour and cut it out from your image sequence.

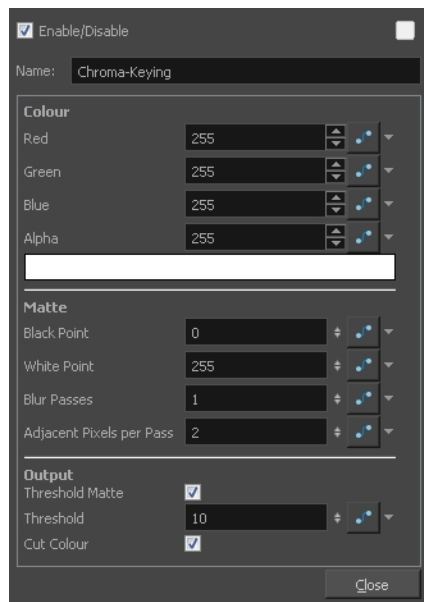



The Chroma-Keying node **MUST** be connected to a bitmap image. The Chroma-Keying node will create an alpha channel that can be seen in the Camera view in the Matte Render mode. To cut the background colour from your image, you will need to use a Cutter node.

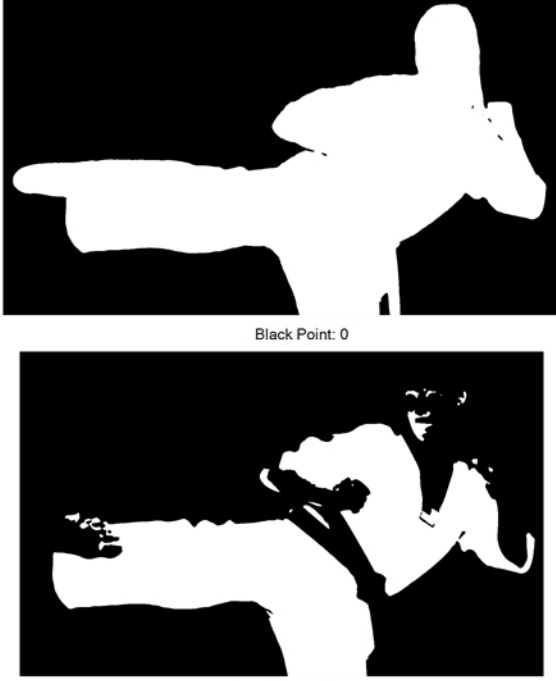
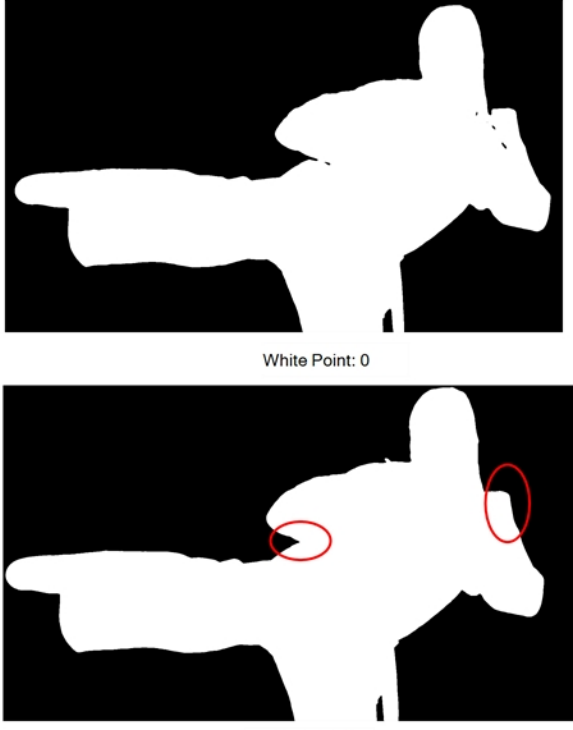







To obtain a better result than just extracting the raw colour, you can adjust some parameters such as the contour blurriness and the matte size. You can see all the options available in the Chroma-Keying properties.

Properties



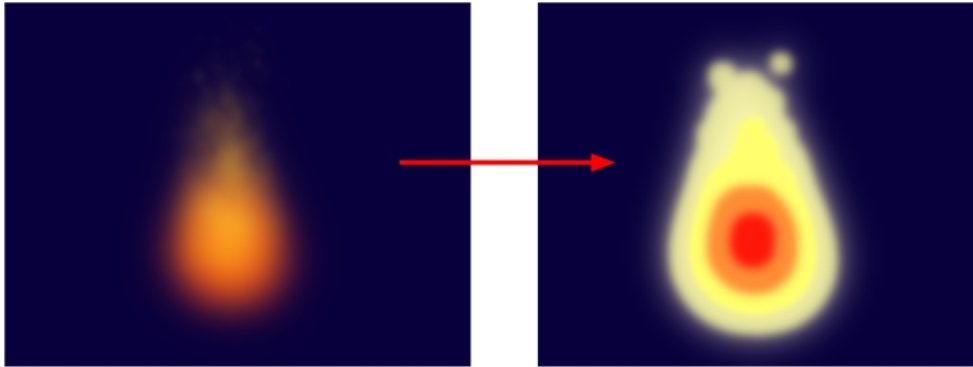
Parameter	Description
Name	Allows you to change the node's name.
Colour	
Red/Green/Blue/Alpha	Lets you enter the RGBA values for the colour to extract from your image.
Colour Swatch	Opens the Colour Picker window where you can select a colour from the palette or use the Dropper  tool to select a colour directly from your image—see <i>Selecting a Colour in a Drawing</i> in Chapter 7: Ink and Paint in the Paperless Animation Guide.
Matte	
Black Point	Increases the transparent (black) portion of the Chroma Key matte. This will reduce the edge of the visible image.

	 <p>Black Point: 0</p> <p>Black Point: 38</p>
<p>White Point</p>	<p>Reduces the transparent (black) portion of the Chroma Key matte. This will increase the edge of the visible image.</p>  <p>White Point: 0</p> <p>White Point: 38</p>
<p>Blur Passes</p>	<p>Lets you set the number of times the image will be blurred.</p>

	
<p>Adjacent Pixels per Pass</p>	<p>When blurring the matte edge's with the Blur Passes parameter, the Adjacent Pixel parameter will blur the matte border with the next few pixels (amount indicated in the field) to create a nicer edge.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="526 550 937 894">  <p style="text-align: center;">Adjacent Pixel: 0</p> </div> <div data-bbox="974 550 1354 894">  <p style="text-align: center;">Adjacent Pixel: 2</p> </div> </div>
<p>Output</p>	
<p>Threshold Mate</p>	<p>Applies a threshold (tolerance) to the selected colour to be removed. The Threshold amount is set in the Threshold field.</p>
<p>Threshold</p>	<p>Increases or decreases the tolerance for the selected colour to be removed from the image. The higher the value, the more coloured pixels will be considered in the Chroma-Keying matte. The pixel colour value will not have to be as close to the RGB value as the one selected in the colour swatch. A lower Threshold value means the RGB values must be closer to the selected colour in order to be part of</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="634 1285 977 1560">  <p style="text-align: center;">Threshold: 1</p> </div> <div data-bbox="984 1285 1357 1560">  <p style="text-align: center;">Threshold: 8</p> </div> </div> <p>the matte.</p>
<p>Cut Colour</p>	<p>Removes the selected colour from the image and leaves a transparent zone so you can see the background and other layers behind the image. If the option is disabled, the colour will remain, but an alpha channel is created that you can use with any other nodes with a Matte input.</p>

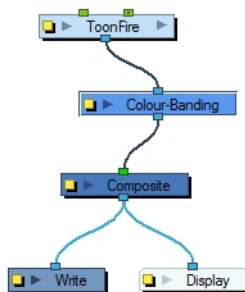
Colour Banding Node

Use the Colour Banding effect to add a colour banding visual effect to your elements. The node will associate a flat colour to the different regions of your element. These regions are delimited according the alpha values that are set up in the effect node and which will be recognized on the original element. You can use this effect to change the visual style of a particle node, for example, by giving it a more cartoonish look.



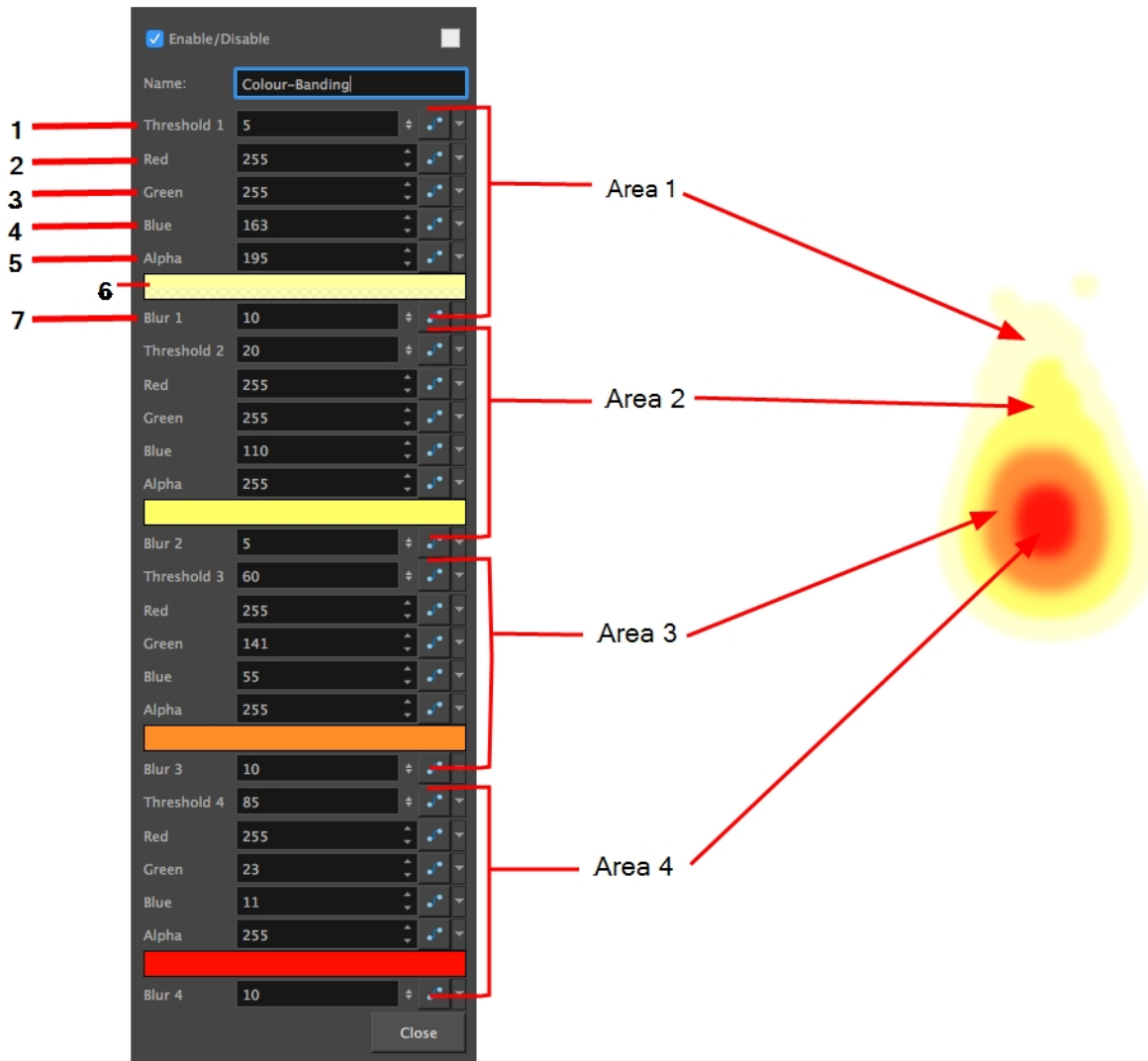
In this example, a Colour Banding node has been connected to a fire created with particle effects.

Refer to the following example to connect this node.



Properties

In the Colour Banding properties, there are four sections with which to set up the four different region's alpha and colour override values.



This is how the regions range are calculated.

- **Region1:** Threshold 1 to Threshold 2
- **Region2:** Threshold 2 to Threshold 3
- **Region3:** Threshold 3 to Threshold 4
- **Region4:** Threshold 4 to 100% alpha

Parameter	Description
Name	Use this field to rename the node.
Threshold 1	Use this first threshold field to determine the first region outer limit. A value of 0 represent an alpha of 0 which is completely transparent. A value of 100 represents an alpha of 255 which is completely opaque. If for example, you enter a value of 5 for the first threshold, the region of your element which is within the range of alpha going from 5% to the Threshold 2 value, will be coloured with the Area 1 colour value.
RGBA	Enter the value of red, green, blue, and alpha for the first, second, third, and fourth

	region colour.
Colour Swatch	Opens the Colour Picker where you can specify the colour for the first region.
Blur1-4	Add a blur effect to the edge of the first, second, third, and fourth region.

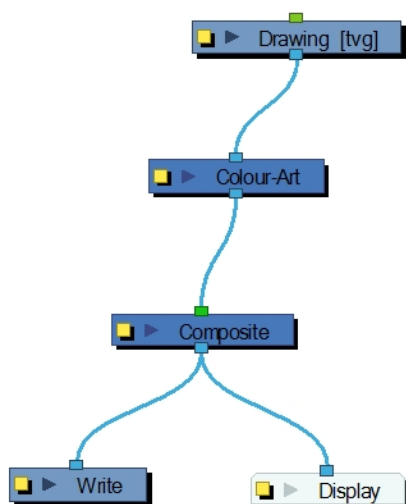
Colour Art Node

The Colour-Art effect lets you isolate the colour art in a layer. Placing a Colour Art node after a drawing node in the Node view only displays the Colour Art output. You can connect the Colour-Art node after nodes of any type. Any bitmap information will pass through the node and be processed.

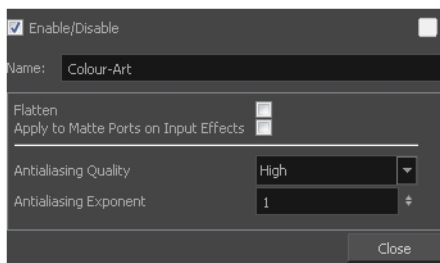



This effect will only work if there is something on the Colour Art layer of the drawing.

Refer to the following example to connect this node.



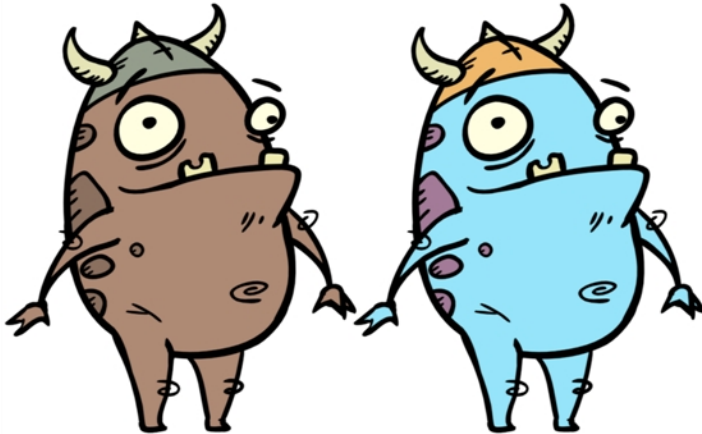
Properties



Parameter	Description
Name	Allows you to change the node's name.
Flatten	<p>When placing the node below a Composite node containing several drawing nodes, such as a cut-out character, you can use this option to flatten the extracted result. For example, when extracting a series of outlines, parts that may have been hidden by colour fills might now be visible. Enable the Flatten option to cut the extra artwork. Harmony will use the colour fills to cut unnecessary artwork. If your zones are not painted, nothing will be cut. This option works with both pencil lines and brush strokes.</p> 
Apply to Matte Ports on Input Effects	At times, you may have situations where your node is placed below a Cutter node using a mask input and a drawing input. By default, the effect only processes the colours in the drawing input. The mask drawing remains untouched. If you want to also filter the mask drawing, select the Apply to Matte Ports on Input Effects option.
Antialiasing Quality	Smoothness setting applied to Colour-Art. Choose from Low (no antialiasing), Medium Low, Medium and High (extensive antialiasing). The higher the setting, the greater the amount of antialiasing applied. Higher quality images require more time to render and more memory from your system. Use a lower quality when rendering a pencil test.
Antialiasing Exponent	Controls the extent of the area around the 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.

Colour-Override Node

The Colour-Override effect processes the colours in a drawing layer. Using this effect, you can change colours from the palette without affecting the actual palette, swap clone palettes, or even replace a specific colour zone. You can also substitute colour areas with bitmap textures. The drawings in this layer must be .tvg files as the Colour-Override uses the colour palettes linked to them.

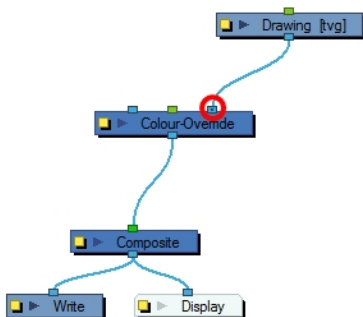


The Colour-Override effect lets you:

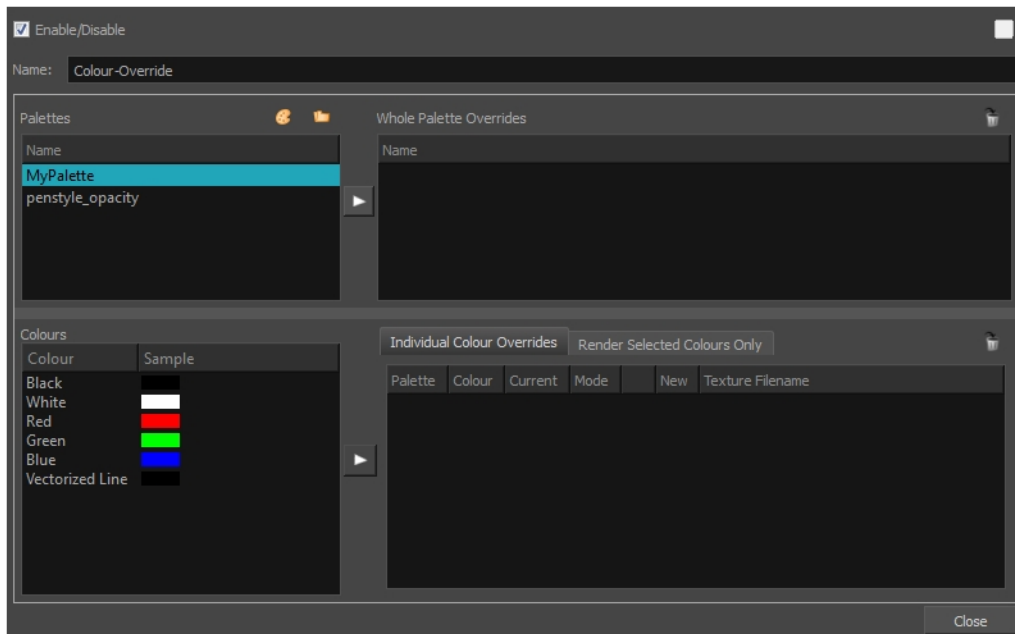
- Change colour values in drawings during the compositing process.
- Use colour values from a specific colour palette in the palette list.
- Establish the priority of override palettes in the palette list. For example, you may have different clones of the same palette, such as a daytime and nighttime version.
- Isolate specific areas of a drawing by selecting certain colours. For example, using specific colours to generate a matte for a glow effect.
- Hide certain colours.

To learn how to use the advanced functions of the Colour Override node, see:

Refer to the following example to connect this node.



Interface

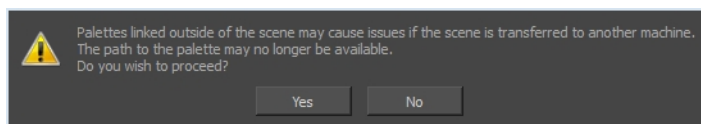


Palettes

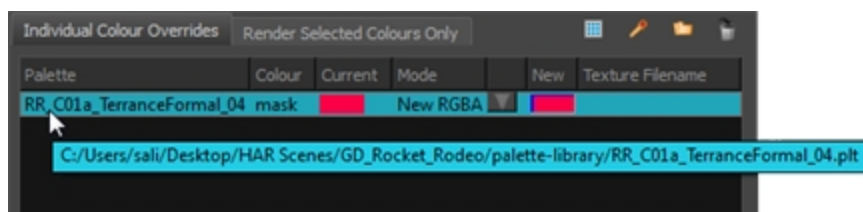
The Palettes section displays the palettes in the palette list of the selected layer. You can move these palettes into the Whole Palette Overrides section to reorder them. If you have cloned palettes, the higher one in the list will override the others. This is useful for overriding the clone palette ordering set in the scene through the Colour view.

You can load additional palettes in the palette list from either your project, by clicking on The Palette 🎨 button, or your computer by clicking on the Browse 📁 button.

- The Palette 🎨 button allows you to load a palette contained within the project hierarchy (Environment, Job, Scene and Elements).
- The Browse 📁 button allows you to load a palette located outside the project hierarchy, anywhere on your system or server. If you link to a palette outside of your project, you will be prompted with the following warning message:

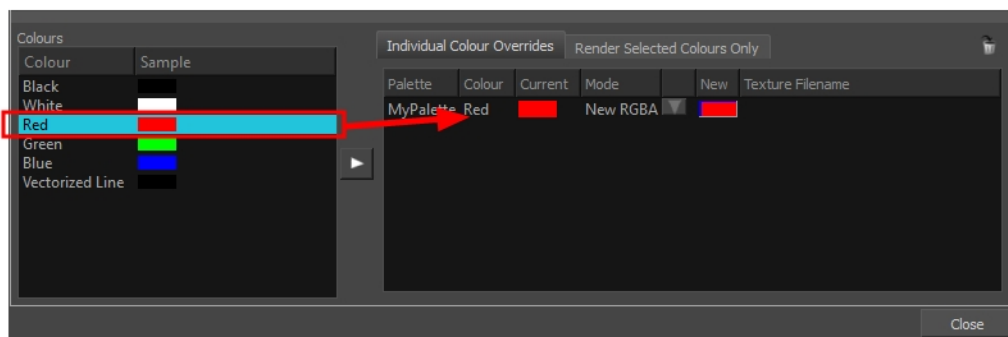


You can hover your mouse over the palette name in any of the override sections to display the path to the palette.



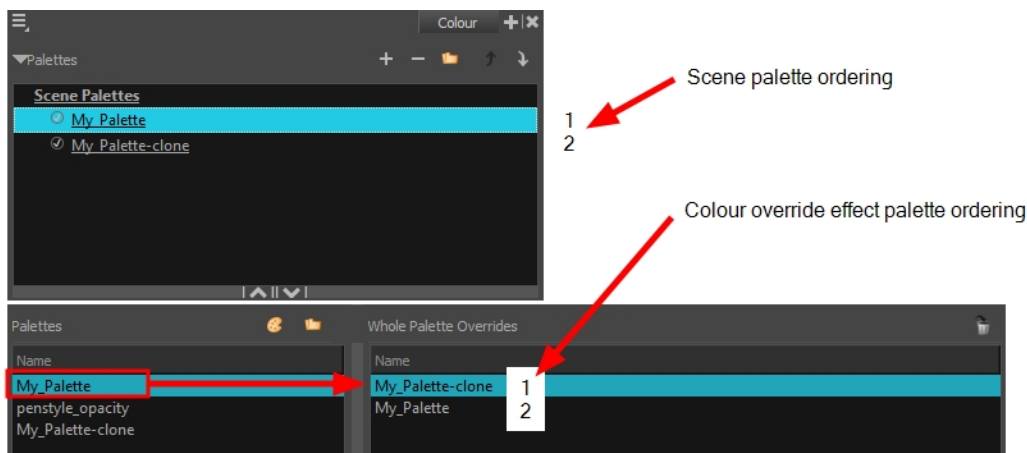
Colours

The Colours section displays the colour swatches of the selected palette. Move a swatch into the Colour-Overrides section to change its value.



Whole Palette Overrides

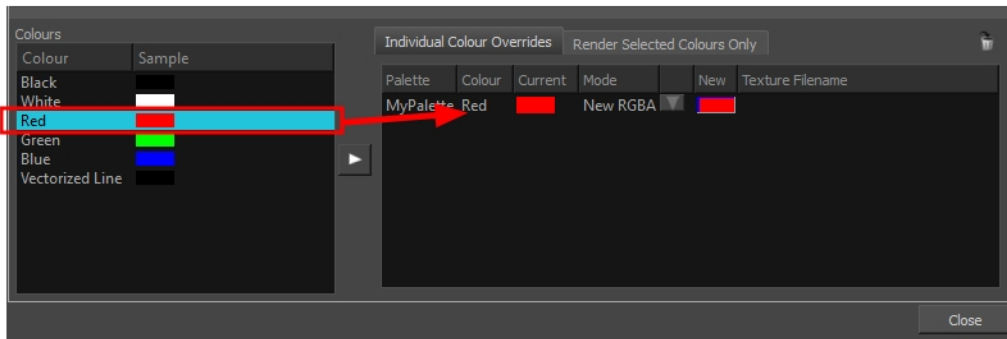
The Whole Palette Overrides section forces the use of a particular palette (clone palette) or palette list ordering during the compositing process. You must drag palettes from the Palettes section to change their order. Harmony uses the palettes in the order they appear in the palette list to find the colour values associated with the colour IDs of each colour zone. To apply a different version of a colour palette to, for example, switch from a day to a night palette, use the Override section to change the order of the colour palettes (you must be working with cloned palettes).



Individual Colour Overrides

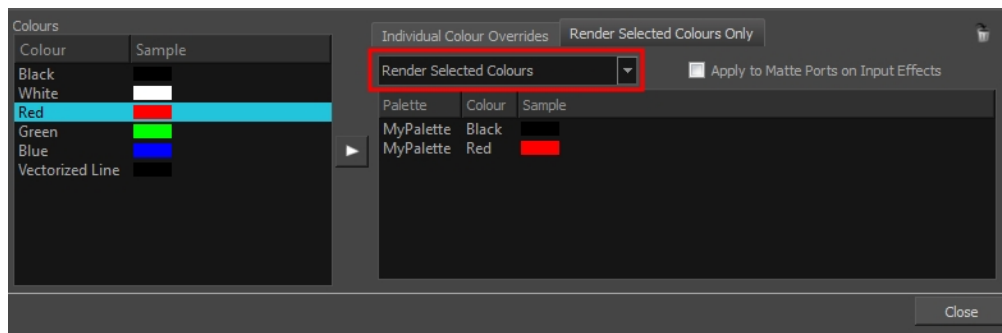
When you drag a swatch from the Colours section to this section, you can override its value. You can also override a colour with a texture. The default override mode is set to New RGBA so you can override the RGB value as well as the transparency value.

The Current column always displays the colours from the currently active palette. Selecting a clone palette in the Palettes area will not change the colours if you haven't changed the active palette in the Whole Palette Overrides section. The update will be done once you close and reopen the Colour Override Layer Properties window.



Render Selected Colours Only

The Render Selected Colours Only section is used to display some colours and ignore all others. You may, for example, want to display only the colour used for the character outline and ignore all the filling colours.



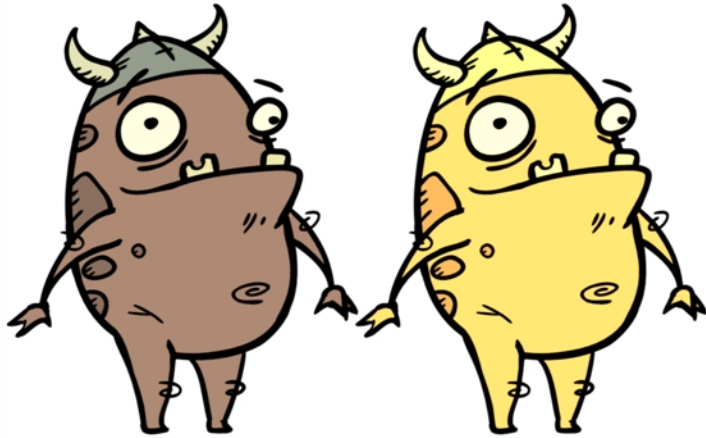
Only the colour swatches listed in the Rendered Selected Colours Only section will be rendered. The option is not activated by default. If you want to display only the selected colours, you must select the correct option from the Rendering menu:

- **Render All:** This is the default option. All colours in the palettes are rendered regardless of the listed selection. This allows you to quickly switch back and forth between your selection of colours and all the colours without having to delete and add your swatches from and to the list.
- **Render Selected Colours:** When this option is selected, the Colour Override module displays only the colours listed in your selection.
- **Rendered Selected Colours and Bitmaps:** This option displays all colours listed as well as any bitmap images passing through the Colour Override node. For example, if you have a Composite node grouping a series of drawing and bitmap nodes, the vector colours will be filtered through the Colour Override nodes but the bitmap images will pass through without being affected. Note that you must be in Render View mode to see the colours and bitmaps.

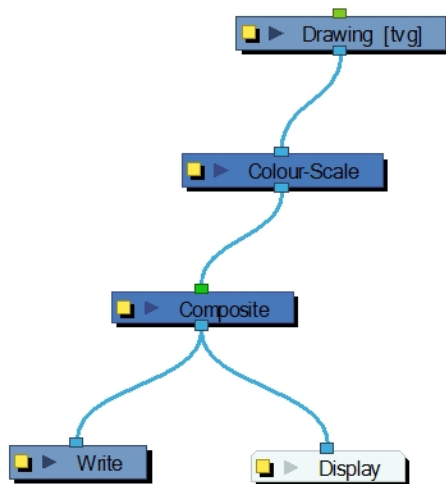
You might have situations where your Colour Override node is placed below a Cutter node using a mask input and a drawing input. By default, the Colour Override only processed the colours in the drawing input. The mask drawing remains untouched. If you want the Colour Override to also filter the mask drawing, select the **Apply to Matte Ports on Input Effects** option.

Colour-Scale Node

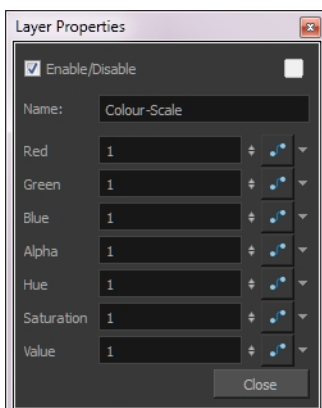
The Colour-Scale effect offsets an image's colours. This effect is useful in creating ambient transitions, such as from daytime to nighttime.



Refer to the following example to connect this node.



Properties



Parameter	Description
Name	Use this field to rename the node.
Red, Green, Blue, Alpha	The red, green, blue and alpha used to offset the image.
Hue	The colour or hue to offset the image.
Saturation	The amount of colour to offset the image.
Value	<p>Enter the value for the colour to offset the image. The actual colour values of the image are not changed; instead, the channels are multiplied by a selected amount. For example:</p> <ul style="list-style-type: none">• A value of 1 does not change the colour values.• A value greater than 1 brings the colour channel value closer to 255 (or white).• A value less than 1 brings the colour channel value closer to zero (0 or black).

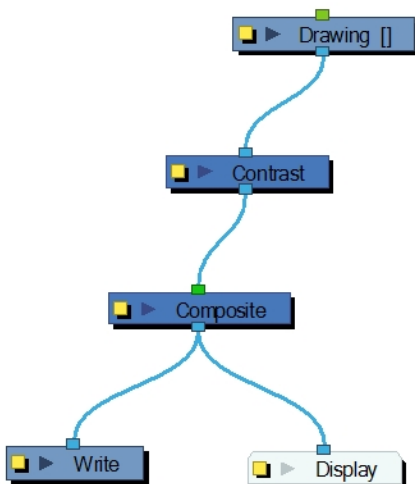
Contrast Node

Use the Contrast effect to increase or decrease the level of contrast in an image. This is done by changing the contrast in the dark and bright pixels and setting the transition point between dark and bright.

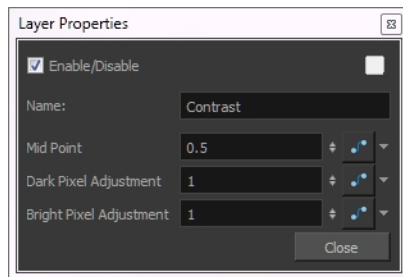
You can enter static values in the dialog box fields or you can attach these values to function curves to change over time.



Refer to the following example to connect this node.



Properties



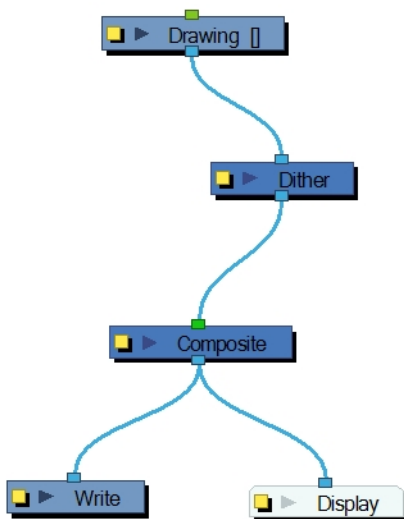
Parameter	Description
Name	Use this field to rename the node.
Mid Point	<p>The value that separates dark from bright colours. The midpoint is a value between 0 and 1 that represents the percentage of the 0 to 255 RGB channel range.</p> <p>Pixels with colour values lower than the midpoint: These are considered dark pixels.</p> <p>Pixels with colour values higher than the midpoint: These are considered bright pixels.</p>
Dark Pixel Adjustment and Bright Pixel Adjustment	<p>The amount of contrast to be applied to pixels that fall on either side of the Mid Point value.</p> <p>A value equal to 1: No change</p> <p>A value less than 1: The node makes the pixel colours brighter</p> <p>A value greater than 1: The node makes the pixel colours darker</p>

Dither Node

Dithering is the process of approximating a higher number of colours in a low bit-depth colour system. Use the Dither effect to give the appearance of greater colour variability in 8-bit per channel colour images.



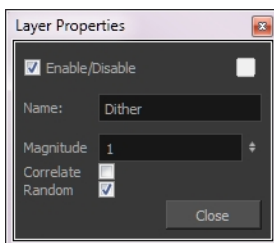
Refer to the following example to connect this node.



The Dither effect is useful in the case of a gradient that varies between 100 and 105 in the blue channel, for example. Since the difference in the colour values is not great, banding might appear in the image. In this case, use the Dither node to give the impression of greater values of blue, decreasing the unwanted banding effect.

The results of the dither operation may be imperceptible.

Properties



Parameter	Description
Name	Use this field to rename the node.
Magnitude	A magnitude of 1 performs a normal dithering operation, using all bands of colour. A magnitude greater than 1 introduces a bias towards brighter colours. A mag-

	nitide of less than 1 creates a faster transition between bands of colour, lessening the bias towards brighter colours.
Correlate	When selected, the three colour channels (RGB) are changed simultaneously, for better colour accuracy. When this option is not selected, the three channels are dithered separately, resulting in smoother transitions.
Random	The standard algorithm for the dithering operation.

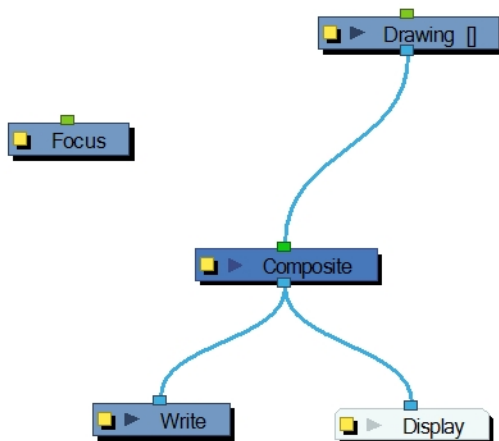
Focus Node

Use the Focus effect to set up depth-of-field effects for your scene. The Focus node is used to determine how much blur will be applied to images, based on their distance from the focal point.



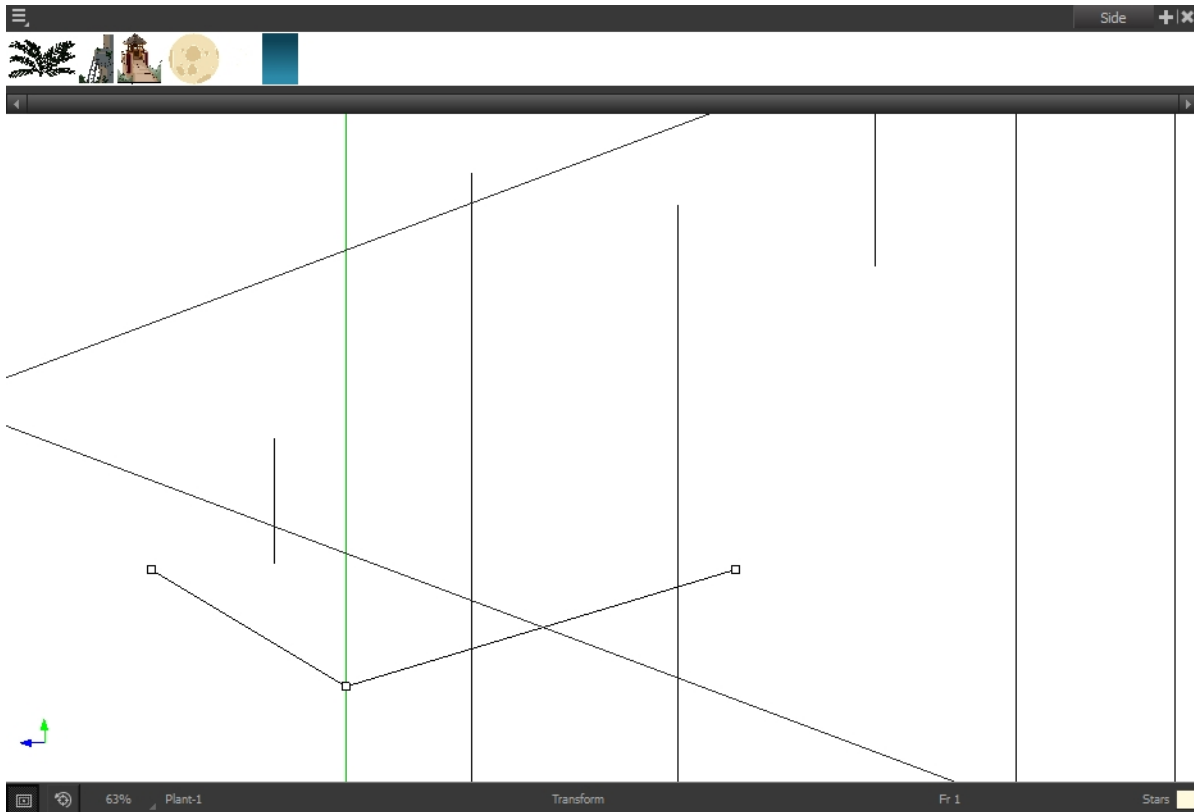
The focal point can be the zero value of your scene or you can link the Focus node to another node, such as a drawing or peg layer, to retrieve the focal point from the node's Z-axis position.

Refer to the following example to connect this node.

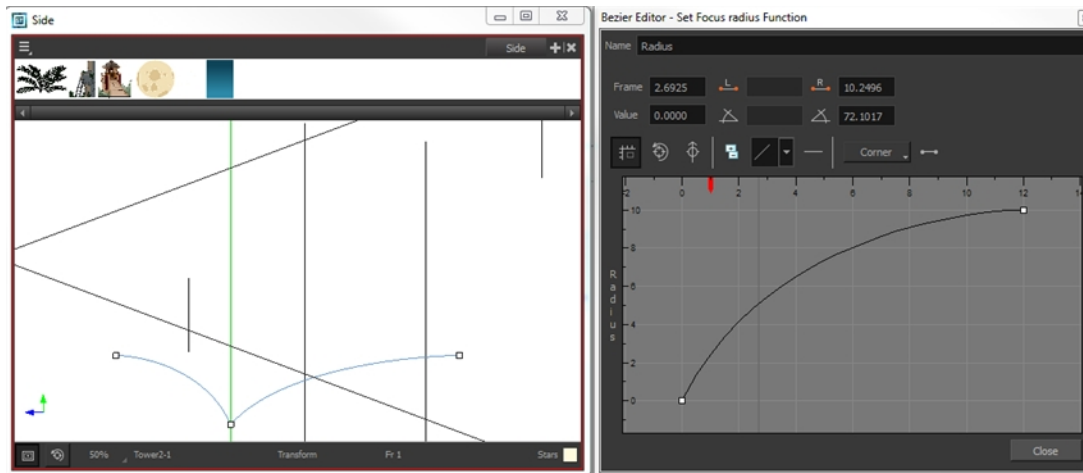


Use the Focus editor to determine how the focus will change as objects move farther from the focal point.

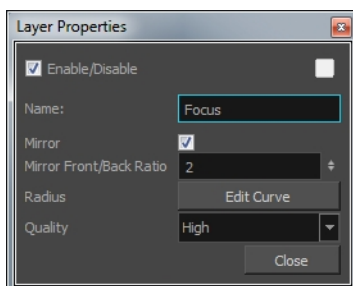
In the Side view window, you can see how the blur values change based on their distance from the focal point. Select the Focus node in the Node view, make sure you are using the Transform tool, then right-click on the Side view window and select Control from the pop-up menu.



If you edited the function curve and adjusted the velocity, you can also adjust the Bezier handles in the Side view.



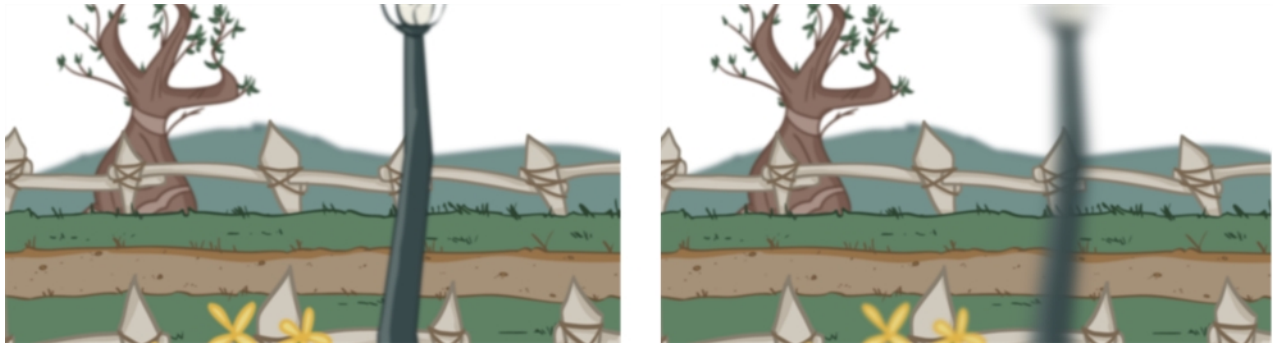
Properties



Parameter	Description
Name	Use this field to rename the node.
Mirror	Select this option to also blur images in front of the focal point.
Mirror Front/Back Ratio	When the Mirror option is selected, this ratio is applied to the calculation of the blur on images in front of the focal point. The default ratio of 1:2 produces realistic results. Experiment with different values to create customized effects.
Radius	Controls the amount of blur applied to an element based on its distance from the focal point. Click on the Edit Curve button to change these values by adjusting the function curve.
Quality	Controls the quality of the blur. A higher quality will achieve better results but will be slower to render.

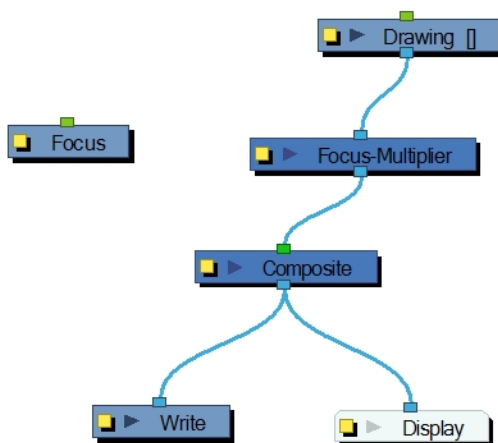
Focus Multiplier Node

The Focus Multiplier effect works with the Focus node. This node applies a blur to the selected layer, based on the blur radius in the Focus node.



Use the Focus Multiplier node when you want to apply the focus to selected elements or when you need to apply the focus before doing more effects in a composite operation.

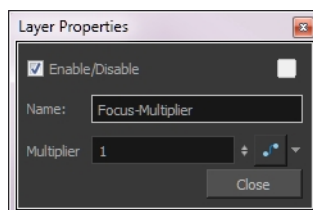
Refer to the following example to connect this node.



You must disable the Apply Focus option in the Composite node in order to apply the focus effect to the selected node only. If you do not disable that option, the focus effect will be calculated twice on the selected node.

Use the Focus Multiplier editor to multiply the Focus Radius by a selected value. You can enter a static value in the Multiplier field or attach it to a function curve.

Properties



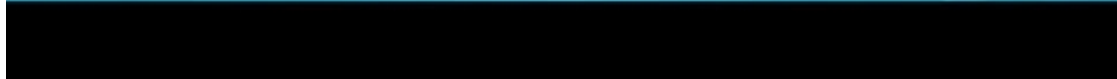
Parameter	Description
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Name	Use this field to rename the node.
Multiplier	This is the value by which the normal focus radius value is multiplied.

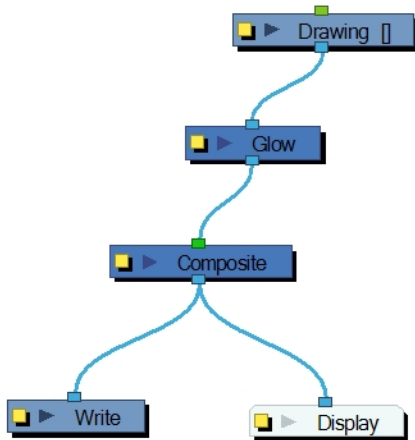
Glow Node

T-HFND-010-009B

The Glow effect turns your image into a glow area with a bright soft-edged light or diffuse light region around an image. The Glow effect is useful for creating a shining rim around objects, such as the sun or stars. Clone your layer or connect it a second time to the Composite node to display the original image on top of the glow.

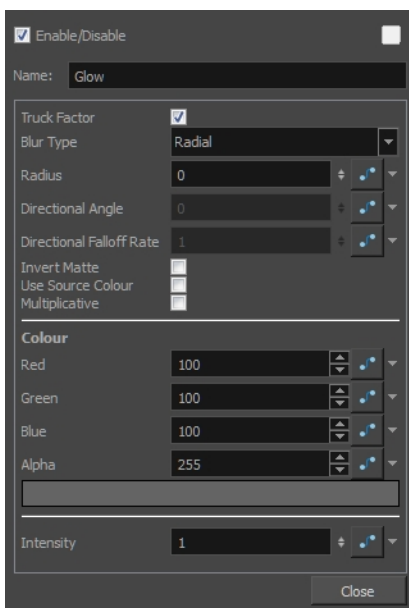


Refer to the following example to connect this node.




NOTE: If this effect is connected below a Composite node set to Pass-Through, the effect will be applied to each element connected in the Composite node individually. If some of these elements are overlapping, the effect will also overlap.

Properties

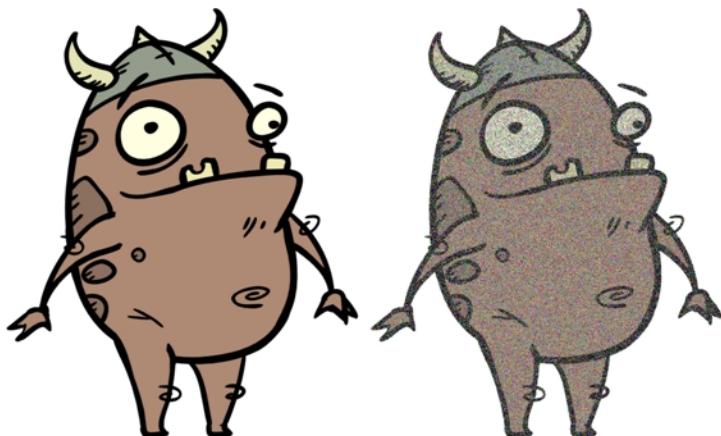


Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When disabled, the effect's values will remain

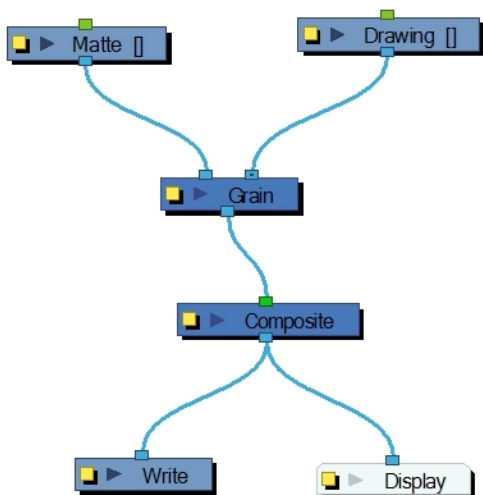
	unchanged regardless of depth or scale changes. It is recommended that this option be disabled when multiple drawings are composited and attached this effect.
Blur Type	<p>Radial: The edges of the matte are blurred evenly around points that make up the edge of the matte.</p> <p>Directional: The matte is blurred in the direction you select.</p>
Radius	Enter a value for the size of the blur. The larger the value, the greater the blur effect. The blur radius is affected by the drawing scale and camera position.
Directional Angle	<p>If you selected the Directional Blur type, you can set the direction of the blur by entering a value from 0 to 360 in this field.</p> <p>0: Blurs the image to the west.</p> <p>90: Blurs the image to the south.</p> <p>180: Blurs the image to the east.</p> <p>270: Blurs the image to the north.</p>
Directional Falloff Rate	<p>The distance where the blur fades from the edge of the image. Select a value between 0 and 1.</p> <p>0: Makes the blur fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur.</p> <p>1: Makes the blur fade out quickly. The blur is heaviest closer to the edge of the image.</p>
Invert Matte	Inverts the matte used to create the tone, shadow, or highlight.
Use Matte/Source Colour	Creates the shadow or tone using the matte shape's colour. Be sure that you are in render mode  to see this effect and that your background is NOT white and that you do NOT have a white colour card node attached to the composite. As the matte only gives colour information, but no alpha, the matte is automatically multiplied with the background colours. If there is no colour card attached and the background appears black, you will see the matte colour at full opacity. If it is multiplied with a white background, the colours disappear into the full 255.
Multiplicative	Multiplies the tone or shadow colours with the background.
Colour	
RGBA	Enter a value to add or subtract from the colour channels in the drawings or attach these values to function curves.
Colour Swatch	Opens the Colour Picker where you can specify the colour.
Intensity	Lets you set a value to determine the strength of the effect or attach a function to animate the effect.

Grain Node

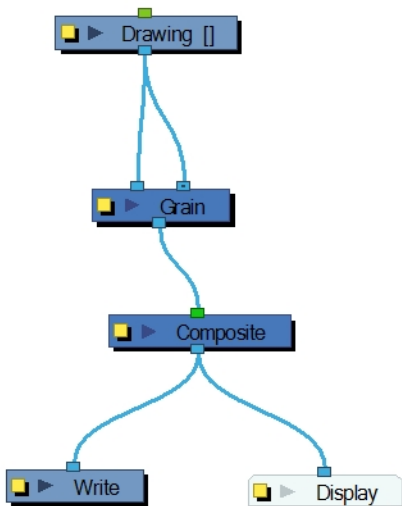
Use the Grain effect to add a film grain to an image; the film grain looks like video noise.



Refer to the following example to connect this node.



You can also use the Matte port to determine where the grain area will be applied. Connect the original image to the Matte port to cover it entirely with grain.

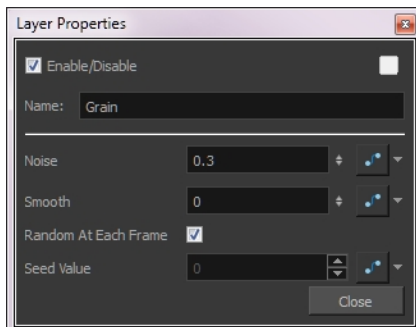


The Grain node has two input ports.

- On the left port, attach the element that will act as the matte defining the grain area.
- On the right port, attach the element on which you want to apply the grain effect.

Use the **Grain** editor to adjust the amount of grain to add to an image; you can also use it to adjust the sharpness or softness of the grain.

Grain Properties

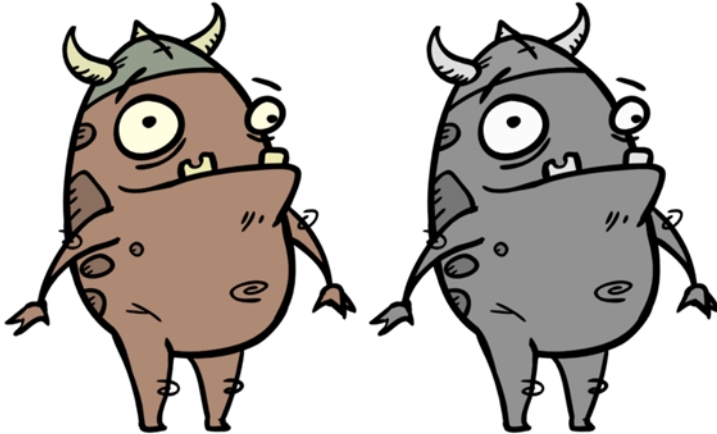


Parameter	Description
Name	Use this field to rename the node.
Noise	The amount of grain to add to the image based on the percentage of pixels to alter. The larger the value, the coarser the grain. The smaller the value is to 0 (zero), the finer the grain.
Smooth	The amount of blending to apply to the grain effect, based on the blur radius, to make the effect appear less pixelated. The larger the value, the greater the smoothing.
Random at Each Frame	Computes the colour shift in the grain using a different value at each composite. This means that your images will look different each time you render them. Deselect this option and select a Seed Value to ensure the same result every time you composite the grain effect.

Seed Value	This value corresponds to a unique pattern in the grain. If you want to retain this pattern in other frames, you can reuse this value.
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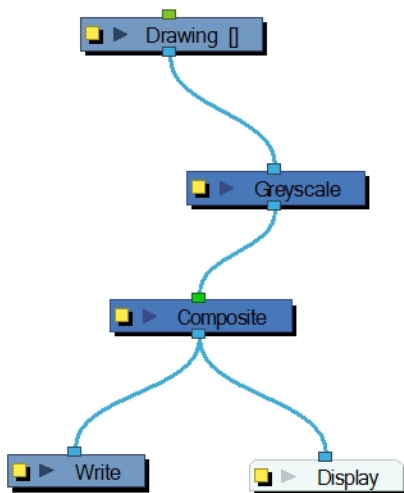
Greyscale Node

The Greyscale effect lets you convert a colour image to greyscale. This example demonstrates what happens when you set the greyscale to 100% using the Greyscale node.

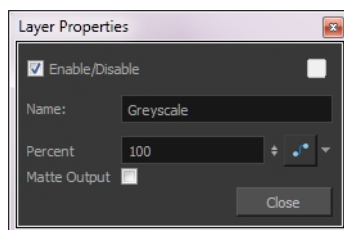


You can also use the Contrast node to adjust the darkness and lightness of the pixels in your element.

Refer to the following example to connect this node.



Properties



Parameter	Description
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Name	Lets you rename the node.
Percent	Lets you enter the percentage of black and white to apply to the image. You can enter a static value in the Percent field or attach the value to a function curve to change over time.
Matte Output	Maintains the colour values. However, alpha values are read from the colours you see in the Camera view Matte View mode.

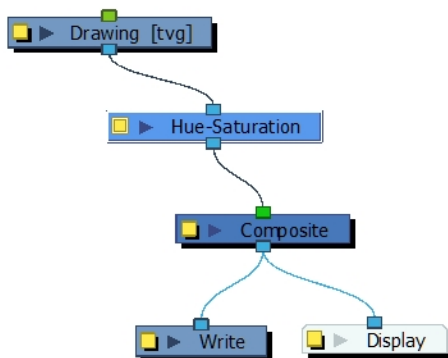
Hue-Saturation Node

The Hue-Saturation effect lets you adjust the hue, saturation and lightness values individually or by using the HLS picker or Hue Range picker. You can achieve effects over the entire image, such as a sepia tone. Changes you make to the values are additive to the final image.

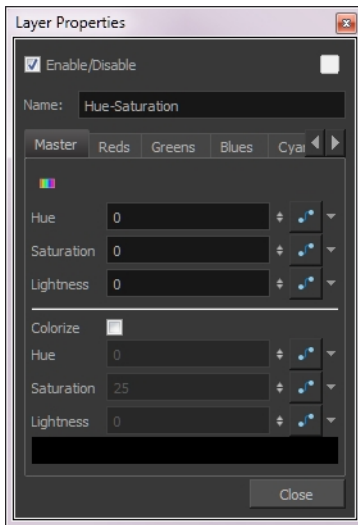




For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.

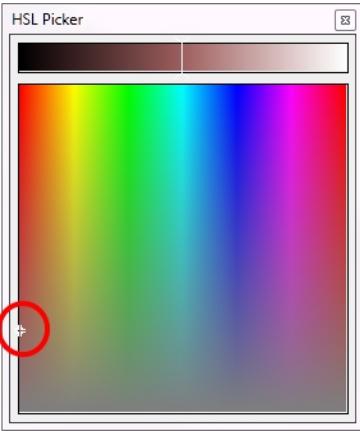

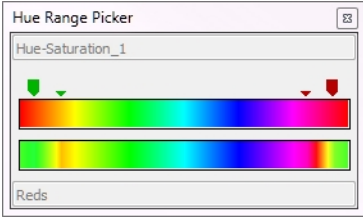
Refer to the following example to connect this node.



Properties



Parameter	Description
Name	Use this field to rename the node.
Master	<p>Allows you to remap all the colours at the same time using the Hue, Saturation and Lightness fields.</p> <p>Note: When using the Master parameters, the Colorize parameters are disabled.</p>
	<p>Opens the Hue Range Picker which displays the original colour spectrum of the image in the top bar and the new colour spectrum in the bottom bar. The Saturation and Lightness in the upper bar can range from -100 to 100, allowing you to decrease the original values.</p> <div style="text-align: center;">  </div>
Colourize	Lets you set the hue, saturation, and lightness by entering values or by using the HSL Picker. In the Colorize mode, Lightness can range from -100 to 100.

	 <p>Select a colour by moving the colour picker.</p> <p>Note: When using the Colourize parameters, the Master parameters and other colour tabs are disabled.</p>
Hue	The colour or hue of the image.
Saturation	The amount of colour in the image.
Lightness	The brightness of the image.
Colour Swatch	Opens the HLS Picker where you can specify the colour.
Tabs	Reds, Greens, Blues, Cyans, Magentas, Yellows
	<p>Opens the Hue Range Picker. The top bar displays the colour spectrum with arrows for defining the colour range more precisely. The triangles indicate the falloff of the effect, which you can also adjust.</p>  <p>Specify the hue as an angle from 0° to 360° that corresponds to a location on the color wheel. Specify saturation and lightness (B) as percentages (0 to 100).</p>
Reset Range	Resets only the range of hue values over which the effect is applied, i.e. the arrows and triangles. The HSL adjustments are maintained.

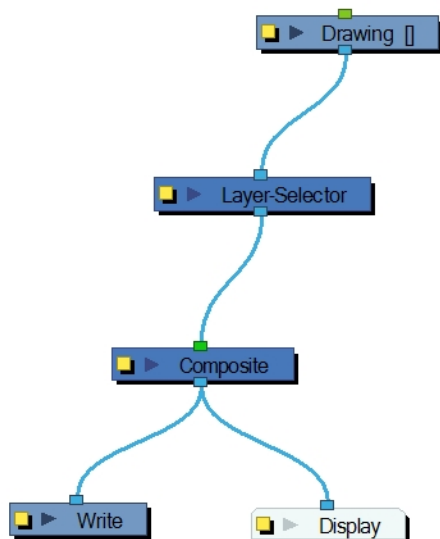
Layer Selector Node

The Layer Selector effect lets you isolate and display one or more art layers:

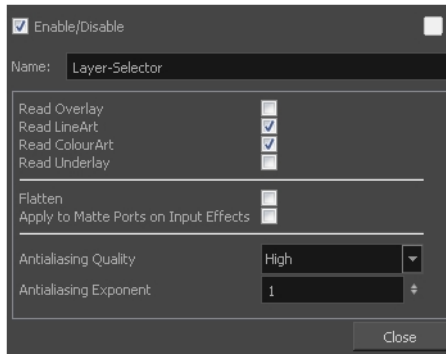
- Overlay
- Line Art
- Colour Art
- Underlay



Refer to the following example to connect this node.



Properties



Parameter	Description
Name	Lets you rename the node.
Read Overlay, Line Art, Colour Art, Underlay	Turns the display of the Overlay, Line Art, Colour Art and Underlay layers on or off.
Flatten	<p>When placing the node below a Composite node containing several drawing nodes, such as a cut-out character, you can use this option to flatten the extracted result. For example, when extracting a series of outlines, parts that may have been hidden by colour fills might now be visible. Enable the Flatten option to cut the extra artwork. Harmony will use the colour fills to cut unnecessary artwork. If your zones are not painted, nothing will be cut. This option works with both pencil lines and brush strokes.</p>
Apply to Matte Ports on Input Effects	At times, you may have situations where your node is placed below a Cutter node using a mask input and a drawing input. By default, the effect only processes the colours in the drawing input. The mask drawing remains untouched. If you want to also filter the mask drawing, select the Apply to Matte Ports on Input Effects option.
Antialiasing Quality	Smoothness setting applied to the art layer. Choose from Low (no antialiasing), Medium Low, Medium and High (extensive antialiasing). The higher the quality of the chosen setting, the greater the amount of antialiasing that is applied. Higher quality images require more time to render and more memory from your system.
Antialiasing Exponent	Controls the amount of area around the art layer edges that is 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.

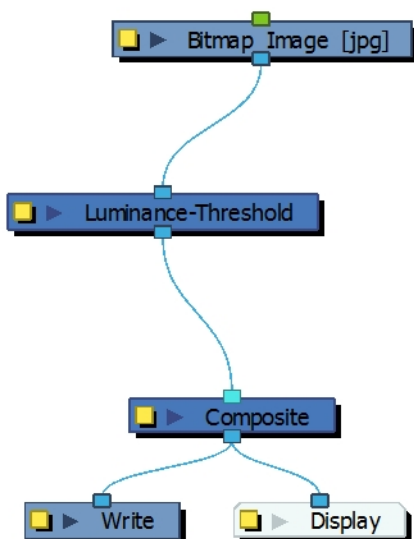
Luminance Threshold Node

The Luminance Threshold effect generates a matte by thresholding the luminance of an image. This works well with bitmap images that have many shades of colours. A pure vector image with flat colors could use a color override to isolate areas.

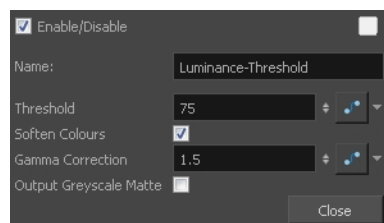


Thresholding is a method to segment or isolate certain zones in an image. This effect will isolate areas based on the image's luminance. Thresholding is used within the Bloom effect—see [Bloom Node on page 315](#).

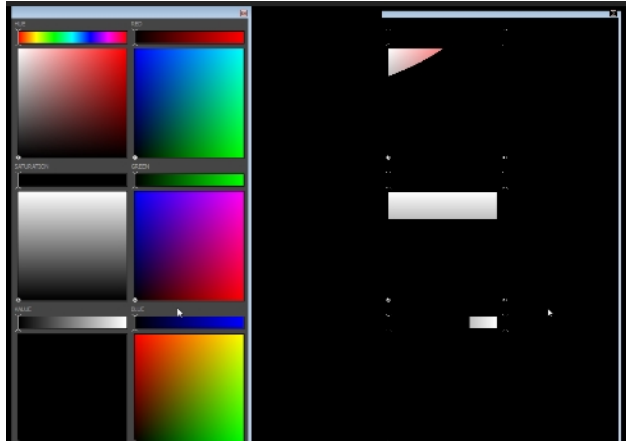
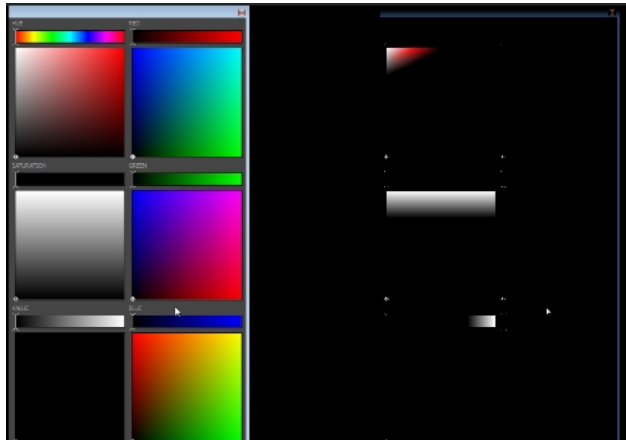
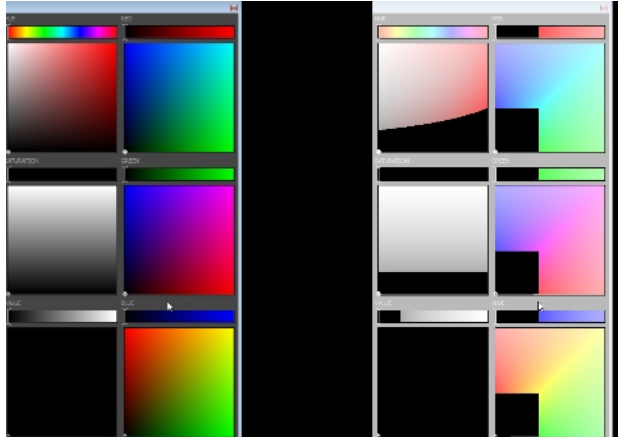
Refer to the following example to connect this node.



Properties



Parameter	Description
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Name	Allows you to change the node's name.
Threshold	<p>Controls how much of the dark value to clamp off. A high value will keep only the bright areas of your image.</p> 
Soften Colours	<p>Brings back the entire spectrum of luminance in areas defined by the threshold to avoid having only bright values.</p> 
Gamma Correction	<p>Multiplies the gamma value to make the area brighter or darker. A value of 1 keeps the gamma the same as the original image. You can use the gamma modification on the whole image if you use a threshold of 0 for example.</p> 

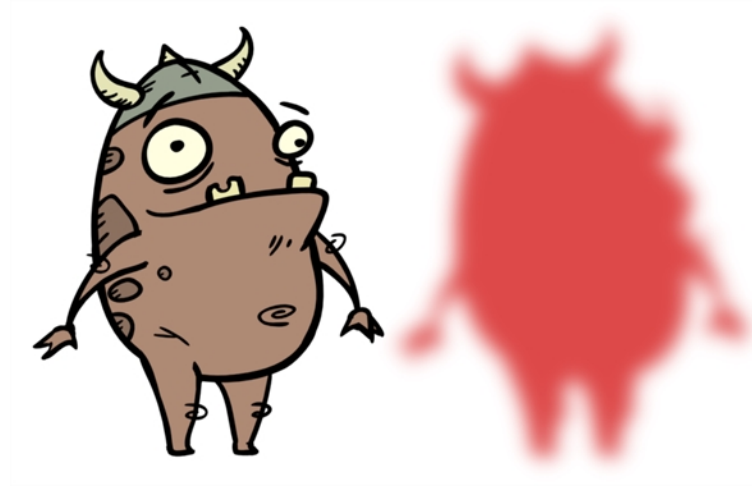
**Output Greyscale
Matte**

Allows you output an image in grey values to use in combination with a Blending or Cutter node elsewhere in the node structure.

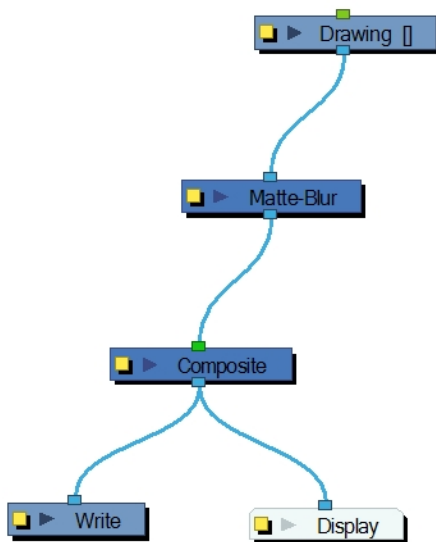


Matte-Blur Node

Use the Matte-Blur effect to blur a matte or change its colour. Here is an example of a network with the result of a Matte-Blur effect.

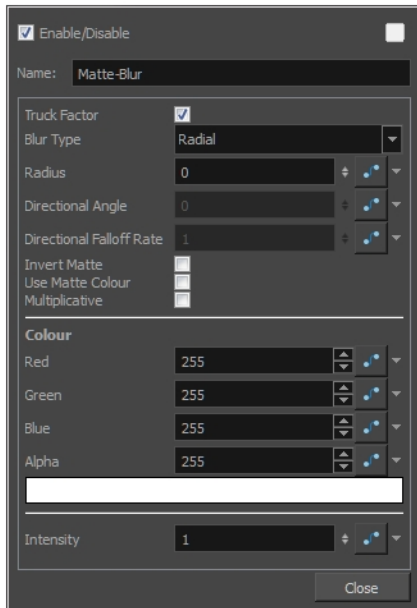


Refer to the following example to connect this node.



NOTE: If this effect is connected below a Composite node set to Pass-Through, the effect will be applied to each element connected in the Composite node individually. If some of these elements are overlapping, the effect will also overlap.

Properties

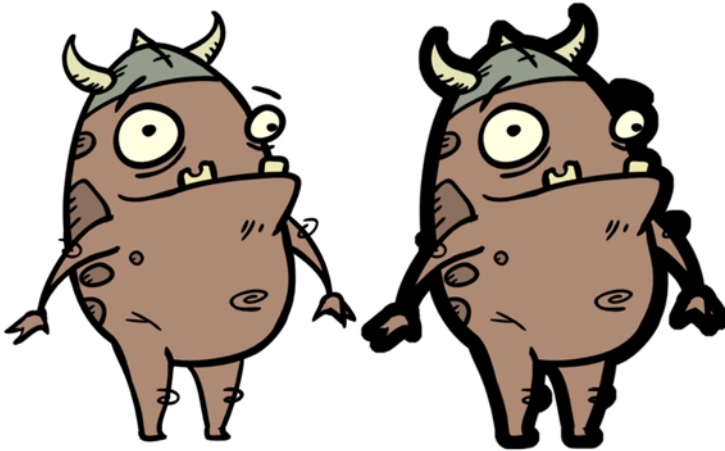


Parameter	Description
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a change of depth or scale. When this option is deselected, the effect's values remain unchanged regardless of any depth or scale changes. This option should be deselected when multiple drawings are composited and attached to this effect.
Blur Type	<p>Directional: Blurs the matte in the direction you select. For example, if a character is walking east, the blur may fall to the west.</p> <p>Radial: Blurs the edges of the matte evenly around points that make up its edge.</p>
Radius	Enter a value for the size of the blur. The larger the value, the greater the blur effect. The blur radius is affected by the drawing scale and camera position.
Directional Angle	<p>If you select a Blur Directional type, you can select the direction of the blur by entering a value from 0 to 360 in this field.</p> <ul style="list-style-type: none"> ▶ 0: Blurs the image to the west. ▶ 90: Blurs the image to the south. ▶ 180: Blurs the image to the east. ▶ 270: Blurs the image to the north.
Directional Fall-off Rate	<p>The distance where the blur fades from the edge of the image. Select a value between 0 and 1.</p> <ul style="list-style-type: none"> • A fall-off rate of zero causes the blur to fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur. • A fall-off rate of 1 causes the blur to fade out quickly so that the blur is heaviest closer to the edge of the image.

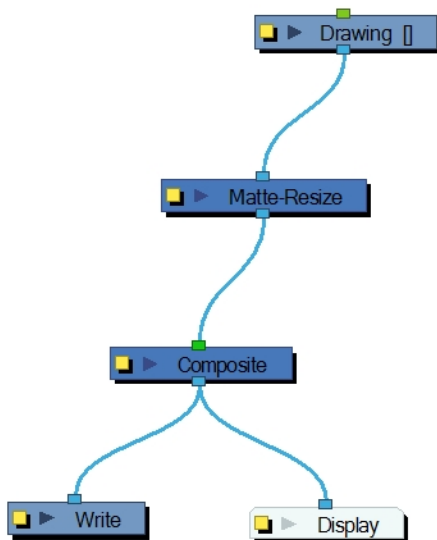
Invert Matte	Inverts the matte used to create the glow. The matte will become a black silhouette while the glow fills the background space.
Use Source Colour	Uses the colours painted in the matte for the glow effect. If you deselect this option, select a colour and alpha values in the Colour section.
Multiplicative	Creates a more diffused glow.
Colour	Lets you choose the colour and alpha values for the glow effect.
Intensity	Lets you set a value to determine the strength of the effect or attach a function to animate the effect.

Matte-Resize Node

The Matte-Resize effect lets you evenly expand a matte outward in all directions. The matte increases size from its centre.



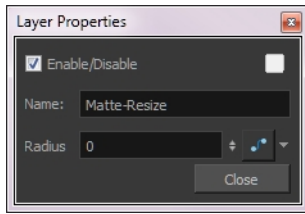
Refer to the following example to connect this node.



If you use the Matte-Resize node to create a pulsating glow, you can enlarge the region without softening the edges. Using the Blur-Radial effect, the effect may be softer than you intend. This node produces a limited antialiased matte, which can have slightly jagged edges. You could use this node in combination with other nodes, such as:

- Tone
- Highlight
- Glow
- Shadow
- Matte-Blur

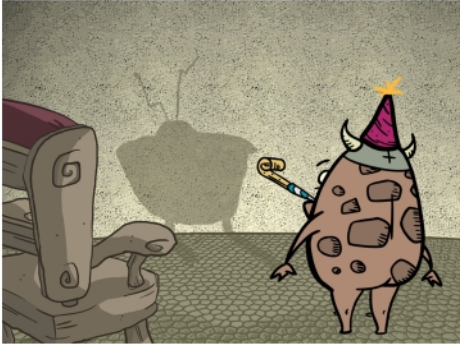
Properties



Parameter	Description
Name	Lets you rename the node.
Radius	Lets you enter a static value for the radius (size increase or decrease) of the matte. You can also attach the Radius value to a function column to change the value over time.

Median Node

The Median effect lets you reduce the noise in a drawing while preserving its edges. Harmony sorts the values of pixels within a specified radius and uses the median value. You can also use this effect to create a Impressionist type of style.




Original image



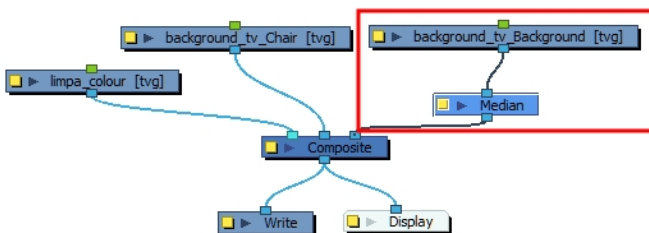
Wall noise reduced.
Radius = 3.



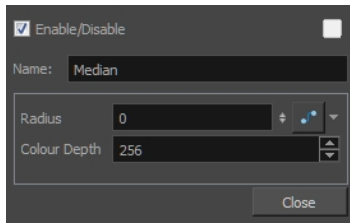
Wall noise further reduced and smoothed.
Radius = 10.

The Median effect is only visible when the Camera view is set to Render  mode.

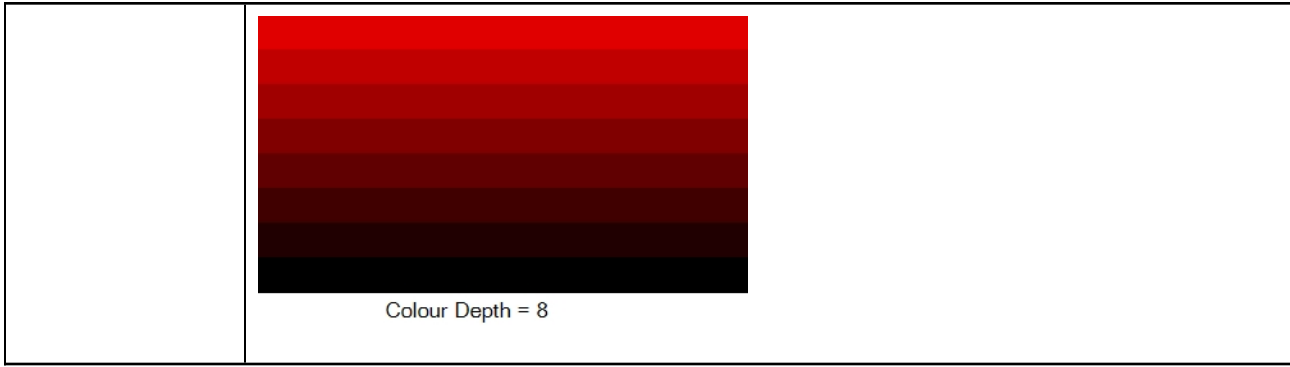
Refer to the following example to connect this node.



Properties

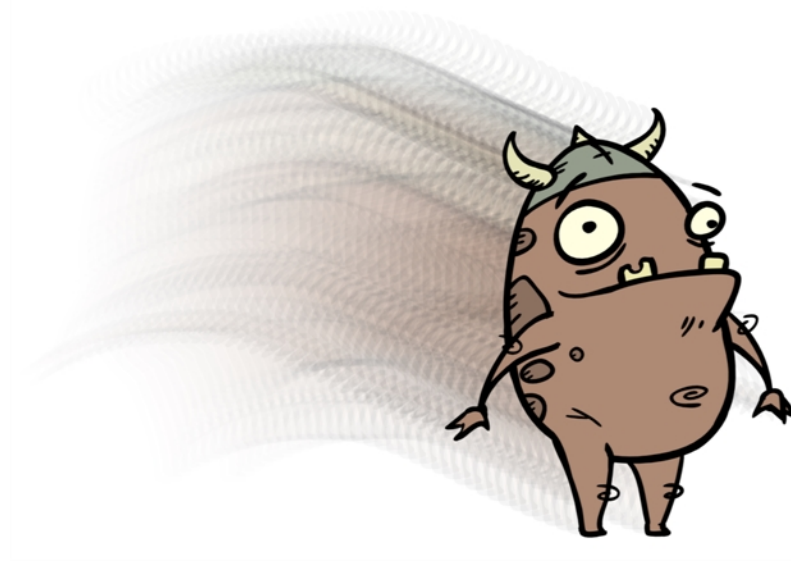


Parameter	Description
Name	Allows you to change the node's name.
Radius	<p>Lets you specify the size of the area of values to consider determining the median value. A median is calculated by sorting all the pixel values from the surrounding area into numerical order. Then the middle pixel value is used to replace the pixel being considered.</p> <p>The median tends to make an image look a bit blurrier because it reduces the contrast of adjacent pixels. However, it does a good job of smoothing the image and removing artifacts.</p>
Colour Depth	<p>Determines the number of levels per colour channel. The larger the number, the more levels of colour are used in the image and the more time it takes to render. Conversely, the lower the colour depth, the fewer colours are used, the faster it is to render.</p>

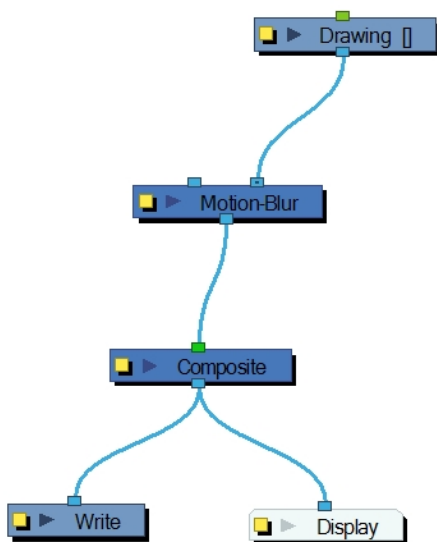


Motion-Blur Node

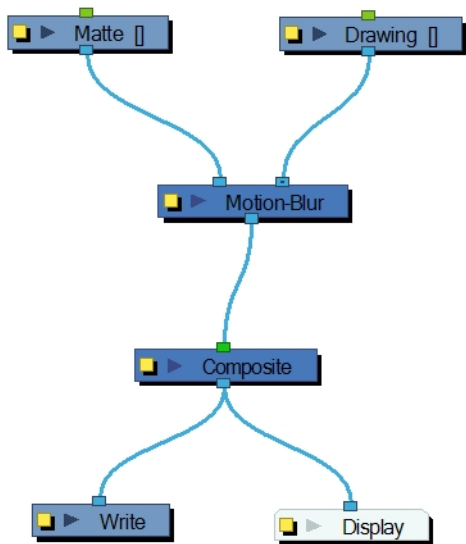
The Motion-Blur effect is used to create a faded trail behind objects animated on a motion path. You cannot create a Motion-Blur on a hand-drawn animation. The layer must be moving along a trajectory (motion path) in order to work properly.



Refer to the following example to connect this node.

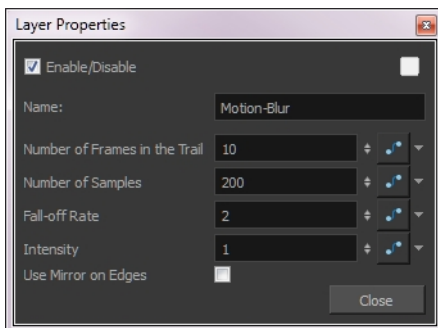


You can also use a matte to apply the blur only on a certain area of the drawing.



The Motion-Blur effect automatically creates a matte for the drawing layer attached to it, so it is not necessary to connect any matte into the Mask layer.

Properties



Parameter	Description
Name	Use this field to rename the node.
Number of Frames in Trail	Number of frames before the current frame that will be used in the trail.
Number of Samples	Number of copies of each drawing used in the trail. The higher the number, the more continuous the trail appears.
Fall-off Rate	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. A fall-off rate of 0 causes the trail to fade out slowly, distributing the colour evenly from the edge of the character to the farthest edge of the trail. A fall-off rate of 1 causes the trail to fade out quickly so that the trail is more opaque closer to the edge of the image and transparent at the end of the trail.
Intensity	Select a value to define the opacity of the trail between 0 and 10. A value of 10 will make the trail very dark and almost opaque, where as a value of 0 will make the trail quite pale and ghostly transparent.

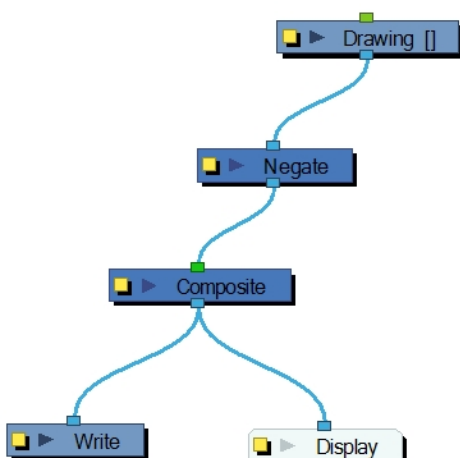
Use Mirror on Edges	When enabled this option appear when the image is close to the edge of the camera frame. It forces the software to use a mirror of the image to calculate the blur so that it appears on both sides of the drawing object. Without this option once your drawing reaches the edge of the Camera frame, it gets cropped so does the trail.
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Negate Node

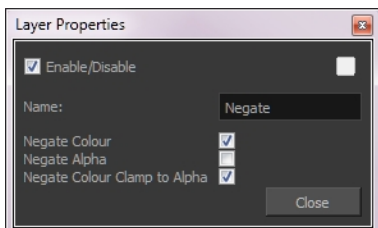
The Negate effect lets you invert the colour and/or alpha values in the Colour Art and Line Art of an image. The original value of each channel (RGB or A) is subtracted from the maximum value of that channel (255 for 8-bit channels) to produce the negative image.



Refer to the following example to connect this node.



Properties

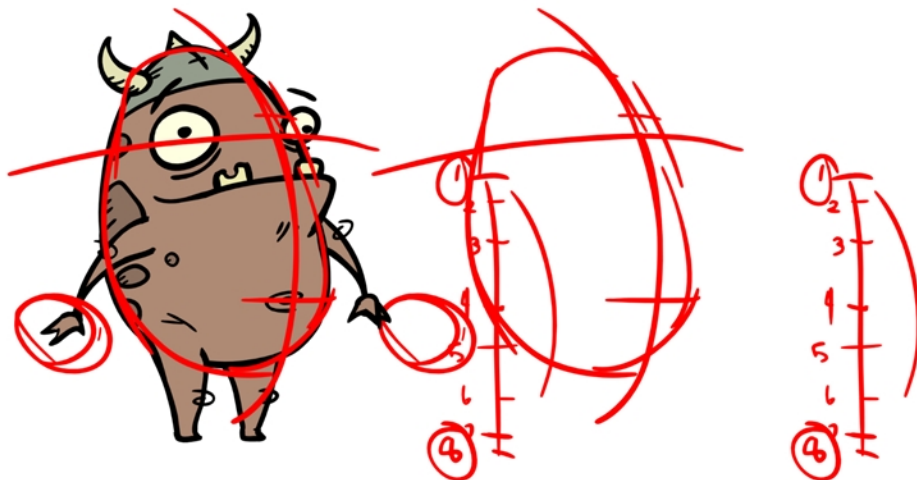


Parameter	Description
Name	Use this field to rename the node.
Negate Colour	Inverts the values of the colour channels.

Negate Alpha	Inverts the transparency value (alpha channel).
Negate Colour Clamp to Alpha	Limits the negated area to the alpha channel.

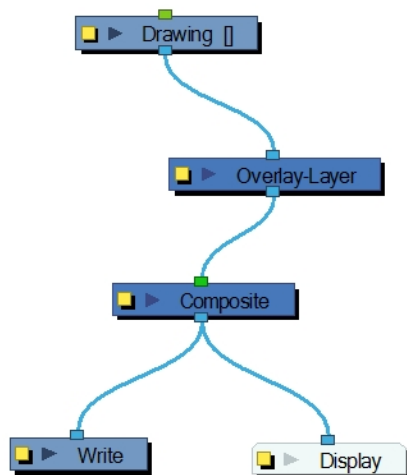
Overlay Layer Node

The Overlay Layer effect lets you read an element's Overlay Art layer. By placing an Overlay Layer node after a drawing node in the Node view, you can display only the node's Overlay layer output. The Overlay Layer node can be connected after nodes of any type. Any bitmap information will pass through and be processed.

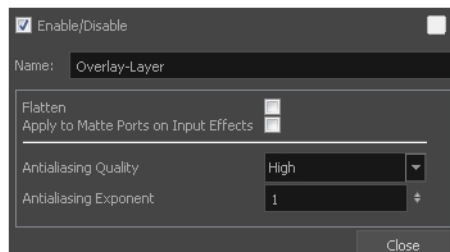



This effect will only work if something has been drawn or painted on a drawing's Overlay Art layer.

Refer to the following example to connect this node.



Properties



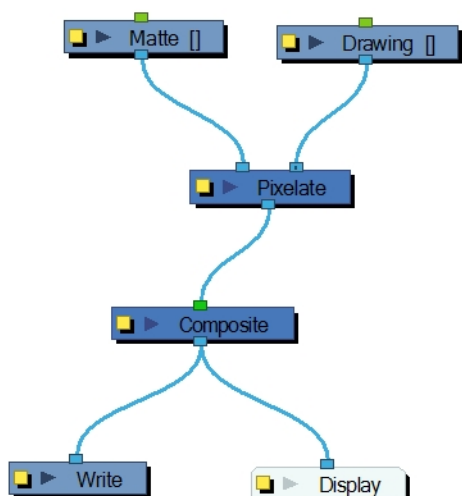
Parameter	Description
Name	Lets you rename the node.
Flatten	<p>When placing the node below a Composite node containing several drawing nodes, such as a cut-out character, you can use this option to flatten the extracted result. For example, when extracting a series of outlines, parts that may have been hidden by colour fills might now be visible. Enable the Flatten option to cut the extra artwork. Harmony will use the colour fills to cut unnecessary artwork. If your zones are not painted, nothing will be cut. This option works with both pencil lines and brush strokes.</p> 
Apply to Matte Ports on Input Effects	<p>At times, you may have situations where your node is placed below a Cutter node using a mask input and a drawing input. By default, the effect only processes the colours in the drawing input. The mask drawing remains untouched. If you want to also filter the mask drawing, select the Apply to Matte Ports on Input Effects option.</p>
Antialiasing Quality	<p>Smoothness setting applied to the art layer. Choose from Low (no antialiasing), Medium Low, Medium and High (extensive antialiasing). The higher the quality of the chosen setting, the greater the amount of antialiasing that is applied. Higher quality images require more time to render and more memory from your system.</p>
Antialiasing Exponent	<p>Controls the amount of area around the art layer edges that is 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.</p>

Pixelate Node

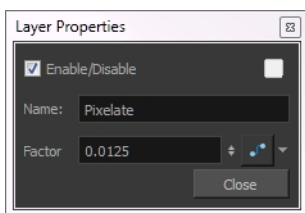
The Pixelate effect lets you apply a mosaic effect to an image (and its matte) based on the matte you supply. Pixelation makes the image look like it is made up of square tiles.



Refer to the following example to connect this node.



Properties

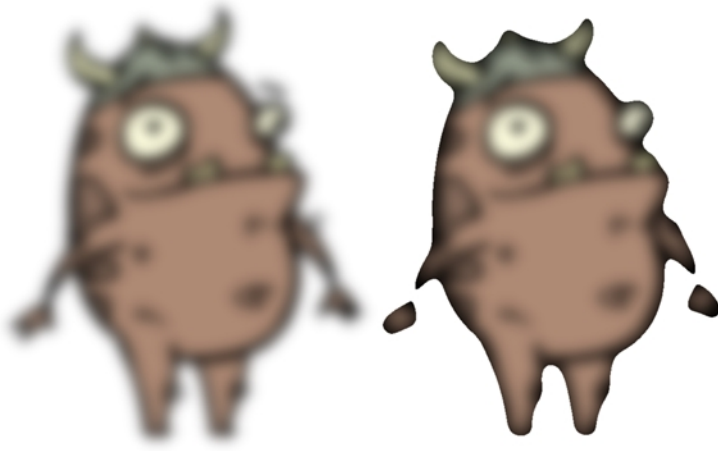


Parameter	Description
Name	Lets you rename the node.
Factor	Lets you control the amount the image is pixelated. You can attach the Factor

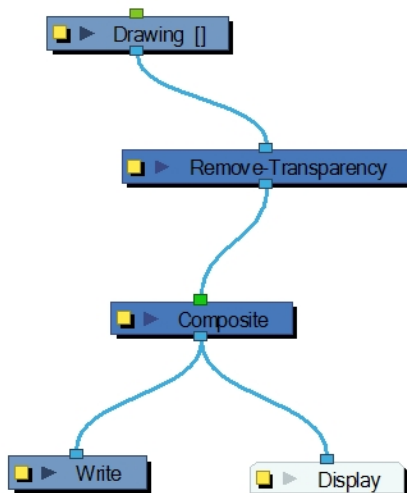
	value to a function curve to change the value over time.
Antialiasing Exponent	Controls the amount of area around the art layer edges that is used in the antialiasing process. A higher value uses less area, resulting in sharper edges, while a lower value uses more area, resulting in softer edges. If the Antialiasing Quality value is set to Low (no antialiasing), this value is ignored.

Remove Transparency Node

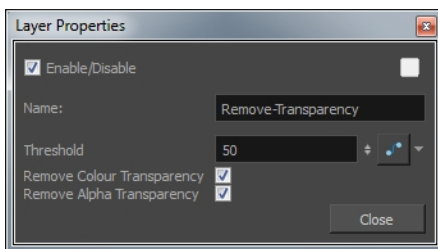
The Remove Transparency effect negates transparent values in an image. You can use the Remove Transparency node to remove the result of antialiasing around an image.



Refer to the following example to connect this node.



Properties



Parameter	Description
Name	Lets you rename the node.

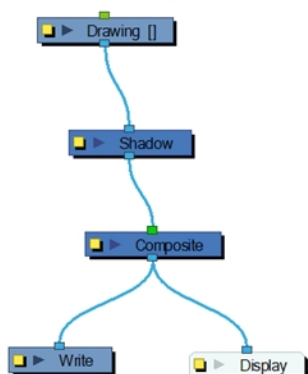
Threshold	All values above the Threshold represent a transparent value. In this field, you must identify the value above which all alpha values are considered transparent. Alpha is measured from 0 to 255.
Remove Colour Transparency	Determines which pixels in the Colour-Art (RGB channels) to make fully opaque or fully transparent.
Remove Alpha Transparency	When selected, the Threshold value is used to determine which pixels in the alpha channel to make fully opaque or fully transparent.

Shadow Node

With the Shadow effect, you can turn a drawing into a shadow. It doesn't matter if the drawing layer is a fully coloured character. The Shadow effect will render it into a grey, semitransparent, slightly blurry silhouette. Clone your image or connect it a second time to the final Composite node to see the original image displayed on top of the shadow.




Refer to the following example to connect this node.



NOTE: If this effect is connected below a Composite node set to Pass-Through, the effect will be applied to each element connected in the Composite node individually. If some of these elements are overlapping, the effect will also overlap.

Properties

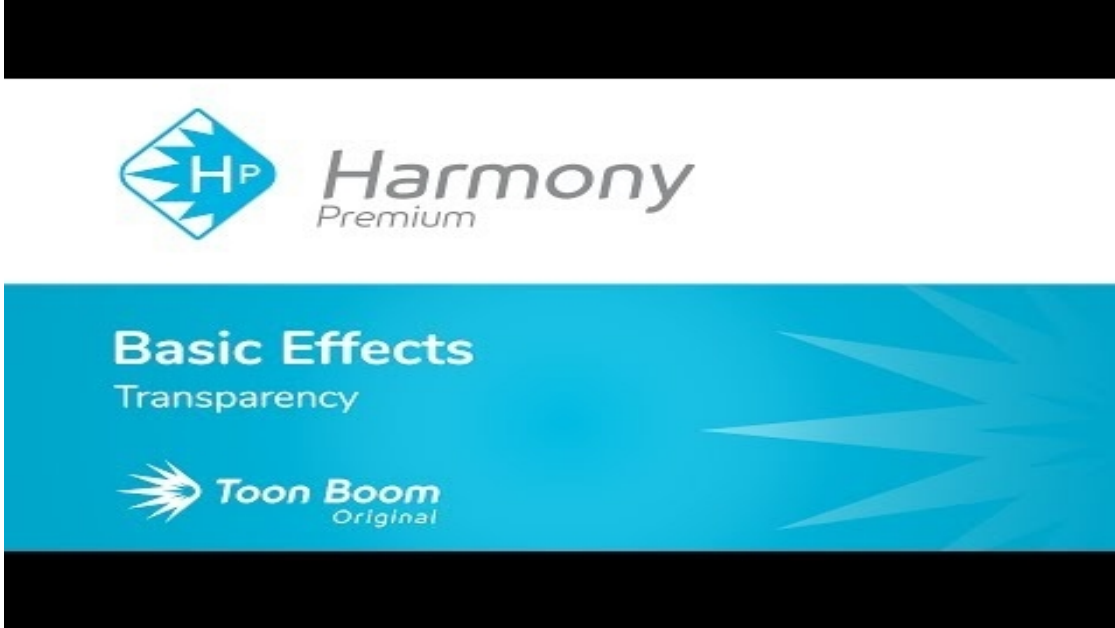
Parameter	Description
Enable/Disable	Enables or disables the selected node in the Camera, Timeline, and Node views.
Colour Swatch	Changes the node and layer colour.
Name	Use this field to rename the node.
Truck Factor	Activated by default, this option readjusts the blur when the elements undergo a

	change of depth or scale. When disabled, the effect's values will remain unchanged regardless of depth or scale changes. It is recommended that this option be disabled when multiple drawings are composited and attached this effect.
Blur Type	Radial: The edges of the matte are blurred evenly around points that make up the edge of the matte. Directional: The matte is blurred in the direction you select.
Radius	Enter a value for the size of the blur. The larger the value, the greater the blur effect. The blur radius is affected by the drawing scale and camera position.
Directional Angle	If you selected the Directional Blur type, you can set the direction of the blur by entering a value from 0 to 360 in this field. 0: Blurs the image to the west. 90: Blurs the image to the south. 180: Blurs the image to the east. 270: Blurs the image to the north.
Directional Falloff Rate	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. 0: Makes the blur fade out slowly, distributing the blur evenly from the edge of the character to the farthest edge of the blur. 1: Makes the blur fade out quickly. The blur is heaviest closer to the edge of the image.
Invert Matte	Inverts the matte used to create the tone, shadow, or highlight.
Use Matte/Source Colour	Creates the shadow or tone using the matte shape's colour. Be sure that you are in render mode  to see this effect and that your background is NOT white and that you do NOT have a white colour card node attached to the composite. As the matte only gives colour information, but no alpha, the matte is automatically multiplied with the background colours. If there is no colour card attached and the background appears black, you will see the matte colour at full opacity. If it is multiplied with a white background, the colours disappear into the full 255.
Multiplicative	Multiplies the tone or shadow colours with the background.
Colour	
RGBA	Enter a value to add or subtract from the colour channels in the drawings or attach these values to function curves.
Colour Swatch	Opens the Colour Picker where you can specify the colour.
Intensity	Lets you set a value to determine the strength of the effect or attach a function to animate the effect.

Transparency

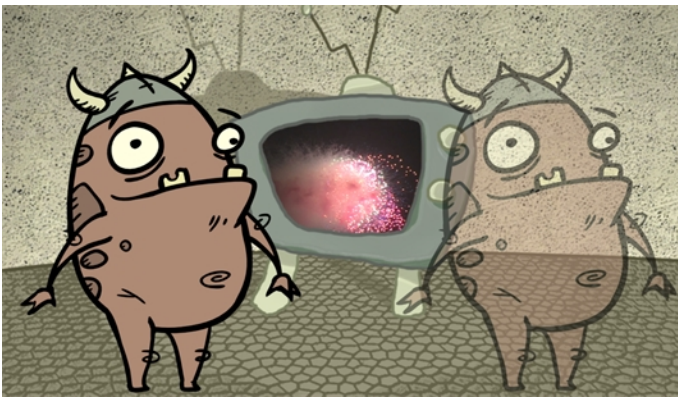
T-HFND-010-008

The Transparency effect is used to make an image partially transparent. The Transparency effect is useful when fading images in and out, such as a phantom or to make something partially see-through, such as a window.

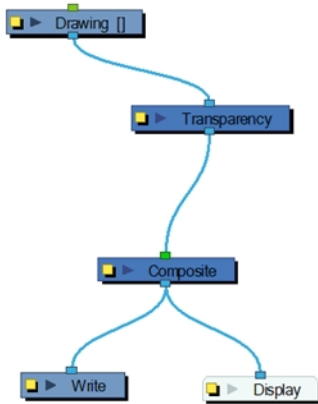


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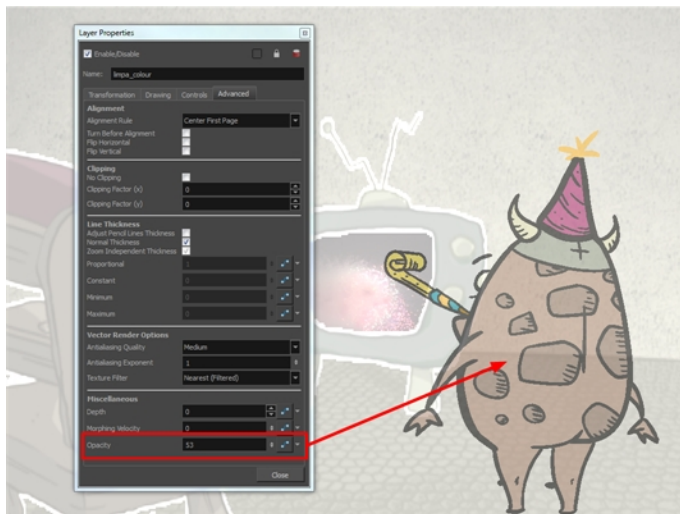


Refer to the following example to connect this node.

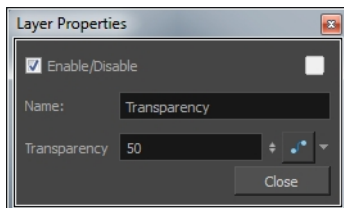


You can enter a value in the Transparency field or change the transparency value over time by linking it to a function curve. Entering a value of 100 in the Transparency field will make the element 100% transparent, in other words, invisible. Entering a value of 0 will render the element completely opaque.

It is also possible to adjust a layer/node's transparency directly in the Layer Properties window without using the Transparency node. In the layer's properties, go to the Drawing tab and adjust the Opacity parameter. This parameter is visible in OpenGL mode.



Properties

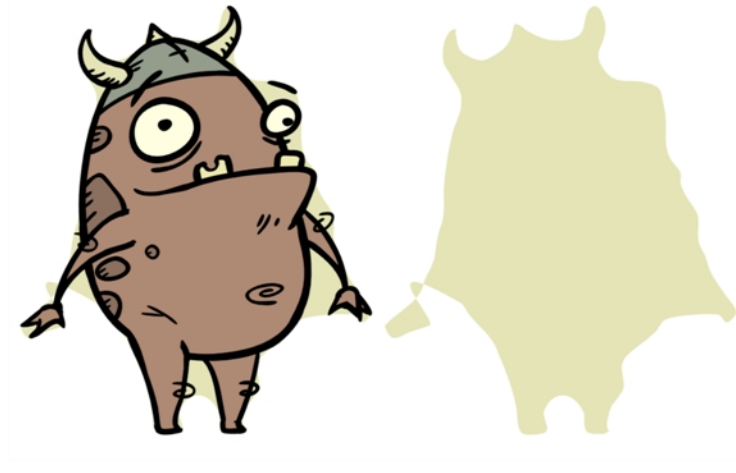


Parameter	Description
Name	Allows you to change the node's name.
Transparency	Lets you set the opacity of an element. Values range from 0 to 100. A value of 100 will make the element 100% transparent and a value of 0 will render the ele-

	ment completely opaque.
--	-------------------------

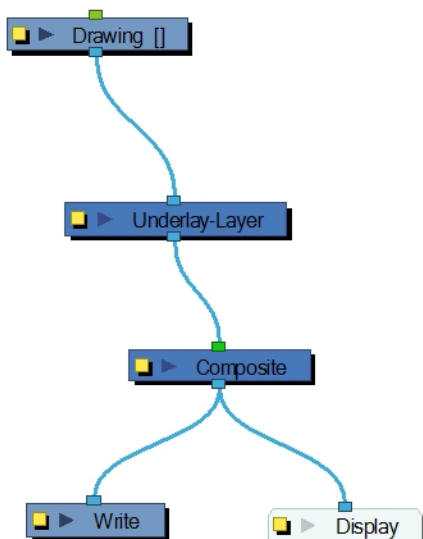
Underlay Layer Node

The Underlay Layer effect lets you read an element's Underlay Art layer. By placing an Underlay Layer node after a drawing node in the Node view, you can display only the node's Underlay layer output. The Underlay Layer node can be connected after nodes of any type. Any bitmap information will pass through and be processed.

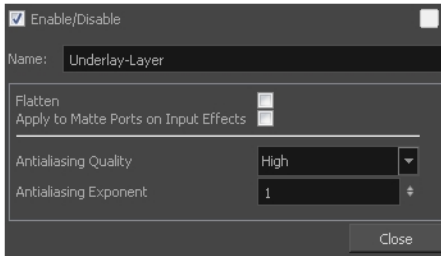


This effect will only work if something has been drawn or painted on a drawing's Underlay layer.

Refer to the following example to connect this node.



Properties



Parameter	Description
Name	Lets you rename the node.
Flatten	<p>When placing the node below a Composite node containing several drawing nodes, such as a cut-out character, you can use this option to flatten the extracted result. For example, when extracting a series of outlines, parts that may have been hidden by colour fills might now be visible. Enable the Flatten option to cut the extra artwork. Harmony will use the colour fills to cut unnecessary artwork. If your zones are not painted, nothing will be cut. This option works with both pencil lines and brush strokes.</p>
Apply to Matte Ports on Input Effects	At times, you may have situations where your node is placed below a Cutter node using a mask input and a drawing input. By default, the effect only processes the colours in the drawing input. The mask drawing remains untouched. If you want to also filter the mask drawing, select the Apply to Matte Ports on Input Effects option.
Antialiasing Quality	Smoothness setting applied to the art layer. Choose from Low (no antialiasing), Medium Low, Medium and High (extensive antialiasing). The higher the quality of the chosen setting, the greater the amount of antialiasing that is applied. Higher quality images require more time to render and more memory from your system.
Antialiasing Exponent	Controls the amount of area around the art layer edges that is 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.

Generator Nodes

The nodes found in the Generator category are nodes that generate an image on their without using any external TVG or bitmap drawings. You can adjust the parameters to control the image outputted by these nodes.

Burn-In Node	407
Colour-Card Node	410
Element / Drawing Node	412
Field Chart Node	422
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Turbulent Noise Node	435

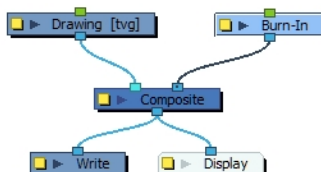
Burn-In Node



The Burn-In effect lets you add scene information which is visible in the Camera view. The information is displayed on top of any content in the scene. You can choose to display the scene name, timecode, frame count, environment and job, as well as add a frame offset if you need blank frames to precede the scene content. Also, to make the information more visible, you can also add a background and choose its colour, and customize the text font and alignment.

When you attach a Burn-In node to a Composite node, the burn-in information is rendered when you export the scene.

NOTE: When you're working with 3D objects with a high Z position value, you may find the objects obscuring the scene information. To work around this, use a peg to ensure the burned in scene information is always visible.

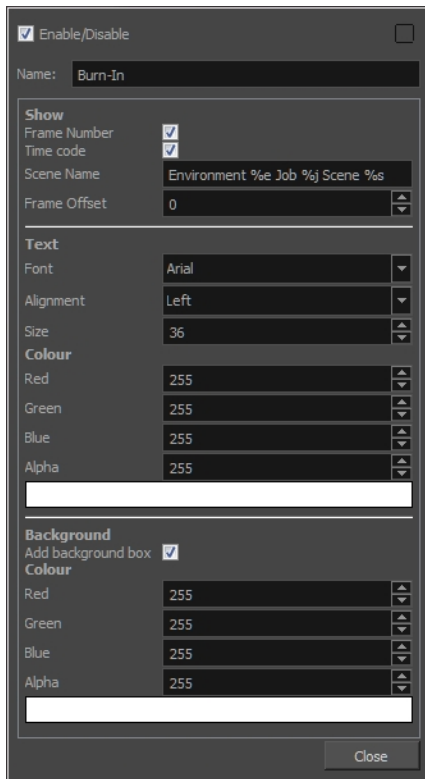


How to add burn in scene information

1. In the Node Library, drag a **Burn-In** node to the Node view.

2. Connect it to the Composite node.
3. On the Burn-In node, click the square yellow properties button.


The Burn-In property window displays.



4. In the Show section, enter the following information:
 - ▶ **Frame Number:** The frame number to start the burn-in information.
 - ▶ **Time code:** The time code at which the burn-in information starts.
 - ▶ **Scene name:** By default the scene name, environment and job information is display. Type the following to display specific types of information.
 - Scene Name:** %s
 - Environment:** %e
 - Job:** %j
 - ▶ **Frame Offset:** Add lead-in frames before the scene begins or at a specific frame. Use positive values for frames that precede the scene content and negative values to start your scene information at a certain frame number.
5. In the Text section, customize the text that is displayed.
6. In the Background section, add a background box to make the text more visible and then customize the colour.

Burn-In Properties

Parameter	Description
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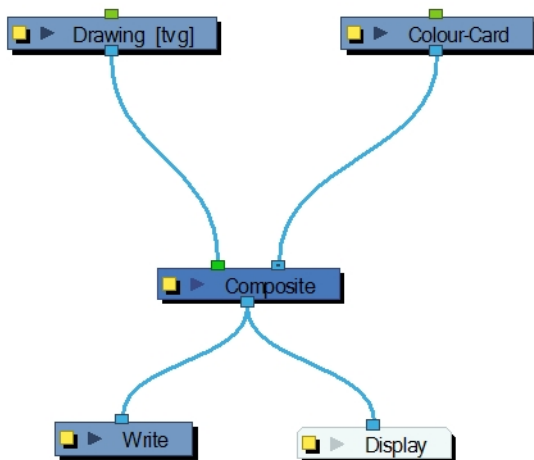
Name	Allows you to change the node's name.
Show	
Frame Number	Displays the number of the current frame.
Time Code	Displays the time code of the current frame.
Scene Name	<p>Lets you display different types of information, including the scene name, environment and job. You can display one or all of these pieces of information. To do so, type the following in the Scene Name field:</p> <ul style="list-style-type: none"> • Scene Name: %s • Environment: %e • Job: %j <p>You can rearrange the order in which the information is displayed. For example, you may want to see the job before the environment.</p>
Frame Offset	Lets you add blank lead-in frames before the scene or somewhere in the scene. Use positive values for frames that precede the scene content and negative values to start your scene information at a certain frame number.
Text	
Font	Lets you select a font for the information displayed.
Alignment	Lets you set the alignment of the text: Left, Center, Right.
Size	Lets you set the size of the text.
Background	
Add Background Box	Adds a box behind the scene information which is useful when the scene contains colours or content that may make it difficult to read the scene information.
Colour	
Red/Green/Blue/Alpha	Lets you enter R, G, B and A values for the colour of the background box.
Colour Swatch	Opens the Colour Picker window where you can select a colour from the palette or use the Dropper  tool to select a colour directly from your image—see <i>Selecting a Colour in a Drawing</i> in Chapter 7: Ink and Paint in the Paperless Animation Guide.

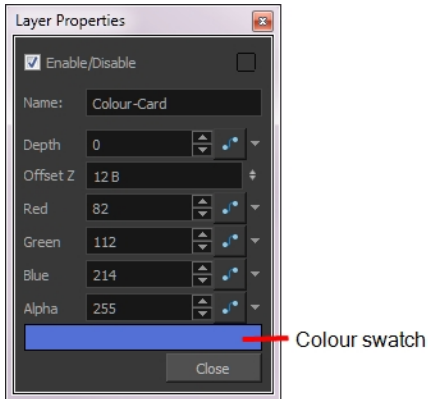
Colour-Card Node



The Colour Card is a solid background the same size as the camera. The Colour Card lets you fill the scene's background with a solid colour when there is no background image. If no background or colour card is added to the scene, the resulting export will appear with a black background.

By default, the Colour Card has a Z ordering value of **12 Backward**. This puts the Colour card behind all elements that have a value lower than **12 Backward**. Most of the time, the Colour card will appear automatically behind all the scene elements as they are all set to **0 Backward**, unless you have changed the Z ordering of the scene components. If so, the Colour Card will be in front of the elements that are pushed back to more than 12 fields backward.





Colour Card Properties

Parameter	Description
Depth	The value used to determine composition order when the Z value of two elements is the same.
Offset Z	The front-back position of the Colour Card layer in 3D space. This value can be verified in the Top view.
Red/Green/Blue/Alpha	The colour and transparency of the Colour Card. You can also attach these parameters to function columns to change their values over time. Click the colour swatch to open the Colour Picker window and select a colour.
Colour Swatch	Opens the Colour Picker window in which you can specify the colour.

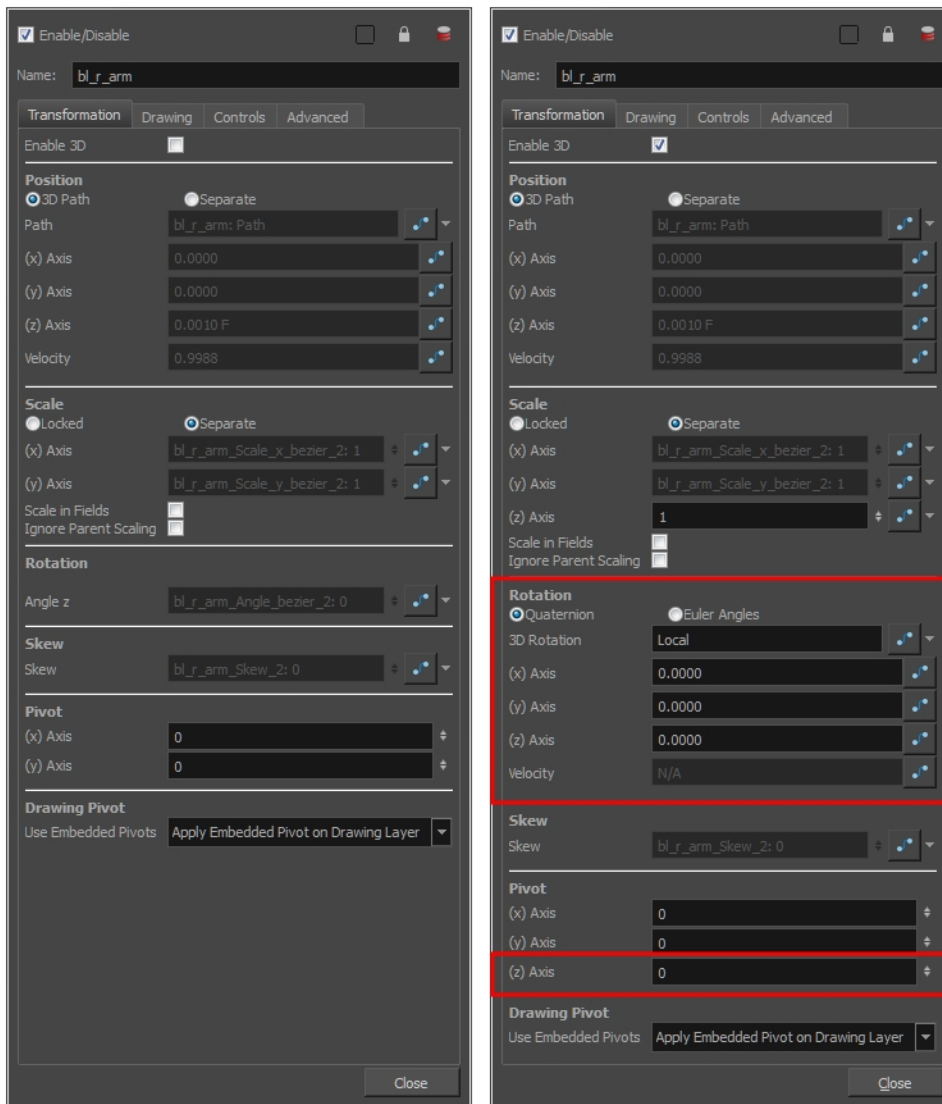
Element / Drawing Node

The drawing layer's properties is composed of the following tabs:

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.


	<p>Separate: Lets you independently edit the different coordinate fields.</p> <p>Path (x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.</p> <p>Path (y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p> <p>Path (z) Axis: Lets you type in a new Forward/Backward coordinate corresponding to the desired position.</p> <p>Velocity: When the 3D Path option is selected, lets you set the speed at which</p>
Scale	<p>Locked: Resizes the element while keeping its ratio. The X and Y axes scale proportionally</p> <p>Separate: Resizes the element allowing to modify the ratio (squash and stretch).</p> <p>(x) Axis: Lets you type in the horizontal scale value.</p> <p>(y) Axis: Lets you type in the vertical scale value.</p> <p>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.</p> <p>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.</p>
Rotation	<p>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.</p>
Skew	<p>Skew: Lets you type in a degree value between -90 to 90 for the skew angle.</p>
Pivot	<p>(x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.</p> <p>(y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p>
Drawing Pivot	<p>Use Embedded Pivots:</p> <p>Harmony has three types of pivots:</p> <ul style="list-style-type: none"> • Permanent Pivot <p>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.</p>

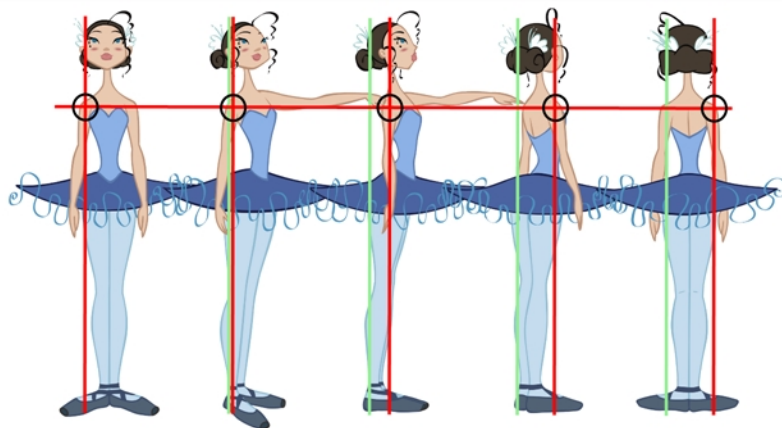
To permanently move a peg pivot, use the Rotate or Scale tool. You can also directly type the values in the Layer Properties window in the Pivot section's (x) Axis and (y) Axis fields.

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 positions 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.

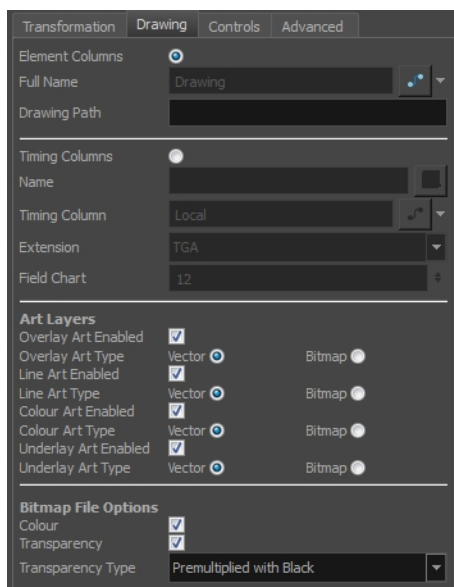
- **Symbol Pivots**

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

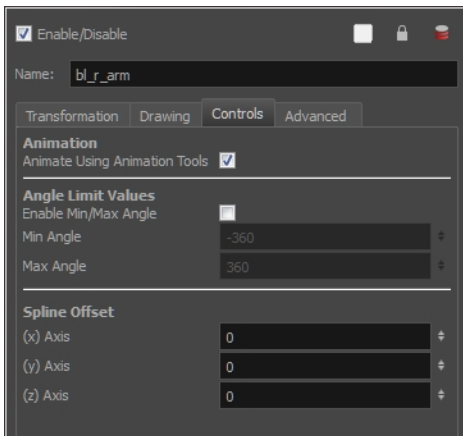
The Drawing tab contains parameters for the element and timing columns, designating art layers, and setting bitmap options.



Parameter	Description
Element Columns	<p>Full Name: Select which element to connect to the node from the list of elements that already exist in your scene.</p> <p>Drawing Path: Displays the full path to the current drawing.</p>
Timing Columns	<p>Name: Path to the file you want to link to.</p> <p>Timing Column: Link to the column that contains the desired timing.</p> <p>Extension: When linking to a background file, enter its file name extension.</p> <p>Field Chart: If you are importing traditional animation, select the size of the paper on which the animation was drawn.</p>
Art Layers	<p>Overlay Art Enabled: Enables the Overlay Art display.</p> <p>Line Art Enabled: Enables the Line Art display.</p> <p>Colour Art Enabled: Enables the Colour Art display.</p> <p>Underlay Art Enabled: Enables the Underlay Art display.</p> <p>Overlay Art Type: Allows you to set the Overlay Art as Vector or Bitmap type.</p> <p>Line Art Type: Allows you to set the Line Art as Vector or Bitmap type.</p> <p>Colour Art Type: Allows you to set the Colour Art as Vector or Bitmap type.</p> <p>Underlay Art Type: Allows you to set the Underlay Art as Vector or Bitmap type.</p>

<p>Bitmap File Options</p>	<p>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 RGB 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 output 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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
	<p>Transparency Type</p> <p>Premultiplied with Black: Semi-transparent pixels in the original image are blended with black.</p> <p>Premultiplied with White: Semi-transparent pixels in the original image are blended with white.</p> <p>Straight: Semi-transparent pixels in the original image are left as is (unmatted).</p> <p>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.</p>

Controls Tab

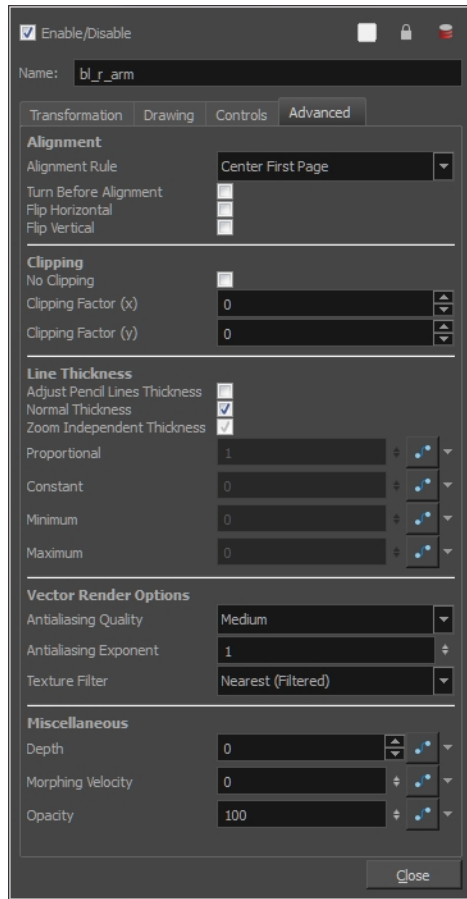


The Controls tab contains animation control options.

Parameter	Description
Animation	<p>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.</p>
Angle Limit Values	<p>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.</p> <p>Enable Min/Max Angle: Activates the minimum and maximum angle constraints.</p> <p>Min Angle: Type the minimum angle you want the drawing to rotate too.</p> <p>Max Angle: Type the maximum angle you want the drawing to rotate too.</p>
Spline Offset	<p>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.</p> <p>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).</p>

Advanced Tab

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



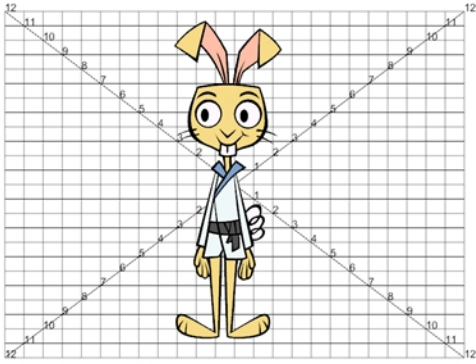
Parameter	Description
Alignment	<p>Alignment Rule: The alignment rule selections are intended to deal with drawings that were created on paper of a different size or orientation from the default alignment rule (set up in the Scene Settings dialog box) or imported bitmap images. The drawings are then 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.</p> <ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> • 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 panel with the centre of the field chart. <p>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.</p> <p>Flip Horizontal: Flips the drawing on the X-axis.</p> <p>Flip Vertical: Flips the drawing on the Y-axis.</p>
Clipping	<p>No Clipping: Select this option if you do not want to clip the images in this node before an effect is applied to it.</p> <p>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.</p>
Line Thickness	<p>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.</p>

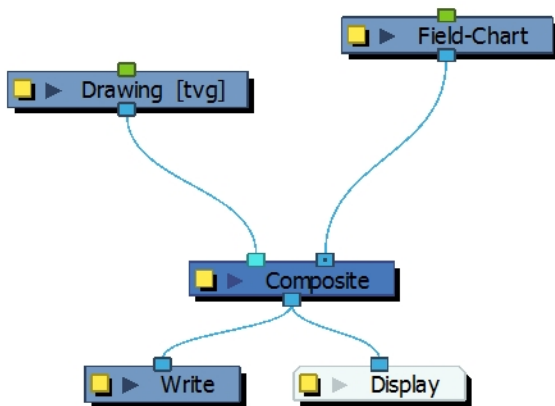
	<ul style="list-style-type: none"> • Adjust Pencil Lines Thickness: Lets you work with pencil lines and adjust their thickness. You will not see any changes to lines in the Camera view OpenGL mode. You must switch to the Render mode. • Normal Thickness: Disables all overrides on the brush stroke line 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	<ul style="list-style-type: none"> • Antialiasing Quality: A smoothness (antialiasing) setting applied to the final rendered image. <ul style="list-style-type: none"> • Low: No antialiasing • Medium Low: Basic antialiasing • Medium: Improved antialiasing (blurs the textures) • High: High quality antialiasing (does not blur the textures) <p>Higher quality images require more time to render and more system memory. Choose a lower quality if you are rendering a pencil test.</p> • 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. <ul style="list-style-type: none"> • 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

	<p>point. (Lower Quality)</p> <ul style="list-style-type: none">• Nearest (Filtered): This option is an improved version of Bilinear and improves the quality when zooming on a texture. (Best Quality)
Miscellaneous	<ul style="list-style-type: none">• 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.

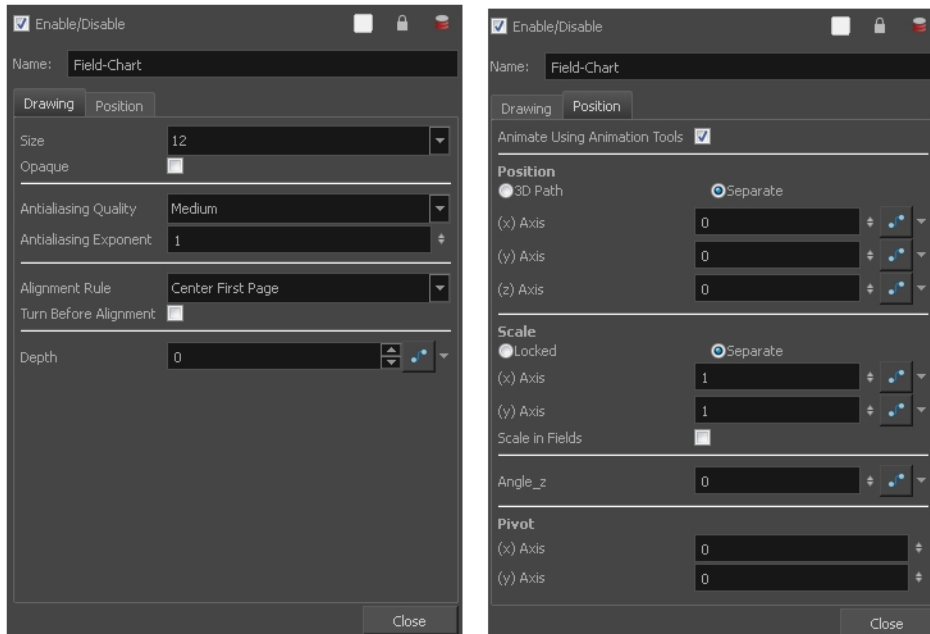
Field Chart Node



The Field Chart node displays a traditional animation field chart, which allows you to position elements in the Camera view. The Field Chart node doesn't export. If you want to export a field chart, use the Grid node—see [Grid Node](#) on page 429.



Field Chart Properties



Parameter	Description
Name	Lets you rename the node.
Drawing	
Size	Adjusts the number of units in the grid (field chart). The grid size will always be a 4:3 ratio, as per traditional animation standards. The gird is available in 12 or 16 fields.
Opaque	Inserts a white background behind the grid and covers everything else behind it. By default, you can see through the grid.
Antialiasing	<ul style="list-style-type: none"> • Antialiasing Quality: A smoothness (antialiasing) setting applied to the final rendered image. <ul style="list-style-type: none"> • Low: No antialiasing • Medium Low: Basic antialiasing • Medium: Improved antialiasing (blurs the textures) • High: High quality antialiasing (does not blur the textures) <p>Higher quality images require more time to render and more system memory. Choose a lower quality if you are rendering a pencil test.</p> • 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.
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

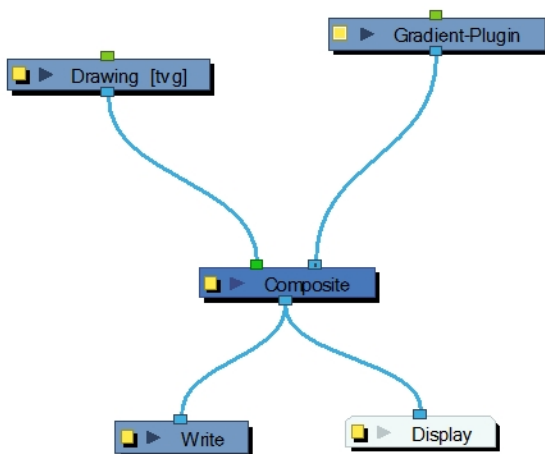
	<p>drawings are then scaled to match the Harmony alignment rectangle. Note that alignment rules are not based on the camera frame, but on the scene frame. Refer to the Fundamentals Guide to learn more about scene alignment and scene settings.</p> <ul style="list-style-type: none"> • Left: The default 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	<p>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.</p>
Depth	<p>Overrides the order of cables in the node system to determine the</p>

	forward/backward order in which this element is rendered. The Z position value overrides the depth value.
Position	
Animate Using Animation Tools	<p>By default, the grid can be animated using the same parameters as a peg, but you can disable this feature so the field chart remains in place. You can connect it to a peg to animate it or move it.</p> <p>When this option is deselected, you cannot move the layer in the Camera view using the Transform and Advanced tools. This prevents you from accidentally displacing or modifying a layer.</p>
Position	<p>3D Path: Lets you use a 3D path function to animate an element.</p> <p>Separate: Lets you independently edit the different coordinate fields.</p> <p>Path (x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.</p> <p>Path (y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p> <p>Path (z) Axis: Lets you type in a new Forward/Backward coordinate corresponding to the desired position.</p>
Scale	<p>Locked: Resizes the element while keeping its ratio. The X and Y axes scale proportionally</p> <p>Separate: Resizes the element allowing to modify the ratio (squash and stretch).</p> <p>(x) Axis: Lets you type in the horizontal scale value.</p> <p>(y) Axis: Lets you type in the vertical scale value.</p> <p>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.</p>
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.
Pivot	<p>(x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.</p> <p>(y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p>

Gradient Node



The Gradient effect lets you create a transition of colour or alpha values between two areas of colours. You can create a linear or radial gradient. Use two points to indicate where those two coloured areas are. You can then move these points to create the transition.



The Gradient node covers the entire camera frame and beyond. You do not need to scale it up or down. It will automatically cover an infinite zone. You simply need to connect it behind your scene's elements. You can connect it in front of some elements you want to cover. By default, the Gradient has a Z ordering value of 0. When you select the Gradient node, the Camera view displays yellow triangles to indicate that it's selected.

Use the Gradient property editor to modify the values of the gradient and the position of its output.

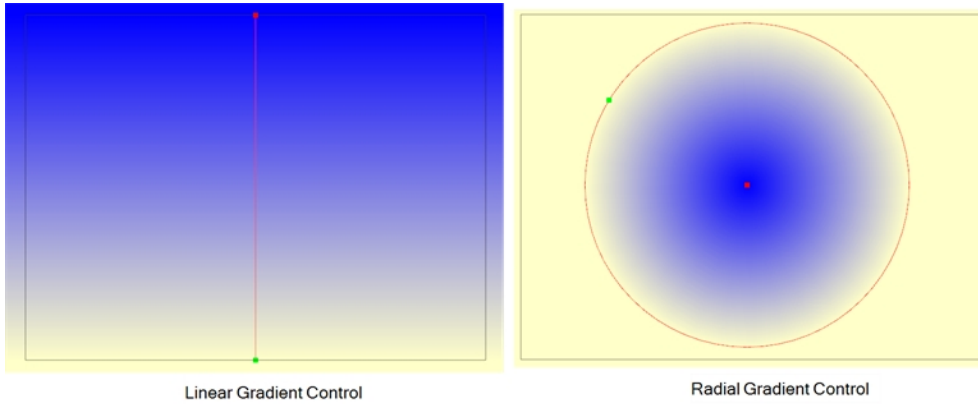
Controlling the Gradient in the Camera View

If you want to control the gradient's orientation and points position in the Camera view, you can use the Control command to display the points and move them.

How to control the gradient in the Camera view

1. In the Tools toolbar, select the Transform  tool.

2. In the Node view, select the **Gradient** node.
3. From the top menu, select **View > Show > Control**.
4. In the Camera view, click the Gradient's points and move them.



Gradient Properties

Layer Properties ✖

Enable/Disable

Name: Gradient

Gradient Type: Linear

Point 0

Red: 0 [Color Swatch]

Green: 0 [Color Swatch]

Blue: 0 [Color Swatch]

Alpha: 255 [Color Swatch]

2D Path Separate

(x) Axis: 0 [Color Swatch]

(y) Axis: 12 N [Color Swatch]

Point 1

Red: 255 [Color Swatch]

Green: 255 [Color Swatch]

Blue: 255 [Color Swatch]

Alpha: 255 [Color Swatch]

2D Path Separate

(x) Axis: 0 [Color Swatch]

(y) Axis: 12 S [Color Swatch]

Offset Z: 0

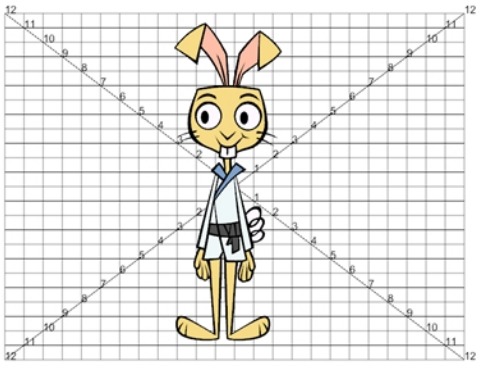
Depth: 0 [Color Swatch]

Close

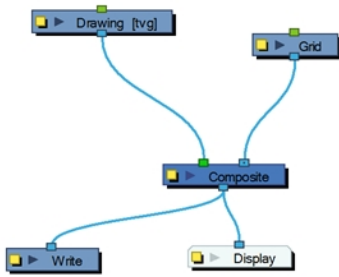
Click these colour swatches to open the Colour Picker window and set the point colour.

Parameter	Description
Gradient Type	Lets you select a linear or radial gradient.
Point 1, Point 1	These sections control the values of the first point (point 0) and the second point (point 1) in the gradient.
Red, Green, Blue, Alpha	The colour and alpha values of the corresponding point. You can also click the colour swatch to open the Colour Picker window and select a new colour. These colours can be animated over time if the value parameter is attached to a function curve. Default values: 0,0,0 and 255, 255, 255.
(x) Axis	Sets the X coordinate for the corresponding point.
(z) Axis	Sets the Y coordinate for the corresponding point.
Offset Z	Enter the front-back position of the Gradient layer in 3D space. You can verify this value in the Top view.
Depth	Determines the composition order when the Z value of two elements is the same.

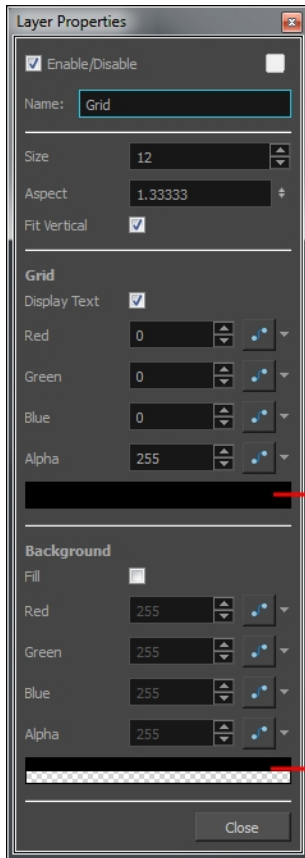
Grid Node



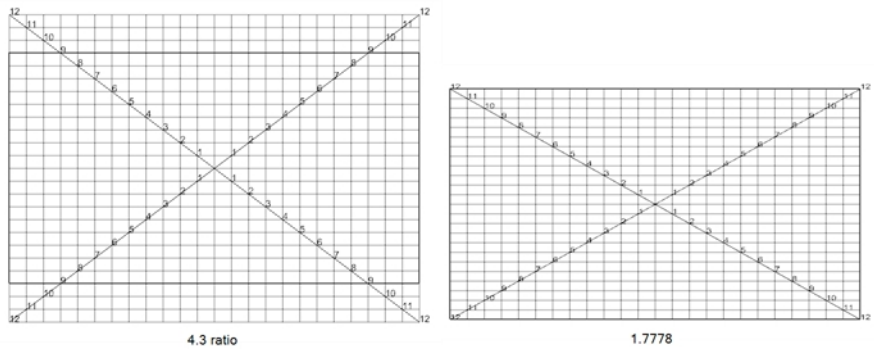
The Grid node displays a grid, in field chart unit, which allows you to position elements in the Camera view.

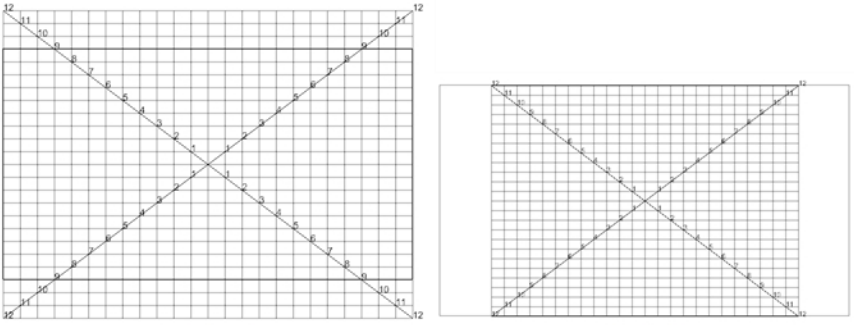


Grid Properties

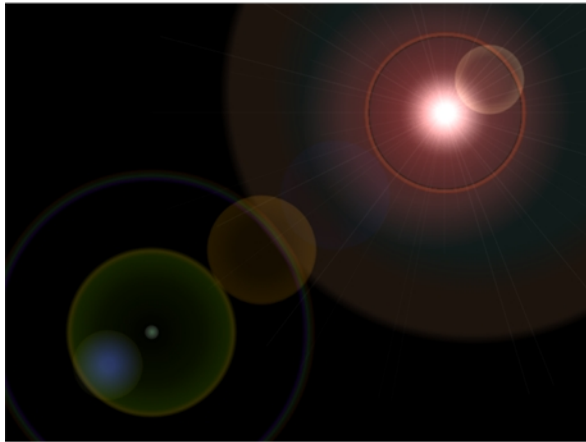


Click on these colour swatches to open the Colour Picker window and select a new colour.

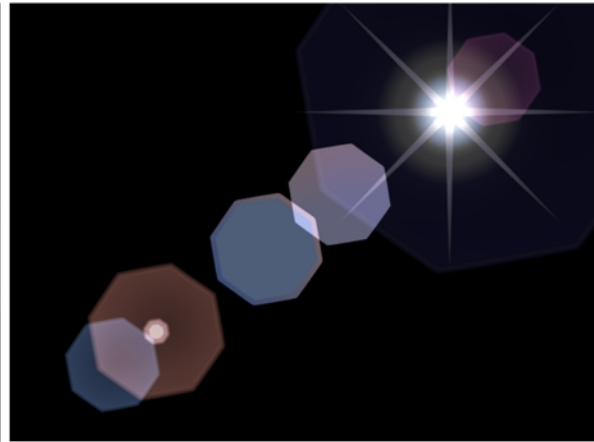
Parameter	Description
Name	Lets you rename the node.
Size	Adjusts the amount of units in the grid (field chart). The grid size will always be a 4:3 ratio, as per traditional animation standards, but will adjust the camera frame width. You can change the grid to adjust to the camera frame by deselecting the Fit Vertical option.
Aspect	 <p>The grid size default format is 4:3 ratio, as per traditional animation standards, but will adjust the camera frame width. You can change the grid ratio by entering a new ratio. To find your scene ratio, select Scene > Scene Settings.</p>

Fit Vertical	 <p style="text-align: center;">Fit Vertical ON Fit Vertical OFF</p> <p>Makes the grid size adjust the camera width or height.</p>
Display Text	Turns the display of numbers on or off.
Fill	Makes the grid's background opaque. Nothing behind will be shown. You can also click on the colour swatch to open the Colour Picker window and select a background colour.
RGBA	The colour and alpha values of the corresponding point. You can also click on the colour swatch to open the Colour Picker window and select a grid or background colour. Default values: 0,0,0 and 255, 255, 255.
Colour Swatch	Opens the Colour Picker window in which you can specify the colour.

Lens Flare Node



Circular lens flare

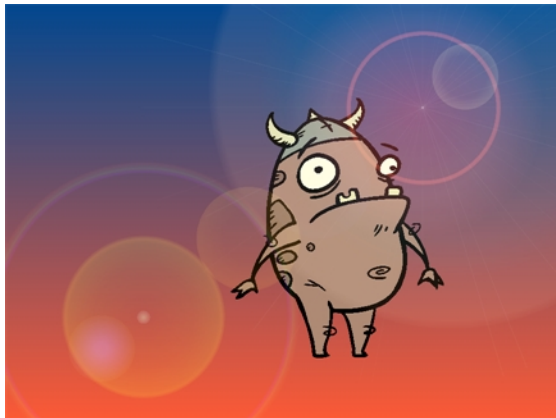


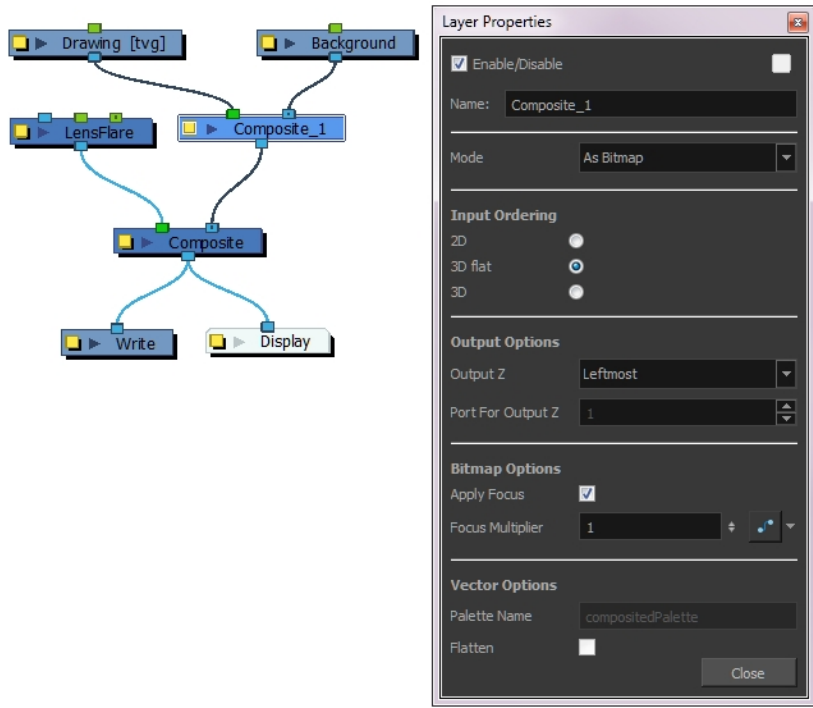
Hexagonal lens flare

The Lens Flare effect simulates the refraction caused by shining a bright light into a camera lens. The shape of the lens flare can be circular or hexagonal.

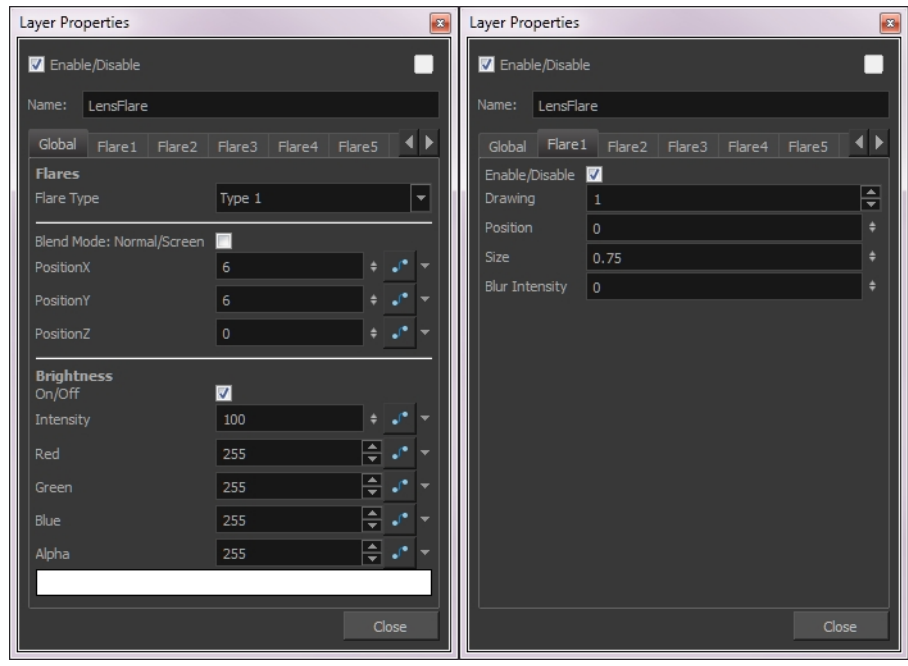
For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.

Here is how a typical lens flare can be set up:





Lens Flare Properties



Parameter	Description
Flares	
Flare Type	Custom: Lets you use your own custom art or drawing. Type 1: Circular lens flare.

	Type 2: Hexagonal lens flare.
Blend Mode: Normal/Screen	Lets you apply a normal or screen blending mode to the image. Normal: When selected, this operation will not create any blending mode effect. Screen: When deselected, this operation multiplies the inverted colour of the blending element with the image. This lightens the colour of the overlapping area. Screen is the default blending mode.
Position X, Y, Z	Lets you precisely orient the flare in the x, y, and z axes.
Brightness	
Intensity	The strength of the lens flare.
Red	Red values of the image.
Green	Green values of the image.
Blue	Blue values of the image.
Alpha	Alpha values of the image.
Colour Swatch	Opens the Colour Picker where you can specify the colour of the main flare.
Flare 1-10	Lets you create custom lens flares by associating them with specific drawings. You can create up to 10 different flares.
	Drawing: Lets you specify a drawing to use for the flare. Position: The position of the flare. Size: The size of the flare. Blur Intensity: The strength of the flare.

Turbulent Noise Node

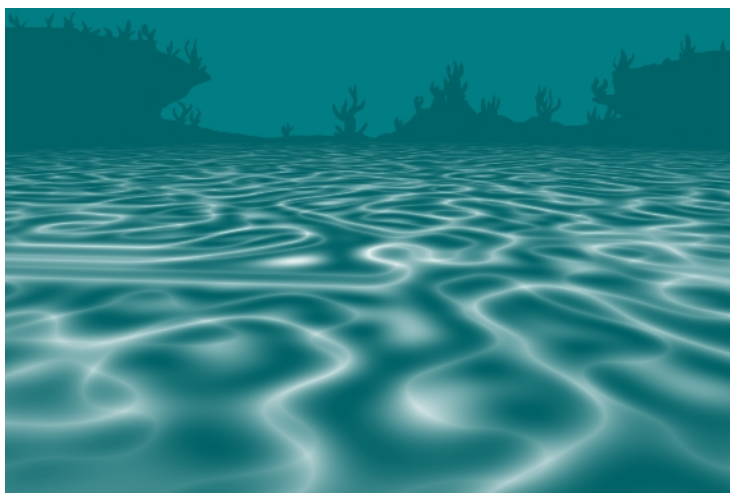
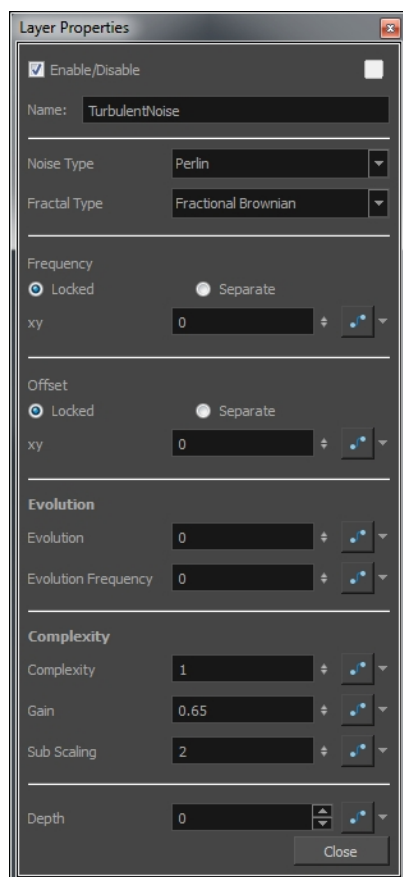
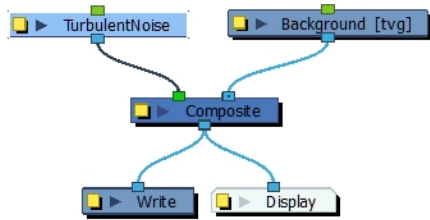


Image courtesy of Adam Phillips

The Turbulent Noise effect uses Perlin noise to create greyscale noise for organic-looking backgrounds, displacement maps, and textures, or to simulate clouds, fire, lava, steam, flowing water, or vapour. The Turbulent Noise effect models turbulent systems with smaller noise features moving more quickly than larger noise features. The Turbulent Noise effect creates smooth animations and takes less time to render than other noise or grain effects.

For detailed video tutorials and sample scenes by Adam Phillips, see toonboom.com/resources/video-tutorials/chapter/adam-phillips-harmony-effects.





Turbulent-Noise Properties

Parameter	Description
Noise Type	Perlin : Creates pseudo random patterns. The greyscale contains a continuity between different tones of grey.
	Simplex : Creates a more contrasted noise pattern with more variation than Perlin. There is a smooth variation of intensity.
	Sinusoidal : Creates a repeated wavelike pattern.
	Sub Scaling : Applies Perlin noise twice. The second noise is added where dark areas appear in the original. The frequency of the second iteration is higher so the noise is smaller.
	Rocky : Uses the Perlin pattern but converts the very high and low values to more moderate values. For example, the whites become light greys and the blacks become dark greys.
	Small Bumps : Uses the Perlin pattern. The transitional grey areas between blacks and whites become inverted so they look like dark lines. The extremes, black and white areas, become whitish.
Fractal Type	Transforms the noise pattern, created by the Noise type and controls the way layers are composited. These are variations of the basic noise.
	Turbulent Twist : Applies a turbulent effect on the pattern so it changes the transition between black and white by adding more modulation.
	Fractional Brownian : Applies a basic application of noise and composites by adding subsequent layer with the Complexity parameter.
	Threshold : Changes the dark greys into black values so there is more black in the noise for higher contrast.
	Invert Threshold : Inverts all the values of the Threshold type so a negative image of it is created.
	Terrain : Adds contrast and converts the dark greys into white or light greys.
Frequency	The density of displacement appearing in the noise. A higher value produces a greater amount of displacement in a given area; a lower value produces a smaller amount.
Offset	Moves the entire image.
Locked	Applies parameter value while retaining the X and Y ratio.
Separate	Allows you to apply different parameter values to X and Y.

xy	When locked, applies parameter values to both X and Y. When separated, allows you to apply different value to X and Y.
Evolution	Determines the displacement pattern over time.
	Evolution Frequency: This factor makes the complexity iterations animate or transform at a higher speed. In other words, the second, third, etc. passes, controlled by the Complexity parameter, will mutate faster than the main one.
Complexity	Complexity: The number of noise layers that make up the noise. Each successive layer has a higher frequency, resulting in a smaller noise effect. You can have up to seven passes. Increasing this number increases the depth and amount of detail in the noise. Use Complexity with Sub Scaling when the value is 1 or greater. Note: Increasing the Complexity results in longer rendering times.
	Gain: Controls the amount of opacity present in the iteration of noise. This also affects the layer when using Sub Scaling. With a value of 0, you will not see the sub noise. A value of 1 will show the sub noise just as strong as the main one. For example, with water ripples, a higher amount of Gain will reveal more ripple or subripples.
	Sub Scaling: The factor by which the main noise is modified at each iteration of complexity. A value of 1 make the two noises identical. A value of 2 makes the sub noise twice as small. The next iteration would be 4 times smaller. Values must be greater than 1.
	Depth: This value determines the composition order when the Z value of two elements is the same.

Group Nodes

The nodes found in the group category are used to organize the Node view by grouping nodes and providing input and output ports for these groups.

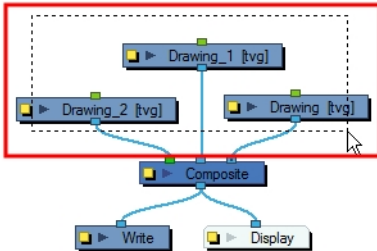
Group Node	439
Multi-Port-In Node	440
Multi-Port-Out Node	441

Group Node

You can group your elements to keep your work organized.

How to group nodes

1. In the Node view, drag a selection around the nodes you want to group.

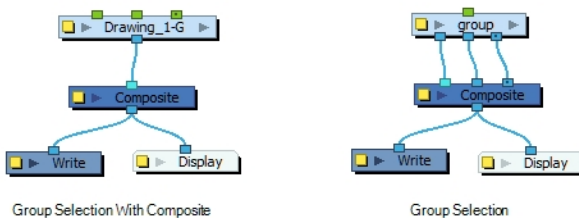


2. In the Node menu, do one of the following:
 - Select **Edit > Group > Group Selected Layers**.
 - Press **Ctrl + G** (Windows/Linux) or **⌘ + G** (Mac OS X).

You can also right-click in the Node view and select one of the following:

- **Group > Group Selection With Composite** or press **Ctrl + Shift + G** (Windows/Linux) or **⌘ + Shift + G** (Mac OS X).
- **Group > Group Selection** or press **Ctrl + G** (Windows/Linux) or **⌘ + G** (Mac OS X)

The selected nodes are grouped.



Group Selection With Composite

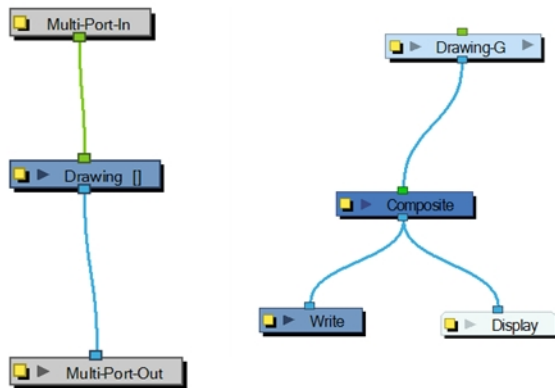
Group Selection

NOTE:

To ensure that you have a Multi-Port Out node in your group and that your group remains connected, include a Composite node in your selection and make sure it is connected to the main Composite node of the scene before grouping.

Multi-Port-In Node

A Multi-Port-In node is added by default in a new Group node. Use it to add one or more input ports to the Group node so that you can process an image through the nodes in the Group node.

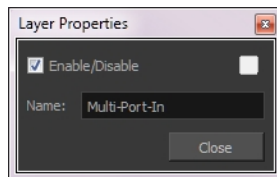


When you plug an element to a Multi-Port-In node, an input port appears at the top of the Group node. You can add additional ports to the nodes as needed.

Pass your cursor over the Group node input port to see the name of the Port Image In node that it connects to. You will notice that the Group node in these examples has no output port. It requires a Multi-Port-Out node to output data from its network.

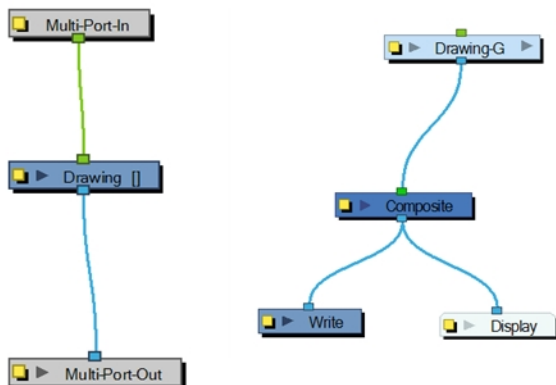
A Multi-Port-In is automatically added when you create a group.

Use the Multi-Port-In editor to rename the node.



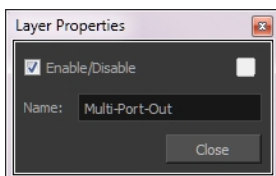
Multi-Port-Out Node

A Multi-Port-Out node is added in a new Group node by default. Use it to add output ports to the Group node so that you can output the result of the group operation to the rest of the network. After you plug an element to a Multi-Port-Out node, an output port appears on the bottom of your Group node. You can add additional output ports as needed.



A Multi-Port-Out is automatically added when you create a group.

Use the Multi-Port-Out editor to rename the node in the network.



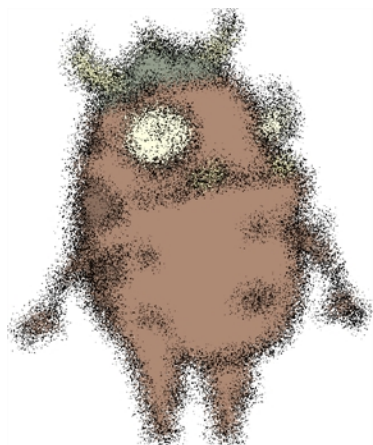
Miscellaneous Nodes

The nodes found in the Miscellaneous category are various nodes used to either add notes to the Node view, use external scripts or previous and hide elements in OpenGL and Render view.

External Node	443
Note Node	446
Render Preview Node	447
Script Node	448
Visibility Node	449

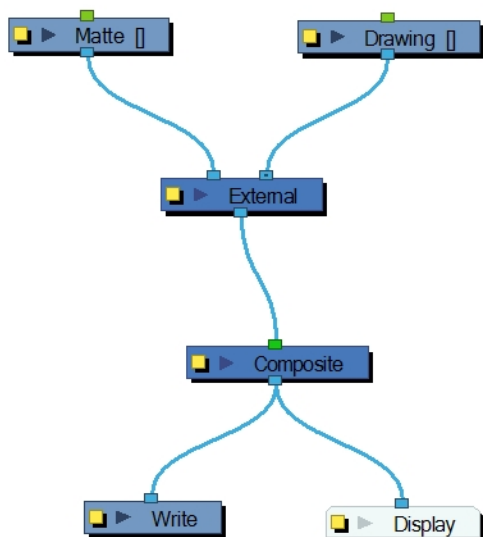
External Node

Use the External node to process images through external programs and input the resulting images back into the network. Note that not all programs work with the External node.



Using the External node lets you avoid having to export your animation to another software to do some processing over it and then bringing it back to Harmony. This way, you can modify your scene and animation as much as you want and still use the effects or render process from a third-party software.

NOTE: Harmony also supports OpenFX plugins.



The External node writes input files to temporary files on the system. It then calls the external program, which will process the input images. If two images are input into the node, the program must composite them together to produce one output image. Finally, the file produced by the external program is read back into the network.

The command is sent to the external program in the following format:

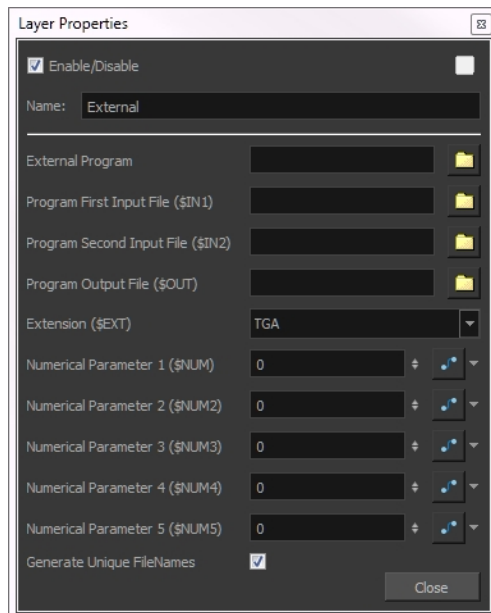
```
program_name file_1 file_2 output_file numerical_param extension
```

Use the External editor to control the program that is launched by the node, the files that it reads, and the file that it outputs into the network.

```
Version: ImageMagick 6.3.0 11/06/06 Q16 http://www.imagemagick.org
Copyright: Copyright (C) 1999-2006 ImageMagick Studio LLC
Usage: mogrify [options ...] file [options ...] file ...
Where options include:
-adaptive-blur geometry      adaptively blur pixels; decrease effect near edges
-adaptive-resize geometry   adaptively resize image with data dependent triangulation
-adaptive-sharpen geometry  adaptively sharpen pixels; increase effect near edges
-affine matrix              affine transform matrix
-annotate geometry text    annotate the image with text
-antialias                  remove pixel-aliasing
-authenticate value        decrypt image with this password
-auto-orient                automatically orient image
-background color          background color
-bias value                 add bias when convolving an image
```

In this example, the ImageMagick 6.3 software was used without a matte connection.

Use the External editor to write down the parameters matching the chosen external program.



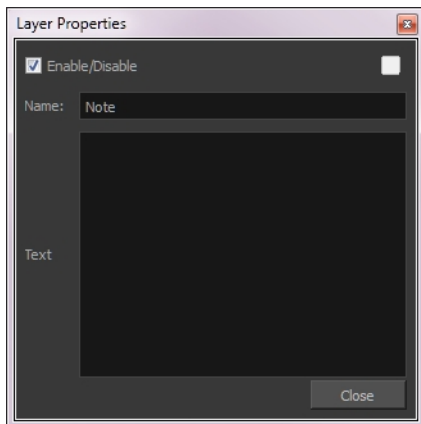
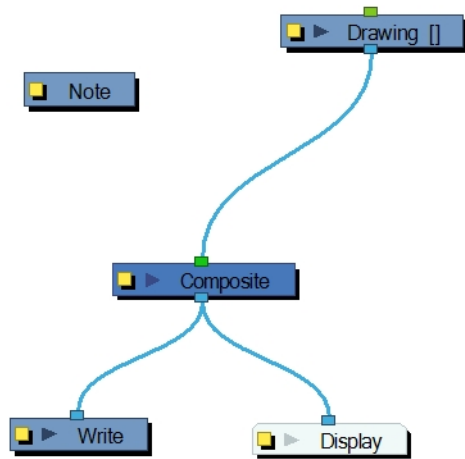
External Properties

Parameter	Description
External Program	<p>The name of the program launched by the External node. This field can include a full or relative path to the executable file. If no path is entered, the user's path is searched to locate the program.</p> <p>Enter the command directly into this field. For example:</p> <pre>mogrify -spread \$NUM \$IN1</pre> <p>Where:</p> <p>mogrify: Is the name of the program spread: Is the option to be applied, \$NUM and \$IN1: Are the numerical parameter and first input file variable</p>

	declared in the External node.
Program First Input File (\$IN1)	The name and location of the temporary file that Harmony will write to the file system for the external program to read. It must not include the dot or the extension; the External node will add these based on the Extension field.
Program Second Input File (\$IN2)	When processing two files through this node (such as an image and a matte), this is the name and location of the second temporary file that Harmony writes to the file system for the external program to read. It must not include the dot or the extension; the External node will add these based on the Extension field.
Program Output File (\$OUT)	The name and location of the temporary file that the external program will write to the file system so that Harmony can read it back into the network.
Extension (\$EXT)	The file type that will be processed by the external program.
Numerical Parameter(\$NUM)	A value passed to the external program as a file processing option. It can be attached to a function curve to change over time.
The program files are temporary files that are overwritten at each frame as the node is executed. They are only meant to temporarily store the image that is being processed at each frame.	
Generate Unique FileNames	If this option is enabled, the temporary output file will have a unique identification number added to its name to avoid any file override if another scene or External script is rendered at the same time. It could be possible to have an override when two scenes using the External nodes are rendered in batch processing.

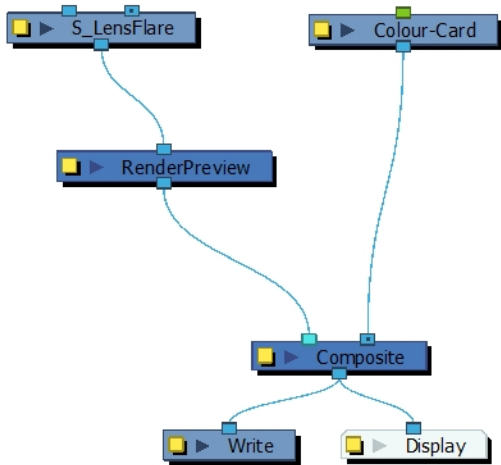
Note Node

The Note node allows you to record any textual information that is relevant to your project. You can add comments, suggestions or reminders. You can add Note nodes anywhere in the network, including groups.



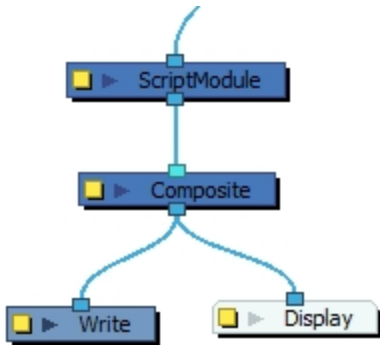
Render Preview Node

To adjust the effect's visual controls in OpenGL mode, from the Node Library view, drag a Render Preview node to the Node view. Connect it between the effect and the Composite nodes.



Script Node

Use the script node to enter your own scripts to execute whatever custom functions you desire.

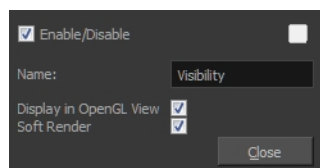


Properties

Parameter	Description
Name	Use this field to rename the node.
Tabs	
Attributes	By default this tab does not specify any function. You can enter script in the Specifications tab to create functions for the Attributes tab.
Specifications	Enter code to create functions for the Attributes tab.
Softrender	Enter or browse for script to be used during software rendering operations.
Initialization	Enter or browse for script that will run once per session, when the scene is loading.
Cleanp	Enter or browse for script that will run once per session, when the scene is being closed.

Visibility Node

The Visibility node lets you control whether an item is visible in OpenGL mode versus the Soft Render mode in the Camera view. If the Soft Render option is not enabled, the layer will not be exported.



Visibility Properties

Parameter	Description
Display in OpenGL View	Displays your render in OpenGL mode.
Soft Render	

Move Nodes

The nodes found in the Move category are used to animate layers as well as camera motions.

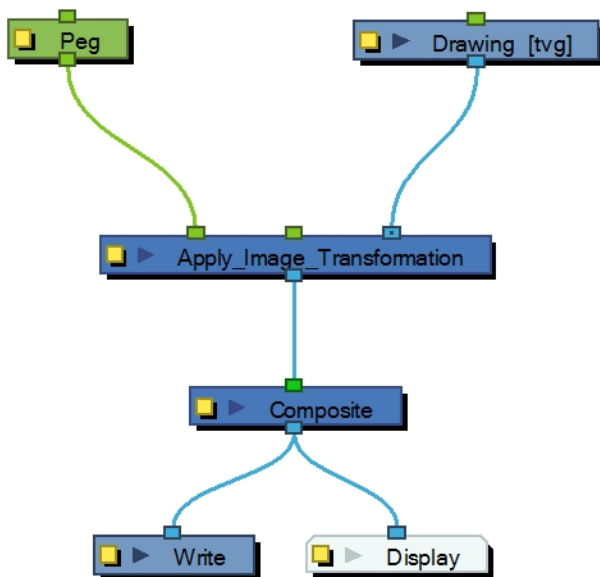
Apply Image Transformation Node	451
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Apply Image Transformation Node

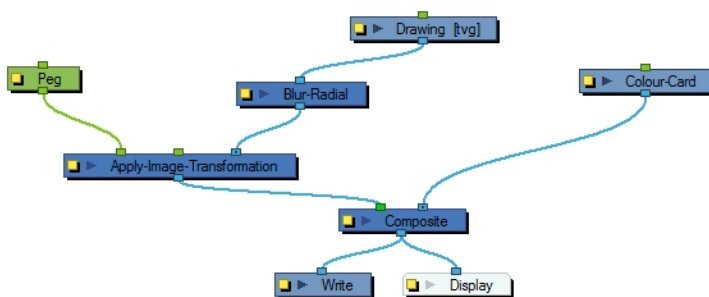
The Apply Image Transformation effect is mainly used when you want to pan an object out of the camera frame and that object has an effect such as a Glow or a Blur on it. When you use a peg or the Apply Peg Transformation node to translate an object such as the sun out of the camera frame, as soon as the sun starts to go outside of the camera frame, the sun's circle is cropped and the blur is applied on the shape left over. This also means that when the sun is completely out of the frame, the Blur is not calculated anymore and the Blur pops out.

To prevent this from happening, you must use the Apply Image Transformation node to pan the sun out.

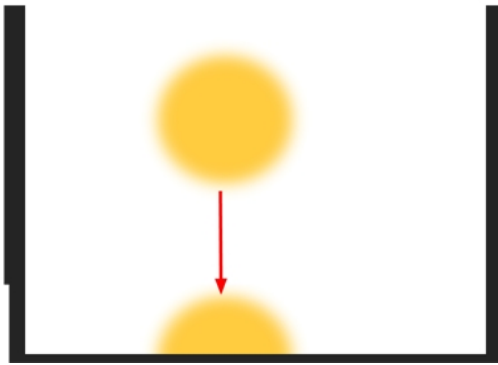
The Apply Image Transformation node applies the panning transformation once the full drawing of the sun is blurred, once the image is composited. Here is an example of this network:



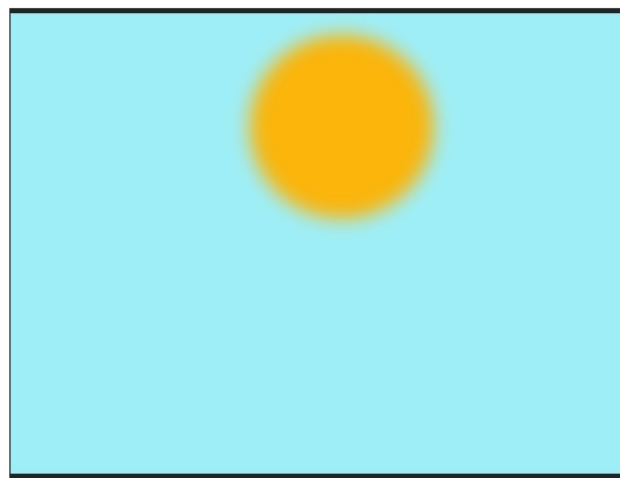
Here is how to connect the Blur effect for a sun panning out:



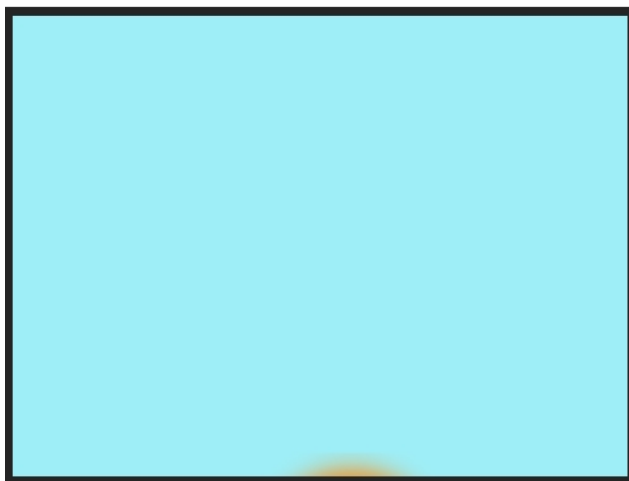
Here is the visual result of the blurred sun:



Look at the following example to understand better why using the Apply Image Transformation instead of a regular peg or the Apply Peg Transformation node.



Original Image



Apply Image Transformation

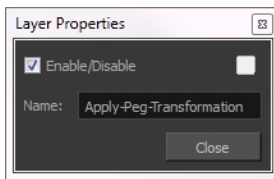


Peg, or Apply Peg, Transformation

The normal rendering behaviour is to crop the image before applying the effects. When planning a sunset using either a Peg or the Apply Peg Transformation node, as soon as the drawing of the sun is out of the camera frame, the drawing is cropped and there is no image left to blur. This means that the glowing edge pops out of the camera instead of panning out gradually. Using the Apply Image Transformation node, the image is blurred before being

panned out, so this means that even once the drawing is out of the camera frame, its glowing edge will still show until the drawing is far enough from the camera border. This way, there is no pop when panning out blurred objects.

Use the Apply Image Transformation editor to change the name of the node.



Apply Peg Transformation Node

Use the Apply Peg Transformation node to apply a transformation coming from a Peg, Ortholock, or Quadmap node on a single node or a group of nodes. When using the drawing layer's No Clipping option, you can use this node to apply all Camera and Peg transformations once all of the effects and nodes connected above the drawing node are calculated.



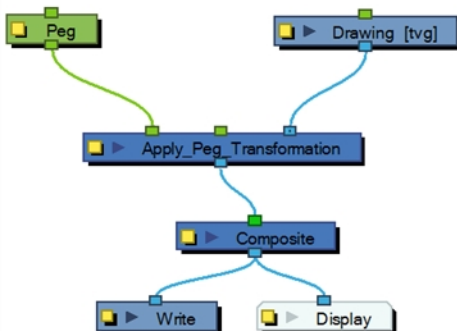
You can use this effect node to create a simple highlight on a cut-out puppet or use the No Clipping option available in the drawing layer.

The No Clipping option, found under the drawing Layer Properties' Advanced tab is used when you do not want to crop your images before all effects are applied to your drawing. No camera motion or peg transformation will be applied to your drawing until you connect an Apply Peg Transformation.

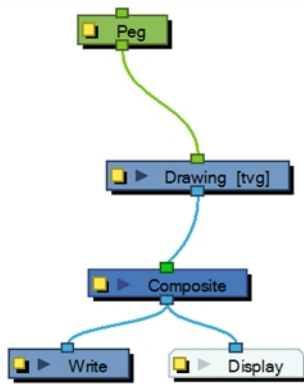
The advantage of this node is that you can create a second output of your image or puppet and offset it, scale it or apply any kind of transformation on it.

The transformations set in the Peg, Ortholock, or Quadmap node connected to the Apply Peg Transformation node are applied **BEFORE** the image is composited.

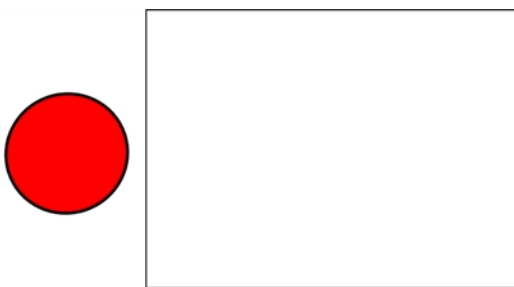
Here is an example of how to connect the Apply Peg Transformation node:



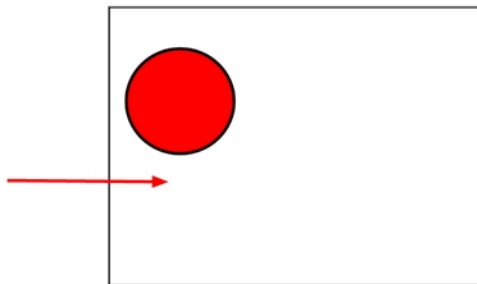
The transformation set in the Peg node from the example above is applied before the image is composited, which is the equivalent of the following network:



In the following images you can see the result of the transformation without the Apply Peg Transformation node and with it:



Original Drawing (outside the camera frame)
without an Apply Peg Transformation

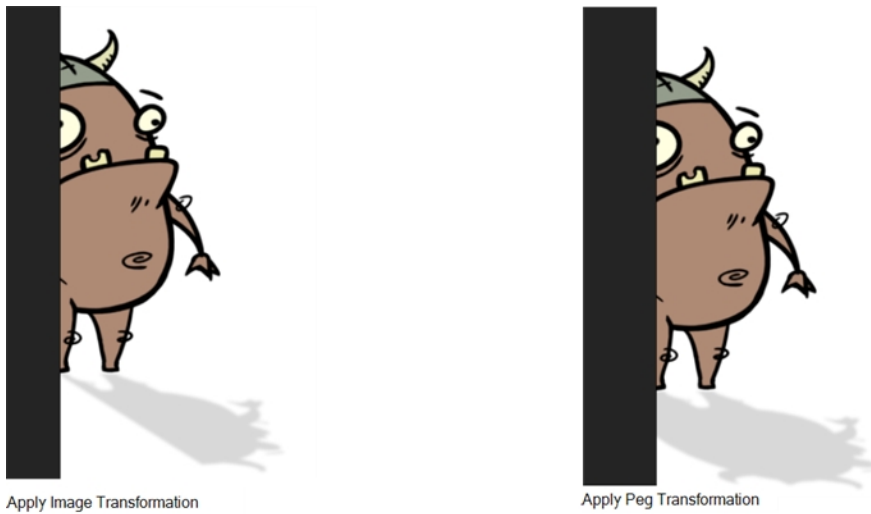
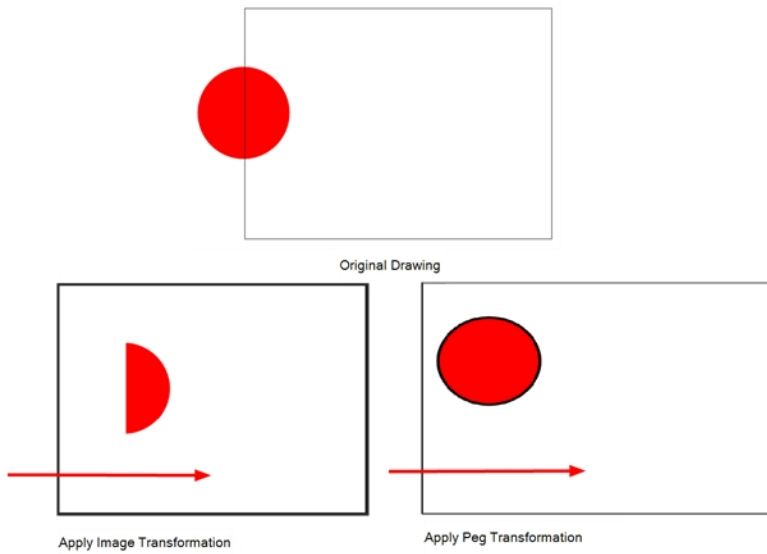


Drawing with an Apply Peg Transformation (appears
within the Camera Frame)

Using the Apply Peg Transformation you can apply transformation on drawings that are outside the camera frame and make them appear inside the frame.

If you are using the Apply Image Transformation node to create a drop-down shadow for a character, it will work correctly so long as the character is not going outside of the camera frame or that the drawing connected in it is a **VECTOR** drawing. The reason is the Apply Image Transformation node applies the transformation once the drawing is rendered, moved by its own set of Pegs, motion paths and quadmap and cropped to the camera frame size. This crop operation does not occur if the drawing is a vector drawing (*.TVG). Although, as soon as the drawing is passed through an effect node or a bitmap type Composite node, the drawing is turned into a bitmap image and gets cropped.

So, if you offset a bitmap half inside and half outside the camera frame, the outside part is cropped out and then moved by the Apply Image Transformation node. A part of the original drawing is cut. You need to use the Apply Peg Transformation node for the transformation to be applied before the image is processed and cropped.

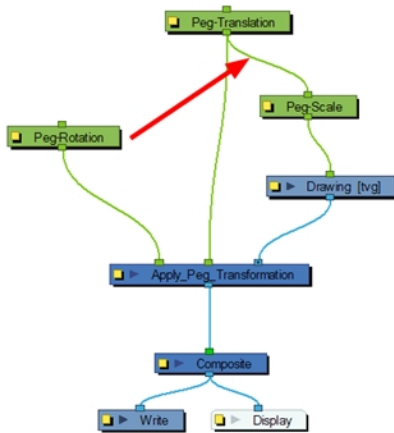


Advanced Apply Peg Transformation

You can use the Apply Peg Transformation's middle port to apply the transformation you connected to the node after one of the Peg or Quadmap connected above the drawing node.

In the following example, two pegs were added to control the different motions on independent trajectories:

- Peg-Translation
- Peg-Scale



When there is no Apply Peg Transformation node, the Peg-Translation is the first trajectory to affect the drawing node. Then, once the translation is applied, the Scale trajectory affects the drawing node.

When using an Apply Peg Transformation node without using the middle port, the Peg-Rotation connected in the APT node is applied at the top of everything. The order in which the trajectories are applied to the drawing node is:

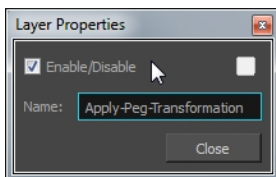
1. Peg-Rotation
2. Peg-Translation
3. Peg-Scale

When the Peg-Translation is connected in the Apply Peg Transformation's middle port, the Peg-Rotation is applied after the Peg-Translation and before the Peg-Scale. This means that the translation is done before the rotation instead of the rotation before the translation.

The order in which the trajectories are applied to the drawing node is:

1. Peg-Translation
2. Peg-Rotation
3. Peg-Scale

Use the Apply Peg Transformation editor to rename the node.



Camera Node

You can setup the camera position by entering coordinates and values in the Layer Properties view.



Parameter	Description
Enable/Disable	Turns the camera layer on or off.
Change Track Colour	The Change Track Colour button lets you change the colour of the exposed frames; this helps you to quickly locate a layer in the Timeline view. Click the Change Track Colour button to open the Select Colour window and choose a new colour. You can modify the colour for any type of layer, such as group, peg, drawing, and effects.
Name	Displays the current layer name. You can rename the layer by typing in a new layer name.
Position	Displays the current position of the camera layer using X-axis (East/West), Y-axis (North/South) and Z-axis (Forward/Backward) coordinates. To reposition your camera frame, type in the new values corresponding to the desired position coordinates. You can also use the up and down arrows to set the value of each field.
Angle	Displays the current rotation value. To set a new rotation position, type in a new angle value. You can also use the up and down arrows to set the new angle value.
Pivot	Displays the current position of the rotation pivot of the camera layer. The camera will perform a rotation taking the position of the pivot as its angle centre. By default, the pivot is set at the centre of the camera frame. To reposition the pivot point, enter new X and Y coordinates values in the appropriate field. To see the pivot's position, the Rotate tool must be selected.
Clipping Planes	You can change the near and far clipping planes of the camera. The near plane

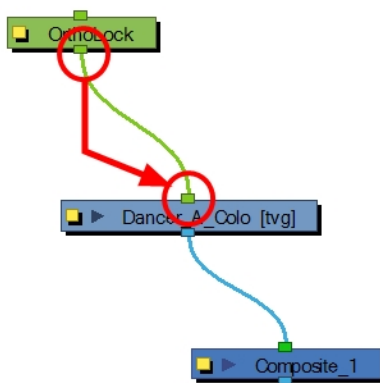
	<p>is the point on the camera cone where the camera is located. The far clipping plane is the far end of the camera cone. Nothing outside that range is visible. This is useful when dealing with 3D elements and 3D sets. For example, the camera can be looking inside a 3D box or room and you might want the foreground wall to not obstruct the view of the interior. By default, the near clipping plane is set to 1 field and the far clipping plane is set to 1000 fields.</p>
Override Scene FOV	Enable the FOV field in which you can type in a new field-of-view value.
FOV	<p>Displays the current field-of-view default value. When enabled, you can type in a new zoom value for your camera frame. You can also use the up and down arrows to set the new zoom value.</p> <p>Click on the Create Function button to animate the camera zoom value.</p>
Set Default FOV	Resets the custom zoom value to its default value.

Ortholock Node

When you create a 3D camera move in your scene, notice that layers are treated as flat objects. That is, animation layers that are supposed to face the camera at all times will look like a flat sheet of rotating paper.



Use the Ortholock layer when mixing flat animation layers with a set built in 3D. Ortholock forces your drawing layer to always follow the Camera angle. It does not follow its position or zooming level, only the rotation. This prevents drawings from being distorted by the camera motion.



Peg Node

Find below a description of all the Peg node parameters.

Transformation Tab

Parameter	Description
Enable 3D	Displays additional parameters for working with 3D objects.
Position	<p>3D Path: Lets you use a 3D path function to animate an element.</p> <p>Separate: Lets you independently edit the different coordinate fields.</p> <p>Path (x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.</p> <p>Path (y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p> <p>Path (z) Axis: Lets you type in a new Forward/Backward coordinate corresponding to the desired position.</p> <p>Velocity: When the 3D Path option is selected, lets you set the speed at which</p>
Scale	<p>Locked: Resizes the element while keeping its ratio. The X and Y axes scale proportionally</p> <p>Separate: Resizes the element allowing to modify the ratio (squash and stretch).</p> <p>(x) Axis: Lets you type in the horizontal scale value.</p> <p>(y) Axis: Lets you type in the vertical scale value.</p> <p>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.</p> <p>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.</p>
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	<p>(x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.</p> <p>(y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.</p>

Quadmap Node

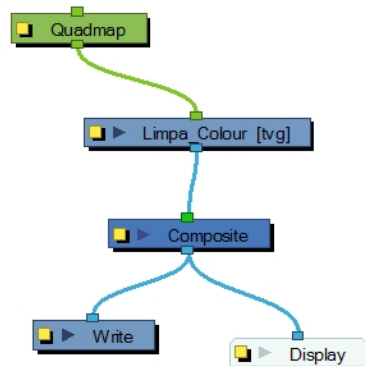
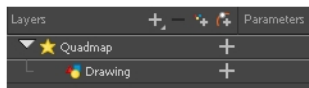
The Quadmap transformation layer lets you deform the shape of an element. For example, you can use it to create a drop-shadow effect on an element.



You can edit the Quadmap visually in the Camera view.

How to edit the Quadmap in the Camera view

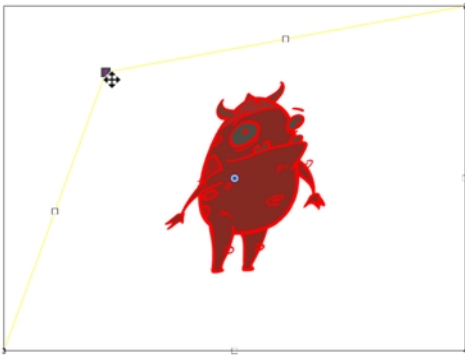
1. In the Timeline view, click the Add Layer **+** button and select **Quadmap**.
2. Connect the drawing you want to deform to the Quadmap.
 - In the Node view, add a Quadmap node and connect to the drawing element node that you want the effect to act on.



3. In the Tools toolbar, disable the Animate mode to change the value for the Quadmap over the entire duration of the element.
4. In the Timeline view, click on the Quadmap layer to select it.
5. From the top menu, select **View > Show > Control** or press Shift + F11.

The quadmap handles appear around the element in the window. There is also a pivot point at the centre of the quadmap frame that you can reposition.

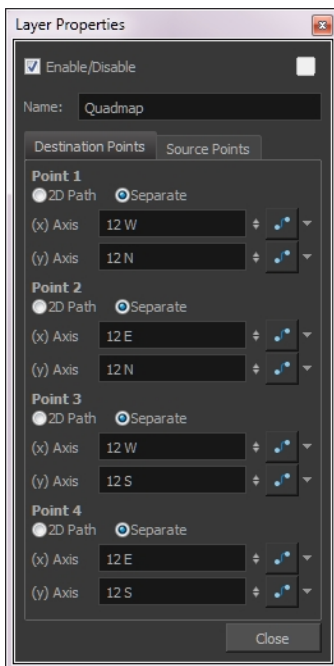
6. In the Camera view window, use the Transform tool to move the points on the quadmap. Shift + click to select multiple points.



The value of each point on the quadmap can be changed gradually. To do this, use the Quadmap node Layer Properties to attach the points to function curves.

Only the X and Y values of each point in the quadmap can be changed.

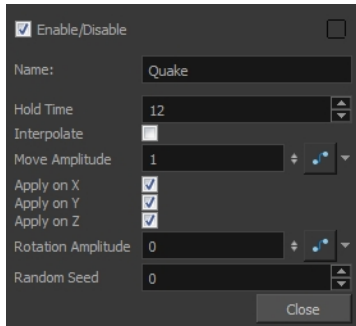
Properties



Parameter	Description
Name	Lets you rename the node.
2D Path	Changes the X and Y values simultaneously and control the velocity of the change.
Separate	Changes the X and Y values separately. Each one can be attached to separate function curves.

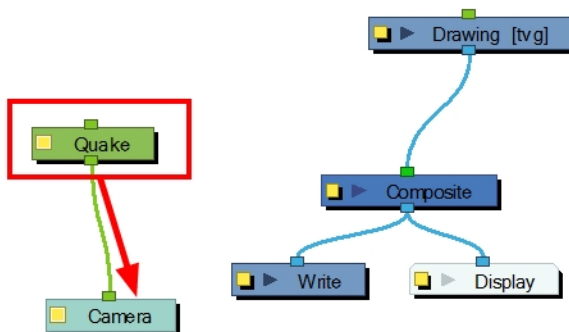
Quake Node

The Quake node lets you create a very common camera move, the camera shake. Using the Quake node, you can generate an automated quake instead of manually entering random keyframes. This way, you can simulate the shock of something heavy falling on the ground, like an earthquake or a strong vibration.

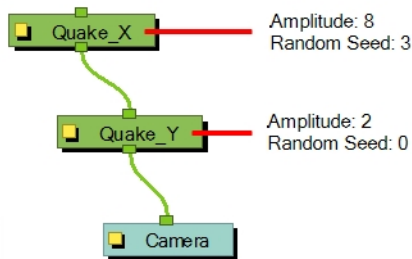
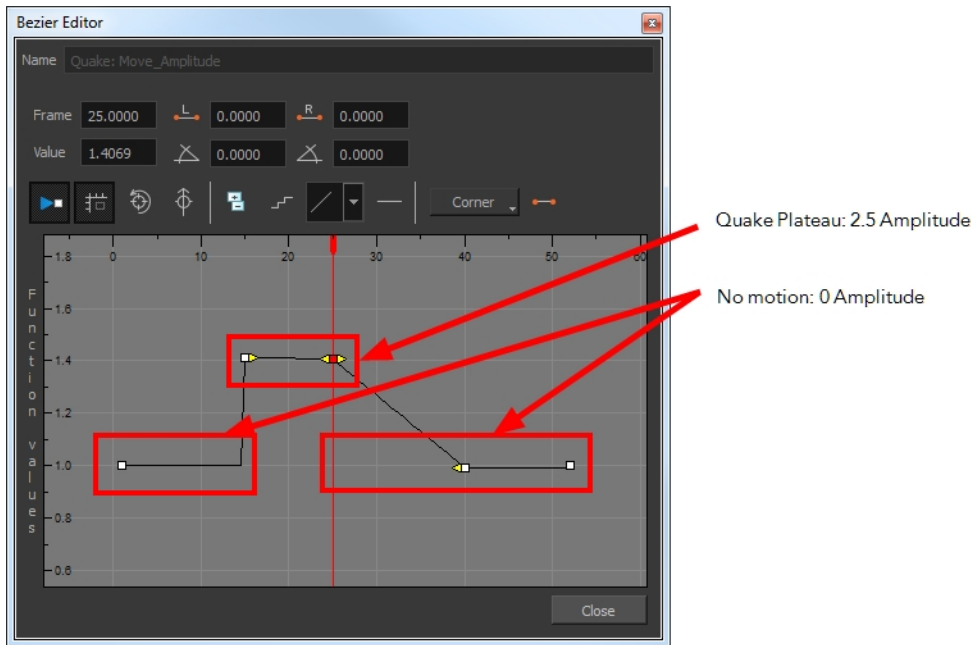


How to use the Quake node to create a camera shake


1. From the Node Library view, drag a **Quake** node to the Node view.
2. If you do not have a Camera node already, drag one from the Node Library view to the Node view.
3. Connect the Quake node to the Camera node.



4. Click on the Quake node's yellow square properties button to open the Quake properties.
5. In the Quake properties window, adjust the properties.



Quake Properties

Parameter	Description
Name	Lets you rename the node.
Hold Time	Lets you enter the number of frames you want one of the quake vibrations (position) to hold for. Most camera shakes are done in a single frame (1) or double frame (2).
Interpolate	An interpolation is generated between the random values. Instead of jumping to the next position, it will slowly progress forwards to the next position. It is the same principle as stop-motion keyframes and motion keyframes.
Move Amplitude	This is the strength of the quake. The higher the value, the stronger the quake. If the value is set to 0, there will be no motion. To have the motion start and stop at a specific frame during the scene, you can create a function curve and animate the amplitude over time. Simply click the Function  button to generate the function, then click on it again to open the Function editor.
Apply on X, Y, Z	Applies the quake to the X, Y and Z-axis.
Rotation Amplitude	When the value is higher than 0, a rotating quake is applied. The higher the value, the stronger the quake.

Random Seed	Generates a different randomization pattern. If you cascade two Quake nodes or more to apply a different amplitude on a different axis, you can change the Random Seed value to generate a different randomization pattern. If the X quake has a strong amplitude and the Y quake a weak amplitude and you do not want them to follow the same random pattern, then set the Random Seed value of the Quake nodes to different numbers.
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Output Nodes

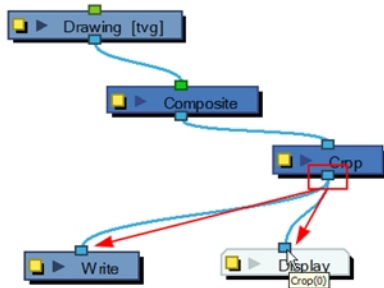
The nodes found in the Output category are used to control the image outputted in the various views as well as during the rendering process.

Crop Node	468
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Scale Output Node	471
Write Node	472

Crop Node

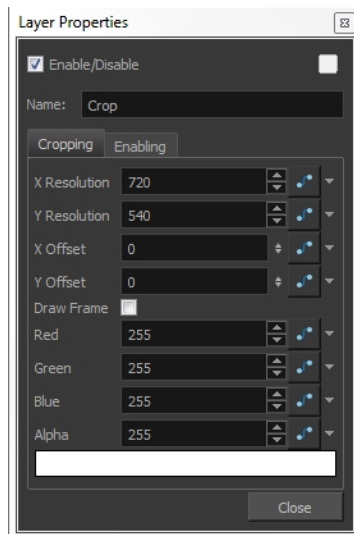
To output two files with different aspect ratios, such as 16:9 and 4:3, you can use the Crop node. This node is used to crop the final image in order to discard excess information without distorting the render.

If you start with a higher resolution and want to crop down to a lower resolution, such as HDTV to NTSC, you will need to combine the Crop node with a Scale Output node.



Find below the Crop node properties.

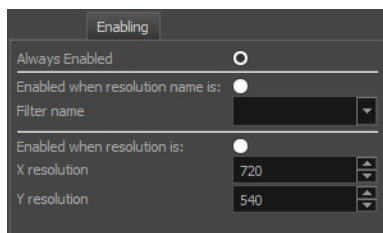
Cropping Tab



Parameter	Description
X Resolution	This is the X (width) value in pixel of the resolution to crop the final image to.
Y Resolution	This is the Y (height) value in pixel of the resolution to crop the final image to.
X Offset	This is the X (horizontal) offset value in pixel to move the crop box to in the final image.
Y Offset	This is the Y (vertical) offset value in pixel to move the crop box to in the final image.
Draw Frame	Enable the Draw Frame option if, instead of cropping the images, you prefer to have Harmony draw the frame over the rendered scene.
Red, Green, Blue, Alpha	These are the RGBA values used for the frame colour if you enabled the Draw

	Frame value. You can also modify the colour using the Colour Picker window by clicking on the colour swatch below.
Colour Swatch	Click in the colour swatch to adjust the frame colour using the Colour Picker window if you have enabled the Draw Frame option.

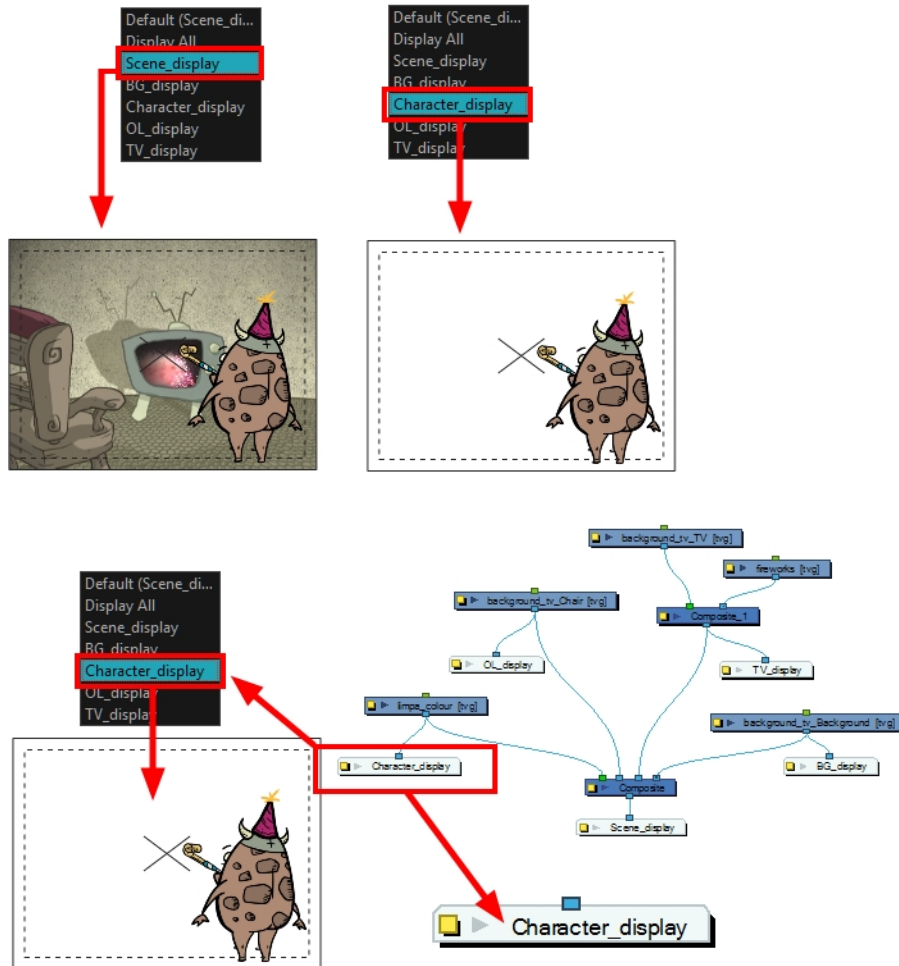
Enabling Tab



Parameter	Description
Always Enabled	Enable this option for the Crop node to always be enabled.
Enabled when Resolution Name is	Enable this option for the Crop node to only crop the final images when the scene resolution is set to a specific resolution preset.
Filter Name	Select one of the existing resolution preset from the list for the Crop node to only crop images when that resolution is set at the scene settings level.
Enabled when Resolution is	Enable this option for the Crop node to only crop the final images when the scene resolution is set to the X and Y resolution specified in the X resolution and Y resolution fields.
X Resolution	X (horizontal) value in pixel of the scene resolution the Crop node will become active.
Y Resolution	Y (vertical) value in pixel of the scene resolution the Crop node will become active.

Display Node

The Display node is an important node; it is used by the export and views to display your scene, primarily the Camera and Timeline views. By default, a scene's node system always has a Display node which can be used to show your entire scene, a single node or a group of nodes through a Composite or Group node. You might use it to see one single character as you animate it, debug your node system as you create complex effects or export your complete scene or a portion of it.

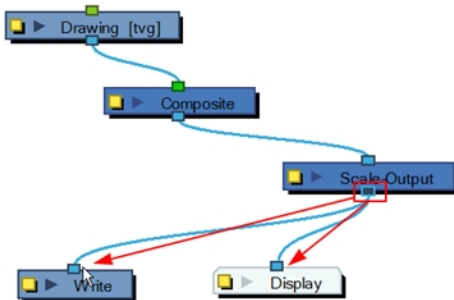


Scale Output Node

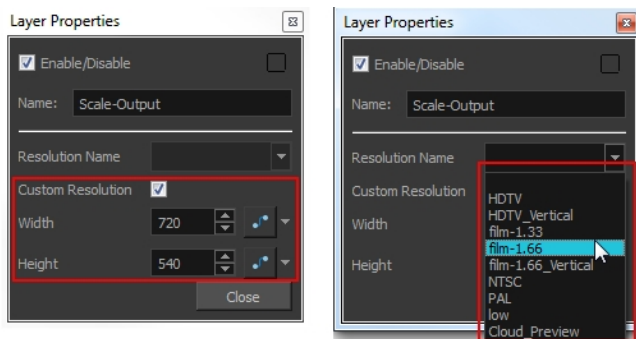
Once your Write nodes are connected, you need some Scale-Output nodes to change the resolution output of the Write node without changing the scene settings. For example, if you export in a high resolution and a low resolution, you need one Scale-Output node.

Set the project's resolution to the highest resolution needed for this export and use the Scale-Output nodes to scale down the other outputs.

DO NOT scale up the output size, that will not provide a good result. It is also better to use the Scale-Output node to scale down in a same aspect ratio so that it does not distort the image.



Find below the Scale-Output node properties.



Parameter	Description
Resolution Name	Select one of the existing resolution preset from the list to indicate the resolution you want the finale images to be scaled at. Always make sure the selected resolution is smaller than the scene setting one.
Custom Resolution	Enable this option to set a resolution that is not available in the Resolution preset list.
Width	X (horizontal) value in pixel of the resolution to scale the images down to.
Height	Y (vertical) value in pixel of the resolution to scale the images down to.

Write Node

The Node view allows you to make advanced connections and isolate certain portions of your project. It also allows you to perform multiple exports from the entire node structure or from specific sections.

For this kind of process, use the Write node. The Write node lets you render and output the connected image information. Using the Write node, you can export a project as a QuickTime movie or as image sequences. You can export one format at a time or both simultaneously.

To export an image sequence, you need to adjust a few settings in the Write node's properties.

Here is a list of all the image formats supported for rendering with Write nodes.

Format	Specification	Description
TVG		<p>Toon Boom Vector Graphic (*.tvg)</p> <p>Toon Boom's proprietary format for storing vector drawings.</p> <hr/> <p>NOTE: To export TVG files, your Write node must be connected to a vector drawing layer or to a vector composite node. The exported TVG files will contain the vector and bitmap drawing information, but will ignore effects and deformations.</p>
TGA	Full colour	<p>Truevision TGA/TARGA (*.tga)</p> <p>A standard image format with lossless compression and support for transparency.</p>
TGA1	Greyscale	
TGA3	Full colour	
TGA4	Full colour with transparency	
SGI	Full colour / 8 bits per channel	<p>Silicon Graphics Image (*.sgi)</p> <p>A highly capable format with lossless compression as well as support for double precision and transparency.</p>
SGI1	Greyscale / 8 bits per channel	
SGI3	Full colour / 8 bits per channel	
SGI4	Full colour with transparency / 8 bits per channel	
SGIDP	Full colour / 16 bits per channel	
SGIDP3	Full colour / 16 bits per channel	
SGIDP4	Full colour with transparency / 16 bits per channel	
PSD	Full colour / 8 bits per	

	channel	An Adobe Photoshop proprietary format used for image editing.
PSD1	Greyscale / 8 bits per channel	PSD files exported by Harmony contain a single background layer with the rasterized image.
PSD3	Full colour / 8 bits per channel	
PSD4	Full colour with transparency / 8 bits per channel	
PSDDP	Full colour / 16 bits per channel	
PSDDP1	Greyscale / 16 bits per channel	
PSDDP3	Full colour / 16 bits per channel	
PSDDP4	Full colour with transparency / 16 bits per channel	
YUV		
PAL		<p>PAL frame (*.pal)</p> <p>A legacy format optimized for PAL television.</p> <hr/> <p>NOTE: PAL images must be exported in PAL resolution (768 x 576), or they will not be legible.</p>
SCAN		<p>Toon Boom Scan Files (*.scan)</p> <p>A Toon Boom proprietary format used by Scan to store scanned image information along with its registration (peg) information. SCAN files are in greyscale.</p>
PNG	Full colour / 8 bits per channel	<p>Portable Network Graphics (*.png)</p> <p>A highly portable image format with lossless compression as well as support for transparency and double-precision. PNG is typically used for Web applications, graphical user interfaces and image sharing.</p>
PNG4	Full colour with transparency / 8 bits per channel	

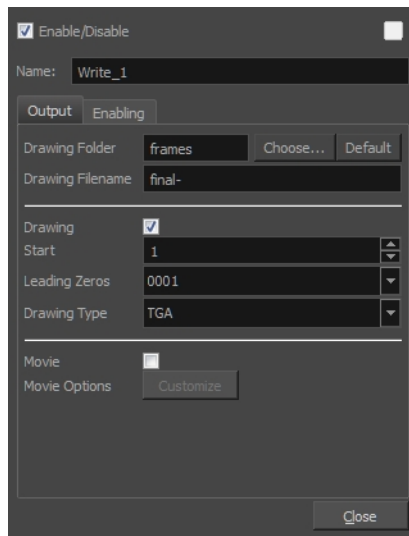
PNGDP	Full colour / 16 bits per channel	
PNGDP3	Full colour / 16 bits per channel	
PNGDP4	Full colour with transparency / 16 bits per channel	
JPG		<p>Jpeg (*.jpg)</p> <p>A very compact image format with lossy compression. It is typically used for Web pages and photo sharing. Because it does not preserve image quality, it is recommended to never use it except when disk space or rendering time is critical and image quality is expendable.</p>
BMP	Full colour	<p>Bitmap (*.bmp)</p> <p>A standard uncompressed image format commonly used on Microsoft operating systems.</p>
BMP4	Full colour with transparency	
IFF	8 bits per channel	<p>Interchange File Format (*.iff)</p> <p>A container file format which can store text, image and sound data, and which is commonly used for exchanging data between different platforms.</p> <p>IFF files exported by Harmony contain the rendered image as well as Z-depth information for each pixel. If your scene has multiplane or 3D elements, this format can be used for compositing your animation with other graphical elements in 3D animation software.</p> <hr/> <p>NOTE: Contrary to EXR and DTEX images, this format does not support antialiasing. It is recommended to use EXR or DTEX if possible.</p> <hr/>
IFF_16	16 bits per channel	
OPT	Full colour	<p>Toon Boom OPT image (*.opt)</p> <p>A legacy Toon Boom proprietary format that stores raw image data with lossless compression.</p>
OPT1	Greyscale	
OPT3	Full colour	
OPT4	Full colour with transparency	
VAR		<p>Toon Boom VAR image (*.var)</p> <p>A legacy Toon Boom proprietary format that stores raw image data with lossless compression in greyscale.</p>
TIFF		<p>Tagged Image File Format (*.tiff)</p> <p>An image format with many compression and encoding settings. It is often used for image exchange in visual arts and publishing.</p>

		TIFF images exported by Harmony are uncompressed, encoded on a per-pixel (interleaved) basis in PC byte order.
DPX	8 bits per channel / Full color / RGB channel order	Digital Picture Exchange (*.dpx) A professional photo format that supports various different approaches to storing colour information, which can be used for storing, exchanging and editing raw information recorded by cameras. It is commonly used in film production.
DPX3_8	8 bits per channel / Full color / RGB channel order	
DPX3_10	10 bits per channel / Full color / RGB channel order	
DPX3_12	12 bits per channel / Full color / RGB channel order	
DPX3_16	16 bits per channel / Full color / RGB channel order	
DPX3_10_INVERTED_CHANNELS	10 bits per channel / Full color / BGR channel order	
DPX3_12_INVERTED_CHANNELS	12 bits per channel / Full color / BGR channel order	
DPX3_16_INVERTED_CHANNELS	16 bits per channel / Full color / BGR channel order	
EXR		OpenEXR (*.exr) A highly capable deep image format. Each pixel in an EXR file is exported with its Z-depth information, as well as color and depth information of pixels further back for semi-transparent pixels. If your scene has multiplane or 3D elements, this format can be used for compositing your animation with other graphical elements in 3D animation software.
PDF		Portable Document File (*.pdf) Typically, PDF files are used to store, archive, share and print documents. However, Harmony uses the PDF format for its capability to store bitmap images and vector graphics. If the write node is connected to a vector drawing layer or to a vector composite, the exported PDF files will contain the image as a vector graphic. It will ignore bitmap layers, effects and deformations. Otherwise, the PDF files will contain the rendered image as a bitmap.
DTEX		Deep Texture (*.dtx) A commonly used deep image format. Each pixel in an DTEX file is exported with its Z-depth information, as well as color and depth information of pixels further back for semi-transparent pixels. If your scene has multiplane or 3D elements, this format can be used for compositing your animation with other graphical elements in 3D

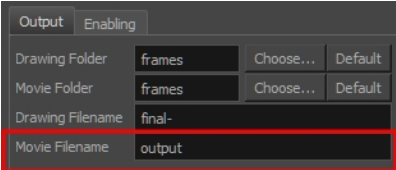
animation software.

NOTE: Exporting in Deep Texture requires RenderMan to be installed on the machine and the path to RenderMan properly configured in Harmony. For more information, see the *Setting 3D Renderer Paths* topic of the User Guide.

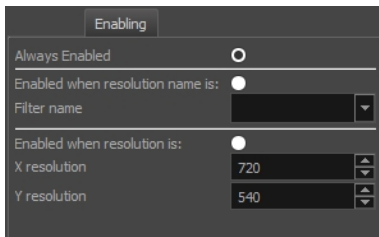
Output Tab



Parameter	Description
Drawing Folder	Click Choose and browse to the directory where you want to save the output. You can also use the default directory to save in the default frames folder included in the scene directory.
Drawing Filename	Type the image sequence's name prefix. It is recommended to leave the hyphen (-) at the end of the name to separate the image name from the image number.
Drawing	Select this option to create an image sequence.
Start	Select the starting number for the image sequence.
Leading Zeros	Select the number of digits you want to see after the sequence prefix.
Drawing Type	Select the file format in which your project will output. When the file format includes a "4" at the end of its name, it means that an alpha channel will be created.
Movie	Select this option to create a QuickTime movie. When enabled the Movie Filename and Movie Folder fields appear. Type in the movie output name and select the output folder.

	
Movie Options	Click the Customize button to open the QuickTime movie settings dialog box to customize the movie output.

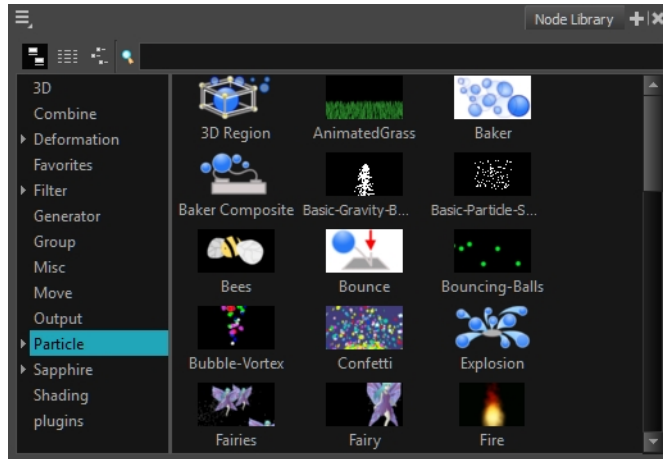
Enabling Tab



Parameter	Description
Always Enabled	Enable this option for the Crop node to always be enabled.
Enabled when Resolution Name is	Enable this option for the Crop node to only crop the final images when the scene resolution is set to a specific resolution preset.
Filter Name	Select one of the existing resolution preset from the list for the Crop node to only crop images when that resolution is set at the scene settings level.
Enabled when Resolution is	Enable this option for the Crop node to only crop the final images when the scene resolution is set to the X and Y resolution specified in the X resolution and Y resolution fields.
X Resolution	X (horizontal) value in pixel of the scene resolution the Crop node will become active.
Y Resolution	Y (vertical) value in pixel of the scene resolution the Crop node will become active.

Particle Nodes

You can access the Particle effects through the Node Library view. The Particle category contains all the nodes needed to build various Particle effect systems.

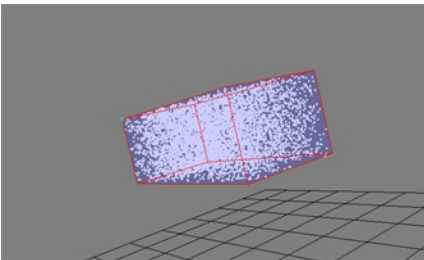


This section explains each node's purpose, its layer properties and how to adjust these properties.

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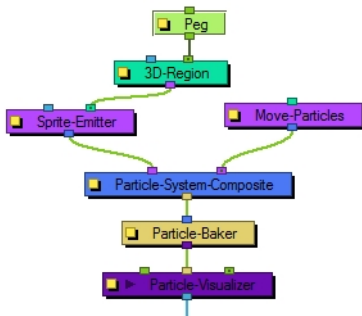
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3D Region



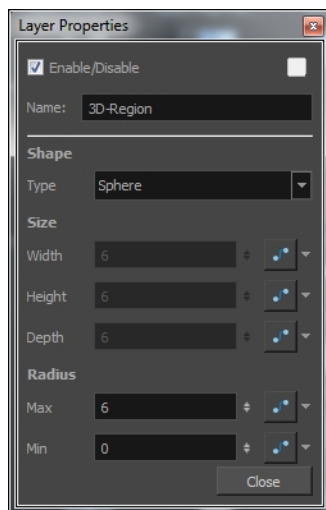
The 3D Region effect lets you define the 3D region, which can take many forms, such as a sphere, cone, cylinder or box. The 3D Region node acts in contrast to the Planer Region node, which generates and emits particles from a 2D plane.

You can connect a 3D Region to a Sprite-Emitter to define the region from which particles are generated. It could also be connected to a Bounce node to define a region against which particles bounce. If connected to a Sink node, it will define a region where the particles will disappear.



How to preview the 3D Region

1. From the top menu, select **View > Show > Control** or press Shift + F11 (Windows/Linux) or ⌘ + F11 (Mac OS X).

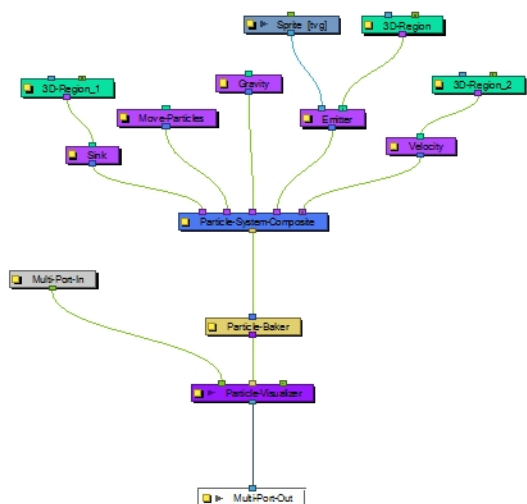


3D Region Properties

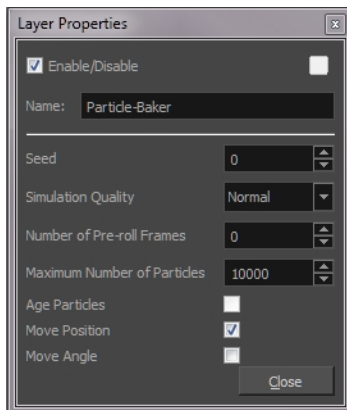
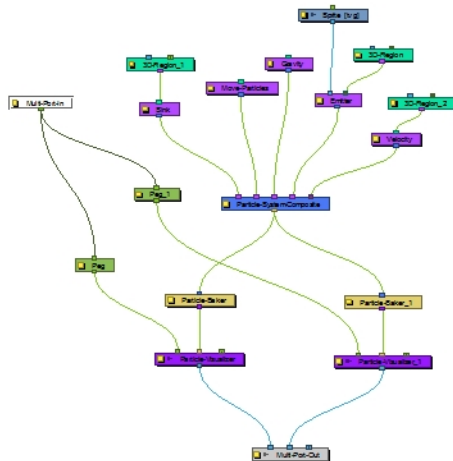
Parameter	Description
Name	Lets you rename the node.
Shape	Choose a shape for the 3D Region by clicking on the Type drop-down menu and selecting either Box, Cylinder, Cones, Sphere or Image. If you select Image, you must connect the node of a vector drawing or a vectorized bitmap image to the left port (blue node) of the 3D Region node. The particles will then be emitted from that image' shape. Don't forget that you can rotate your vector drawing in 3D space by enabling the 3D option in its Layer Properties.

Size	Enter different values into the Width, Height and Depth fields to change the dimensions of the 3D Region's selected shape. Depending on the shape selected, some fields may be greyed-out if they are not applicable. You can also modify the shape with the Transform Tool by grabbing the control handles (turquoise squares) in the Camera or Perspective views. You can also change the dimensions of the region over time by click on the function button at the end of each field.
Radius	Enter different values in the Max or Min fields to change the inner or outer radius of applicable shapes, such as a cylinder, cone or sphere. You can also change the radii by grabbing the control handles (turquoise squares) in the Camera or Perspective views. The radii of the region can be changed over time by clicking the function button at the end of each field.

Baker



The Baker effect, also known as *Particle-Baker*, lets you make decisions about the particle system's position, angle, number, etc. in the same way that a baker would make decisions about the ingredients that go into baking a cake. The Baker performs the particle simulation, combining all the ingredients specified to get the final result. The Baker must always be connected to the Particle-Visualizer.

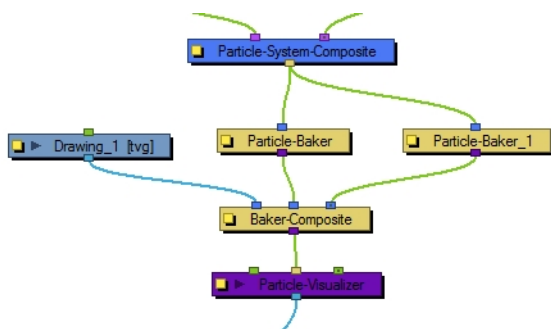


Particle Baker Properties

Parameter	Description
Name	Lets you rename the node.
Seed	Allows you to apply a random effect to the particle system. There may be times when you want to copy the particle system to two different locations on your screen. You can take the out-port of the Particle System Composite node, and plug this into two separate Bakers and Visualizers. Then you could move one system over by attaching a peg into the left side of one Visualizer. This makes the two systems look exactly the same. Add a random Seed to make them look different.
Simulation Quality	Defines how many simulation steps per frame are performed. The lowest quality creates one step per frame. Raising the quality will divide the simulation time and create two or more steps of simulation for each frame. This increases the computation time, but also increases the quality of the result.
Number of Pre-roll Frames	Allows you to select a start position in the particle effect sequence, other than the start (generation) of the sequence. This allows you to start the particle effect part-way through its cycle, even if it starts on frame 1 of your project. An

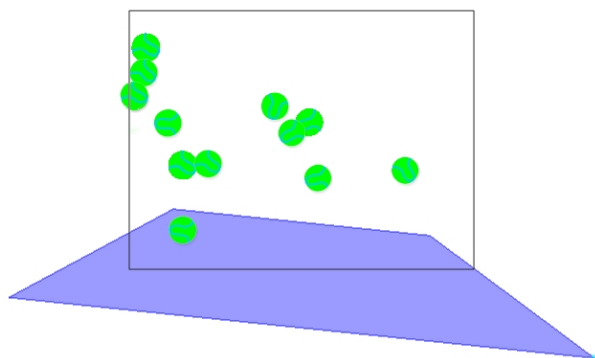
	example of when this parameter might come in handy is when you want it to be already raining at the start of your scene. If you don't change the number of Pre-roll Frames, it will always start to rain at the beginning of the scene.
Maximum Number of Particles	Lets you put a limit on the number of particles that will be created; particles will stop being generated once this number is reached.
Age Particles	Tracks how long a particle has existed in its cycle from the time of its inception. Knowing a particles "age" means you can tack other parameters onto its life span, such as having the particle start to disappear or change colour at a certain time.age.
Move Position	Allows the particles to move position, otherwise the particles cannot flow in a specified direction. This option also exists in the Move Particles node. You do not always need a Move Particles node; this is why this option exists in the Baker. This option is also useful when your Move Particles node is cut off by a sink—see Sink on page 504 .
Move Angle	Allow particles to flow from different angles. This option also exists in the Move Particles node. You do not always need a Move Move Particles node; this is why this option exists in the Baker. This option is also useful for when your Move Particles node is cut off by a sink—see Sink on page 504 .

Baker Composite

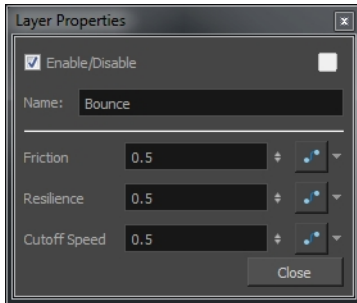
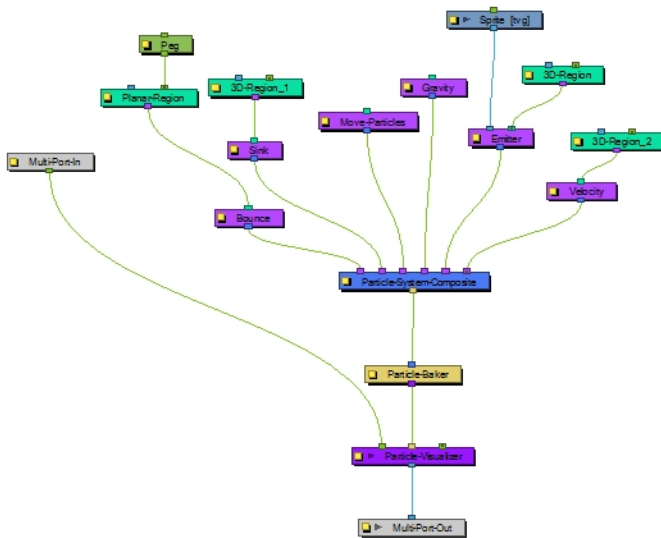


The Baker Composite effect is used to composite more than one Particle-Baker, as well as any other elements that need to be combined before they pass through the Particle Visualizer.

Bounce



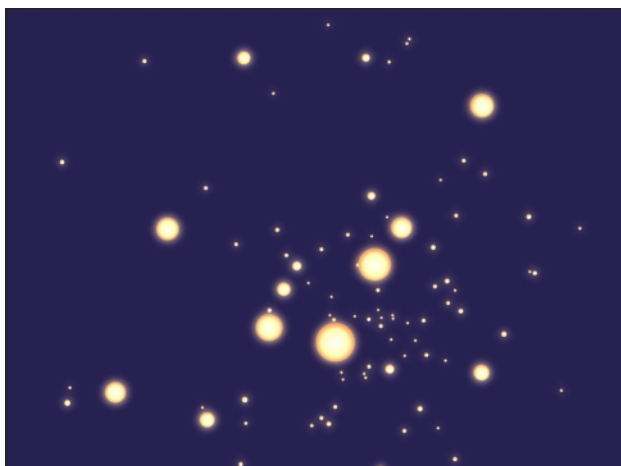
The Bounce effect lets you to make particles bounce off a surface with realistic physical modelling. This node should have a region connected to it, and that region will act as a bounce plane so when any particle hits it, it will bounce off at the correct angle.



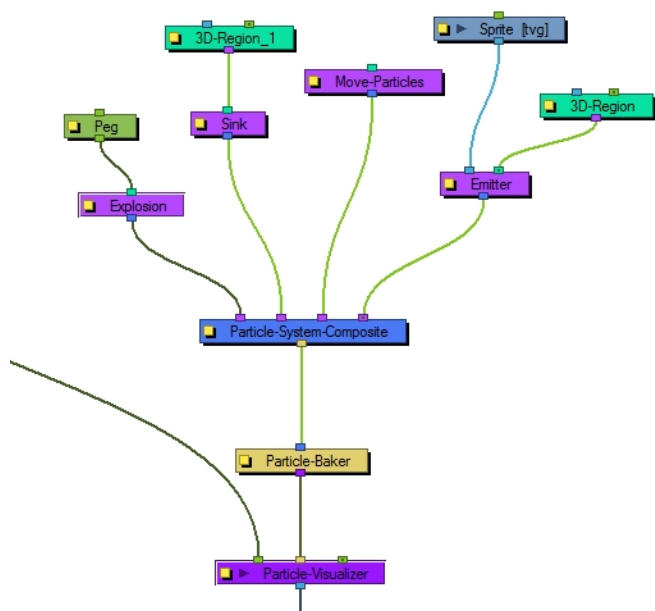
Bounce Properties

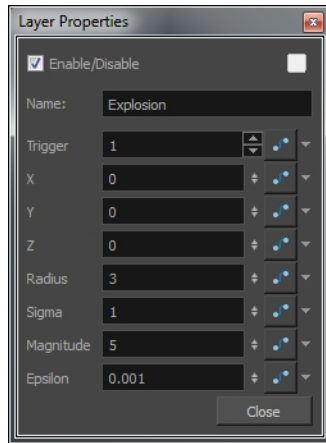
Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Friction	Enter a value in this field to increase the amount of friction each particle experiences as it makes contact with the planar surface. A positive value creates more friction and slows the particle down. A negative value lessens the friction and makes the surface appear more slippery.
Resilience	Increases or decreases the bounciness of the particle. A value of zero causes the particle to hit the planar surface once and slide off any downward facing angle. A positive value, even by decimal increments, causes the particle to become bouncy. A negative value deadens the effect, the same way a lack of Region would.
Cutoff Speed	Increasing this value widens the bounce arc. If the connected Planar Region is completely flat, a value of zero will cause the particle to bounce up and down in place. A tilted plane in the direction of the bounce will also widen the arc.

Explosion



The Explosion effect lets you create an explosion. As it is an Action node, it should be connected to the Particle System Composite after the Sprite Emitter. As the explosion occurs, the particles will burst rapidly away from the centre of the explosion (the centre of the defined Region), then gradually slow down.



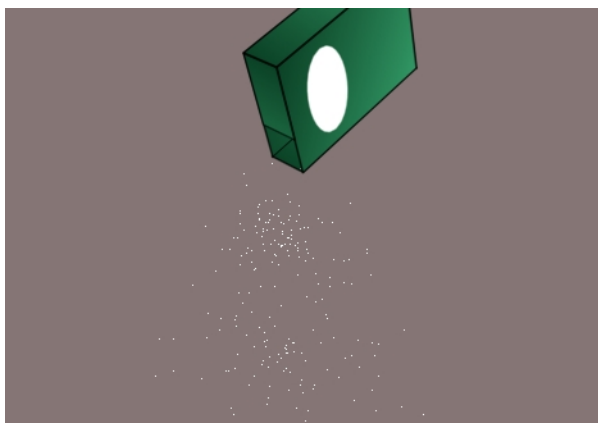


Explosion Properties

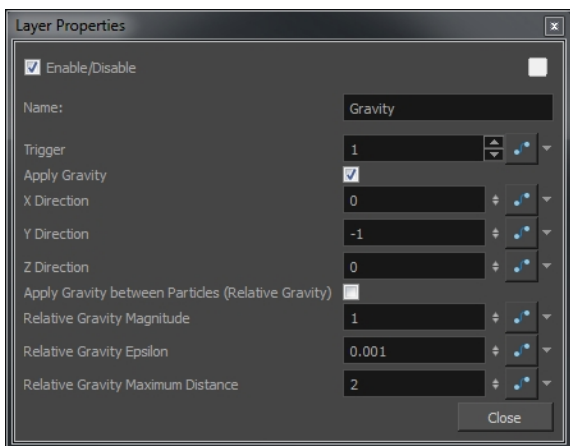
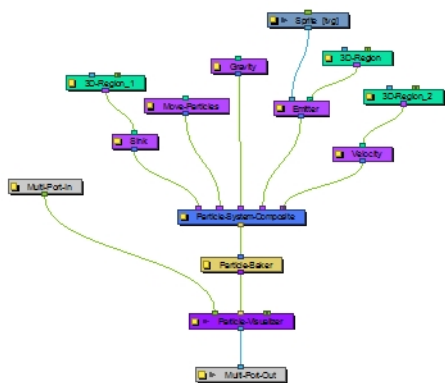
Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Coordinates	Use the X, Y and Z fields to enter different position values to move the particle system around in 3D space. You can also connect a Peg node to the Explosion to manipulate its position with the Transform or Move tool.
Radius	Defines the surface of an invisible sphere. As the explosion occurs, the exploded particles inside the boundaries of this sphere will be effected by the force of the explosion, while the particles that eventually pass through will remain unaffected.
Sigma	The higher the Sigma value, the longer it takes for the particles to completely disappear, even if the initial explosion seems to occur just as rapidly.
Magnitude	Defines the magnitude of the explosion. The greater the magnitude, the faster the particles break up.
Epsilon	This value works in opposition to the Sigma value. The higher the value, the slower the initial explosion occurs. If the value is high (an integer value) then larger particles remain suspended for a longer period of time from the initial explosion and takes a while to gradually break down. A smaller (decimal) value breaks the particles down to smaller forms more rapidly from the time of the initial explosion.

:

Gravity



The Gravity effect lets you define the gravity of the particle system.

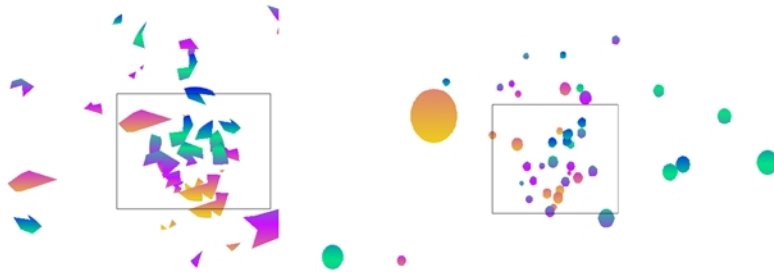


Gravity Properties

Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.

Apply Gravity	Forces the particle system to adhere to the force of gravity. Values must be entered into the Direction fields, along with enabling this option, in order for it to work. If this option is not selected, the particle system will explode outwards from its origin point.
X Direction	Directs the particle stream to the left or right (along the X-axis). A value of 1 forces the particle stream to the right, while a value of -1 forces the particle stream to the left.
Y Direction	Directs the particle stream up or down (along the Y-axis). A value of 1 forces the particle stream to flow upwards, while a value of -1 forces the particle stream to flow downwards.
Z Direction	Directs the particle stream forwards or backwards (along the Z-axis). A value of 1 forces the particle stream to flow forwards, while a value of -1 forces the particle stream to flow backwards.
Apply Gravity between Particles (Relative Gravity)	Applies gravity between each particle, taking their masses into account. The mass of the particle can be specified at emission time via the Sprite or Image Emitter.
Relative Gravity Magnitude	Adjust the amount of gravity applied between particles.
Relative Gravity Epsilon	The acceleration falls off the further the particles get from each other. When the particles are very close to each other, the acceleration becomes very high, so you should define a small region around the particles so they never actually touch.
Relative Gravity Maximum Distance	Adjusts the radius beyond which particles do not affect each other.

Image Fracture

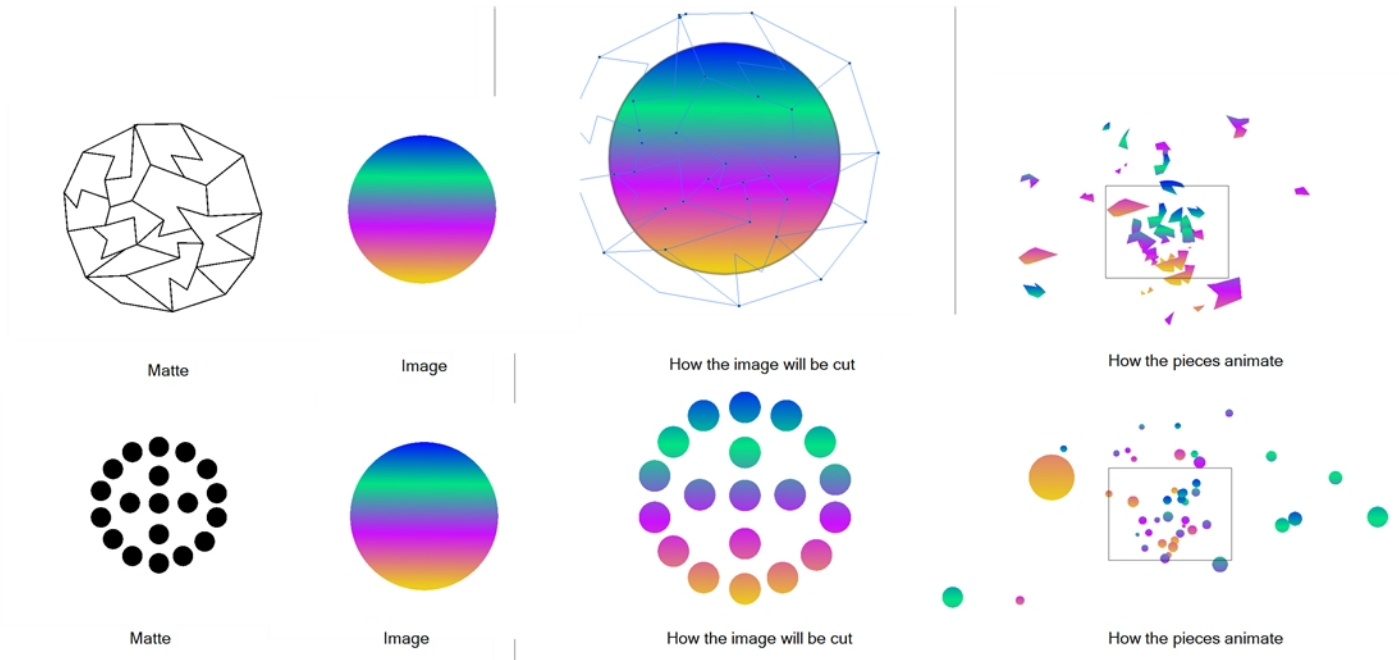


The Image Fracture effect breaks an image into pieces. This effect requires two image objects: the image to be cut and the shape of the cut pieces (matte). The image to be cut can be anything from a vector drawing to a bitmap image to an entire scene's composite—effects and all. The image to be cut should be hooked to the Image Fracture's right port.

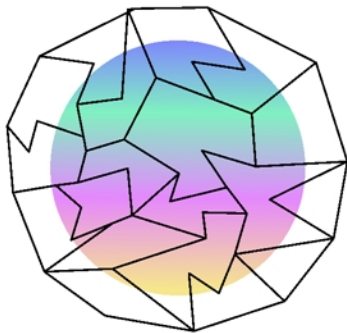
The matte should be flattened if you want it to work like a cookie cutter (hollow shape with a frame) and can be composed of brush or pencil lines. It can also be a solid shape, many solid filled shapes, and even many solid filled overlapping shapes. When the matte is made of overlapping pieces, the cut image will be multiplied at those zones to break apart in multiple layers. The matte drawing should be hooked to the Image Fracture's left port.

The two image objects overlap perfectly when combined in the Image Fracture. This means that you must take the 12 by 12 field into account when judging the scale and proportion of these objects. If the matte does not

overlap a part of the image, that part of the image will not be cut. The matte does not have to be a continuous shape. It could be three separate circles, which would then be cut and pulled away from the image.



NOTE: You can display the grid and use the Light Table feature in the Drawing view while drawing or scaling the image and matte to ensure that they're the correct size relative to one another.



Here's an example of a node structure with the Image Fracture effect:

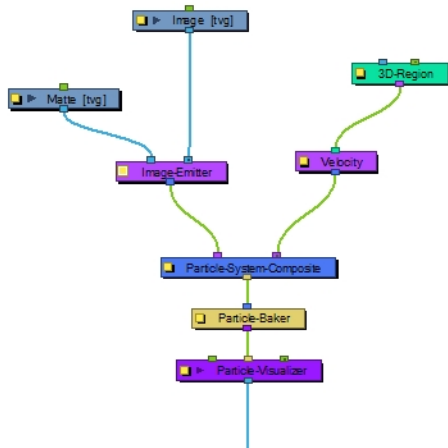
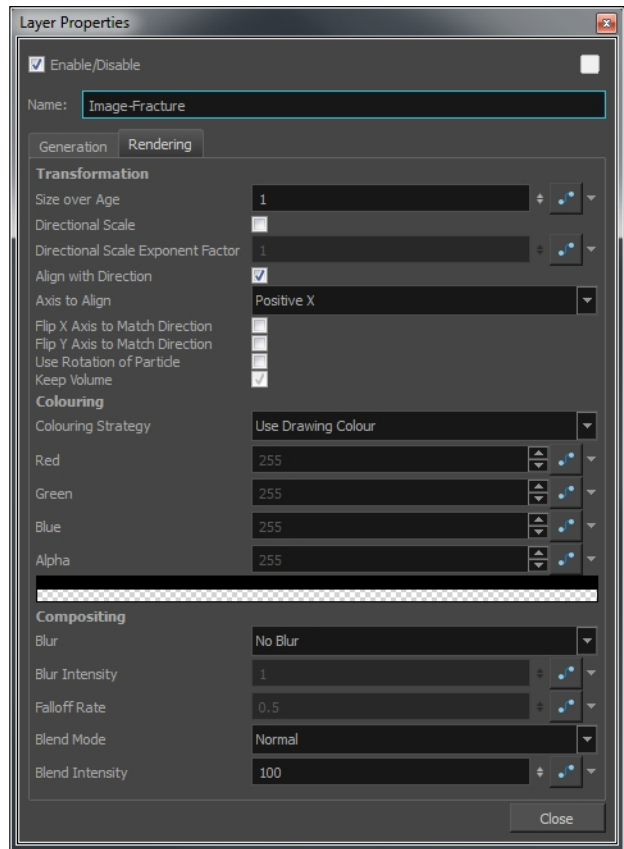
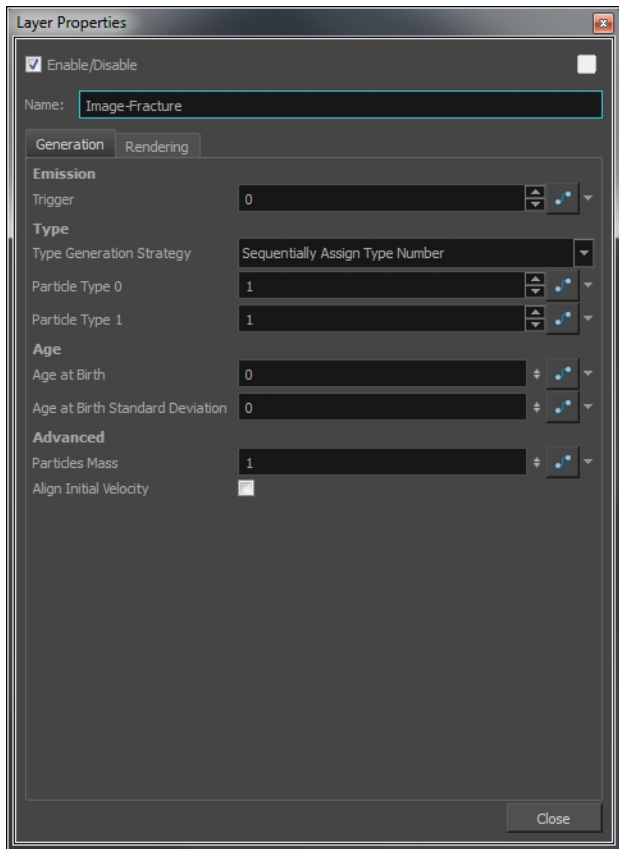


Image Fracture Properties



Generation Tab

Parameter	Description
Emission	
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Type	You may want to design a variety of different drawings that will vary the appear-

	ance of the particle system. In this case, you should put each drawing on its own cell in the drawing layer. Each drawing will then be a new type of particle.
Type Generation Strategy	Lets you sequentially or randomly assign a type (moving from one drawing to the next).
Particle Type 0	This is the frame number of the first drawing. If you have a 5-frame cycle that starts on frame 1, you would put a 1 here.
Particle Type 1	This is the frame number of the last drawing. If you have a 5-frame cycle that starts on frame 1, you would put 5 here.
Age	
Age at Birth	A different start frame number can be entered in this field. This means that a particle can start with a different drawing than the drawing on frame 1.
Age at Birth Standard Deviation	Allows a random deviation for the birth of the particles. If you have a five-frame cycle that starts on frame 1, but you want the particles to be a random type, then you may want to set the Age and Birth to 3 with a standard deviation of 2. That means the particles will randomly be born at any frame from 1 to 5.
Advanced	
Particles Mass	Defines a mass for the particles which will affect how the particles interact with gravity.
Align Initial Velocity	Aligns the initial velocity with the region from which the particles are being emitted. If you are emitting from a sphere, the particles will all start out moving away from the centre of the sphere.

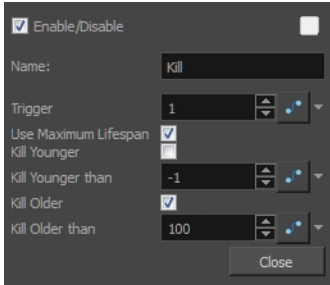
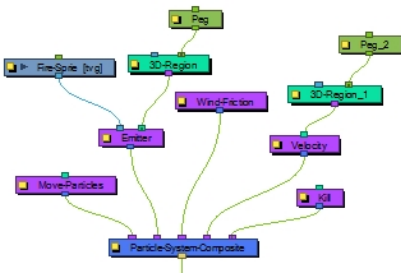
Rendering Tab

Parameter	Description
Transformation	
Size over Age	Lets you determine the size of the particle as it ages. Attach a function to this attribute if you would like to, for example, have the particles get smaller as time goes on.
Directional Scale	Scales the particle in the direction of its movement.
Directional Scale Exponent Factor	Sets an exponent here for how much you would like that particle to scale.
Align with Direction	Aligns the particle in the direction of its movement.
Axis to Align	Select the axis that you want to align. This axis refers to the axis of the Drawing grid from the Drawing node plugged into the emitter.
Flip X Axis to Match Direction	You may want to have the particle align to the X direction of movement. You can see this property being used in the Lemmings example.
Flip Y Axis to Match Direction	Similar to flipping the X axis, you may want to flip the Y axis of a drawing to match the direction of the particle movement.
Use Rotation of Particle	Enables rotation on the particle.
Keep Volume	When you choose to do a Directional Scale, this will automatically maintain the volume of the particle by squashing it proportionally to how much it stretches as a result of the directional scale.

Colouring	
Colouring Strategy	Lets you choose how to define the colour of the particle.
Use Drawing Colour	The particle remains the same colour as it was drawn with.
Map RGB Based on Age	Attach a function to this to vary the Red, Green, and Blue values of the particle as it ages.
Map RGBA Based on Age	Attach a function to this to vary the Red, Green, Blue, and Alpha values of the particle as it ages.
Apply Opacity Based on Age	Keeps the original RGB values from the drawing, but vary the Alpha (Opacity) according to a function that you define here.
Map RGB Based on Frame	Changes the Red, Green, and Blue values of the particles based on the frame. Changing based on the frame means that ALL particles will change colour on that frame, regardless of their age.
Map RGBA Based on Frame	Changes the Red, Green, Blue, and Alpha values of all particles on a given frame by attaching a function.
Apply Opacity Based on Frame	Uses the original RGB values from your drawing, but varies the Alpha (Opacity) of the particles on a certain frame by attaching a function to this.
Red, Blue, Green, Alpha	This is where you can attach functions to the Red, Blue, Green and Alpha values. You can also click on the colour swatch to adjust the colour.
Compositing	
Blur	Lets you attach a function to define how you want the particles to blur based on the age, frame or camera distance of each particle. There are low and high quality blurs. Also, you can attach a function to define how all particles should be blurred.
Blur Intensity	Lets you set a value or attach a function to animate the blur according to the type of blur that was defined from the drop-down list.
Falloff Rate	The distance where the blur fades from the edge of the image. Select a value between 0 and 1. A falloff rate of 0 causes the blur to fade out slowly, distributing the blur evenly from the edge of the drawing to the farthest edge of the blur. A falloff rate of 1 causes the blur to fade out quickly so that the blur is heaviest at the edge of the drawing.
Blend Mode	Defines a blend mode for the particles to get cool effects.
Blend Intensity	This is a percentage of how opaque you want the particles to be blended. 50 = 50% transparent. 100 = opaque.

Kill

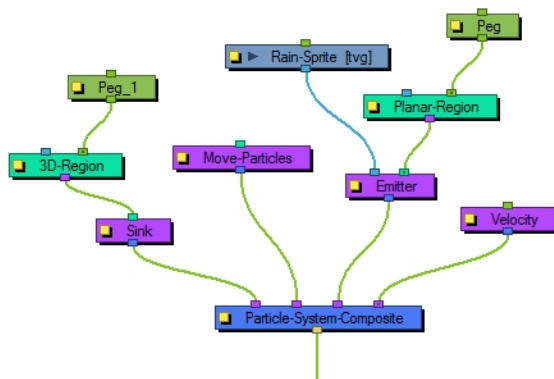
The Kill effect lets you determine when particles disappear.



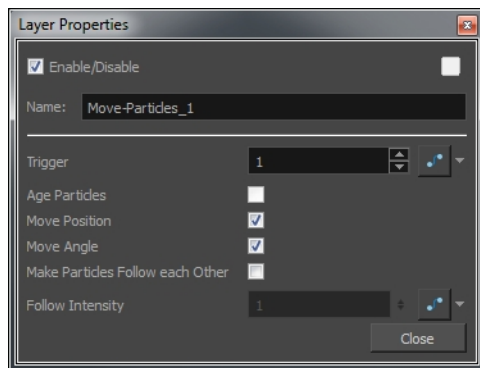
Kill Properties

Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Use Maximum Lifespan	Makes particles disappear when they reach their maximum lifespan.
Kill Younger	To use this parameter, you must attach a function to this property because if you select this option at time 0, you will never see any particles. If you set Kill Younger to 10, at time 0, there will be no particles older than 10, so you will never see any particles. It may be useful to have the particles animating over time, and at some point in time, you may want to kill all the younger particles. An example would be an animation where the particles change from blue to yellow. At every frame, new particles are generated, and the particles that already exist age. Then you would add an explosion that kills all particles younger than 10 frames. It would kill all the blue particles, leaving only the yellow particles.
Kill Younger Than	This is where you can animate the effect for Kill Younger.
Kill Older	Makes particles disappear when they reach a certain level of maturity.
Kill Older Than	Lets you set the age at which particles disappear.

Move Particles



The Move Particles effect lets you determine whether the particles are stationary (like grass) or moving (like rain), and you can animate this function on and off.

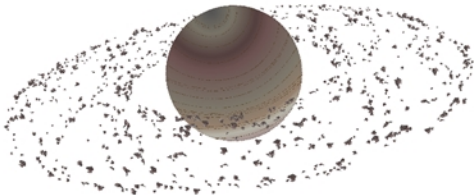


Move Particles Properties

Parameter	Description
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Age Particles	<p>Ages the particles. Note that if you select the Move Position and Move Angle, then the particles will age implicitly. If you do not want the particles to move, but still want them to age, deselect Move Position and Move Angle, and select Age Particles.</p> <p>The Age Particles parameter also exists in the Baker, however whatever happens in the Baker happens after everything else in the particle system. So, if for example you have a Kill node, it will kill the particles before they age. You probably want to age the particles before you determine whether to kill them. Therefore, if you have a Kill node, make sure to age the particles in your Move node before you kill them. If you age the particles both in the Move and Baker node, then the particles will age twice on that frame instead of once.</p>
Move Position	Lets you enable movement on the particles. There is also a Move Particles option in the Baker. If it's deselected in the Baker and in the Move node, the particles will not move; they will simply generate in place and stay there. If the option is selected on the Baker, the particles will move. But if you need the

	particles to interact with another Action, say a Sink, then you want the particles to move before they reach the sink. This is why you have a separate Move node, so you can place this Move before (to the right of) the Sink in your particle system composite.
Move Angle	Like the Move Position, this enables the rotation of particles in the particle system.
Move Particles Follow Each Other	Allows one particle to follow another particle, through an attraction between the particles. This is particularly useful when you want to create a snake-like effect, where the particles are animating across the screen and following each other.
Follow Intensity	Lets you adjust the strength of the attraction between particles following each other.

Orbit

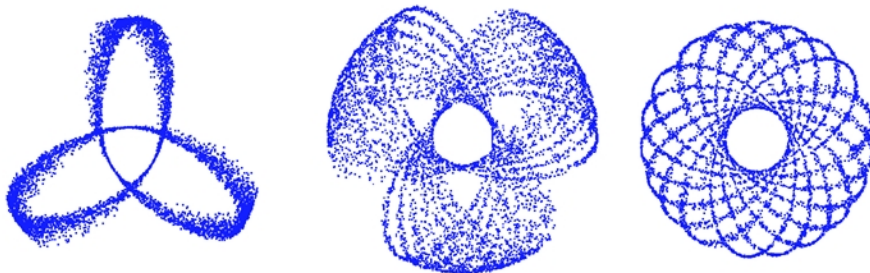


The Orbit effect lets you define an axis the particles will be attracted to and orbit around. You can place a Peg layer into the orbit to move the position of the orbit without adjusting the parameters in the Layer Properties.

Fine-tuning the Orbit effect can take a bit of finesse because the orbit takes into account the velocity of the particles, and uses this to determine whether:

- The particle will orbit around the axis
- The particle will be influenced but eventually escape
- The particle will hardly be influenced at all.

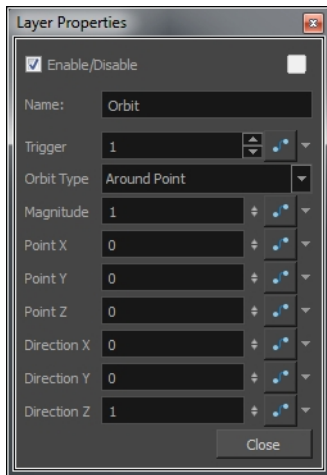
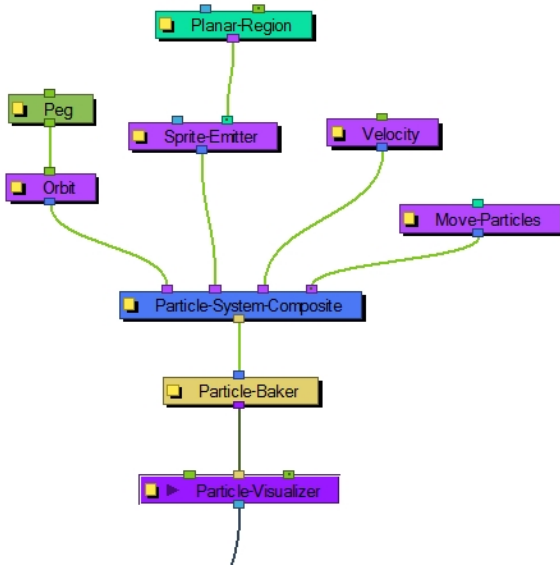
This is just like how gravity between astral bodies works in space. Here are some examples of how having the orbit in the wrong place can give some cool (but perhaps not useful) effects:



You will also want to make sure that your initial velocity is varied, so use an interpolated speed and set two different values. That way, there will be a spread between them. If not, then you will get the effects as shown above.

Also, you should use the Peg layer to move the position of the Orbit node around until you find the right spot to get the look you're trying to achieve. It also helps to set some pre-roll frames on your Baker to get things ramped-up before you start to manipulate the position of the Orbit node.

Here's an example of what a typical node structure with an Orbit node looks like:

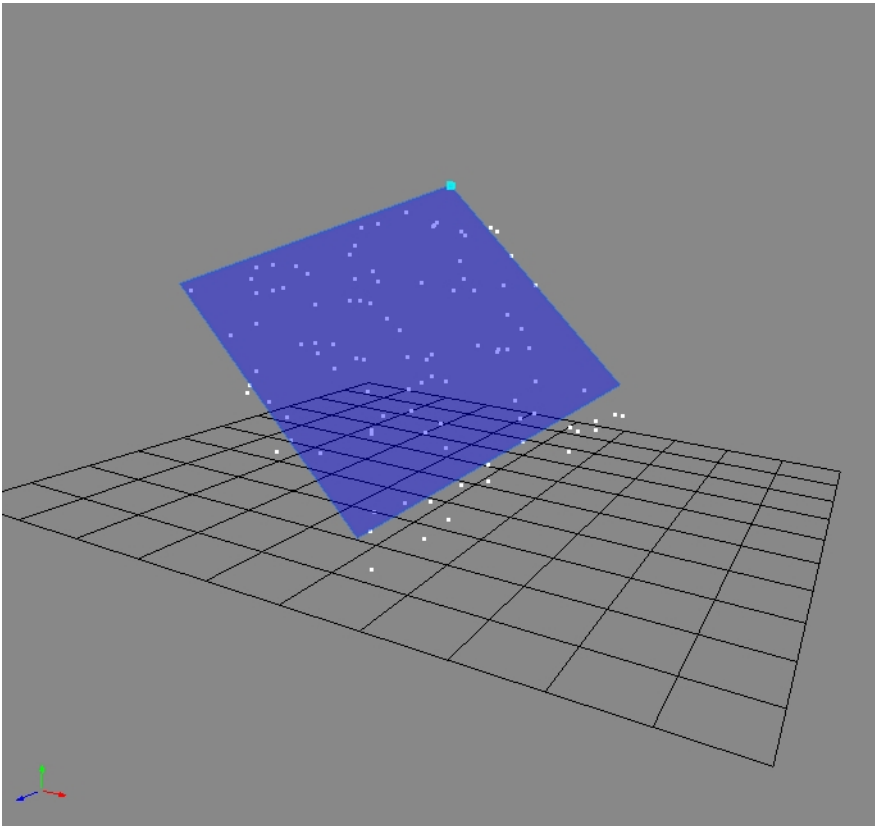


Orbit Properties

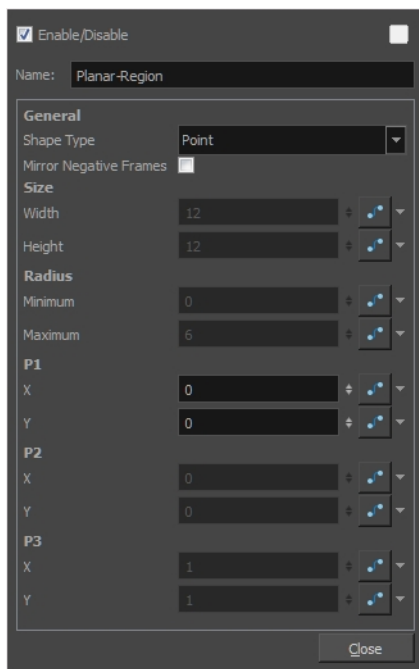
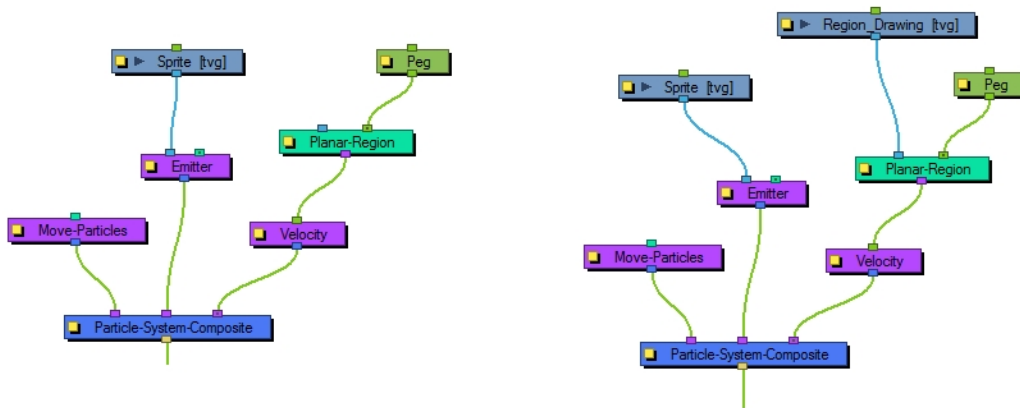
Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Orbit Type	Lets you select the type of Orbit you want to use. For most scenarios, like asteroids orbiting a planet, a point will suffice. If you want to rotate around an axis instead, choose between the X, Y, Z axes or set up your own custom

	axis.
Magnitude	Adjust the amount that the acceleration of each particle will be adjusted. The higher the value, the more the particle will accelerate towards the orbit. A magnitude of 0.001 is a good number to use for this. When the magnitude is set too high, the particles will simply fly out into space.
Point X	Defines the X position of the centre of the Orbit. You may also leave this at 0 and use a peg to move the position of the Orbit node.
Point Y and Z	Defines the Y and Z position of the centre of the Orbit.
Direction X	Defines the X component of the axis of rotation for the orbit. This is only taken into account if you choose to set up a custom axis. If this is set to 1, and Y and Z are set to 0, then the axis will be going in the same direction as the X axis. If the X component is set to 1, and the Y component is also set to 1, then the axis will be at a 45 degree angle between the two.
Direction Y and Z	Defines the Y and Z components of the axis of rotation for the orbit.

Planar Region



Like the 3D region, this determines a region that you can use as a source or as a bounce plane, but instead of a 3D region, it's a 2D plane. Connect a peg to the right in-port to adjust the position of the plane.



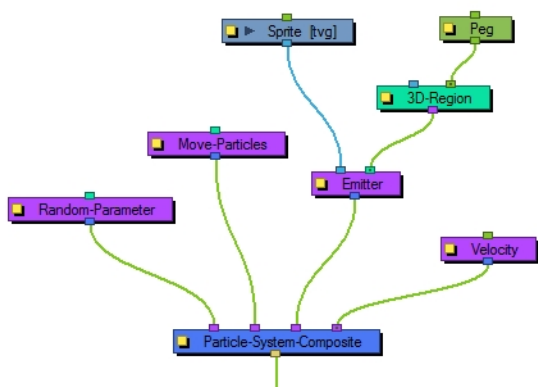
Planar Region Properties

Parameter	Description
Name	Lets you rename the node.
Shape Type	Lets you define the shape of the plane. The parameters that you can adjust below will be greyed out depending on the shape type you choose. Each shape can be adjusted from the Camera view using the Transform tool by selecting the Planar Region and then selecting View > Show > Control . Rectangle: The width and height on a rectangle. Disc: The point (the centre) of the disk. You can also adjust values for the minimum and maximum radius. A minimum radius of 0 will simply be a circle. Triangle: The three points of the triangle independently.

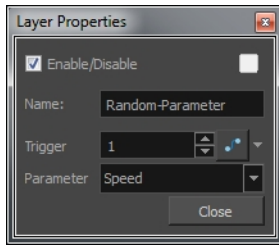
	<p>Line: The two points on a line.</p> <p>Point: The position of one single point.</p> <p>Image: If you choose to use the Image option, then you should use the left in-port of the Planar-Region to connect a drawing layer that can be used as a mask.</p>
Mirror Negative Frames	Mirrors the input peg transformation to generate positions for frames before the scene begins.
Size	<p>Width: The width of a rectangular region.</p> <p>Height: Adjust the height of a rectangular region.</p>
Radius	<p>Minimum: The minimum radius on a disc region.</p> <p>Maximum: Adjust the maximum radius on a disc region.</p>
P1	<p>X: The X position of Point 1. Point 1 could refer to the point on a triangle, line, or point.</p> <p>Y: The Y position of Point 1.</p>
P2	<p>X: The X position of Point 2. Point 2 could refer to the point on a triangle or line.</p> <p>Y: The Y position of Point 2.</p>
P3	<p>X: The X position of Point 3. Point 3 refers to a point on a triangle.</p> <p>Y: The Y position of Point 3.</p>

Random

The Random effects lets you put a random seed on some qualities like acceleration, speed, rotation speed, and position. There's also a Seed value in the Baker, but you may only want to make one particular aspect of the system random. This effect gives you control over the randomness of a particular property.

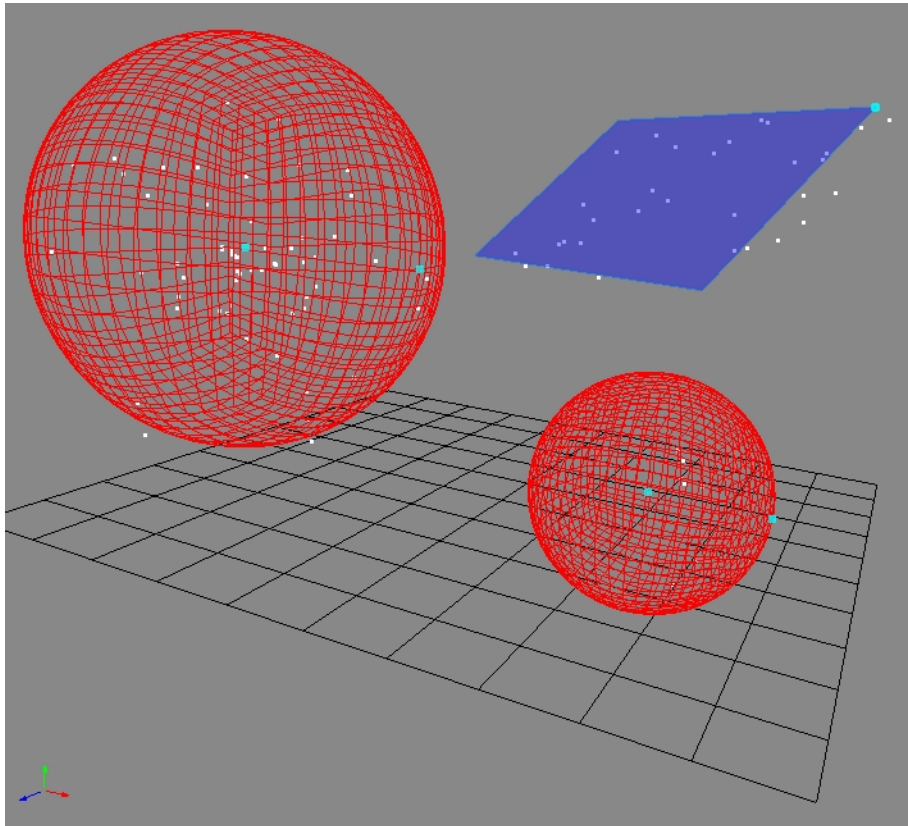


Random Properties

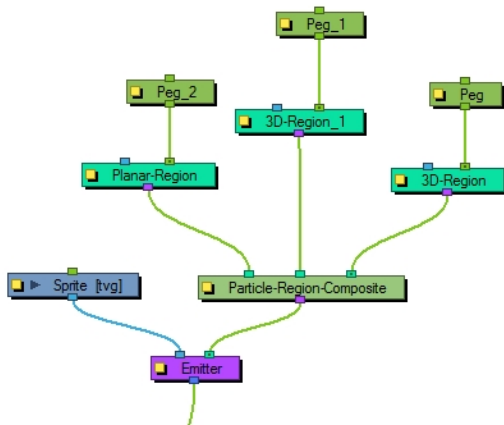


Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Parameter	Lets you choose a parameter to make random: None, Acceleration, Speed, Rotation Speed, and Position.

Region Composite

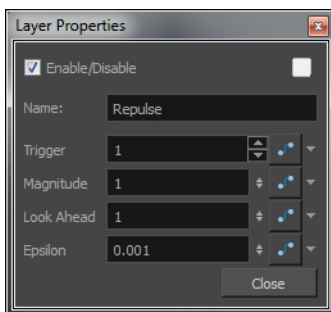
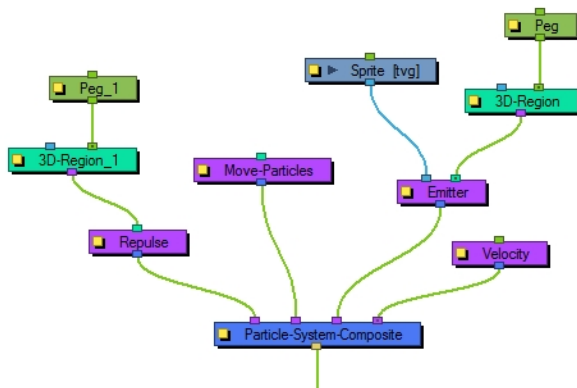


The Region Composite effect lets you composite multiple regions, 3D regions or planar regions. You may want to emit particles from multiple regions in the same particle system.



Repulse

The Repulse effect repulses a particle around a region, but is different than the Bounce node as it is repelled before it physically hits the region.



Repulse Properties

Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Magnitude	This value should be between 0 and 2. The higher the value, the more drastically

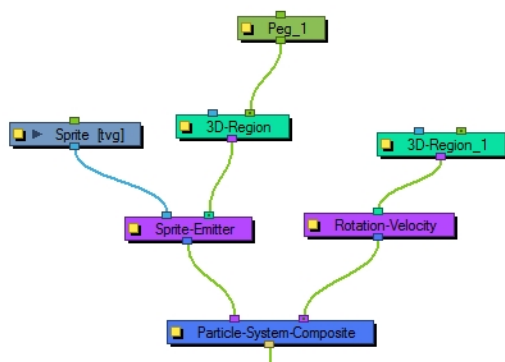
	the particles will be repulsed.
Look Ahead	Determines how far ahead of the particle's current position to see whether there's an obstacle coming. This value should be between 0 and 100.
Epsilon	Affects how quickly the effect of the repulse wears off. The smaller the number, the longer the effect lasts. This value should be between 0.1 and 0.0001.

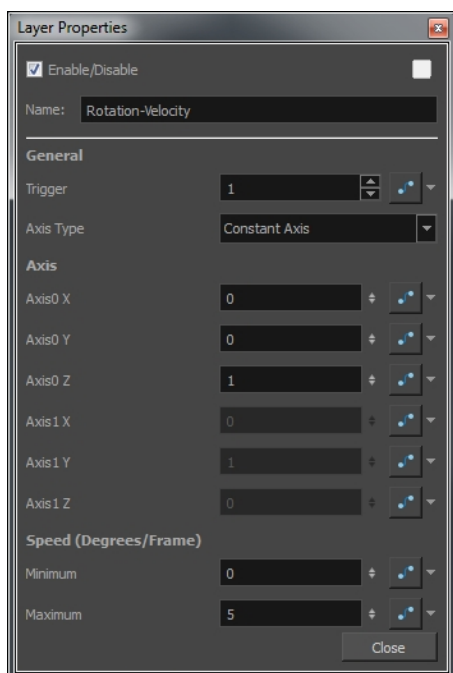
Rotation Velocity



The Rotation Velocity effect lets you define the initial rotational velocity of the particles. The values that you set up for this node refer to each individual particle's drawing axes. This means that if you choose to rotate around the X-axis, it will rotate around each particle's local X-axis as defined by its drawing plane.

The rotational velocity should be set before you emit the particles, such as to the right, so the velocity is taken into account when the particles are created.





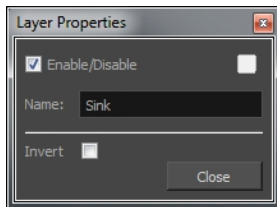
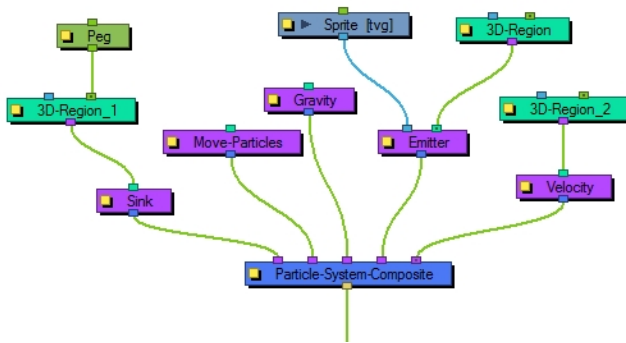
Rotation Velocity Properties

Parameter	Description
Name	Lets you rename the node.
General	<p>Trigger: An on/off switch using binary code. 1 = on, 0 = off.</p> <p>Axis Type: Lets you select the type of axis to use.</p> <ul style="list-style-type: none"> • Use Input Shape: Uses a region to define the rotational axis of the particles. The axis of each particle's rotation will be perpendicular to the plane that particle is created on. • Constant Axis: If you choose to rotate the particles around a constant axis, then each particle will rotate around the same axis. This axis will then be defined as Axis0. • Interpolated Axis: If you choose to rotate the particles around an interpolated axis, that means each particle will have its own rotational velocity which lies somewhere between Axis0 and Axis1.
Axis	<p>Axis0 X: Defines the X component of Axis0. If you set the X to 1, and the Y and Z to 0, then the particle will rotate around its X-axis as defined by its drawing plane. If you set X to 1 and also Y to 1, then it will rotate around an axis that is 45 degrees between X and Y.</p> <p>Axis0 Y: Defines the Y component of Axis0.</p> <p>Axis0 Z: Defines the Z component of Axis0.</p> <p>Axis1 X: Defines the X component of Axis1. This applies only when you have selected an Interpolated axis.</p> <p>Axis1 Y: Defines the Y component of Axis1.</p> <p>Axis1 Z: Defines the Z component of Axis1.</p>

Speed (Degrees/Frame)	<p>Minimum: The minimum initial rotation that a particle can have, in degrees per frame.</p> <p>Maximum: The maximum initial rotation that a particle can have, in degrees per frame.</p>
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Sink

The Sink effect causes particles to disappear when outside the region that is plugged into the sink. It can also be inverted, so the particles disappear when they enter the region instead.

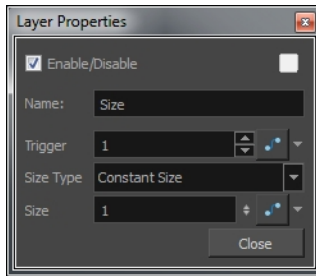


Sink Properties

Parameter	Description
Name	Lets you rename the node.
Invert	The default behaviour of the sink is for particles to disappear when they depart the region. When inverted, the particles disappear when they enter the region instead.

Size

The Size effect lets you animate the size of the particles.



Size Properties

Parameter	Description
Name	Lets you rename the node.
Trigger	An on/off switch using binary code. 1 = on, 0 = off.
Size Type	Lets you select a type for the size. If you choose Constant Size, then all particles will be animated to have the same size. If you choose Input Shape instead, then you must input a Region into the in-port of the Size node. It will use this region to determine the size of the particles.
Size	Lets you adjust the size of the particles.

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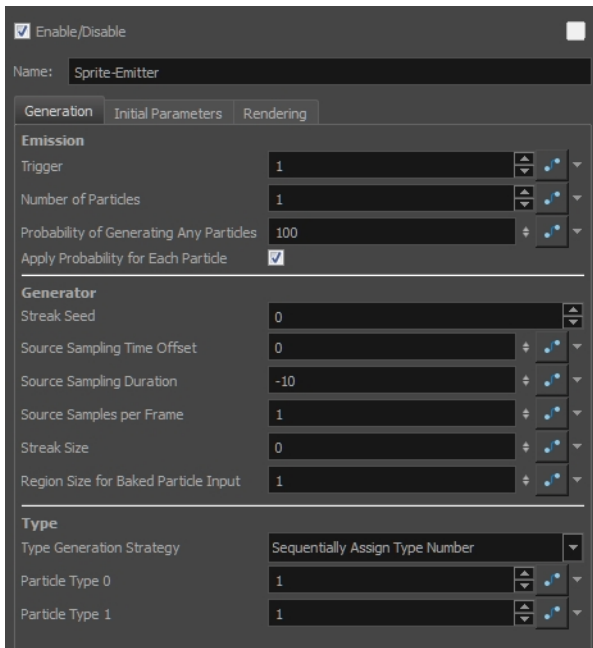
Sprite Emitter



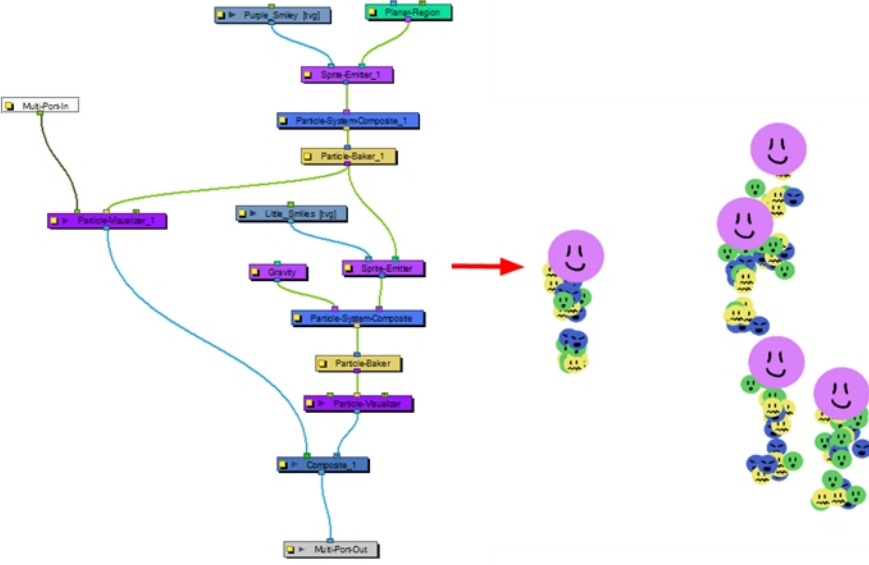
The Sprite Emitter effect is an all-purpose emitter. You can plug it into a drawing layer to generate particles that look like your drawing layer. You could also just output dot particles if you have no image layer connected. There are many parameters to control how particles are emitted.

Sprite Emitter Properties

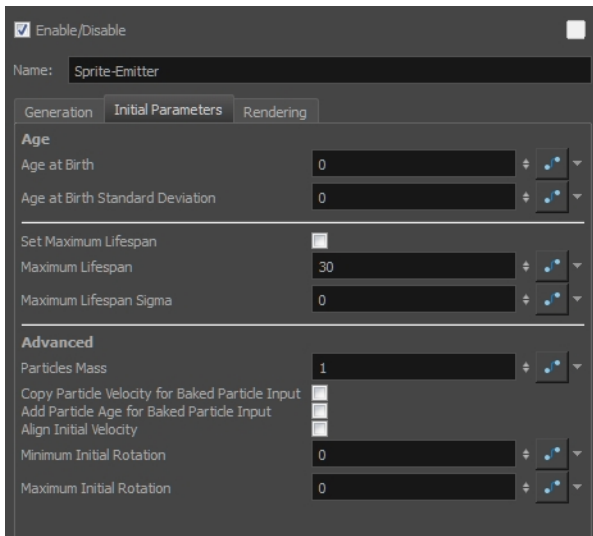
Generation Tab



Parameter	Description
Emission	Trigger: An on/off switch using binary code. 1 = on, 0 = off.
	Number of Particles: This is where you can define how many particles will be emitted on each frame.
	Probability of Generating Any Particles: This is a probability percentage between 0 and 100. If the probability is set to 100%, it will generate the Number of Particles specified. If you set the percentage to 50%, then there's only a 50% chance that it will generate the number of particles set in the Number of Particles. You can play with this value to add random spacing to the generation of particles.
Generator	<p>Streak Seed: The number of streaks to generate.</p> <p>Source Sampling Time Offset: Sets the streak start at a different time to offset its position.</p> <p>Source Sampling Duration: This parameter is the key to generating streaks. If set to 0, the behaviour is the same as before. If set to -10 for example, it will sample the input region (in this example the Planar-Region) 10 frames in the past. If in this mode, the Number of Particles parameter is the number of streaks to generate. If you want to generate five streaks for example, you need to set the Streak Size to a value different than 0, otherwise all the streaks will be at the same spot.</p> <p>Source Samples Per Frame: The number of subdivisions for each frame. A value of 1 generates a particle for each frame. A value of 16 generates a particle on each 1/16th of a frame.</p> <p>Streak Size: The radius of the sphere used for sampling the offset of the streak.</p>

	<p>Region Size for Baked Particle Input: The Baked Particle Input property refers to when you use a Baker as an input to a Sprite Emitter. You can do this when you want to generate particles from other particles. When you do this, you have the option of setting a sphere around the source particle from which the new particle system will generate particles. That is the region which is referred to in this value. If you look at the following example, you'll see that the purple smiley faces are generating smaller green, blue, and yellow smiley faces. This is done by plugging the Baker from the purple smiley faces into the Sprite Emitter of the other smiley faces. See the following images:</p> 
<p>Type</p>	<p>You may want to design a variety of different drawings that will vary the appearance of your particle system. To do this, you should put each drawing on its own cell in the drawing layer. Each drawing will then be a new Type of particle.</p> <p>Type Generation Strategy: Lets you sequentially or randomly assign a type (moving from one drawing to the next).</p> <p>Particle Type 0: This is the frame number of the first drawing. If you have a 5-frame cycle that starts on frame 1, you would put a 1 here.</p> <p>Particle Type 1: This is the frame number of the last drawing. If you have a 5-frame cycle that starts on frame 1, you would put 5 here.</p>

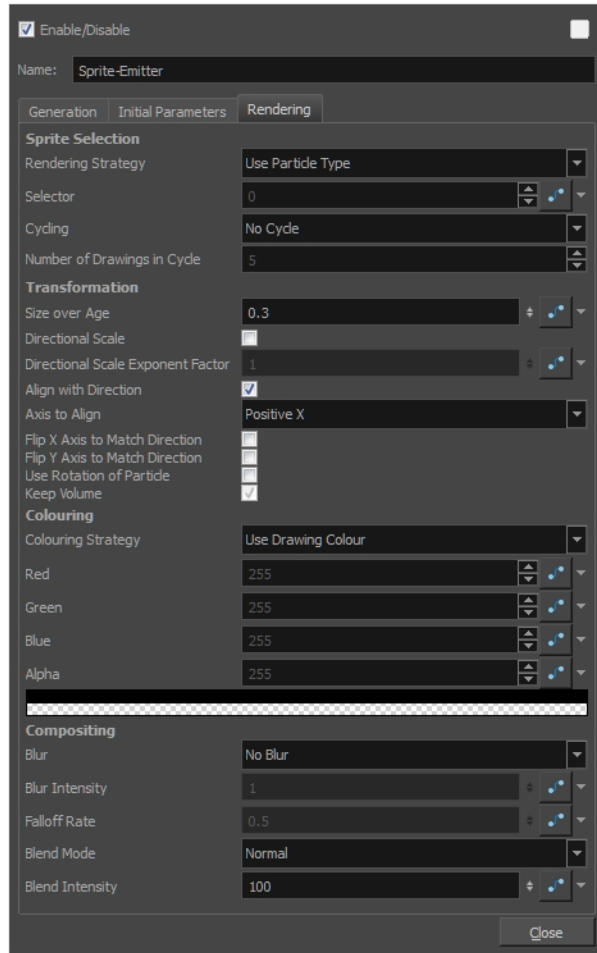
Initial Parameters Tab



Parameter	Description
Age	<p>Age at Birth: A different start frame number can be entered in this field. This means that a particle can start with a different drawing than the drawing that you have on frame 1.</p> <p>Age at Birth Standard Deviation: Allows a random deviation for the birth of the particles. If you have a 5-frame cycle that starts on frame 1, but you want the particles to be of a random type, then you may want to set the Age and Birth to 3 with a standard deviation of 2. That means that particles will randomly be born at any frame from 1 to 5.</p> <p>Set Maximum Lifespan: Makes particles die automatically.</p> <p>Maximum Lifespan: This is how long the particle will exist before dying.</p> <p>Maximum Lifespan Sigma: The lifespan variation of particles. If set to 0, all particles will have the same lifespan. A larger value means that particle lifespans will be distributed over a larger range.</p>
Advanced	<p>Particles Mass: Define a mass for the particles. This mass will affect how the particles interact with gravity.</p> <p>Copy Particle Velocity for Baked Particle Input: If you select this option, the velocity of the parent system will be applied to the child system when a Baker is used as the region for a Sprite Emitter.</p> <p>Add Particle Age for Baked Particle Input: If you select this option, the age of the parent system will be inherited by the child system when a Baker is used as the region for a Sprite Emitter.</p> <p>Align Initial Velocity: This aligns the initial velocity with the region from which the particles are being emitted. If you are emitting from a sphere, then the particles will all start out moving away from the centre of the sphere.</p> <p>Minimum Initial Rotation: Define a minimum rotation in degrees that the particle can have when it is generated. There is also a separate Rotation-Velocity node in which you can define this parameter.</p>

	Maximum Initial Rotation: Define a maximum rotation in degrees that the particle can have when it is generated.
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Rendering Tab

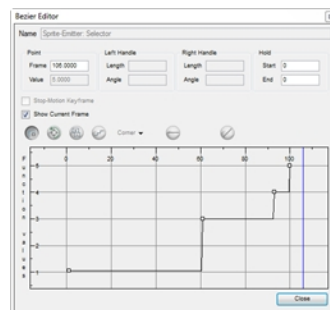
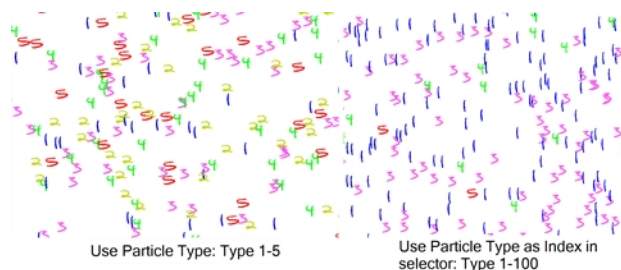


Parameter	Description
Sprite Selection	<p>Rendering Strategy: Select a method to determine the particle type defined for each particle that is created.</p> <ul style="list-style-type: none"> • Render as Dot: Renders each particle as a dot. This is useful mainly for previewing the effects of your particle system without using the drawing layer (sprite). • Use Frame Number: As the frame number increases, the type of particle will change to match the frame number. This means that ALL particles in the system will change together as the frame number changes. If you only have a few drawings, then you may want to enable Cycling to cycle those drawings. • Use Frame Number as Index in Selector: When you select this option, you can use the Selector to animate the Frame Number it uses over time. So, instead of taking the current frame as the Frame

Number, you can write your own function instead. For example, if you animate the selector so that at frame 1, it starts out at 2, then 8 frames later you add another keyframe to set the value to 4. Between frame 1 and frame 8, the particles will all change type together from what they look like on frame 2 to what they look like on frame 4.

- **Use Particle Type:** Each particle that is generated will look like the Particle Type that was assigned on the Generation tab. For example, if you use a value of 1 for Particle Type 0, and 6 for Particle Type 1, then each particle will be assigned a type from 1 to 6. This type corresponds to the drawing that appears on the sprite on that frame number. So if you have a drawing layer called Sprite that is plugged into the left in-port of the Emitter, it will look for the drawings in cells 1 to 6 of Sprite to assign those drawings to each particle.
- **Use Particle Type as Index in Selector:** This option allows you to use the Selector to manually create a function that assigns how many of which particle will be created.

For example, you can set the Particle Type to go from 1 to 100 in the Generation tab. Then use the Selector to remap the particle types to a certain drawing. So for example you could create five drawings, labelled 1 to 5, and use the selector to create mainly 1s, no 2s, a few 3s, 4s, and a very few 5s. What it's doing is looking at the X-axis to find what the particle "type" is, then looking at the Y-axis to find out which drawing to assign to that "type." When you use 1 to 100 as a type, then when you're setting the values, they act as a percentage.



Selector: Bezier Editor, Type 1-100,
Drawings 1-5

- **Use Age:** As the particle ages, it will change appearance from what appears on the Sprite's first drawing to the subsequent drawings. This means that each particle can have its appearance animated as it gets older.

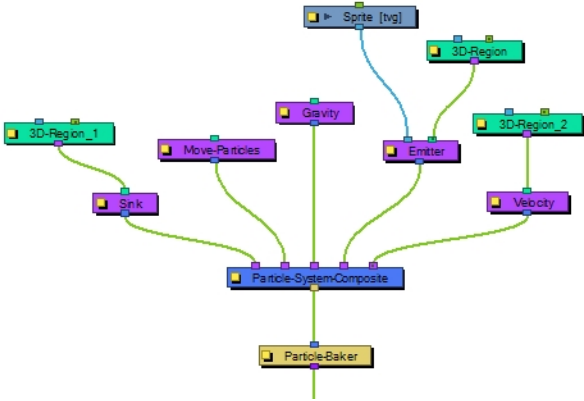
	<ul style="list-style-type: none"> • Use Age as Index in Selector: You can animate the Selector to change how a particle ages over time. For example, if you have a Sprite with six drawings on it, you might want to animate it so it changes from drawing 1, on frame 1, to drawing 2, on frame 10, then drawing 3 on frame 14, drawing 4 on frame 16, drawing 5 on frame 17, etc. so the particle rapidly ages. This allows you to change the timing of the aging dynamically through the selector, instead of having to modify the exposure of the cells on the Sprite. <p>Selector: Animates the Selector in conjunction with the Rendering Strategy to adjust the parameters that control the particle's appearance at birth and over time.</p> <p>Cycling: If you're using rendering strategies like Frame Number or Age, you may want to cycle the drawings. For example, if you are using Frame Number, but you've only got 5 frames worth of drawings in your Sprite, then if you use "No Cycle," your Particles will disappear after frame 5. You can choose to cycle Normally (1-2-3-4-5-1-2-3-4-5) or Back and Forth (1-2-3-4-5-4-3-2-1).</p> <p>Number of Drawings in Cycle: Lets you indicate how many frames from your Sprite you'd like to cycle.</p>
Transformation	<p>Size over Age: Lets you determine the size of the particle as it ages. Attach a function to this attribute if you want to, for example, have the particles get smaller as time goes on.</p> <p>Directional Scale: Scales the particle in the direction of its movement.</p> <p>Directional Scale Exponent Factor: Sets an exponent here for how much you want that particle to scale.</p> <p>Align with Direction: Aligns the particle in the direction of its movement.</p> <p>Axis to Align: Select the axis that you want to align. This axis refers to the axis of the Drawing grid from the Drawing node plugged into the emitter.</p> <p>Flip X Axis to Match Direction: You may want to have the particle align to the X direction of movement. You can see this property being used in the Lemmings example.</p> <p>Flip Y Axis to Match Direction: Similar to flipping the X axis, you may want to flip the Y axis of a drawing to match the direction of the particle movement..</p> <p>Use Rotation of Particle: Enables rotation on the particle.</p> <p>Keep Volume: When you choose to do a Directional Scale, this will automatically maintain the volume of the particle by squashing it proportionally to how much it stretches as a result of the directional scale.</p>
Colouring	<p>Colouring Strategy: Lets you choose how to define the colour of the particle.</p> <ul style="list-style-type: none"> • Use Drawing Colour: The particle remains the same colour as it was drawn with. • Map RGB Based on Age: Attach a function to this to vary the Red, Green, and Blue values of the particle as it ages. • Map RGBA Based on Age: Attach a function to this to vary the

	<p>Red, Green, Blue, and Alpha values of the particle as it ages.</p> <ul style="list-style-type: none"> • Apply Opacity Based on Age: Keeps the original RGB values from the drawing, but vary the Alpha (Opacity) according to a function that you define here. • Map RGB Based on Frame: Changes the Red, Green, and Blue values of the particles based on the frame. Changing based on the frame means that ALL particles will change colour on that frame, regardless of their age. • Map RGBA Based on Frame: Changes the Red, Green, Blue, and Alpha values of all particles on a given frame by attaching a function. • Apply Opacity Based on Frame: Uses the original RGB values from your drawing, but varies the Alpha (Opacity) of the particles on a certain frame by attaching a function to this. <p>Red, Blue, Green, Alpha: This is where you can attach functions to the Red, Blue, Green and Alpha values. You can also click on the colour swatch to adjust the colour.</p>
Compositing	<p>Blur: Lets you determine the Blur to apply to the particles.</p> <ul style="list-style-type: none"> • No Blur: No blur will be applied to the particles. • Directional Blur Based on Age: Attaches a function to define how you want the particles to blur based on the age of each particle. The particle will blur in the direction of movement. • Directional Blur Based on Frame: Attaches a function to define how all particles should be blurred at a particular frame. The particle will blur in the direction of movement. • Low Quality Radial Blur Based on Age: Attaches a function to define how you want the particles to blur based on the age of each particle. This will be a low quality blur. • Low Quality Radial Blur Based on Frame: Attaches a function to define how all particles should be blurred at a particular frame. This will be a low quality blur. • Low Quality Radial Blur Based on Camera Distance: Defines how you want the particles to blur based on their distance from the camera. This is a low quality blur. • High Quality Radial Blur Based on Age: Attaches a function to define how you want the particles to blur based on the age of each particle. This is a high quality blur. • High Quality Radial Blur Based on Frame: Attaches a function to define how all particles should be blurred at a particular frame. This is a high quality blur. • High Quality Radial Blur Based on Camera Distance: Defines how you want the particles to blur based on their distance from the camera. This is a high quality blur. <p>Blur Intensity: Lets you set a value or attach a function to animate the blur according to the type of blur that was defined from the drop-down list.</p>

	<p>Falloff Rate: The distance where the blur fades from the edge of the image. Select a value between 0 and 1. A falloff rate of 0 causes the blur to fade out slowly, distributing the blur evenly from the edge of the drawing to the farthest edge of the blur. A falloff rate of 1 causes the blur to fade out quickly so that the blur is heaviest at the edge of the drawing.</p> <p>Blend Mode: Defines a blend mode for the particles to get cool effects.</p> <p>Blend Intensity: This is a percentage of how opaque you want the particles to be blended. 50 = 50% transparent. 100 = opaque.</p>
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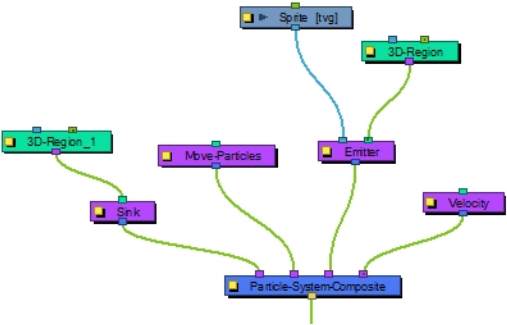
System Composite

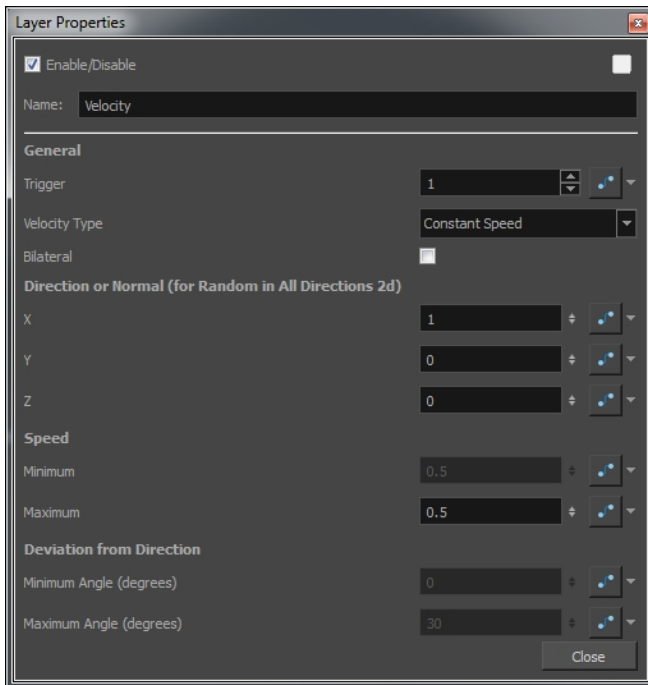
The System Composite node is where you connect all the "Actions" of your particle system. An action includes any of the light-purple nodes, like Gravity, Emitters, and velocity parameters. All of the "Actions" help to define the behaviour of the particle system.



Velocity

The Velocity effect defines the initial velocity of the particles that are emitted in the particle system. You can select this node and select **View > Show > Control** to display the manipulation handles to help you set the parameters of this node. Use your Transform tool to modify the manipulation handles in the Camera or Perspective view.





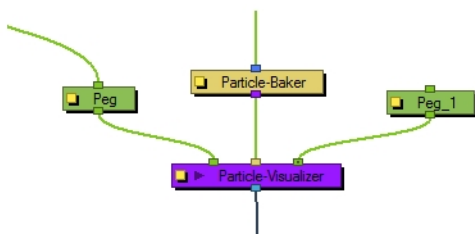
Velocity Properties

Parameter	Description
General	Trigger: Is an on/off switch using binary code, where 1 = on, while 0 = off.
	Velocity Type <ul style="list-style-type: none"> • Use Input Shape: If you plug a Region into the in-port of the Velocity node, it will take the shape of this region to determine the initial velocity of the particles. They will take a velocity that is perpendicular to the surface of the shape. • Constant Speed: Sets a constant speed for the initial velocity of the particles. • Interpolated Speed: Each particle is assigned an initial speed that is somewhere between the two values set for Interpolated Speed. • Random in All Directions 2D: All particles will be assigned a random velocity in any direction on a 2D plane. • Random in All Directions 3D: All particles will be assigned a random velocity in any direction. • Random in Cone: Particles will be assigned an initial velocity anywhere in the shape of a cone. • Random in 2D-Pie: Particles will be assigned an initial velocity anywhere in the shape of a pie slice on a 2D plane.
	Bilateral: Generates positive and negative velocities in a given direction. For example, you can generate particles with cone-shaped velocity, (e.g. a bazooka firing) going only in the forward direction, but you can also generate velocities in the opposite direction.
Direction of Normal (for Random in all Directions 2D)	Lets you input values for the perpendicular direction for the Random property in All Directions 2D.

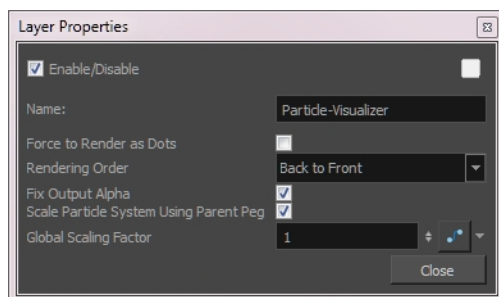
	<p>X: Sets a value between 0 and 1 to determine how much influence the X-axis has over the direction of the normal. For example, if the X value is set to 1, and Y and Z are set to 0, then the perpendicular (normal) will be going in the X direction. If X is set to 1, and Y is also set to 1, then the axis will be 45 degrees, halfway between X and Y. Feel free to use the Manipulation Handles for the velocity node by selecting the Velocity node and then selecting View > Show > Control. This will allow you to use the Transform tool in the Camera View or the Perspective View to set the appropriate values.</p> <p>Y: Set a value between 0 and 1 to determine how much influence the Y-axis has over the direction of the normal.</p> <p>Z: Set a value between 0 and 1 to determine how much influence the Z-axis has over the direction of the normal.</p>
Speed	<p>Minimum: There are some speeds that are constant, and some that are a range of values between a minimum and maximum. Set the minimum speed here.</p> <p>Maximum: Set the maximum speed for interpolated speeds.</p>
Deviation from Direction	<p>Minimum Angle: This is used for Cone and Pie shapes. Put a non-zero value here if you want there to be a hole in the middle of your cone or pie.</p> <p>Maximum Angle: Set the maximum angle for your cone or pie here.</p>

Visualizer

The Particle-Visualizer effect renders and flattens the particle system down to a single plane. You can plug a peg module into the left port to animate the position of the whole particle system. Plugging a peg into the right port will move the depth where the flat plane is generated, so you can move it behind or in front of various other drawing layers in your scene. You can even have two Visualizers with pegs in the right in-ports that are at different depths to display some particles in front of and some particles behind a character or drawing in the scene.



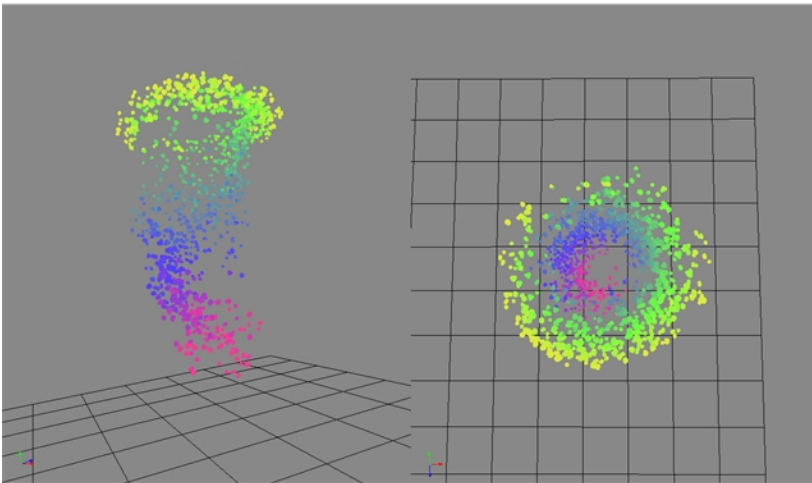
Visualizer Properties



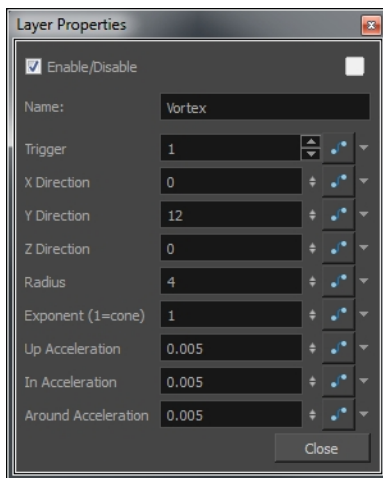
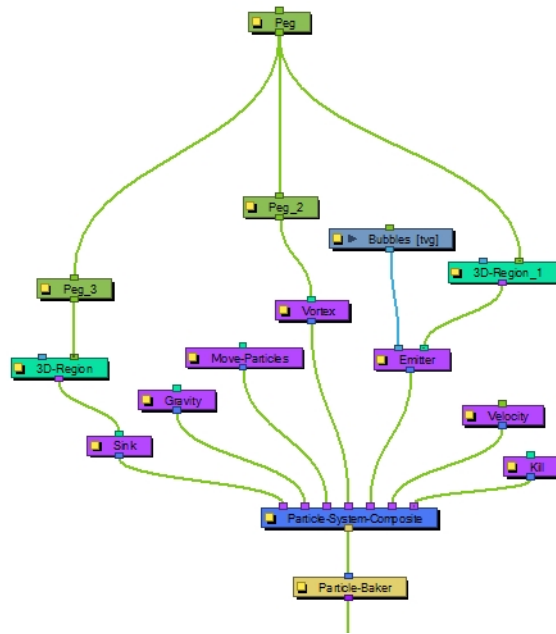
Parameter	Description
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Force Render as Dots	Temporarily renders your system as Dots when previewing a simulation. All drawings are ignored and the system is forced to render as dots. Note: You can also use the option View > Particle > Show Particles as Dots in OpenGL. When enabled, the particles will always be displayed as dots in the OpenGL preview mode to make playback speed faster for heavy scenes.
Rendering Order	Lets you set the order in which you want the particles to appear in the render. Back to Front: Added particles will appear behind existing particles. Front to Back: Added particles will appear in front of existing particles. Oldest to Youngest: Older particles will appear behind younger particles. Youngest to Oldest: Older particles will appear in front of younger particles. Ascending Types: Lower types will appear behind higher types. Descending Types: Lower types will appear in front of higher types.
Fix Output Alpha	This is an important option when using some filters like Screen or Multiply in the Blend Mode that can be specified in the Rendering tab of the Emitter. When working with premultiplied images, if the alpha is not fixed in the visualizer, you may see some unusual artifacts.
Scale Particle System Using Parent Peg	Respects the scaling of a particle system so you can position and resize it as you like. Old scenes with particle system will still work as this option is disabled.
Global Scaling Factor	Lets you set the scaling factor for particle system.

Vortex



The Vortex effect allows you to define an axis as a vortex, so the particles will spin around this axis.



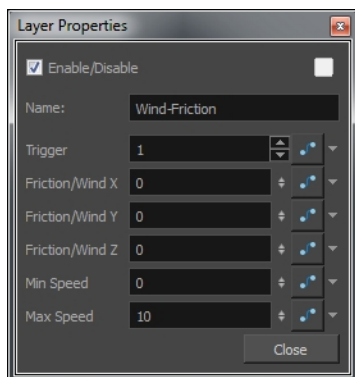
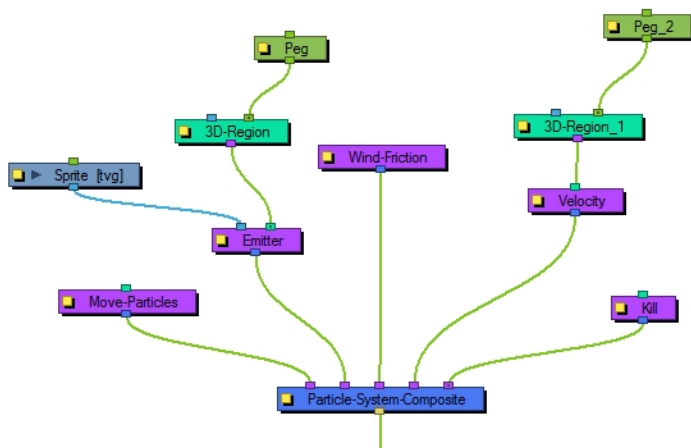
Vortex Properties

Parameter	Description
Trigger	An on/off switch using binary code, where 1 = on and 0 = off.
X Direction	Defines the X portion of the axis of rotation for the Vortex.
Y Direction	Defines the Y portion of the axis of rotation for the Vortex.
Z Direction	Defines the Z portion of the axis of rotation of the Vortex.
Radius	Defines the radius at the top of the vortex.
Exponent (1=cone)	Defines a curve that gives the Vortex a certain silhouette. 1 forms a cone, greater than 1 curves inward.
Up Acceleration	Defines the vertical acceleration of the particles that are inside the Vortex.
In Acceleration	Defines the inward acceleration of particles that are outside the Vortex.

Around Acceleration	Defines the acceleration around the vortex of particles that are inside the Vortex.
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Wind-Friction

The Wind-Friction effect lets you define the amount of wind in the scene, and animate the wind over time.



Wind-Friction Properties

Parameter	Description
Trigger	An on/off switch using binary code, where 1 = on and 0 = off.
Friction/Wind X, Y, Z	Defines the amount that the wind will dampen or increase the speed of the particles in the X, Y or Z direction.
Min Speed	The minimum speed of particles that will be affected by the wind. Particles moving slower than this will not be affected
Max Speed	The maximum speed of particles that will be affected by the wind. Particles moving faster than this will not be affected.

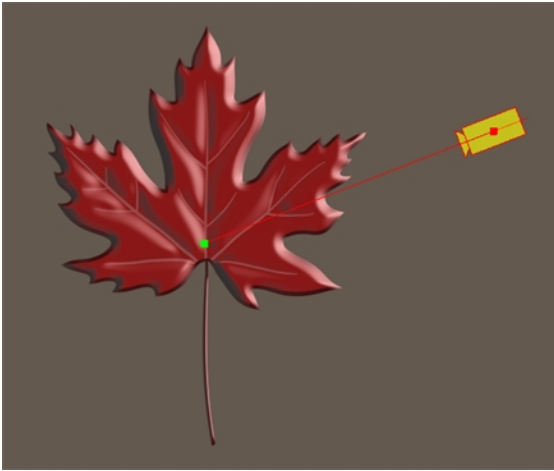
Shading Nodes

Harmony provides you with a wide series of parameters to customize your light shading effects.

Light Position Node	521
Light Shader Node	523
Normal Map Node	526
Normal Map Converter Node	530
Tone Shader Node	531
Volume Object Node	534

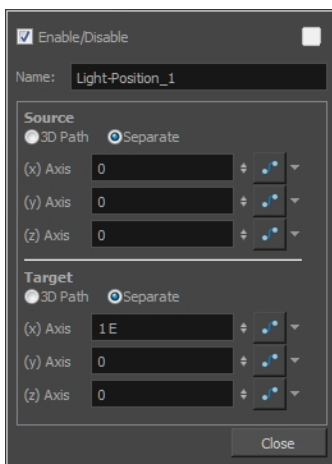
Light Position Node

The Light Position node is the actual light source interacting with all the defined volume objects. You can set its position in relation to the objects and animate it over time. All volumes will react according to the light's motion.



This is not where you set the light type or colour. You'll be adjusting these in the Light Shader and Tone Shader nodes.

Light Position Properties



Parameter	Description
Source	Lets you control the value of the light source.
Target	The point or direction at which the light is pointing
	3D Path: Lets you use a 3D path when animating the light.
	Separate: Lets you enter separate values for the X, Y and Z axes.
	(x) Axis: Lets you type in a new East/West coordinate corresponding to the desired position.
	(y) Axis: Lets you type in a new North/South coordinate corresponding to the desired position.

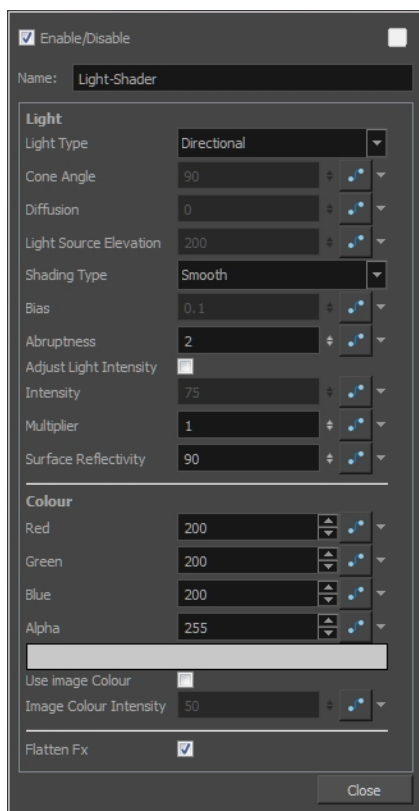
	(z) Axis: Lets you type in a new Forward/Backward coordinate corresponding to the desired position.
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Light Shader Node

The Light Shader node lets you adjust the highlight parameters, such as the colour, to create the desired ambiance. You can animate most parameters over time to create a mood change, sunset or any other type of light transition. The beveling height and smoothing is set in the Normal Map node.



Light Shader Properties



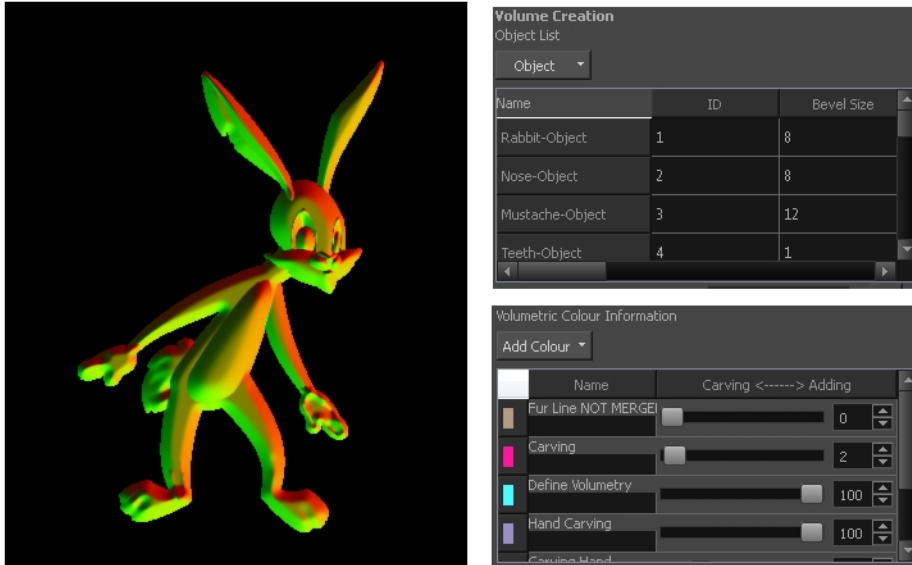
Parameter	Description
Name	Lets you rename the node.

Light	
Light Type	<p>Directional: A light that is parallel in the scene. Each “beam” of light follows the direction defined by the light source and target, and point in the same direction. This type of light is used when the light source is far away or very big, like the sun.</p> <p>Point: A light that illuminates everything around it. Its “beam” of light will go in all directions like a fire.</p> <p>Spot: A light that forms a conical shape like a flashlight.</p>
Cone Angle	The value that defines the light’s cone angle. This option is only accessible with the Light Type set to Spot.
Diffusion	Lets you play with the diffusion of the light on the surface of the drawing. In other words, it is the edge softness. This option is only accessible with the Light Type set to Spot.
Light Source Elevation	Defines the height of the spotlight. This option is only accessible when the Light Type set to Spot or Point.
Shading Type	<p>Smooth: The light and tone fx will have smooth edges.</p> <p>Sharp: The light and tone fx will have sharp edges.</p>
Bias	<p>Define the polarization of the light.</p> <p>When the Shade type is set to Smooth, it defines the width of the light’s smooth zone.</p> <p>When the Shade type is set to Sharp, the Bias defines the antialiasing on the edge of the highlight or tone zone. But,if the Shade type is set to Sharp, the Bias option need a small value such as 0.1 or 0.2. The exponent will be able to compensate the limitation of this small value.</p>
Abruptness	This is a multiplier value of the Bias option. It will define how quick the polarization of the light will change from a value to another.
Adjust Light Intensity	Lets you adjust the light intensity.
Intensity	Lets you set the strength of the light.
Multiplier	Multiplies the value of the Intensity option.
Surface Reflectivity	This option is useful for exaggerating the light on the edge of the 3D geometry. The closer an edge is to the light source, the more intense the light will be.
Colour	
Red/Green/Blue/Alpha	<p>The colour and transparency of the Colour Card. You can also attach these parameters to function columns to change their values over time.</p> <p>Click the colour swatch to open the Colour Picker window and select a colour.</p>
Colour Swatch	Opens the Colour Picker window in which you can specify the colour.
Use Image Colour	Lets you use the colour of the drawing in a lighter or darker colour for the highlight and tone fx.
Image Colour Intensity	Lets you blend the colour of the light with the image colour.
Flatten Fx	This is useful when there are several highlight and tone fx, one over the other, but are supposed to be merged together. Sometimes, shadows and lights look better

	when they do not overlap.
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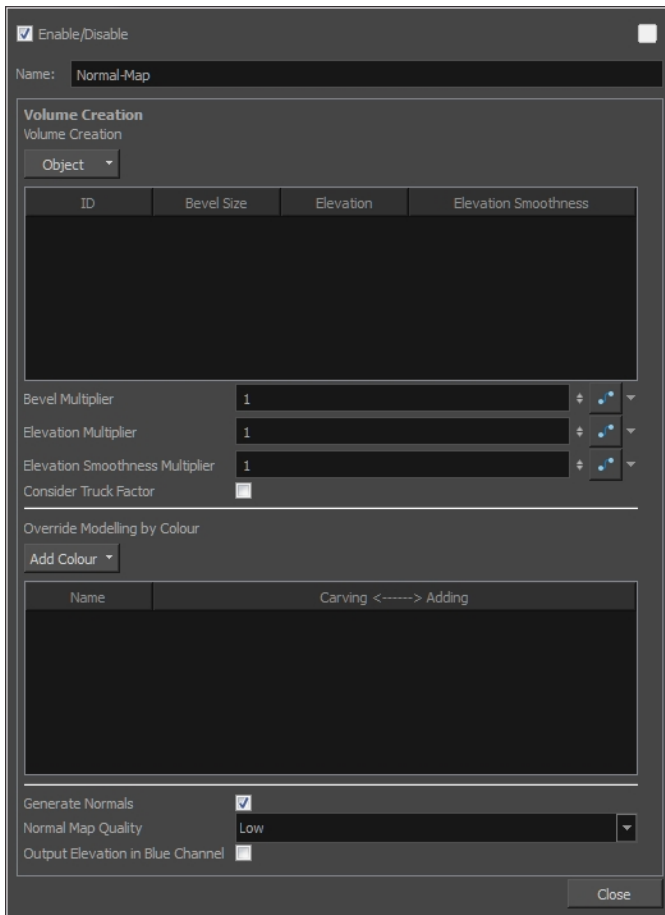
Normal Map Node

The Normal Map node lets you centralize all Volume Object nodes and chisel out the shading 3D geometry (bevel height, smoothing, carving, etc.). It could be described as carving a bas relief. You only need one Normal Map node per light shading effect and, in general, only one per scene.

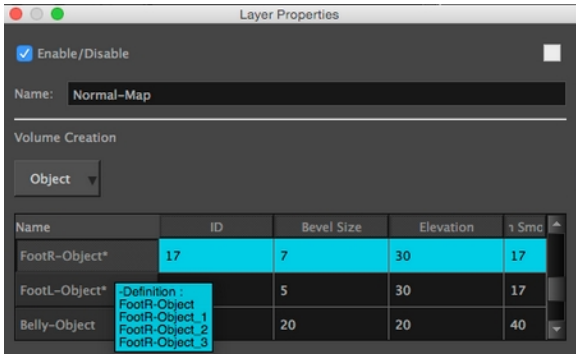
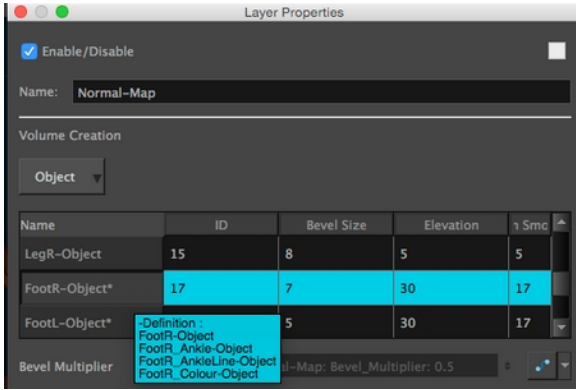
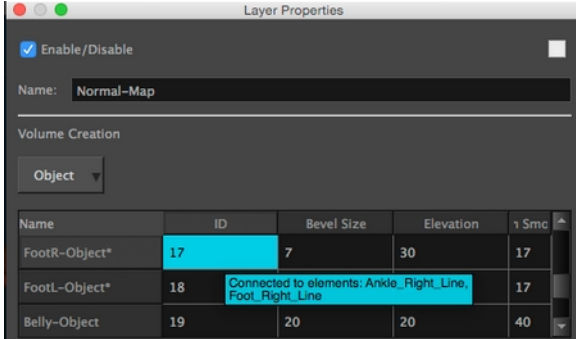


A normal map can be used to create other effects. If you're working with an OpenFX plugin or other plugin requiring a normal map, you can use the Normal Map Converter node to translate the Harmony normal map to a format supported by your plugin. The Normal Map Converter node has been optimized to work with GenArts® plugins, but you also have the ability to use it on custom plugins..

Normal Map Properties



Parameter	Description
Volume Creation	Lists all the different volume object IDs are listed. This is where you can define the basic volumetric shape of each Volume Object node connect to the Normal Map.
Object	Let you add or remove Volume Object nodes that are connected to the Normal Map node. Add All Defined Objects: Adds all Volume Object nodes connected to the Normal Map node. Remove Selected Objects: Removes all Volume Object nodes from the Volume Creation list.
Name	The name that was previously set in each Volume Object node. This information can be really helpful when there are many volume objects listed. With a good name, it is easy to discover what the ID number is related to. When you hover over this column, a tooltip appears listing all volume objects with the same ID. In the following image, the tooltip indicates that three copies were made from FootR-Object. By keeping the same name, you can easily see that each time you see a Volume Object named "FootR-Object", the ID will be the same.

	 <p>In the second example, a specific name was created for each volume object, even if they have the same ID. That way, it is easy to find a specific nodenode when searching for an element with the Search tool in the NetworkNode view.</p> 
ID	<p>The identity number that was previously set in the volume object nodenode appears here. The tooltip in the ID column lists all drawing elements that are connected to the volume object with this identity number.</p> 
Bevel Size	<p>Defines the size of the bevel on the contour of all the drawings related to a specific ID number</p>
Elevation	<p>Defines the elevation of a specific volume object. The higher the value, the more the volumetry of this Volume Object resembles a conical or pyramidal shape.</p>
Elevation Smoothness	<p>Complementary to the Elevation column. Instead of keeping a conical or pyramidal shape, the shape will be smoothed to create a sphere or a bump shape. The edge will be round instead of sharp.</p>
Bevel Multiplier	<p>A multiplier of the Bevel Size value in the board. This affects every object listed.</p>

Elevation Multiplier	A multiplier of the Elevation value in the board. This affects every object listed.
Elevation Smoothness Multiplier	A multiplier of the Elevation Smoothness value in the list. This affects every object listed.
Consider Truck Factor	Keeps the same ratio for the Light Shading system when the camera zooms in or out. This parameter cannot work properly if the size of the drawing, with a volume object nodenode, is changed on the drawing itself. In other words, if the animation is directly created on the drawing layer.
Override Modelling by Colour	
Add Colour	Lets you add or remove any colour that will affect the Adding/ Carving options in the list beneath. When you select this button, each colour palette in the scene is listed and all their swatches are displayed.
Swatches	The first column of the Override Modelling by Colour board is the Swatches. This column does not have a name. When you select a colour swatch from the Add Colour list, the colour swatch appears at the beginning of the list.
Generate Normals	Activates or deactivates the generation of the Normal Map.
Normal Map Quality	Lets you change the Quality of the Normal Map from low to high.
Output Elevation in Blue Channel	When selected, the Elevation is calculated and appears in the soft render mode. When deselected, the object ID appears in the soft render mode. Because it is connected to the blue channel of a drawing, the result will only affect the blue channel.

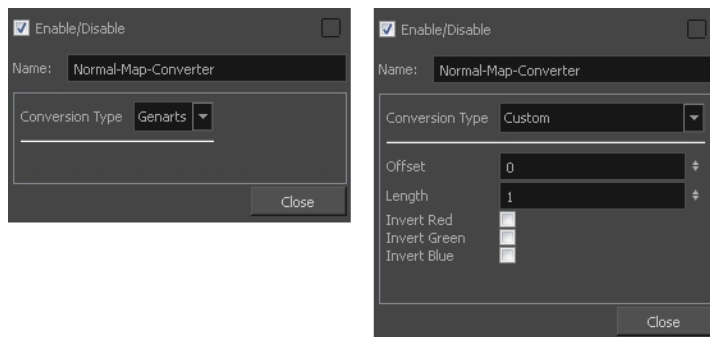
Normal Map Converter Node

The normal map will carve and emboss a flat plane using vectors. The X, Y and Z coordinates of the normal map vectors are stored in RGB values to convert the 3D aspect into a visual result and use it to create various effects, such as light reflections (light shading). The X value is stored in the Red channel. The Y value is stored in the Green channel. The Z value is stored in the Blue channel.

NOTE: Note that not all normal map formats are supported.

The Normal Map Converter uses the following formula per channel:

- **value * (+/- length) + offset**
- *** +/- depending if inverse is set to true ("- " if true)**



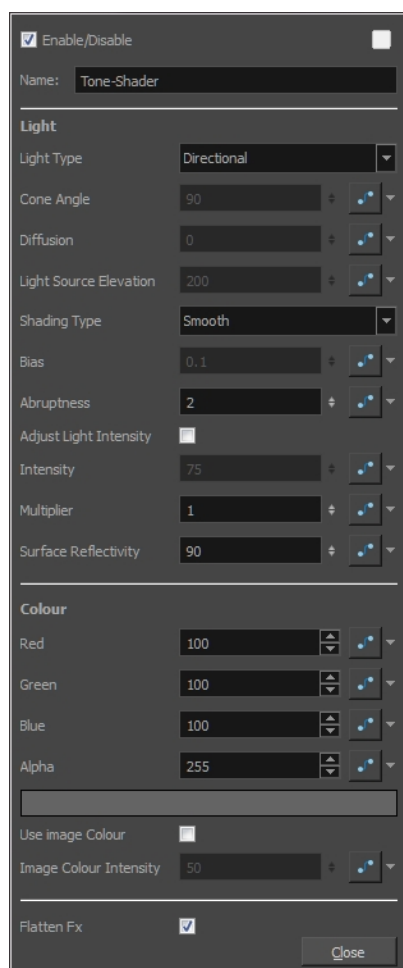
Parameter	Description
Conversion Type	By default, the conversion type is set to Genarts. If you work with a different manufacturer and want to adjust the parameters, set the conversion type to Custom.
Offset	Offsets the original position of the vector. You need to read the plugin documentation to know the offset you need to use. You must use the same offset value as the manufacturer is using. By default the offset is set to 0.
Length	The Normal Map Converter normalizes Harmony vectors to 1. By default the length value is set to 1. If your plugin requires shorter or longer vectors, enter a value smaller or greater than 1. It will multiply the vector length.
Invert Red	Inverts the red value (x). If your value is 125, the invert setting will transform it to -125.
Invert Green	Inverts the green value (y). If your value is 125, the invert setting will transform it to -125.
Invert Blue	Inverts the blue value (z). If your value is 125, the invert setting will transform it to -125.

Tone Shader Node

The Tone Shader node lets you adjust the tone parameters, such as the colour, to create the desired ambiance. You can animate most parameters over time to create shade transitions. The beveling height and smoothing is set in the Normal Map node.



Tone Shader Properties

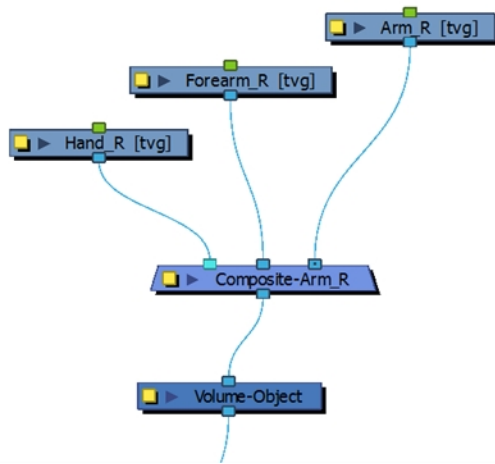


Parameter	Description
Name	Lets you rename the node.
Light	
Light Type	<p>Directional: A light that is parallel in the scene. Each “beam” of light follows the direction defined by the light source and target, and point in the same direction. This type of light is used when the light source is far away or very big, like the sun.</p> <p>Point: A light that illuminates everything around it. Its “beam” of light will go in all directions like a fire.</p> <p>Spot: A light that forms a conical shape like a flashlight.</p>
Cone Angle	The value that defines the light’s cone angle. This option is only accessible with the Light Type set to Spot.
Diffusion	Lets you play with the diffusion of the light on the surface of the drawing. In other words, it is the edge softness. This option is only accessible with the Light Type set to Spot.
Light Source Elevation	Defines the height of the spotlight. This option is only accessible when the Light Type set to Spot or Point.
Shading Type	<p>Smooth: The light and tone fx will have smooth edges.</p> <p>Sharp: The light and tone fx will have sharp edges.</p>
Bias	<p>Define the polarization of the light.</p> <p>When the Shade type is set to Smooth, it defines the width of the light’s smooth zone.</p> <p>When the Shade type is set to Sharp, the Bias defines the antialiasing on the edge of the highlight or tone zone. But,if the Shade type is set to Sharp, the Bias option need a small value such as 0.1 or 0.2. The exponent will be able to compensate the limitation of this small value.</p>
Abruptness	This is a multiplier value of the Bias option. It will define how quick the polarization of the light will change from a value to another.
Adjust Light Intensity	Lets you adjust the light intensity.
Intensity	Lets you set the strength of the light.
Multiplier	Multiplies the value of the Intensity option.
Surface Reflectivity	This option is useful for exaggerating the light on the edge of the 3D geometry. The closer an edge is to the light source, the more intense the light will be.
Colour	
Red/Green/Blue/Alpha	<p>The colour and transparency of the Colour Card. You can also attach these parameters to function columns to change their values over time.</p> <p>Click the colour swatch to open the Colour Picker window and select a colour.</p>
Colour Swatch	Opens the Colour Picker window in which you can specify the colour.
Use Image Colour	Lets you use the colour of the drawing in a lighter or darker colour for the highlight and tone fx.

Image Colour Intensity	Lets you blend the colour of the light with the image colour.
Flatten Fx	This is useful when there are several highlight and tone fx, one over the other, but are supposed to be merged together. Sometimes, shadows and lights look better when they do not overlap.

Volume Object Node

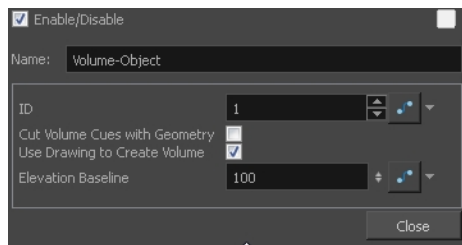
The Volume Object node lets you define a volume zone the light will interact with.



If there is a single drawing on which you want to apply shading, you only need one Volume Object node. For cut-out characters, you will require more as you will define which should be different volumes. For example, you could decide that the arm, forearm, and hand will form one shape for the light to hit and create a highlight. You could then define the body as a separate volume. If you use different Volume Object nodes on the arm pieces, you will get odd carvings and bumps where the joints overlap. Before adding light shading to your rig, you should analyze how the parts will interact with one another.

All the Volume Object nodes in your structure will be gathered in the Normal Map node where you can define the parameter for each volume.

Volume Object Properties



Parameter	Description
Name	With the light shading feature, the naming of the nodes becomes important. Since there isn't any limitation on the number of Volume Object nodes that can be added to a node structure, it's quite important to give a good name to each Volume Object node. These names will later appear in the Normal Map node, in the Volume Creation section.
ID	This is the identity number you assign to a drawing or a group of drawings that will be represented in the same volume once it is generated by the Normal Map node. This ID is also in the Normal Map node, where a list of all Volume Objects is applied.
Cut Volume Cues with Geometry	When this option is not selected, Harmony cuts the 3D geometry (shading bas relief) of the drawing after it has been generated by the Normal Map node.

	<p>Some nodes, such as filters, can affect the shape or colour of the drawing. Those nodes will be processed and recognized by the Normal Map node. Therefore, it is possible to limit the 3D geometry only on a part of the drawing, but not all of it. The 3D geometry follows the edge of the entire drawing and will not be affected by the filters.</p>
Use Drawing to Create Volume	<p>During the generation created by the Normal Map node, the shape of the drawing or group of drawings identified with the same ID will be recognized to create the volume. When this option is selected, the Light Shader and Tone Shader effect appear inside the contour of those drawings.</p>
Elevation Baseline	<p>The baseline defines how much you can add or carve the Volume Object. The drawing or group of drawings connected to this Volume Object node share the same baseline value. Because this setting is closely tied to the adding/curving option called Intensity (0-100) (accessible in the Volumetric Colour Information of the Normal Map node), both places need to have some parameters set. Playing only with the Geometry Intensity won't change anything if there aren't any parameters set in the Normal Map node.</p>

Plugin Nodes

There are 2 plug-in node effects available in Harmony:

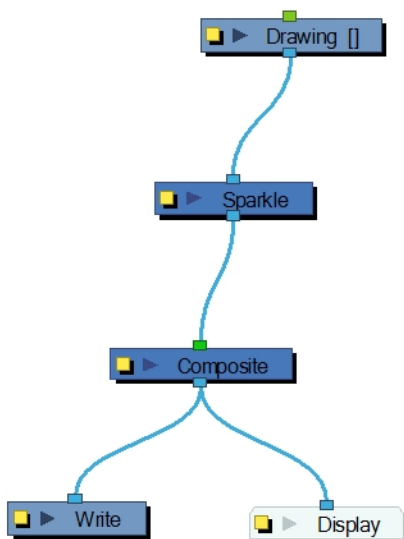
- Brightness-Contrast—see [Brightness Contrast Node](#)
- Sparkle

Sparkle

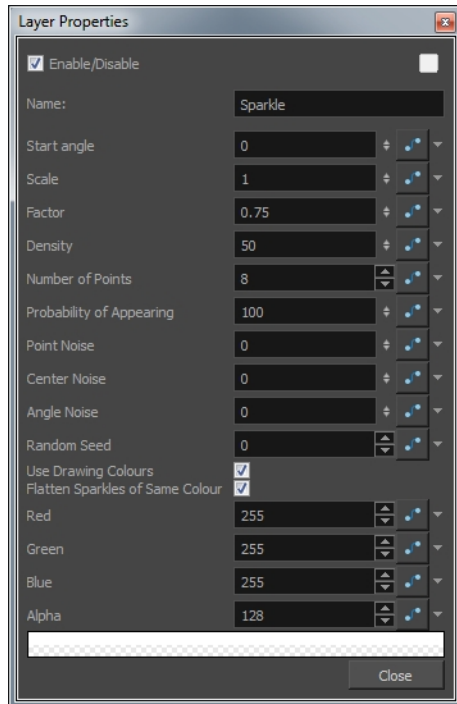


The Sparkle effect transforms a vector drawing into sparkles. You have a high degree of control over the appearance of the sparkles.

The sparkle effect can only be used with vector drawings. If the sparkle effect node is attached to a composite, verify that the Composite editor is set to Vector Flatten Output.



Use the Sparkle editor to modify how the Sparkle node creates the sparkle effect. You can also use Bezier and Ease function curves to change the values of factors over time.



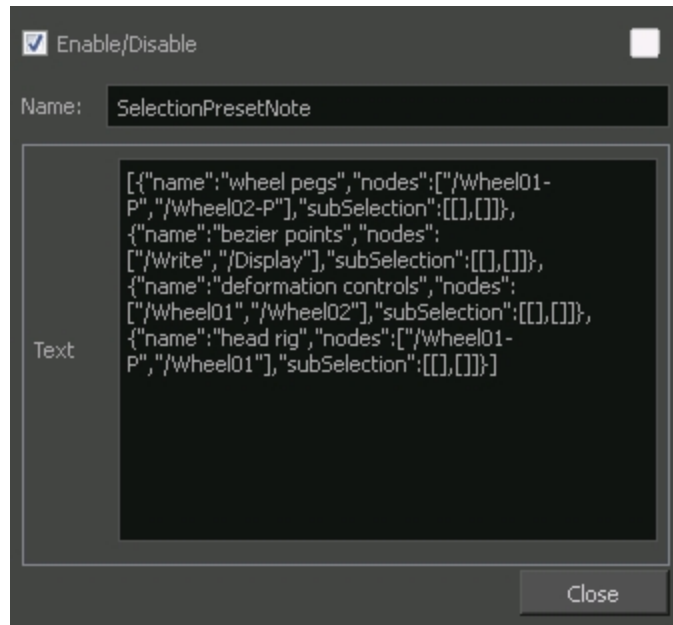
Sparkle Properties

Parameter	Description
Start Angle	Enter a value between -360 and 360 to indicate the angle of rotation of each sparkle.
Scale	Sparkles are determined by the size of the bounding box of the coloured areas in the drawing. Enter the multiple to use to scale the sparkle size.
Factor	Enter a value between 0.1 and 1 to determine how pointy the sparkle is. A value closer to 0 will result in a more pointed sparkle. A value closer to 1 will result in a more rounded sparkle.
Density	Adjusts the density level.
Number of Points	Enter the number of points you want each sparkle to have.
Probability of Appearing	Enter the percentage of possibility that sparkles will be displayed. Enter 100 to always show sparkles. Enter 0 to always hide sparkles.
Point Noise	Enter a value between 0.1 and 1 to indicate the amount by which points in a sparkle will distort.
Centre Noise	Enter a value between 0.1 and 1 to indicate the amount by which the angles between each point in a sparkle will distort.
Angle Noise	Enter a value between 0.1 and 1 to indicate the amount by which the Start Angle in a sparkle will distort.
Random Seed	Enter a positive integer value that will be used to determine the sparkle pattern.
Use Drawing Colours	Select this option to use the colour attributes of the drawing for the sparkle colour. When this selection is disabled (default setting), the colour values will be used as they are entered in the editor.


Flatten Sparkles of Same Colour	Flatten all drawings of the same colour into a single layer.
Red/Green/Blue/Alpha	In the RGBA fields, enter the values to use for the sparkle colour.

Selection Preset Note Node

The Selection Preset Note node appears in the Node view after an initial Selection Preset is created.

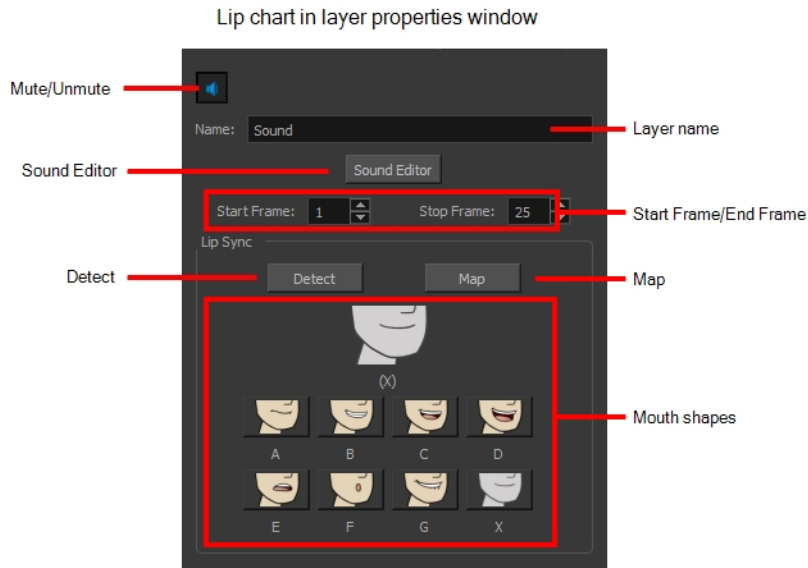


Selection Preset Note Properties

Parameter	Description
Enable/Disable	Checking this option enables the node. Unchecking this option disables the node.
Track Colour	Click on this swatch to open the Select Colour window. Select a colour and click OK to mark the node with the selected colour. 
Name	Lets you rename the node.
Text	Displays the code text for the Selection Presets list that can be found in the Selection Presets window.
Close	Closers the Properties window.

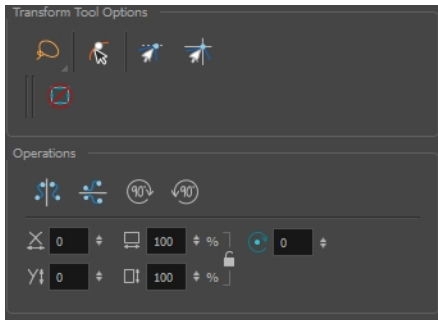
Sound Layer Properties

When you select a sound layer in the Timeline view, the options related to that layer appear in the Layer Properties view.



Chapter 5: Tools Properties

Harmony has a wide variety of drawing and manipulation tools and each one of them has a series of options and modes available in the Tool Properties view. This section covers these options.

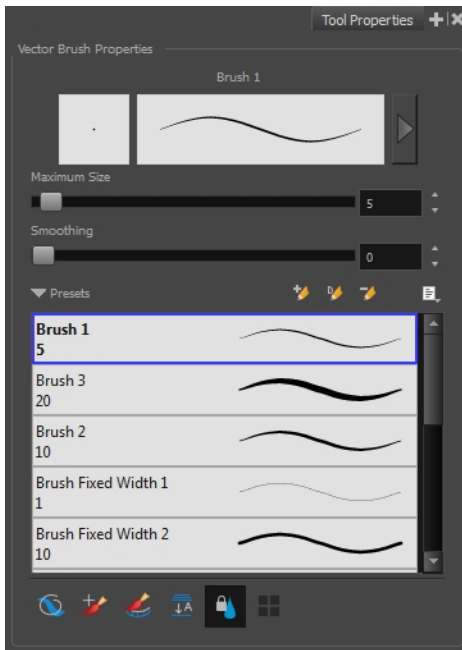


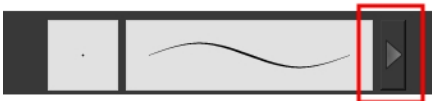



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Brush Tool Properties (Vector)

When you're drawing on a vector layer and select the Brush tool, its properties and options appear in the Tool Properties view.

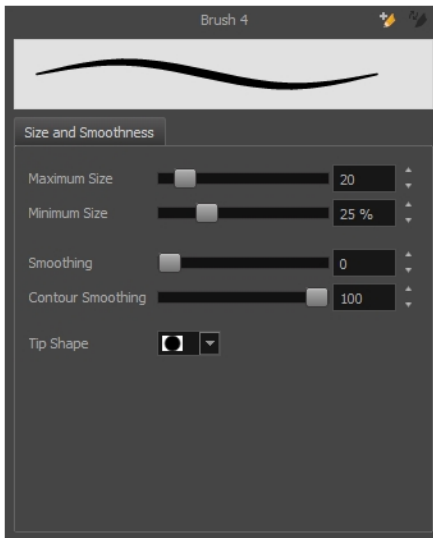


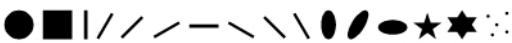
Icon	Tool Name	Description
	Previewing the Stroke	The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters. 
	Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
	Brush Presets	Presets are created by saving the properties of the current tool to a new preset, which you can reuse for repeated tasks. You can create as many presets as you need.
	New Brush	Allows to create a new preset.
	New Dynamic Brush	Allows you to create a new dynamic brush to clone custom patterns.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.

	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Draw Behind	When drawing on vector layers, the Draw Behind mode lets you paint behind existing art. By default, strokes appear over your work until you release the tool.  Orange stroke appears behind existing black stroke
	Repaint Brush	The Repaint Brush is used to repaint zones that have already been painted, it will not affect empty zones or pencil lines. You can use this mode to paint tones or highlights onto your character. 
	Automatically Create Colour Art	As you draw in the Line Art layer, the Automatically Create Colour Art option instantly creates the corresponding strokes in the Colour Art layer. 
	Auto-Flatten Mode	When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.
	Respect Protected Colour	The Respect Protected Colour option prevent the colours you marked as protected, in the Colour view, to be repainted using the Repaint Brush mode or any of the painting tools.
	Use Stored Colour Gradient	The Use Stored Colour Gradient option makes your tool use the previously stored gradient position. This way, every new brush line or colour fill will use the stored gradient position.

Size and Smoothness Tab


You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.




Tool Name	Description
Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth out the bumps and waves on your contour shape of your brush strokes.
Tip Shape	Lets you select a tip shape—from round and square ones to star shaped. This option is disabled when using a textured brush. 

Paper Texture Tab

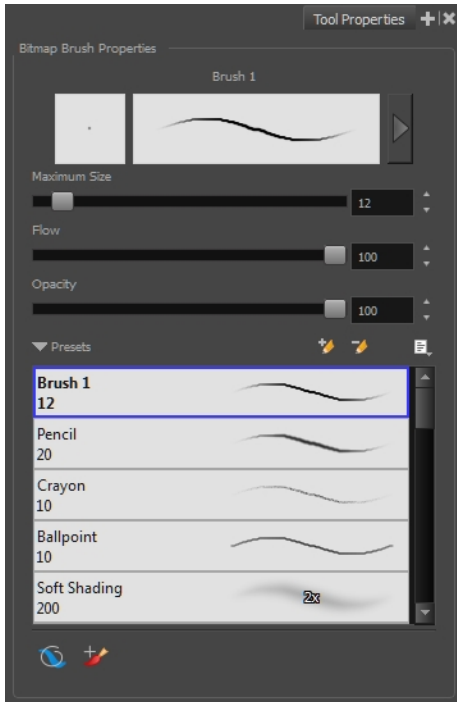
You can create texture brushes to draw on vector layers. Enable the Paper Texture option to access the options.

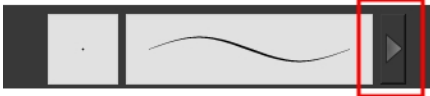
Parameter	Description
Hardness	<p>The hardness value corresponds to the softness of the line edge. The lower the value, the softer the line edge will be. The higher the value, the sharper the line edge will be.</p> 







Maximum Opacity	This value corresponds to the transparency of the stroke when the pressure is heavy.
Minimum Opacity	This value corresponds to the transparency of the stroke when the pressure is light and is a percentage of the Maximum Opacity value. 

Brush Tool Properties (Bitmap)

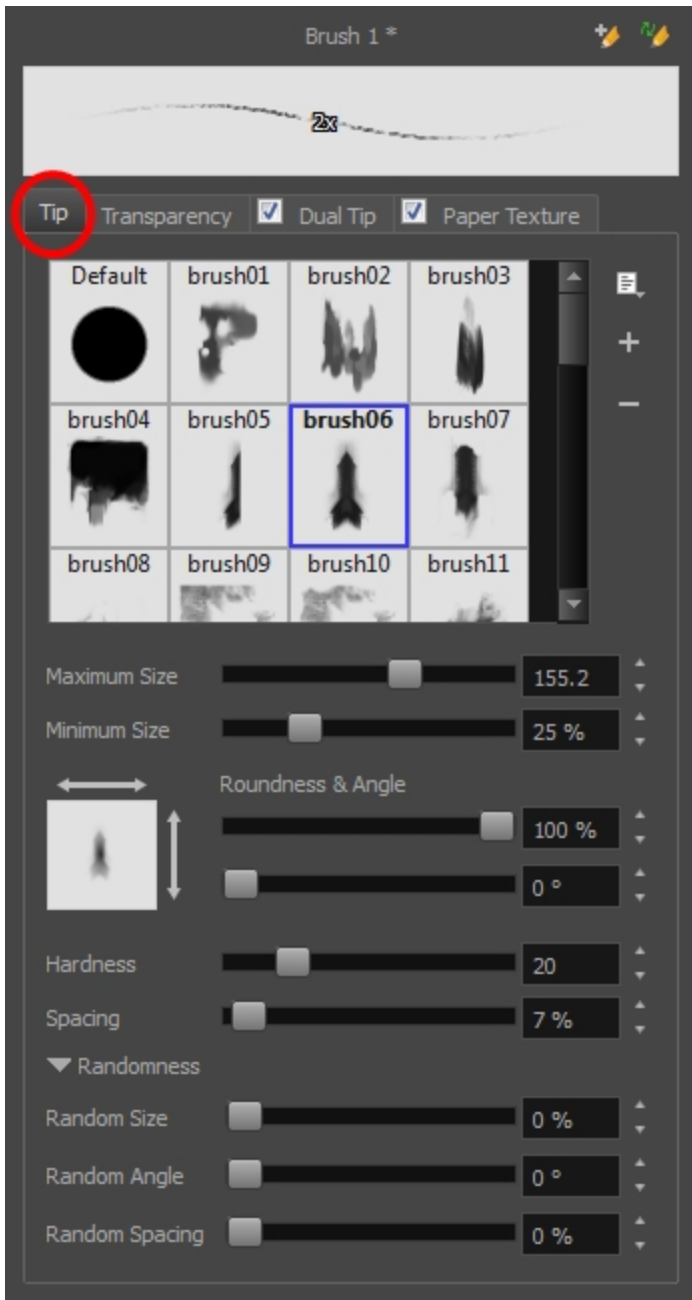
When you're drawing on a bitmap layer and select the Brush tool, its properties and options appear in the Tool Properties view.



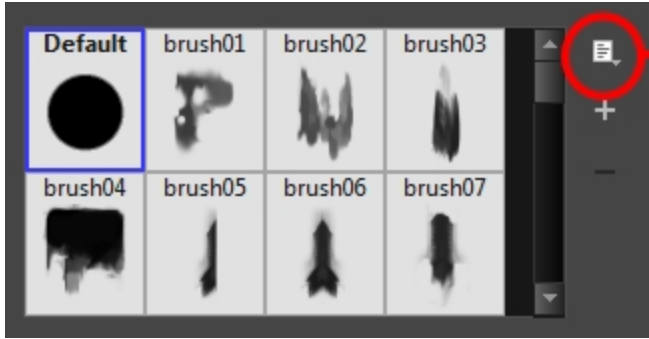
Icon	Tool Name	Description
	Previewing the Stroke	<p>The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters.</p> 
	Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Flow	The Flow parameter lets you set the range for the rate at which paint flows from the brush. The analogy works better with a pen. The greater the flow, the more ink comes out, which gives you a more consistent line colour and texture. If the flow is light, then the colour and texture of the line may look spotty. The flow works with the pressure sensitivity of a pen tablet.
	Opacity	The Opacity parameter is where you set the transparency for a brush stroke. This works with the pressure sensitivity of a pen tablet.
	Brush Presets	Presets are created by saving the properties of the current tool to a new preset, which you can reuse for repeated tasks. You can create as many presets as you need.







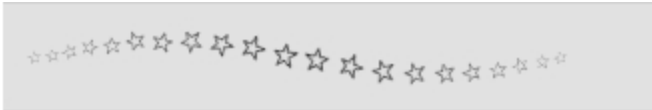

	New Brush	Allows to create a new preset.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Draw Behind	<p>When drawing on vector layers, the Draw Behind mode lets you paint behind existing art. By default, strokes appear over your work until you release the tool.</p>  <p>Orange stroke appears behind existing black stroke</p>
	Repaint Brush	<p>The Repaint Brush is used to repaint zones that have already been painted, it will not affect empty zones or pencil lines. You can use this mode to paint tones or highlights onto your character.</p> 

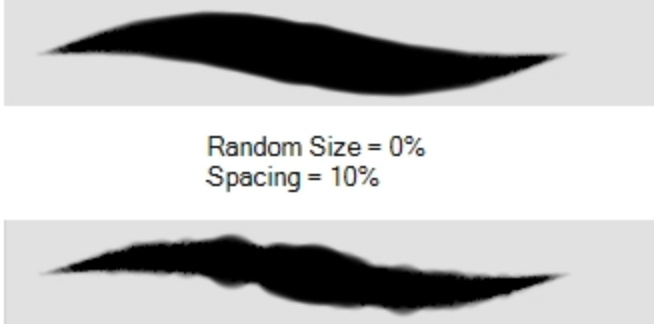
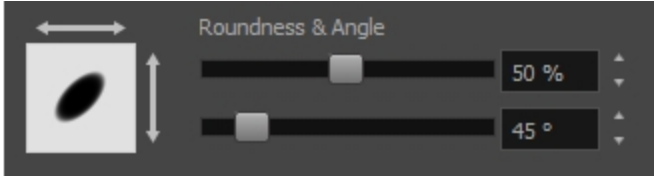
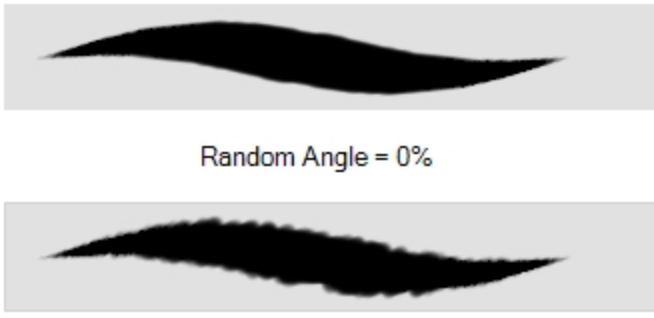
Tip Tab







Tool Name	Description
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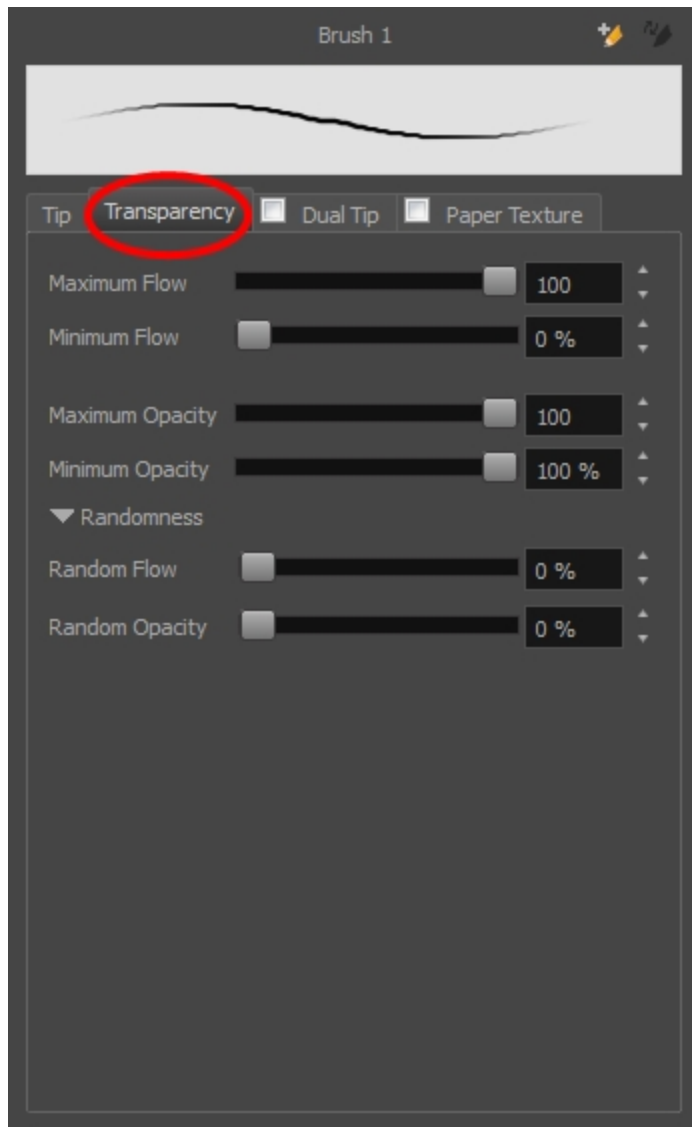
Brush Tip Library	 <p>This is where you select the shape of the brush tip. By default it is round. Note that some tips are designed to have semitransparent areas, even when the maximum brush opacity is set to 100%.</p> <p>To create a custom brush tip, you must prepare the file ahead of time, either in Harmony or in a third-party software, such as Adobe Photoshop. Colour is not supported and transparency is not supported in the traditional sense. Black appears as 100% opaque, white appears as 100% transparent and all the shades of grey in between appear as varying degrees of semitransparency. A range of file formats are supported—.jpeg, .png, .tif, .psd, .tga to name a few. Alpha channels are disregarded on import. It is recommended that your file be between 100 x 100 pixels and 400 x 400 pixels.</p> <p>You can also import brush tips that you exported from Harmony, so you can share them with colleagues.</p>
Minimum and Maximum Size	<p>The minimum and maximum sizes of your drawing tool produce the thick and thin effect on your stroke. This works with the pressure sensitivity of a pen tablet.</p> <ul style="list-style-type: none"> • Maximum Size: Defines the maximum width of the stroke. • Minimum Size: Defines the minimum width of the stroke in relation to and as a percentage of the maximum size. <p>NOTE: Setting the Minimum Size value to 100% eliminates the possibility of creating width variation on your stroke. In other words, you would be forcing a uniform line width using the Maximum Size value.</p>
Roundness and Angle	<p>The Roundness and Angle parameters allow you to change the shape and orientation of the brush tip.</p> <ul style="list-style-type: none"> • Roundness: Squashes the height of the brush tip from its centre point. 100% roundness = the native height of the brush tip. A smaller percentage will make the brush tip look flatter and more narrow. The squashing is NOT relative to the angle value—if the brush tip is rotated, the squashing function still uses the brush tip's original orientation. • Angle: Rotates the brush tip counter-clockwise. 0° = the brush tip's native orientation.

	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Roundness = 100% Angle = 0°</p> </div> <div style="text-align: center;">  <p>Roundness = 33% Angle = 0°</p> </div> <div style="text-align: center;">  <p>Roundness = 100% Angle = 45°</p> </div> <div style="text-align: center;">  <p>Roundness = 33% Angle = 45°</p> </div> </div>
<p>Hardness</p>	<p>The Hardness and Spacing parameters allow you to change the softness and spacing of the marks made by the brush tip. You can preview the hardness and spacing at the top of the Bitmap Brush Properties window, stroke preview area.</p> <p>The hardness value corresponds to the softness of the brush tip's edges. The lower the value, the softer the tip edge. The higher the value, the sharper the tip edge. Be aware that some brush tips are not 100% opaque, so they will always appear somewhat soft, even at 100% hardness.</p> <div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> <div style="text-align: center;">  <p>100% Hardness</p> </div> <div style="text-align: center;">  <p>10% Hardness</p> </div> </div>
<p>Spacing</p>	<p>Defines the amount of space between each stamp of the brush. A value of 100% sets the stamp marks edge to edge, if there is no white space around the shape. The larger the value, the greater the space between marks. A really large value can make the brush stroke appear as a string of individual marks. Conversely, a small spacing value will give the appearance of a fluid brush stroke.</p> <p>Spacing is only evident when making a continuous stroke.</p> <div style="text-align: center; margin-bottom: 20px;">  <p>Spacing = 100%</p> </div> <div style="text-align: center;">  <p>Spacing = 10%</p> </div>
<p>Ran- domness</p>	<p>The Randomness parameters let you create a varied bitmap brush stroke. Refining these options can give your stroke a lovely, non-mechanical look.</p>
<p>Random Size</p>	<p>You can create variation between the thick and thin of your brush stroke just by setting the Maximum and Minimum Size values. If you add randomness to the mix, pressure sensitivity from your drawing tablet will still be applied. Light pressure will create random values around the minimum, while heavy pressure will create random values closer to the maximum. The larger the percentage, the larger the range of random variation.</p>

	 <p>Random Size = 0% Spacing = 10%</p> <p>Random Size = 50%</p> <p>NOTE: Setting the Minimum Size to 100% eliminates the possibility of creating width variation on your stroke, whether you are applying randomness or not. Therefore, you would be forcing a uniform line width using the Maximum Size value.</p>
<p>Random Angle</p>	<p>Sets the range for random rotation around the set Angle value. For example, if the Angle is set to 45° and the Random Angle set to 10°, the software will choose values between 40°-50° (plus or minus 5 degrees, equaling a total of 10 degrees).</p>   <p>Random Angle = 0%</p> <p>Random Angle = 60%</p>
<p>Random Spacing</p>	<p>Sets the range for random spacing around the set Spacing value. For example, if the Spacing is set to 50% and the Random Spacing is set to 10%, then Harmony will choose values between 45%-55% (plus or minus 5 percent, equaling a total of 10 percent).</p>




	 <p data-bbox="509 317 776 380">Spacing = 10% Random Spacing = 0%</p>  <p data-bbox="509 537 776 600">Spacing = 10% Random Spacing = 80%</p>  <p data-bbox="509 758 776 821">Spacing = 100% Random Spacing = 0%</p>  <p data-bbox="509 978 776 1041">Spacing = 100% Random Spacing = 80%</p>
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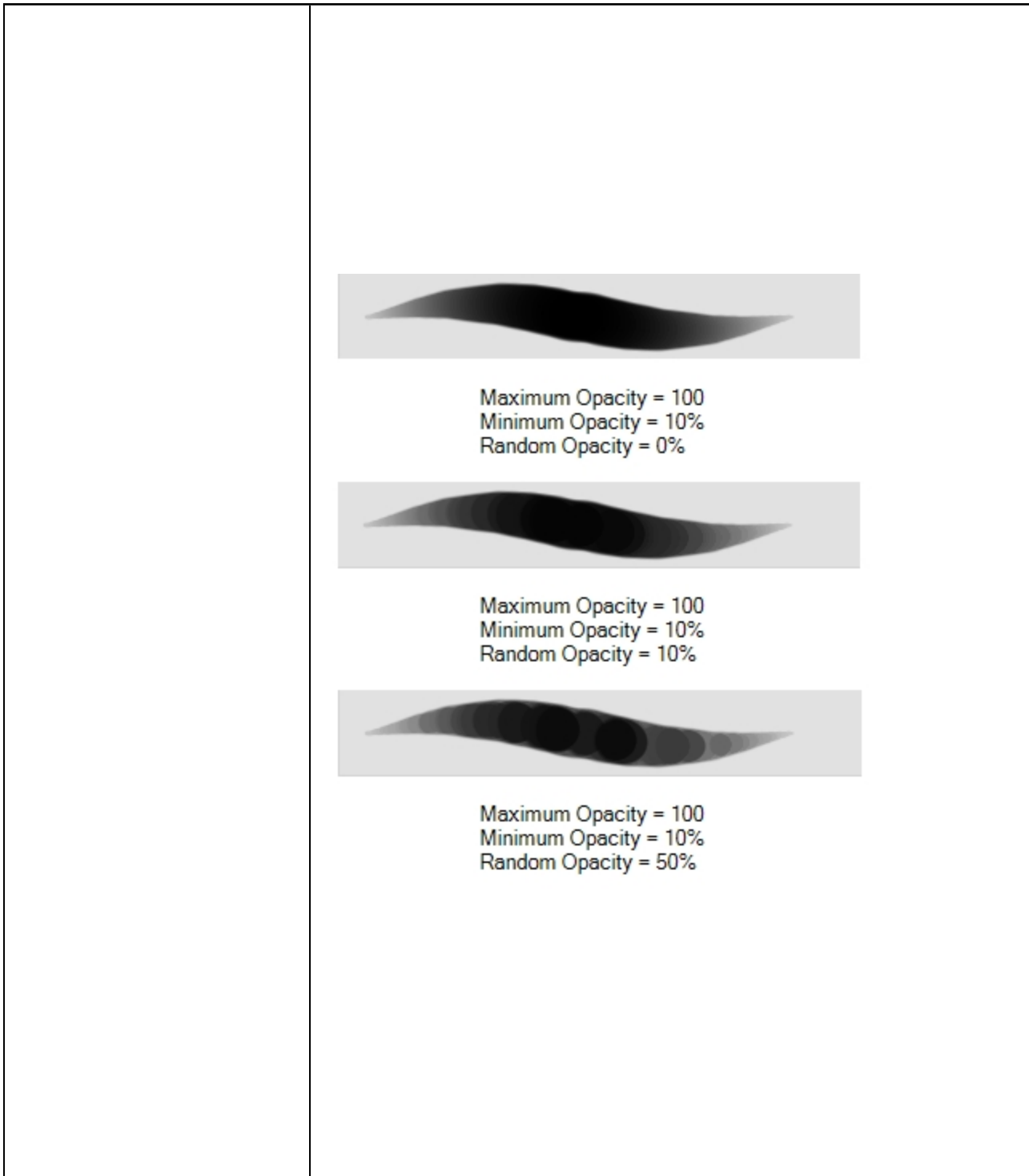
Transparency Tab



Tool Name	Description
Maximum and Minimum Flow	<p>The Maximum and Minimum Flow parameters let you set the range for the rate at which paint flows from your brush. The analogy works better with a pen. The greater the flow, the more ink comes out, hence the more consistent the colour and texture of the line. If the flow is light, then the colour and texture of the line may look spotty. This feature works with the pressure sensitivity of a pen tablet.</p> <ul style="list-style-type: none"> • Maximum Flow: Sets the maximum rate at which colour and texture are applied as you create a fluid stroke. • Minimum Flow: Sets the minimum rate at which colour and texture are applied as you create a fluid stroke. It is defined as a percentage of the Maximum Flow value. If the Minimum Flow value is set to 100%, then tablet pressure sensitivity will no longer be applicable. The flow will be set to the constant rate of the Maximum Flow value.

	<p>Maximum Flow = 8 Opacity = 100%</p> <p>Maximum Flow = 100 Opacity = 100%</p>
<p>Maximum Opacity and Minimum Opacity</p>	<p>The Maximum and Minimum Opacity parameters are where you set the opacity range for a brush mark. This works with the pressure sensitivity of a pen tablet.</p> <ul style="list-style-type: none"> • Maximum Opacity: Sets the transparency limit of the brush mark when the pressure is heavy. • Minimum Opacity: Sets the transparency limit of the brush mark when the pressure is very light. It is defined as a percentage of the Maximum Opacity value. If the Minimum Opacity value is set to 100%, then tablet pressure sensitivity will no longer be applicable. The opacity will be set to the constant rate of the Maximum Opacity value. <p>Maximum Flow = 8 Opacity = 25%</p> <p>Maximum Flow = 100 Opacity = 25%</p>
<p>Randomness</p>	<p>The Randomness parameter lets you set the range for the randomness of the flow and opacity. This works with the pressure sensitivity of a pen tablet.</p>
<p>Randomness Flow</p>	<p>You can create variation in the flow of your brush stroke just by setting the Maximum and Minimum Flow values. If you add randomness to the mix, pressure sensitivity from your drawing tablet will still be applied. Light pressure will create random values around the minimum, while heavy pressure will create random values closer to the maximum. The larger the percentage, the larger the range of random variation.</p>

	<div style="text-align: center;">  <p>Maximum Flow = 100 Random Flow = 0%</p> </div> <div style="text-align: center;">  <p>Maximum Flow = 100 Random Flow = 100%</p> </div> <div style="text-align: center;">  <p>Maximum Flow = 50 Random Flow = 100%</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: Setting the Minimum Flow value to 100% eliminates the possibility of creating flow variation on your stroke, whether you are applying randomness or not. That is, you would be forcing a uniform flow using the Maximum Flow value.</p> </div>
<p>Random Opacity</p>	<p>You can create variation in the opacity of your brush stroke just by setting the Maximum and Minimum Opacity values. If you add randomness to the mix, pressure sensitivity from your drawing tablet will still be applied. Light pressure will create random values around the minimum, while heavy pressure will create random values closer to the maximum. The larger the percentage, the larger the range of random variation.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: Setting the Minimum Opacity value to 100% eliminates the possibility of creating opacity variation on your stroke, whether you are applying randomness or not. That is, you would be forcing a uniform opacity using the Maximum Opacity value.</p> </div>

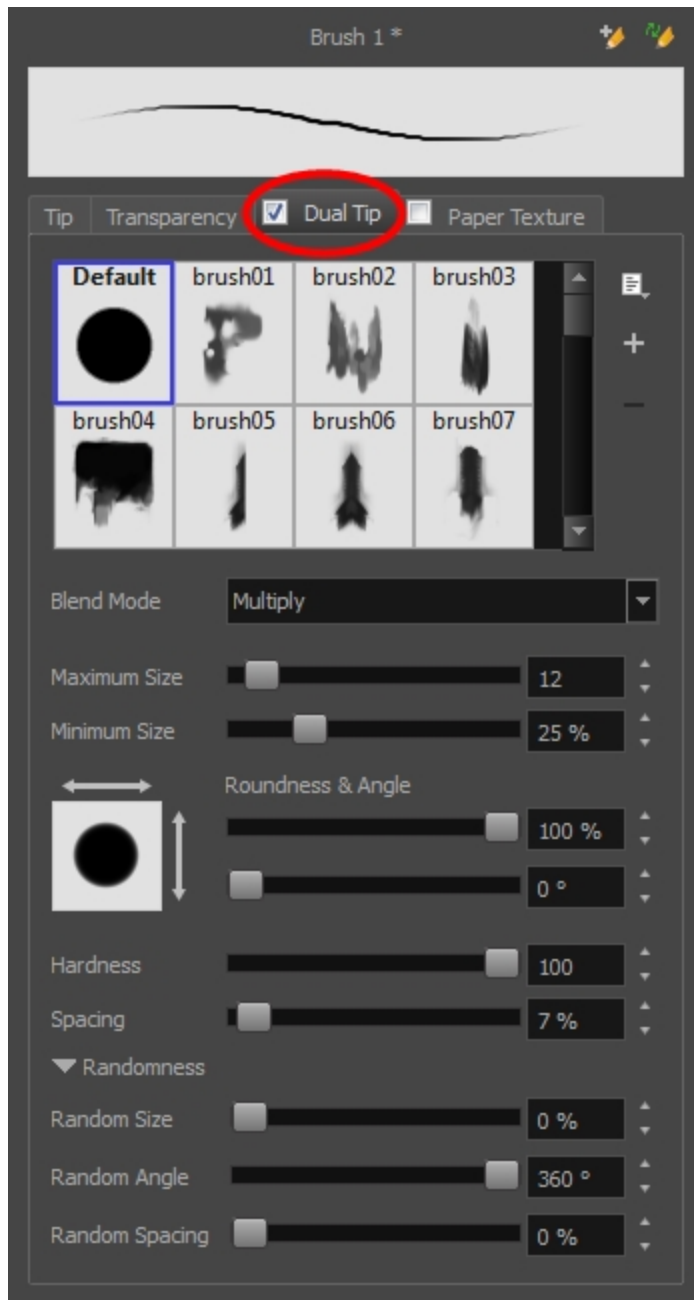


Dual Tip Tab





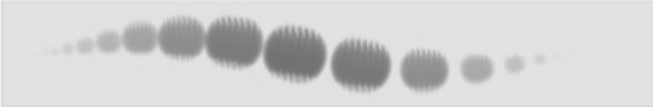

The Dual Tip tab lets you set the parameters for creating a dual tip brush. The primary bitmap brush tip and the dual tip always work together. You can set the parameters for the primary tip in the Tip tab and those for the dual tip in the Dual Tip tab. The Blend mode you select determines how the tips are combined.




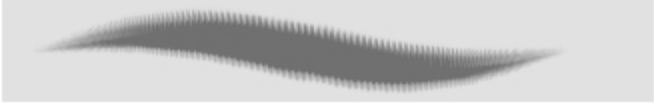


You must select the Dual Tip option to access the tab's parameters.

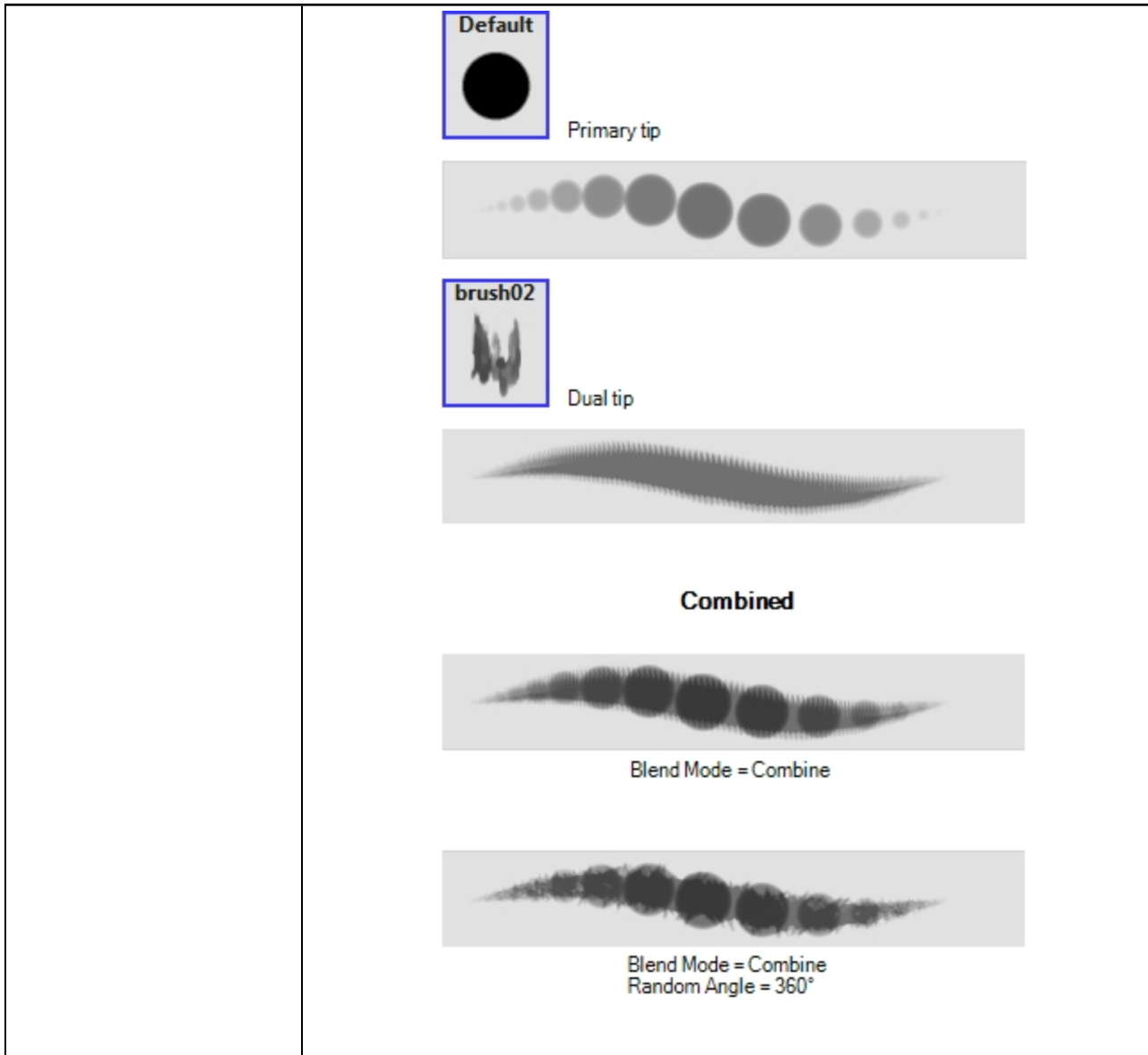
By default, the Blend Mode is set to Multiply and the Random Angle to 360°.



Tool Name	Description
Blend Mode	The Blend modes let you decide how the primary tip and the dual tip are combined.
Multiply	This is the default blend mode. When the two brush tips are combined in this mode, they essentially cut each other out in overlapping areas, where one or both tips have an area of 100% transparency. The less opaque the brush tips are, the lighter their combination.

	<div data-bbox="495 178 613 321"> <p>Default</p>  </div> <p data-bbox="630 300 738 325">Primary tip</p> <div data-bbox="495 346 1144 457">  </div> <div data-bbox="495 478 613 621"> <p>brush02</p>  </div> <p data-bbox="630 600 711 625">Dual tip</p> <div data-bbox="495 646 1144 751">  </div> <p data-bbox="760 821 889 846" style="text-align: center;">Combined</p> <div data-bbox="495 892 1144 997">  </div> <p data-bbox="690 1010 906 1035" style="text-align: center;">Blend Mode = Multiply</p> <div data-bbox="495 1108 1144 1213">  </div> <p data-bbox="690 1226 906 1276" style="text-align: center;">Blend Mode = Multiply Random Angle = 360°</p>
<p>Colour Dodge</p>	<p>In this mode, the primary tip cuts out the shape of the dual tip. Where the tip shapes overlap, within the boundaries of the primary shape, the colour and opacity appear darker.</p>

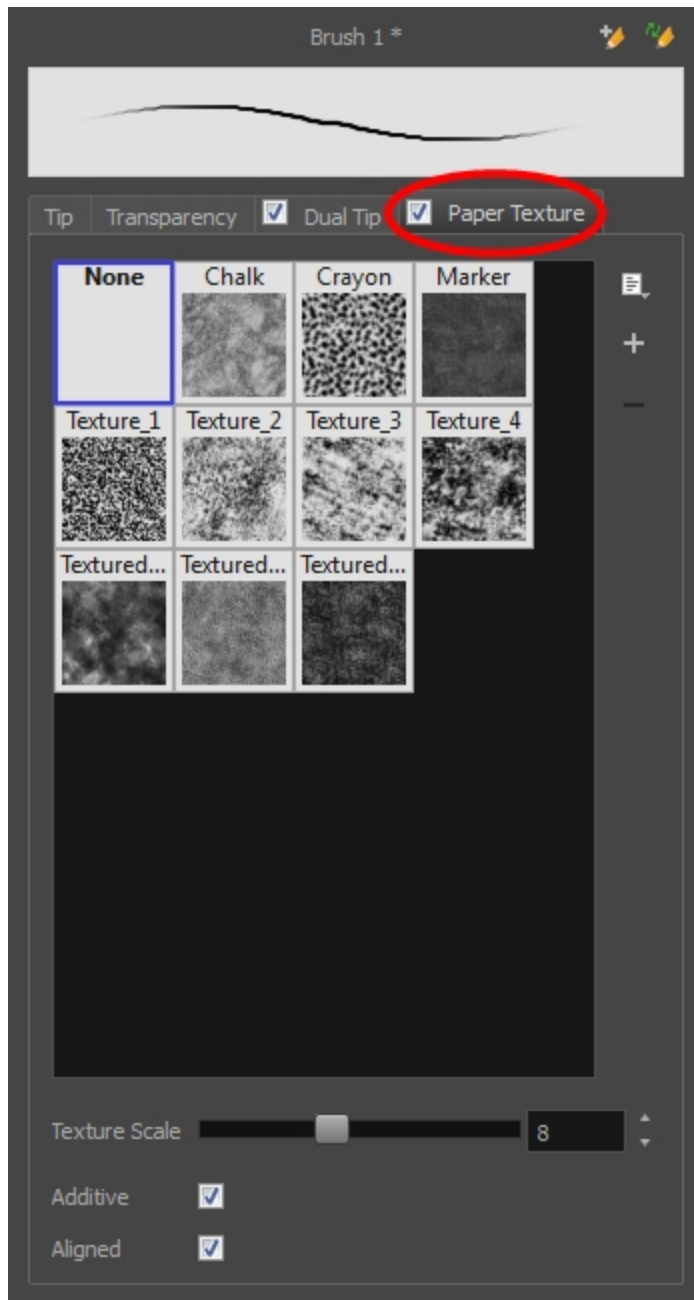
	<div data-bbox="568 168 690 304"> <p>Default</p>  </div> <p data-bbox="706 283 812 315">Primary tip</p> <div data-bbox="568 336 1218 451">  </div> <div data-bbox="568 472 690 609"> <p>brush02</p>  </div> <p data-bbox="706 588 787 619">Dual tip</p> <div data-bbox="568 640 1218 745">  </div> <p data-bbox="828 808 966 840" style="text-align: center;">Combined</p> <div data-bbox="568 882 1218 997">  </div> <p data-bbox="771 997 1039 1029" style="text-align: center;">Blend Mode = Colour Dodge</p> <div data-bbox="568 1102 1218 1218">  </div> <p data-bbox="771 1218 1039 1270" style="text-align: center;">Blend Mode = Colour Dodge Random Angle = 360°</p>
<p>Combine</p>	<p>This mode treats the two tips as two different and separate brushes that have the same colour and follow the same path.</p>



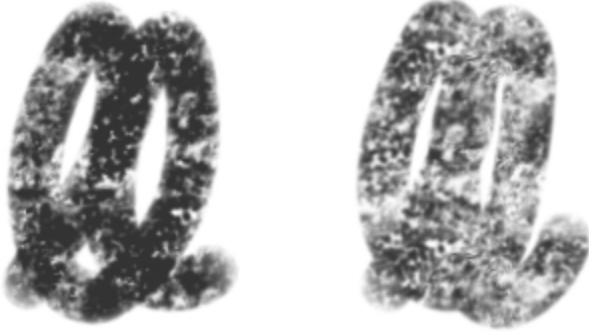
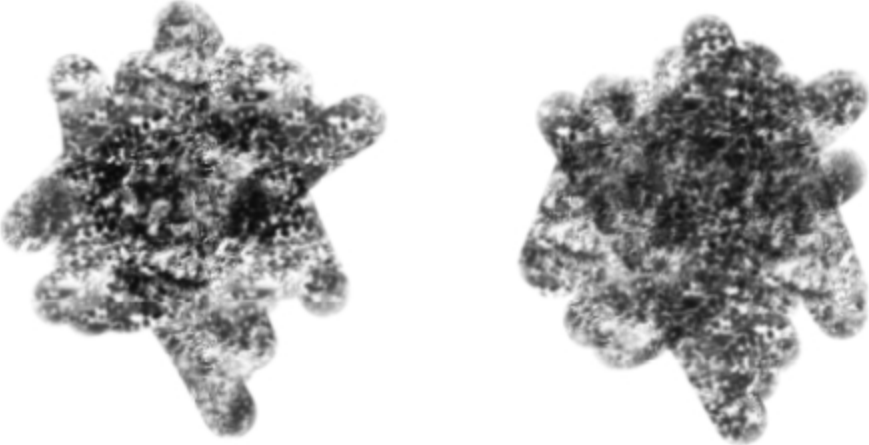
Paper Texture Tab

The Paper Texture tab lets you view and select a paper-like texture for your brush. You can also import paper textures that were previously exported.

You must select this option to access the tab's parameters.

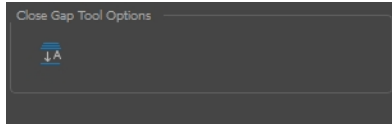



Tool Name	Description
Texture Scale	Increase or decreases the size of the paper texture.
Additive	This option layers the texture on top of itself as you scribble overlapping lines in one continuous stroke. If this option is turned off, areas of overlapping lines from a single, continuous stroke will appear the same, in terms of darkness and texture, as non-overlapping areas.

	 <p data-bbox="337 548 527 575">Additive enabled</p> <p data-bbox="690 548 880 575">Additive disabled</p>
Aligned	<p data-bbox="289 653 1398 779">This option defines the way separate, overlapping strokes behave. If this option is enabled, the paper texture's position does not change with each sweep of the brush. If this option is disabled, each sweep of the brush produces a different texture position. The texture orientation always stays the same.</p>  <p data-bbox="553 1335 743 1362">Aligned enabled</p> <p data-bbox="1045 1335 1235 1362">Aligned disabled</p>

Close Gap Tool Properties

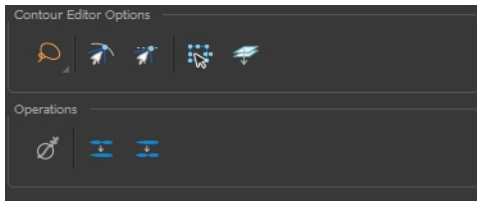
When you select the Close Gap tool, its properties and options appears in the Tool Properties view.




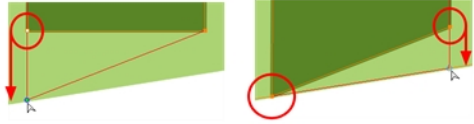



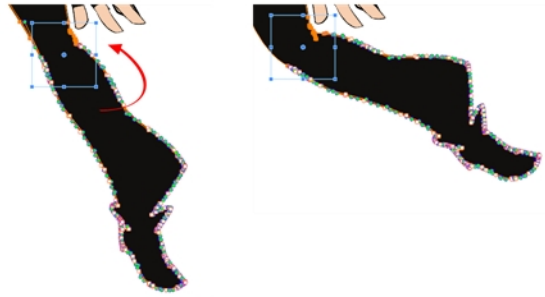






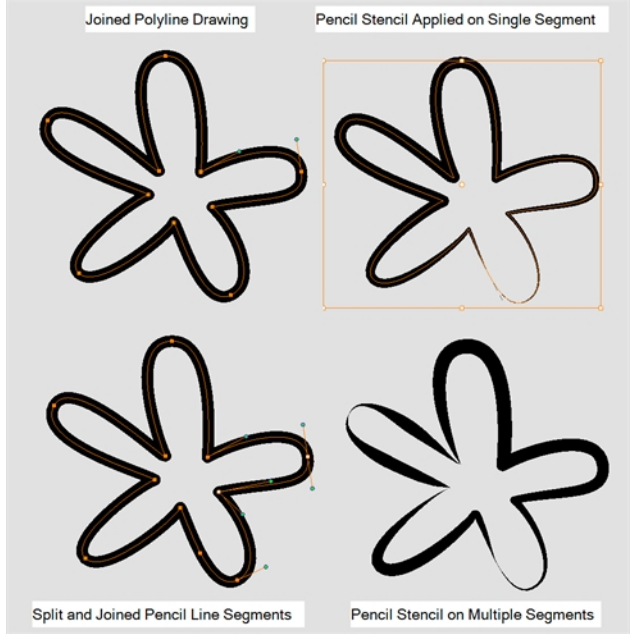
Icon	Tool Name	Description
	Auto-Flatten Mode	When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.

Contour Editor Tool Properties

When you select the Contour Editor tool, its properties and options appear in the Tool Properties view.

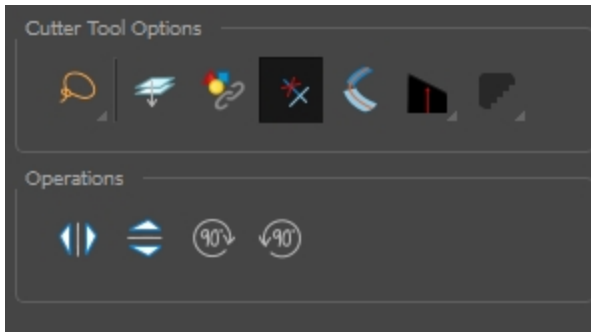


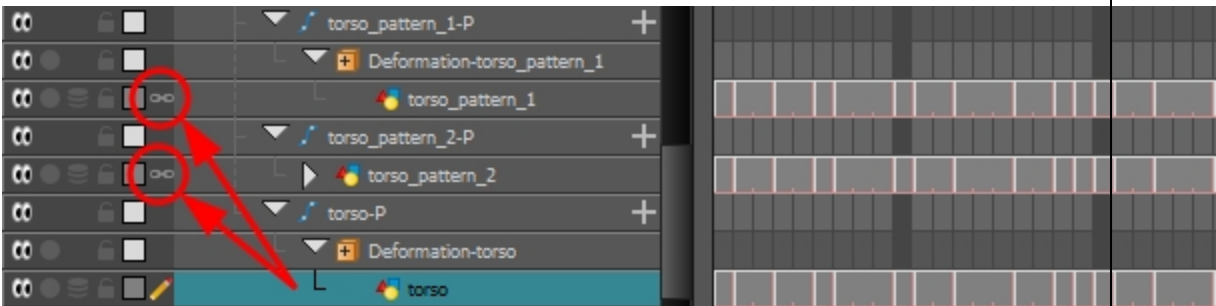
Icon	Tool Name	Description
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it. 
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to. 
	Show Contour Editor Controls	Use the Show Contour Editor Controls option to show the contour editor controls. You can use these controls to scale, reposition and rotate the selected anchor points. 
	Apply to Line and Colour Art	The Apply to Line and Colour Art option uses the

		<p>concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.</p>
	<p>Smooth Selection</p>	<p>The Smooth operation lets you smooth out selected drawing strokes and remove extra points.</p> <ul style="list-style-type: none"> From the top menu, select Drawing > Optimize > Smooth or press Alt + Shift + S. 
	<p>Split Pencil Line and Join Pencil Lines</p>	<p>When drawing with the Polyline tool, your drawing has an even line thickness. You can use the Pencil Editor to adjust the thickness point by point, but if you want to adjust it quicker, you can use the Split Pencil Line and Point Pencil Lines options to create segments and apply a pencil stencil to your drawing. Note that if you did not join the pencil lines on your polyline stroke, the segments between the points will act as separated segments.</p> 

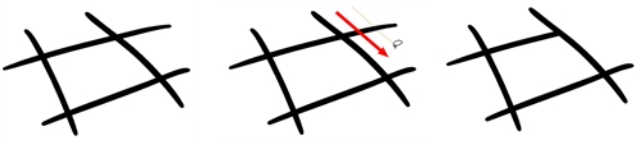

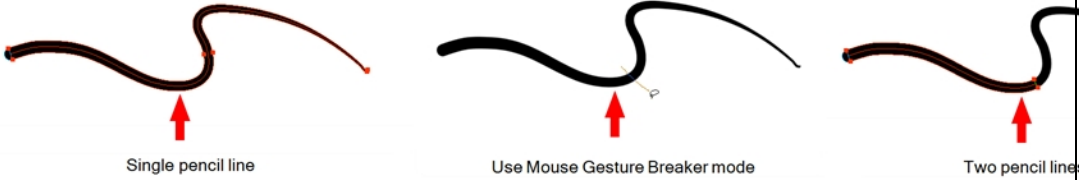
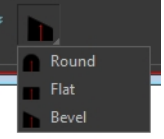
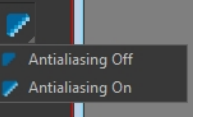




Cutter Tool Properties

When you select the Cutter tool, its properties and options appear in the Tool Properties view.



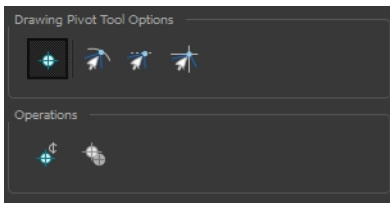
Icon	Tool Name	Description
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Apply to Line and Colour Art	The Apply to Line and Colour Art option uses the concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.
	Apply to Synced Drawing Layers	<p>Applies to the Camera view only. Works in conjunction with the Works on Single Drawing. Only selects lines from the current drawing and drawing layers synced to the current drawing.</p> <p>Layers are synced when drawings need to be separated on different layers, but need to have the same timing. When you enable the Apply to Synced Drawing Layers option, only drawings on layers synced with other layers will be available for cutting. When you click on a synced layer in the Timeline view, the other layers that it is synced with will display the link icon.</p>  <p>In the example above, the <code>torso</code> layer is synced with the <code>torso_pattern_1</code> and <code>torso_pattern_2</code> layers.</p>
	Use Mouse Gesture	When using the Lasso selection type, the Use Mouse Gesture option lets you automatically delete any extra sections of line in your artwork by simply dragging your mouse over it.






NOTE: For this operation to work, you lines **CANNOT** be flattened.

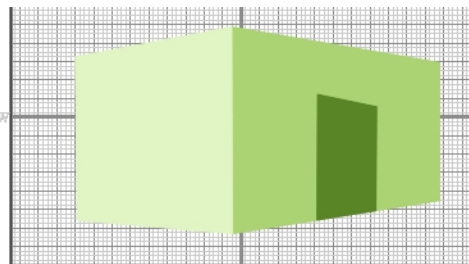
		
	<p>Use Mouse Gesture Breaker Mode</p>	<p>When using the Lasso selection type, the Use Mouse Gesture Breaker Mode option lets you draw an invisible stroke on a pencil line to cut it in two individual objects. Once a pencil line is cut with this option, you will be able to select the two portions independently with either the Cutter tool, Pencil Editor tool or Select tool.</p>  <p style="text-align: center;">NOTE: This option only works with pencil lines.</p>
	<p>Tip Style</p>	<p>If you erase the end of a pencil line or erase a pencil line through the centre, new line tips or line ends are created. Use the Tip Style option to customize the shape of the new line tips that are created.</p> 
	<p>Antialiasing</p>	<p>When drawing on a bitmap layer, lines are no longer clean vector shapes. For the edges to be smooth, a slight amount of antialiasing is used. When using the Cutter tool, you can cut a portion of your drawing with or without antialiasing. By default, the option is enabled. If you want to cut your drawing using a hard edge, you can select the Antialiasing Off option.</p> 
	<p>Flip Horizontal</p>	<p>Flips the current selection horizontally.</p>
	<p>Flip Vertical</p>	<p>Flips the current selection vertically.</p>
	<p>Rotate 90 Degrees CW</p>	<p>Rotates the current selection 90 degrees clockwise.</p>
	<p>Rotate 90 Degrees CCW</p>	<p>Rotates the current selection 90 degrees counter-clockwise.</p>


Drawing Pivot Tool Properties

The Drawing Pivot tool lets you set the pivots on your character. You can set the drawing pivots on drawings and symbols.



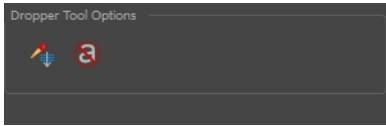
Icon	Tool Name	Description
	Setting the Drawing Pivot for Symbols on All Frames	<p>The Set the Pivot for Symbol on All Frames option is enabled by default. When you set a drawing pivot on a symbol, all of its cells use the same drawing pivot. This means you do not have to set a drawing pivot on all frames. Once you set it, it is done.</p> <p>If you prefer to set a different drawing pivot for a series of cells, you can deselect the option and set your pivots on each cell or cell range.</p> <hr/> <p>NOTE: If you have already set several different pivots on your symbol's cells and selected the Set the Pivot for Symbol on All Frames option, once you set a new pivot on the same symbol, all of its pivots will be reset and will use your new pivot.</p>
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid.
	Reset Pivot	When you click the Reset Pivot option, the drawing pivot of the selected drawing or symbol is reset to the centre of the Camera view.





	Copying Pivot on Parent Symbol	<p>When you import new extra drawings, such as hands and mouths, you can use the drawing pivot that was set on your drawings and report them to the symbol's cells. Use the Copy Pivot to Parent Symbol command for this.</p> <hr/> <p>NOTE: When you copy drawing pivots to the parent symbol, there is no link between the drawings' pivots and the symbol's pivots. If you modify the drawing pivot later, it will not link to the symbol. You would need to perform the operation again. If you need to modify the symbol's pivots, you can do it directly on the symbol's cells.</p>
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Dropper Tool Properties

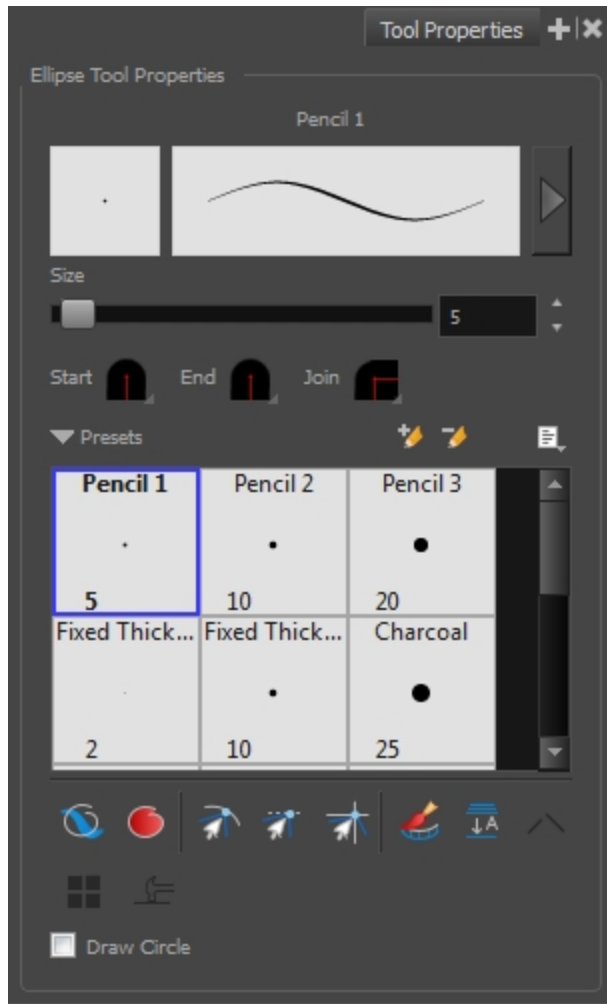
When you select the Dropper tool, its properties and options appears in the Tool Properties view.

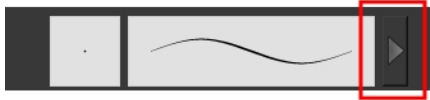


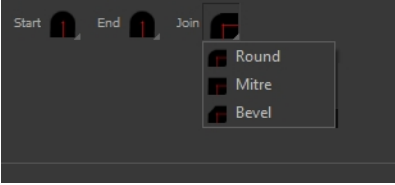





Icon	Tool Name	Description
	Sample All Layers	On bitmap layers, if strokes with transparency located on separated art layers overlap, the Dropper will pick the combination of the two colours. When disabled, the Dropper will pick the colour on the current art layer.
	Do not Pick Transparency	On bitmap layers, when enabled, the dropper will pick the colour at 100% of opacity even if the selection has some transparency.

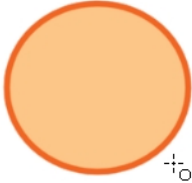



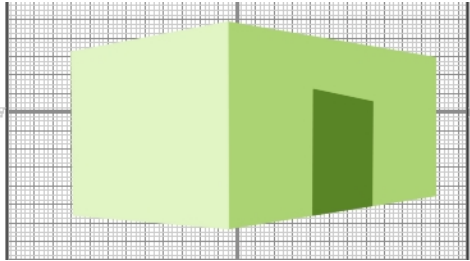




Ellipse Tool Properties


When you select the Ellipse tool, its properties and options appear in the Tool Properties view. There are a few less options available when working on a bitmap layer.



Icon	Tool Name	Description
	Previewing the Stroke	The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters. 
	Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Shape	You can adjust the start, end, and joint style of a pencil line.

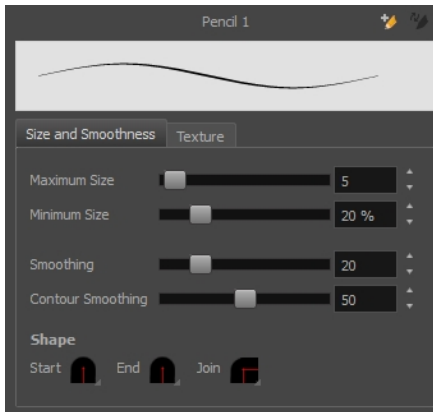
		 <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.
	Presets	<p>Harmony provides a variety of presets and also lets you create and save your own. It is a good idea to create and save pencils with precise sizes and parameters when you draw and design for efficiency and consistency.</p> <p>All tools using pencil lines share the same preset list. Therefore, the Polyline, Line, Rectangle, Ellipse, and Pencil tools share the same preset list.</p>
	New Brush	Allows to create a new preset.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Draw Behind	<p>When drawing on vector layers, the Draw Behind mode lets you paint behind existing art. By default, strokes appear over your work until you release the tool.</p>  <p>Orange stroke appears behind existing black stroke</p>
	Automatic Filling	<p>Use the Automatic Filling option to automatically fill your shape with the selected colour as you draw. By default, the Shape tool creates the outline of an empty shape that you can later fill using the Paint tool. This option is unavailable for the line tool.</p>

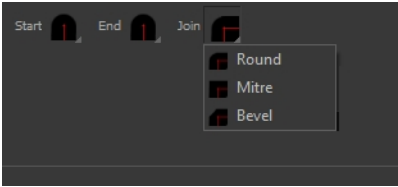
		
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid. 
	Automatically Create Colour Art	As you draw in the Line Art layer, the Automatically Create Colour Art option instantly creates the corresponding strokes in the Colour Art layer. 
	Auto-Flatten Mode	When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.  NOTE: Using the Select tool, you can use select and remove a segment of flattened pencil lines. Overlapping pencil lines drawn with the Auto-Flatten mode are essentially cut into segments by the overlap and can be treated as individual lines.

	Use Stored Colour Gradient	The Use Stored Colour Gradient option makes your tool use the previously stored gradient position. This way, every new brush line or colour fill will use the stored gradient position.
	Draw Circle	Enable this option to draw perfect circle (ratio 1:1) without holding any keyboard shortcuts. As an alternative, you can hold down the Shift key.

Size and Smoothness Tab

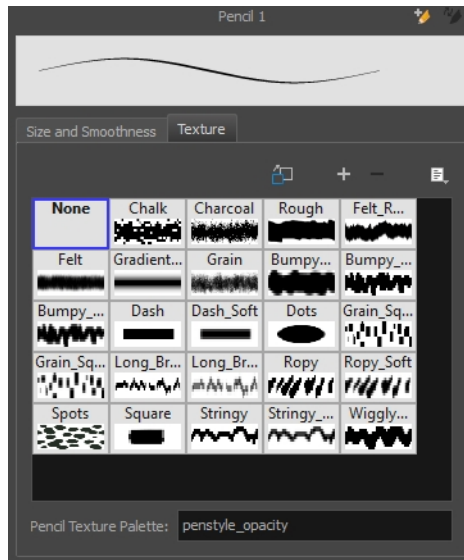
You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.




Tool Name	Description
Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth out the bumps and waves on your contour shape of your brush strokes.
Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.

Texture Tab

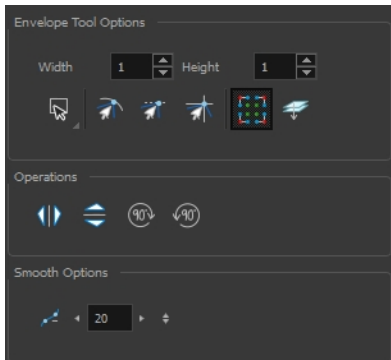
You can access advanced properties by clicking on the Previewing the Stoke button in the Tool Properties view.

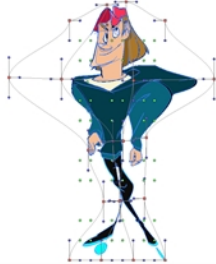







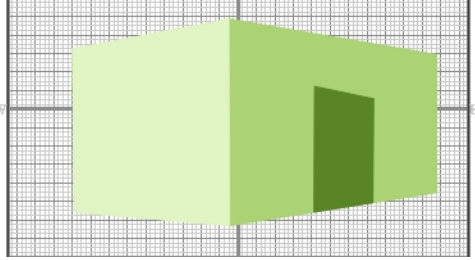








Icon	Tool Name	Description
	Copy to Preferences	You can add a pencil texture to your preset preferences.
	New Texture	Adds a new custom pencil texture to the list.
	Delete Texture	Deletes a texture preset from the list.
	Rename Texture	Renames the selected texture to keep the list organized.
	Presets	Harmony provides a variety of pencil texture presets and also lets you create and save your own.
	Pencil Texture Palette	Displays the colour palette assigned to hold the pencil textures. Use the Colour View menu to assign a new palette.

Envelope Tool Properties


Selecting the Envelope tool displays its properties and options in the Tool Properties view.



Icon	Tool Name	Description
	Width and Height	Increase the width and height values to add more columns and rows to the deformation grids. 
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid.

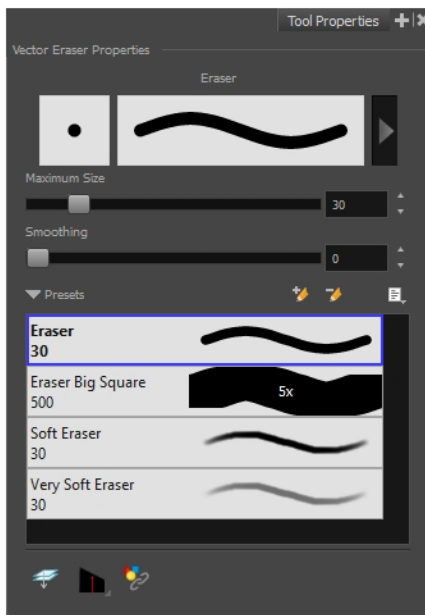
		
	<p>Show Advanced Controls</p>	<p>To display more controls, you can click on the Show Advanced Controls button.</p> 
	<p>Apply to Line and Colour Art</p>	<p>The Apply to Line and Colour Art option uses the concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.</p>
	<p>Flip Horizontal</p>	<p>Flips the current selection horizontally.</p>
	<p>Flip Vertical</p>	<p>Flips the current selection vertically.</p>
	<p>Rotate 90 Degrees CW</p>	<p>Rotates the current selection 90 degrees clockwise.</p>
	<p>Rotate 90 Degrees CCW</p>	<p>Rotates the current selection 90 degrees counter-clockwise.</p>
	<p>Smooth</p>	<p>You can modify the central line smoothness of your line using this option. This parameter smooths the deformed lines. Increasing the value will result in a smoother line with fewer control points. The more you increase the value, the less details and curves you will get. Use the left and right arrows to increment the value by one full unit. Use the Up - Down slider to quickly increment the value.</p>

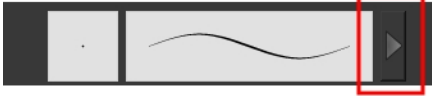

Eraser Tool Properties



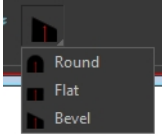

When you're drawing on vector layer and you select the Eraser  tool, its properties and options appear in the Tool Properties view.

The bitmap eraser options are identical to those of the bitmap brush with one obvious exception. Instead of customizing the parameters of a mark or stroke, you will be customizing the parameters for the absence of a mark or stroke.

It is a good idea to create an eraser preset with the identical properties of a brush preset and to use them as a pair. That way, when part of a stroke is erased, its soft textured look is not interrupted with a hard edged eraser mark.



Icon	Tool Name	Description
	Previewing the Stroke	<p>The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters.</p> 
	Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
	Eraser Presets	Presets are created by saving the properties of the current tool to a new preset, which you can reuse for repeated tasks. You can create as many presets as you need.
	New Brush	Allows to create a new preset.

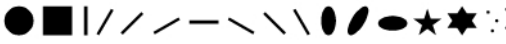
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Apply to Line and Colour Art	The Apply to Line and Colour Art option uses the concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.
	Tip Style	If you erase the end of a pencil line or erase a pencil line through the centre, new line tips or line ends are created. Use the Tip Style option to customize the shape of the new line tips that are created. 
	Apply to Synced Drawing Layers	Applies to the Camera view only. Works in conjunction with the Works on Single Drawing. Only selects lines from the current drawing and drawing layers synced to the current drawing.

Size and Smoothness Tab

You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.



Tool Name	Description
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Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth out the bumps and waves on your contour shape of your brush strokes.
Tip Shape	Lets you select a tip shape—from round and square ones to star shaped. This option is disabled when using a textured brush. 

Soft Eraser Tab

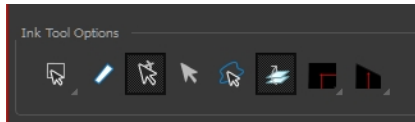
You can create texture brushes to draw on vector layers. Enable the Soft Eraser option to access the options.









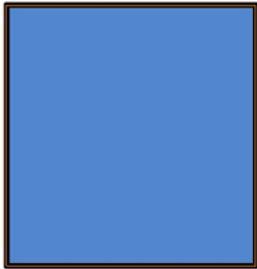



Hardness	Defines the softness of the stroke edge. The lower the value, the softer the stroke edge will be. The higher the value, the sharper the stroke edge will be.
Saturation	Lets you adjust the softness of edge feathering. Works in conjunction with the Hardness, e.g. 100% Hardness will yield no results in saturation change. 0% Hardness will allow a fine tuning of the feathering of the soft stroke edge.
Maximum Opacity	The transparency of the brush when the pressure is heavy. A smaller value will leave semi-transparent colour and texture. A larger value will ensure that everything is properly erased. This option is unavailable if the Keep Vectors option is disabled.
Minimum Opacity	Sets the minimum transparency of the brush, in relation to the Maximum Opacity, when the pressure is very light. A smaller value will leave semi-transparent colour and texture. A larger value will ensure that everything is properly erased. This option is unavailable if the Keep Vectors option is disabled.
Keep Vectors	Keeps the vector frames around your strokes intact, only the texture fill disappears. Disabling this option will cut the stroke's vector frame into different pieces when the Eraser tool passes over it. If you disable this option, the maximum and minimum opacity sliders are disabled as well.

Ink Tool Properties

When you select the Ink tool, its properties and options appear in the Tool Properties view.

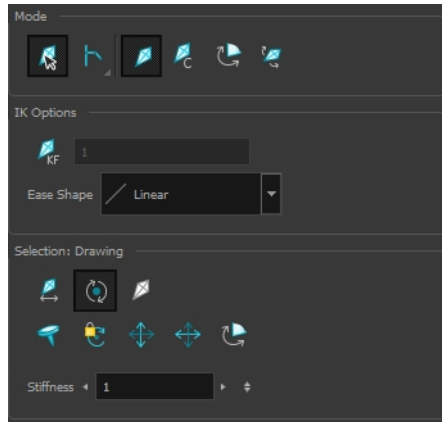


Icon	Tool Name	Tool
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Show Inkable Lines	Highlights all pencil lines (no brush strokes) on the selected layer. Pencil line segments that are already inked with the selected swatch colour from the colour palette are also not highlighted.
	Be Smart on Connecting Lines	As you hover and move the cursor across intersecting pencil lines, the path that you create will be highlighted. When you click on your mouse or stylus the highlighted segments are inked. With this option disabled, all the intersecting segments that your cursor comes near will be highlighted and become part of the selection, even if they were not situated in the direction of the chosen path. NOTE: This option only works if the Ink tool is in Hover mode.
	Select Mode	Use this mode instead of the Hover Mode. In the Hover Mode, any potentially inkable pencil line will have its central vector line highlighted as the Ink tool's cursor hovers over it. Use Ctrl (Windows/Linux) or ⌘ (Mac OS X) to toggle between the two modes.
	Select Newly Painted, Repainted, and Unpainted Contours/Lines	In the Paint tool properties, this option keeps a selection highlighted around the latest painted zone after using the Paint, Repaint, Unpaint, or Paint Unpainted tool.

		
	Raise	As you ink the pencil line, the segment will be moved on top of the other intersecting strokes. Disable this option for the line to be sent behind. Hold down the Alt key to perform the opposite operation as you ink.
	Mitre	As you hover over two perpendicular or nearly perpendicular segments, a highlighted path with a corner is created. Clicking on these highlighted segments inks both segments and makes them appear as a single stroke with a corner or bend. Options include: As Is, Round, Miter, and Bevel.
	Tip Style	Lets you customize the edge of the Ink tool. Options include: Round, Flat, and Bevel.


Inverse Kinematics Tool Properties

The IK tool has a series of different modes and options available in the Tool Properties view.



Mode

Mode	Button	Description
Bone Selection		<p>Enabled by default, this mode lets you click on any bone in a character and move it without having to select the actual layer.</p> <p>When you disable this mode, you cannot move any bone except the selected one. This allows you to grab and rotate the selected part from many angles and locations. You can click completely outside the character and move the pieces.</p>
Chain		<ul style="list-style-type: none"> Simple Chain Mode: This is the default mode and will only allow for the movement of parts attached to a single chain up to the point of intersection. A single chain is a straight line with no secondary chain attached. Direct Chain Mode: This mode allows you to move parts up a simple secondary chain to a principle chain, as long as translation movement is possible (the principle chain is attached to its own peg), but will ignore all secondary chains. A direct chain is a single chain which goes directly to the core. All Chain Mode: This mode allows you to move all parts attached to all chains in the IK skeleton. All chains are attached and move simultaneously when one part is moved.
IK Manipulation		<p>The main working mode for the IK tool. Enable this mode when you want to animate and position a puppet.</p> <p>Ctrl + click (Windows/Linux) or ⌘ + click (Mac OS X) on a body part to select it. You do not need to select a part to be able to move it.</p>
Apply IK Constraints		<p>Lets you correct a part's position on a series of frames. For example, if the character's foot is sinking into the floor, you can correct its position and angle over a series of frames.</p>
Edit Min/Max Angle		<p>Lets you set a rotation restriction on some of your parts, such as elbows, knees and ankles.</p>

Bone Editing		Lets you fix the bone orientation on extremities, such as hands and feet.
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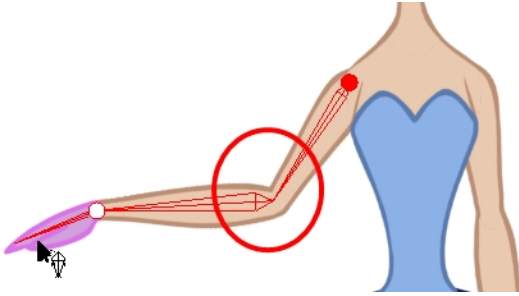
IK Options

Parameter	Description
IK Keyframe	Used in combination with the IK Constraints mode, this option determines the starting frame of the constraint you will apply.
Ease Shape	<div data-bbox="540 453 987 835" data-label="Image"> </div> <p data-bbox="509 873 1377 936">While animating with the IK tool and before doing a movement, set an easing preset so the motion is not so mechanical.</p> <p data-bbox="509 961 1273 993">Before moving the part, select a preset from the Ease Shape menu:</p> <div data-bbox="509 1016 695 1226" data-label="Image"> </div> <p data-bbox="509 1264 1334 1327">If you select a new preset in the list and move the part again on the same keyframe, the easing will automatically update.</p>

Selection

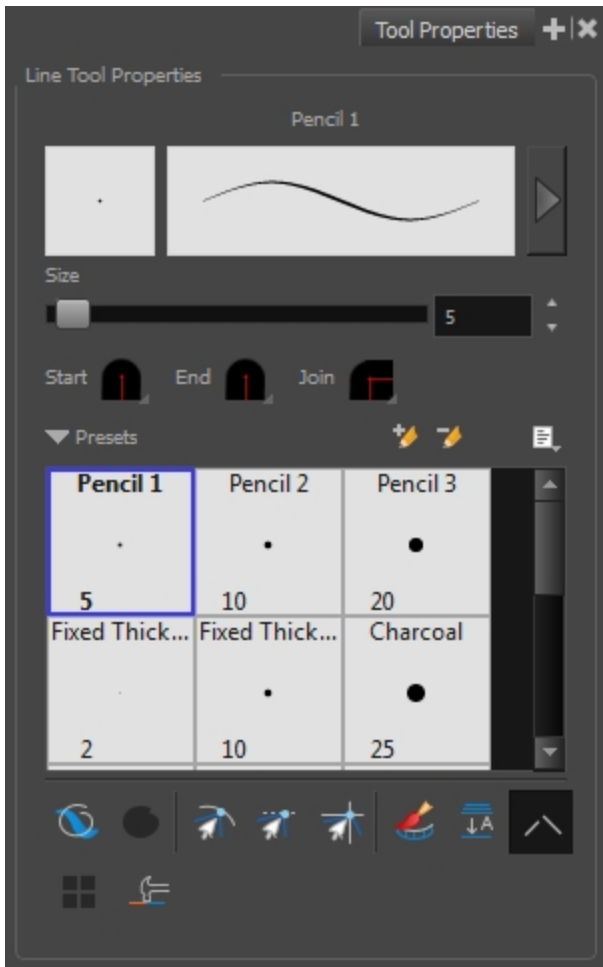
Parameter	Description
Enable Translation If Top of Hierarchy	<div data-bbox="521 1482 993 1696" data-label="Image"> </div> <p data-bbox="509 1722 1442 1885">Used only on master pegs. This option is useful when you have this particluar situ-ation: You want the character to do a perfect split (sitting down with the legs at right angles to the body or at the sides with the torso facing forwards), then the hip will need to translate and not just rotate on the spot. And since IK is all about rota-tion, you would select the hip layer and enable the translation option.</p>

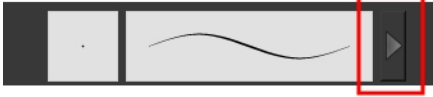
Enable Rotation	587
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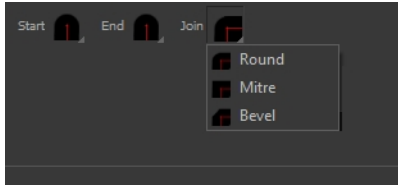







	 <p data-bbox="583 468 1479 596">This option is enabled by default. The pivot disappears but you can still see the bone. When this option is disabled, the selected part cannot be rotated and will remain in the same position. You can use this option to simulate an arm in a plaster cast.</p>
Exclude from IK	This option lets you exclude certain parts of the puppet from the IK influence, such as the eyes and mouth.
IK Nails	These options let you temporarily fix a part of a character to a spot either in translation or rotation, or enable maximum and minimum angle usage.
Stiffness	When a certain part is selected, you can apply a stiffness value to it. A different stiffness value can be set to each body part individually. The greater the stiffness, the more difficult it is to make that part rotate, thereby rendering it stiff while the other parts continue to move freely on their joints.

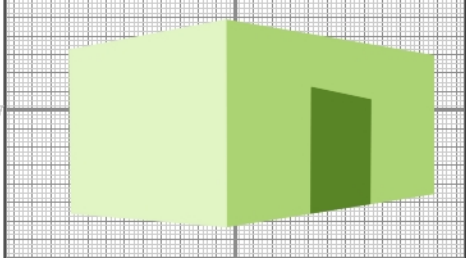





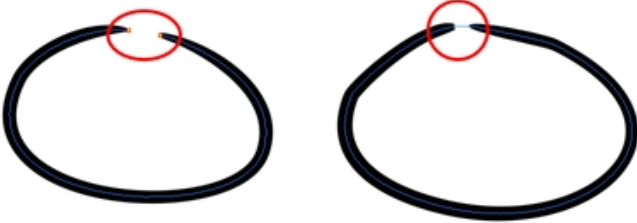

Line Tool Properties



When you select the Line tool, its properties and options appear in the Tool Properties view. There are a few less options available when working on a bitmap layer.



Icon	Tool Name	Description
	Previewing the Stroke	<p>The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters.</p> 
	Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Shape	You can adjust the start, end, and joint style of a pencil line.

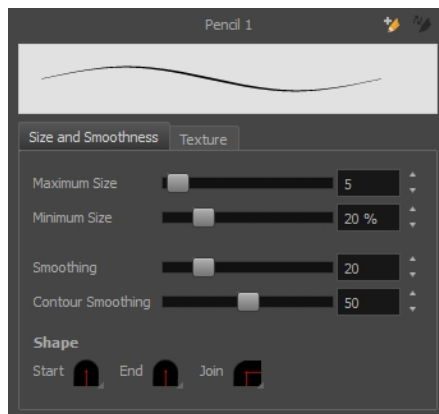
		 <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.
	Presets	<p>Harmony provides a variety of presets and also lets you create and save your own. It is a good idea to create and save pencils with precise sizes and parameters when you draw and design for efficiency and consistency.</p> <p>All tools using pencil lines share the same preset list. Therefore, the Polyline, Line, Rectangle, Ellipse, and Pencil tools share the same preset list.</p>
	New Brush	Allows to create a new preset.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Draw Behind	<p>When drawing on vector layers, the Draw Behind mode lets you paint behind existing art. By default, strokes appear over your work until you release the tool.</p>  <p>Orange stroke appears behind existing black stroke</p>
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid.

		
	<p>Automatically Create Colour Art</p>	<p>As you draw in the Line Art layer, the Automatically Create Colour Art option instantly creates the corresponding strokes in the Colour Art layer.</p> 
	<p>Auto-Flatten Mode</p>	<p>When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.</p>  <p>Middle mouse button drag</p> <p>NOTE: Using the Select tool, you can use select and remove a segment of flattened pencil lines. Overlapping pencil lines drawn with the Auto-Flatten mode are essentially cut into segments by the overlap and can be treated as individual lines.</p>
	<p>Auto-Close Gap</p>	<p>When using the pencil tool, you can automatically close strokes with an invisible stroke.</p>  <p>Auto Close Gap off Auto Close Gap on</p> <p>It is recommended to keep this option enabled when drawing with the Pencil tool.</p>
	<p>Line Building Mode</p>	<p>The Line Building mode is very useful when drawing long lines and curves</p>

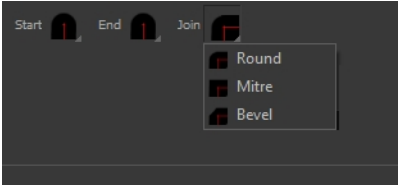
		<p>in small increments with pencil lines or the Line tool. As the pencil lines are central vector lines, it may be difficult to align the line tips perfectly to create a uniform stroke and close all gaps.</p> <p>In this mode, you can draw lines in small increments and the tips are merge into one single stroke.</p>  <p>NOTE: This mode only works with pencil lines or the line tool.</p>
	<p>Use Stored Colour Gradient</p>	<p>The Use Stored Colour Gradient option makes your tool use the previously stored gradient position. This way, every new brush line or colour fill will use the stored gradient position.</p>
	<p>Draw Circle</p>	<p>Enable this option to draw perfect circle (ratio 1:1) without holding any keyboard shortcuts. As an alternative, you can hold down the Shift key.</p>

Size and Smoothness Tab

You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.

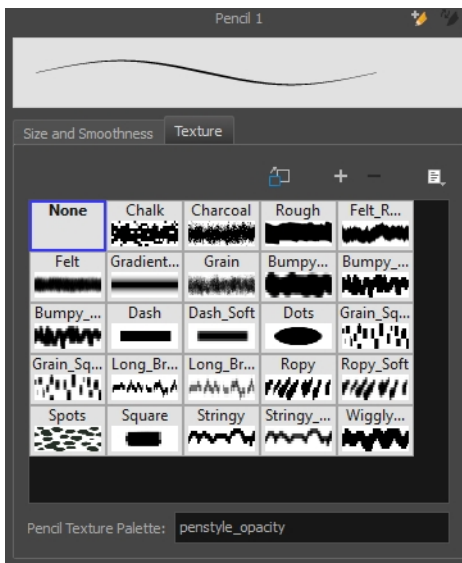








Tool Name	Description
Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth

	out the bumps and waves on tour contour shape of your brush strokes.
Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.

Texture Tab

You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.

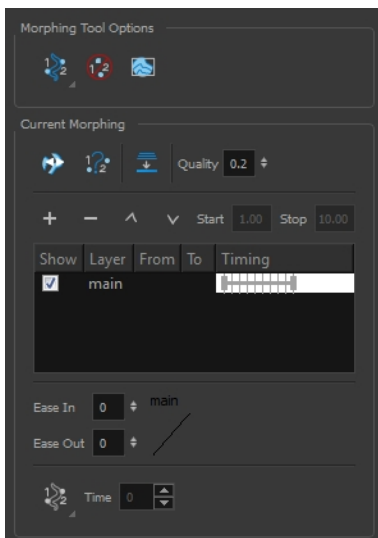



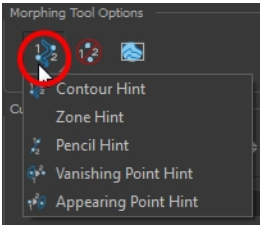

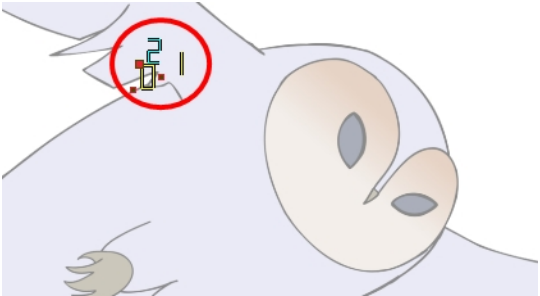
Icon	Tool Name	Description
	Copy to Preferences	You can add a pencil texture to your preset preferences.
	New Texture	Adds a new custom pencil texture to the list.
	Delete Texture	Deletes a texture preset from the list.
	Rename Texture	Renames the selected texture to keep the list organized.
	Presets	Harmony provides a variety of pencil texture presets and also lets you create and save your own.
	Pencil Texture Palette	Displays the colour palette assigned to hold the pencil textures. Use the





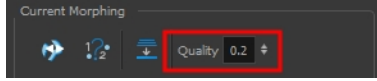
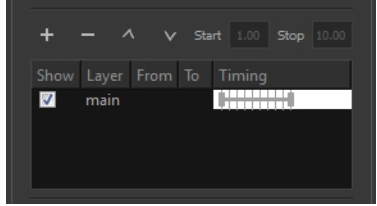




		Colour View menu to assign a new palette.
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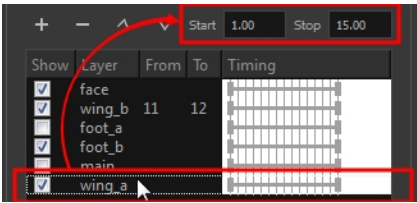
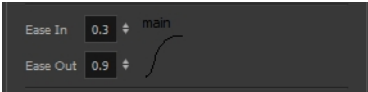

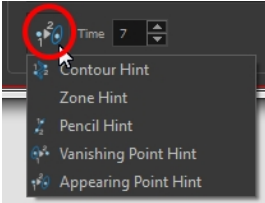
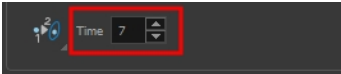
Morphing Tool Properties

As you create and adjust your morphing sequences, you will often use the Tool Properties view. Using this view allows you to do things such as toggle between your key drawings, adjust the easing or select a hint type.



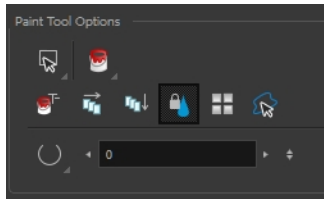
Icon	Tool Name	Description
	Hint Type	<p>The Hint Type drop-down menu allows you to select the correct hint to remedy any problem areas in your drawing.</p>  <p>You can have more than one hint type in your drawings. You can mix all of the hint types in your morphing sequence.</p>
	Do not Pick Transparency	<p>The Hide Hints button 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.</p> 





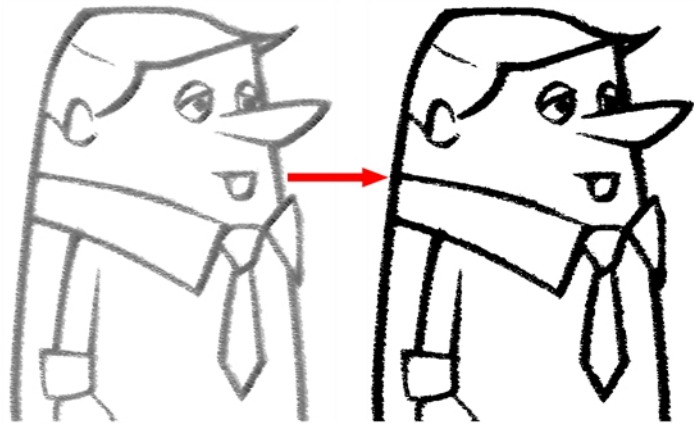
	Show Morphing in Place	The Show Morphing In Place option is used with morphing layers. Enabling this option prevents the currently selected morphing layer from being shown on top of the others and maintains the correct layer ordering.
	Suggest Hints	The Suggest Hints option is used to automatically set 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.
	Switch Between Drawings	The Switch Between Drawings button is used to toggle 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.
	Flatten	The Flatten option is used when you have to morph a sequence with a semi-transparent or transparent colour in it.
	Quality	The Quality setting is used to make the lines of the morphed drawings smoother. Adjust this parameter when you are doing an extreme close up of your animation. 
	Morphing Layers	The Morphing Layers option is used when working with morphing layers. You can add, remove and manage your different morphing layers in this space.  To create new drawings, double-click on the blank area under the From section to create the source drawing and the To section for the destination drawing and type a different value than the ones used for the main layer.
	Add Layer	Adds a new Morphing layer.
	Delete Layer	Deletes the selected Morphing layer.
	Move Up	Moves the new layer up in the stack.
	Move Down	Moves the new lower up in the stack.
	Start	Indicates the start frame of the selected Morphing layer.


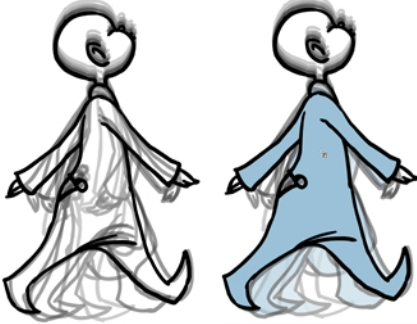



		
	<p>Stop</p>	<p>Indicates the end frame of the selected Morphing layer.</p>
	<p>Ease in and Ease out</p>	<p>The Easing option is used to adjust the starting and ending velocity of your morphing sequence so that the motion is smooth and not mechanical.</p> <p>You can adjust the Ease In and Ease Out value by dragging your cursor up and down or typing a new value. The values go from -1.0 to 1.0.</p> 
	<p>Convert Hints</p>	<p>The Convert Hints option is used to switch the type of the selected hint points. This option is useful when you position hints and then realize they are not the right type. You can select them and convert them to the correct type instead of deleting them and setting new ones.</p>  <p>Use the Morphing tool to select the hints and then convert them by going to the Tool Properties view and selecting the new hint type from the Convert Hints drop-down menu.</p>
	<p>Time</p>	<p>The Time field is used to set the timing on Appearing Point and Vanishing Point hints. These hints are used to set the trajectory of appearing and vanishing objects, With the Time field, select your Appearing Point or Vanishing Point hint and type the frame number on which the object will start its appearing or vanishing animation.</p> 



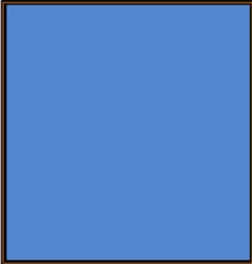

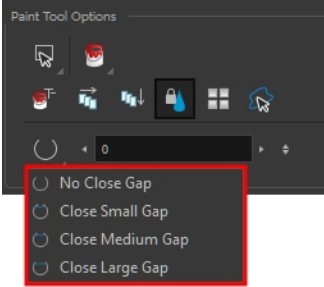
Paint Tool Properties

When you select the Paint tool, its properties and options appears in the Tools Properties view.



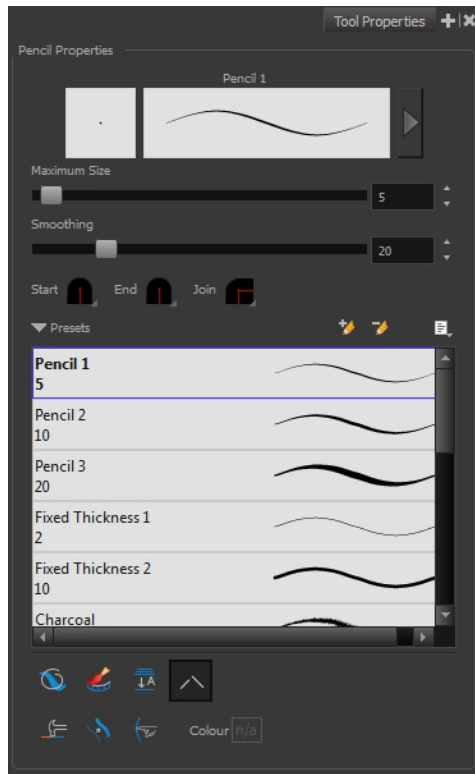
Icon	Tool Name	Description
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Paint Modes	<p>The Paint tool has four different modes available:</p> <ul style="list-style-type: none"> • The Paint mode paints everything it touches, including empty and filled zones. • The Paint Unpainted mode paints only empty zones. Any line or filled zone will remain unchanged. • The Repaint mode paints everything it touches except empty zones. Any zone that is not painted will remain intact. • The Unpaint mode unpaints everything it touches, including empty and filled zones.
	Paint and Remove Textures	<p>The Paint and Remove Texture option is used when you vectorized images as greyscale texture style. An image vectorized as texture is a mix of bitmap filling encapsulated in a vector-based frame. Painting a textured zones with the Paint tool will change the tint of the textured lines. Painting the textured zones using the Paint and Remove Texture option transforms the bitmap filling into a 100% vector based zone and fills it with a solid colour.</p> 

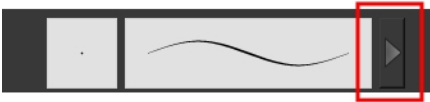
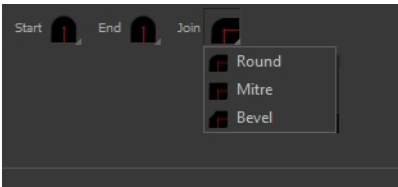
	<p>Apply to Multiple Drawings</p>	<p>The Apply to Multiple Drawings option is used for fast painting in hand-drawn animation. When you want to paint several drawings in a same layer at once, such as a walk cycle, you can enable this option and make a selection in the Camera or Drawing view. All the closed zones located within your Paint tool selection are painted with the selected colour swatch.</p>  <p>You do not need to enable the Onion Skin preview to use this option. The option will stay enabled only for the next action. If you want to use it again, you must click on the Apply to Multiple Drawings button again, or press Alt + A.</p>
	<p>Apply to All Visible Drawings</p>	<p>The Apply to All Visible Drawings option is used to paint several drawings on separated layers on the current frames. If you have a character broken in several layers, you can enable this option to paint all your layers at once. The operation is only applied on the current frame. This option will stay enabled only for the next action. If you want to use it again, you must click on the Apply to All Visible Drawings button again.</p> <p>NOTE: This option is only available in the Camera view and does not affect symbols.</p>
	<p>Respect Protected Colour</p>	<p>The Respect Protected Colour option is enabled by default. In your Colour view, you can protect some colour swatches to avoid repainting or unpainting the zones linked to that swatch.</p> <p>If you disable this option the Paint tool will not follow the protect colour rule and will repaint or unpaint the protected colours on your drawings until you enable the option again.</p>
	<p>Use Stored Colour Gradient</p>	<p>When you paint a zone with a gradient or textured colour swatch, the gradient or texture's position is set relative to the size of the zone you are painting. If you want the Paint tool to use a particular size and position, you must first store your desired position and size using the Select tool and then enable the Use Stored Colour Gradient option in the Paint tool properties.</p>






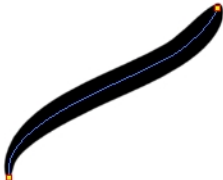
		
	<p>Select Newly Painted, Repainted, and Unpainted Contours/Lines</p>	<p>In the Paint tool properties, this option keeps a selection highlighted around the latest painted zone after using the Paint, Repaint, Unpaint, or Paint Unpainted tool.</p> 
	<p>Close Gap</p>	<p>The Close Gap option has four modes available. When the option is enabled, Harmony will consume more resources while painting.</p>  <ul style="list-style-type: none"> • No Close Gap: The moment a zone has a gap in it, the Paint tool will not fill the area. • Close Small Gap: If a zone has a small gap in it, the Paint tool will fill the area. You can zoom out to make the gap appear smaller and the Paint tool will paint. • Close Medium Gap: If a zone has a medium gap in it, the Paint tool will fill the area. You can zoom out to make the gap appear smaller and the Paint tool will paint. • Close Large Gap: If a zone has a large gap in it, the Paint tool will fill the area. You can zoom out to make the gap appear smaller and the Paint tool will paint.




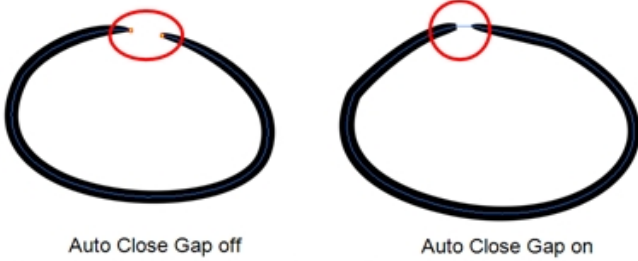


Pencil Tool Properties




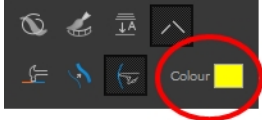
When you select the Pencil  tool, its properties and options appears in the Tool Properties view.



Icon	Tool Name	Description
	Previewing the Stroke	<p>The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters.</p> 
	Maximum Size	<p>Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.</p>
	Smoothing	<p>Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.</p>
	Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style.

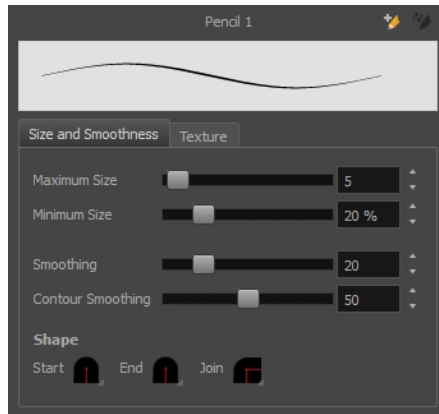
		<ul style="list-style-type: none"> • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.
	Presets	<p>Harmony provides a variety of pencil presets and thickness stencils and also lets you create and save your own. It is a good idea to create and save pencils with precise sizes and parameters when you draw and design for efficiency and consistency.</p> <p>A thickness stencil saves the thickness information across the length of the line. When drawing with a thickness stencil, the pressure sensitivity of the tablet is discarded. A thickness stencil can be used while drawing, or applied afterwards.</p> <p>You also have the possibility to apply different textures to your lines by either using the default presets or importing your own.</p> <p>You can export the pencil presets that you have created and import those that others have created. This is a good way for you and project collaborators to keep a consistent look for the project.</p>
	New Brush	Allows to create a new preset.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Draw Behind	<p>When drawing on vector layers, the Draw Behind mode lets you paint behind existing art. By default, strokes appear over your work until you release the tool.</p>  <p>Orange stroke appears behind existing black stroke</p>
	Automatically Create Colour Art	<p>As you draw in the Line Art layer, the Automatically Create Colour Art option instantly creates the corresponding strokes in the Colour Art layer.</p> 

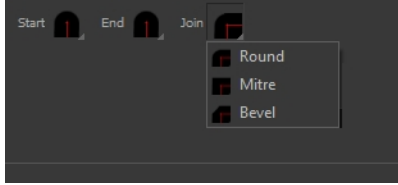
	<p>Auto-Flatten Mode</p>	<p>When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.</p>  <p>NOTE: Using the Select tool, you can use select and remove a segment of flattened pencil lines. Overlapping pencil lines drawn with the Auto-Flatten mode are essentially cut into segments by the overlap and can be treated as individual lines.</p>
	<p>Auto-Close Gap</p>	<p>When using the pencil tool, you can automatically close strokes with an invisible stroke.</p>  <p>It is recommended to keep this option enabled when drawing with the Pencil tool.</p>
	<p>Line Building Mode</p>	<p>The Line Building mode is very useful when drawing long lines and curves in small increments with pencil lines or the Line tool. As the pencil lines are central vector lines, it may be difficult to align the line tips perfectly to create a uniform stroke and close all gaps.</p> <p>In this mode, you can draw lines in small increments and the tips are merge into one single stroke.</p>  <p>NOTE: This mode only works with pencil lines or the line tool.</p>

	<p>Auto Adjust Thickness</p>	<p>The Auto Adjust Thickness tool is useful when you want to render a portion of a line thicker. When tracing a drawing on paper, you will often go back to a section of a curve to make it thicker to add dynamism to the line. Using the Auto Adjust Thickness tool, you can draw highlight strokes over the section to make thicker. Once you release the pen or mouse, the line becomes thicker following the shape and curve of the original stroke. This way is much faster and smoother than using the Pencil Editor tool. You do not have to add extra points and adjust the position and Bezier handles.</p>  <p>The default overlay colour is light yellow. If this colour is difficult to see because of the background or drawing colour, you can adjust the colour.</p>
	<p>Line Pushing Mode</p>	<p>The Line Pushing Mode option lets you draw highlight strokes over existing pencil lines. You can reshape the curves. Depending how you draw the pushing stroke over your line, the highlighted section will be reshaped in one direction or the other.</p> <p>The default overlay colour is light yellow. If this colour is difficult to see because of the background or drawing colour, you can adjust the colour.</p>
<p>Colour</p>		<p>You can change the colour for the Line Pushing Mode and the Auto Adjust Thickness option by clicking on the Colour swatch and selecting a new colour in the Colour Picking window.</p> 

Size and Smoothness Tab

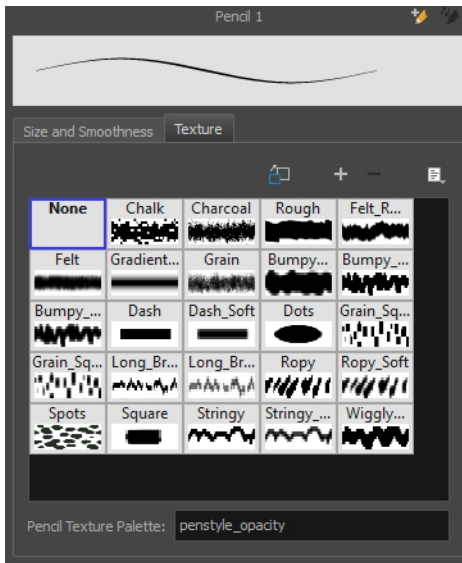
You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.









Tool Name	Description
Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth out the bumps and waves on tour contour shape of your brush strokes.
Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.

Texture Tab

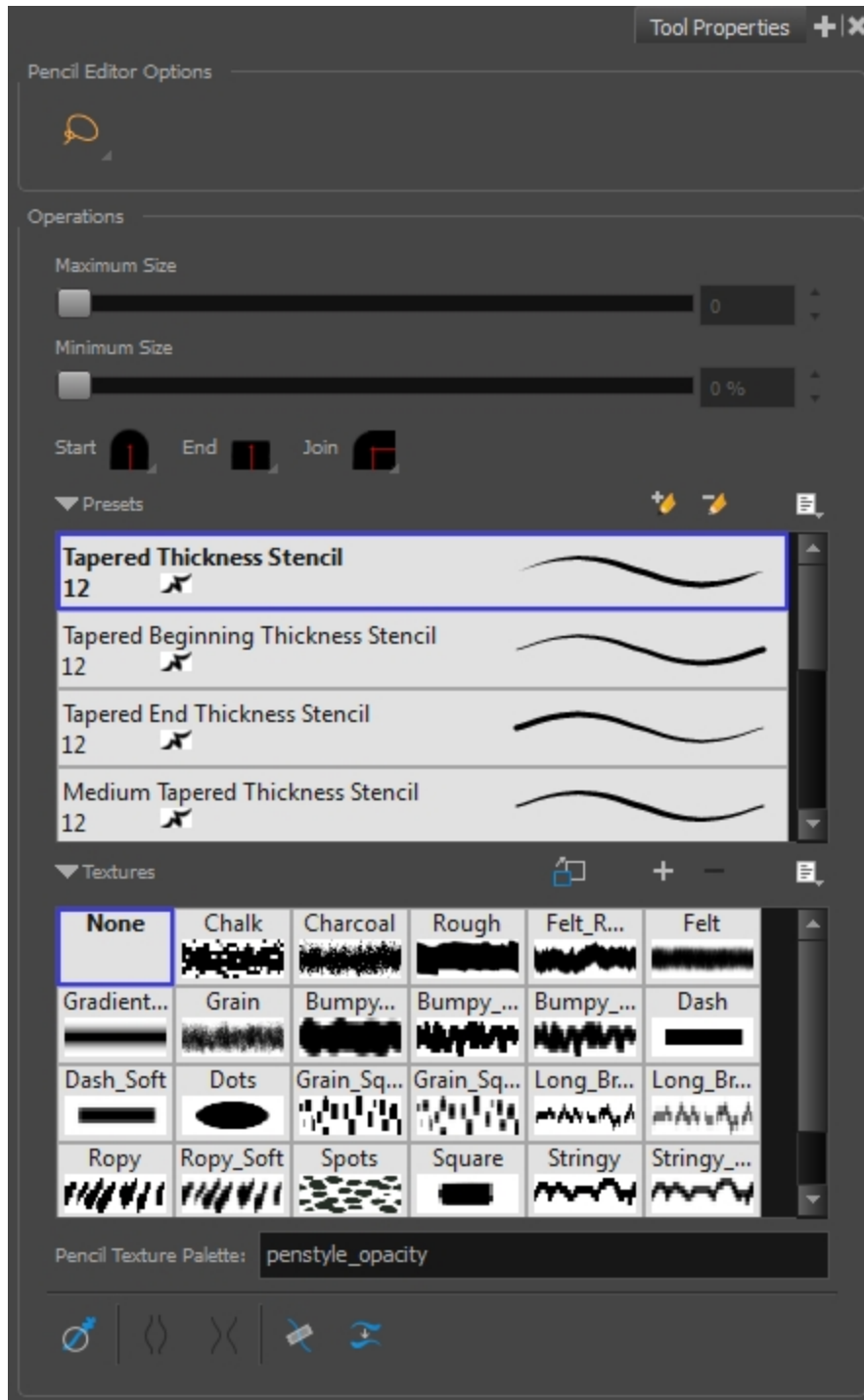
You can access advanced properties by clicking on the Previewing the Stoke button in the Tool Properties view.





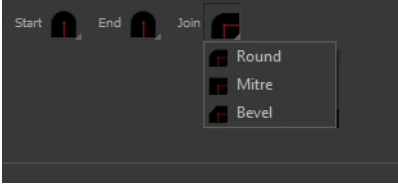


Icon	Tool Name	Description
	Copy to Preferences	You can add a pencil texture to your preset preferences.
	New Texture	Adds a new custom pencil texture to the list.
	Delete Texture	Deletes a texture preset from the list.
	Rename Texture	Renames the selected texture to keep the list organized.
	Presets	Harmony provides a variety of pencil texture presets and also lets you create and save your own.
	Pencil Texture Palette	Displays the colour palette assigned to hold the pencil textures. Use the Colour View menu to assign a new palette.



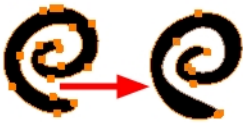

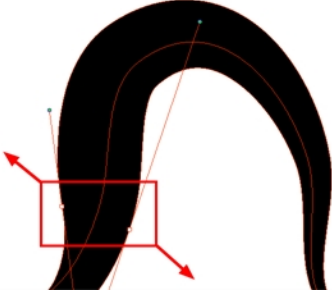

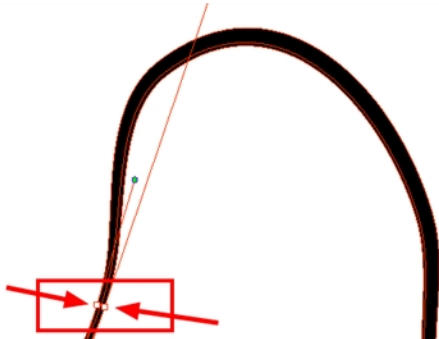
Pencil Editor Tool Properties


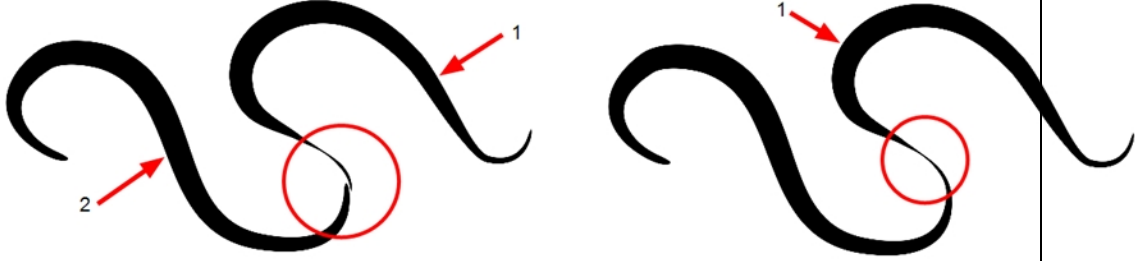

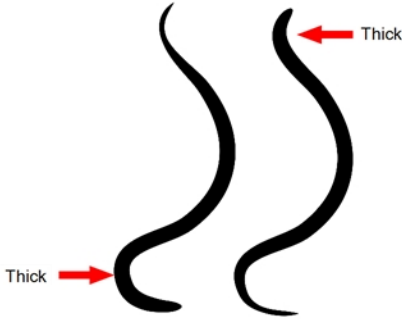
When you select the Pencil Editor tool, its properties and options appear in the Tool Properties view.



Icon	Tool Name	Description
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.

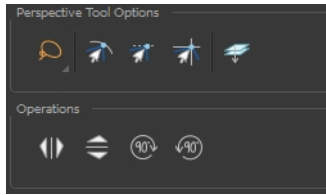
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
	Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.
	Presets	<p>Harmony provides a variety of pencil presets and thickness stencils and also lets you create and save your own. It is a good idea to create and save pencils with precise sizes and parameters when you draw and design for efficiency and consistency.</p> <p>A thickness stencil saves the thickness information across the length of the line. When drawing with a thickness stencil, the pressure sensitivity of the tablet is discarded. A thickness stencil can be used while drawing, or applied afterwards.</p> <p>You also have the possibility to apply different textures to your lines by either using the default presets or importing your own.</p> <p>You can export the pencil presets that you have created and import those that others have created. This is a good way for you and project collaborators to keep a consistent look for the project.</p>
	New Brush	Allows to create a new preset from the selected pencil line.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.











	Copy to Preferences	You can add a pencil texture to your preset preferences.
	New Texture	Adds a new custom pencil texture to the list.
	Delete Texture	Deletes a texture preset from the list.
	Rename Texture	Renames the selected texture to keep the list organized.
	Presets	Harmony provides a variety of pencil texture presets and also lets you create and save your own.
	Pencil Texture Palette	Displays the colour palette assigned to hold the pencil textures. Use the Colour View menu to assign a new palette.
	Smooth Selection	<p>The Smooth operation lets you smooth out selected drawing strokes and remove extra points.</p> <ul style="list-style-type: none"> From the top menu, select Drawing > Optimize > Smooth or press Alt + Shift + S. 
	Pump Pencil Pressure	<p>The Pump Pencil Pressure option is used to increase the line thickness of a selected area on a pencil line.</p> 
	Deflate Pencil Pressure	<p>The Deflate Pencil Pressure option is used to decrease the line thickness of a selected area on a pencil line.</p> 

	Merge Pencil Lines	<p>Pencil lines are central vector lines and it might be difficult to match pencil line's tips properly to align them and make it look like it is one single line. With the Select tool, you can select several pencil lines and merge them as one single object using the Merge Pencil Lines option. The ends of your lines are adjusted to form one single line.</p> 
	Reverse Pencil Thickness	<p>The Reverse Pencil Thickness option inverts the thick and thin section on a selected pencil line. This option will take the thickest size on the line and apply it to the thinnest, and it will apply the thinnest to the thickest.</p> 

Perspective Tool Properties

Selecting the Perspective tool displays its properties and options in the Tool Properties view.

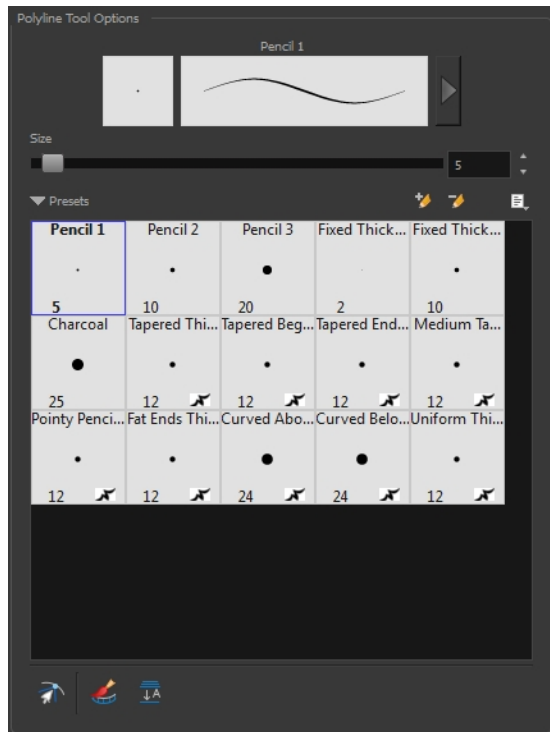


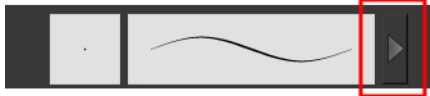


Icon	Tool Name	Description
Selection Tool Options		
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid. <div data-bbox="883 1226 1370 1486" data-label="Image"> </div>
	Apply to Line and Colour Art	The Apply to Line and Colour Art option uses the concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.
	Flip Horizontal	Flips the current selection horizontally.
	Flip Vertical	Flips the current selection vertically.
	Rotate 90 Degrees CW	Rotates the current selection 90 degrees clockwise.
	Rotate 90 Degrees CCW	Rotates the current selection 90 degrees counter-






		clockwise.
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Polyline Tool Properties

When you select the Polyline tool, its properties and options appear in the Tool Properties view.

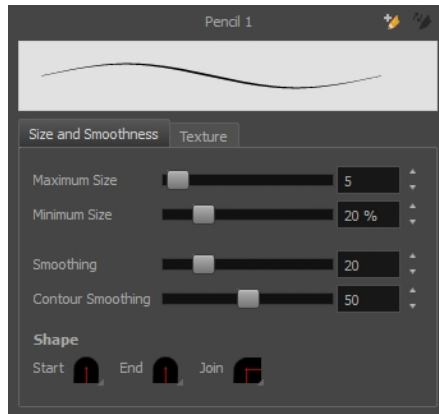


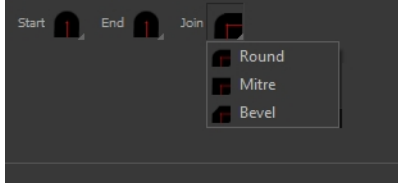
Icon	Tool Name	Description
	Previewing the Stroke	<p>The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters.</p> 
	Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
	Presets	<p>Harmony provides a variety of presets and also lets you create and save your own. It is a good idea to create and save pencils with precise sizes and parameters when you draw and design for efficiency and consistency.</p> <p>All tools using pencil lines share the same preset list. Therefore, the Polyline, Line, Rectangle, Ellipse, and Pencil tools share the same preset list.</p>
	New Brush	Allows to create a new preset.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously

		exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Automatically Create Colour Art	As you draw in the Line Art layer, the Automatically Create Colour Art option instantly creates the corresponding strokes in the Colour Art layer. 
	Auto-Flatten Mode	When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.  NOTE: Using the Select tool, you can use select and remove a segment of flattened pencil lines. Overlapping pencil lines drawn with the Auto-Flatten mode are essentially cut into segments by the overlap and can be treated as individual lines.

Size and Smoothness Tab

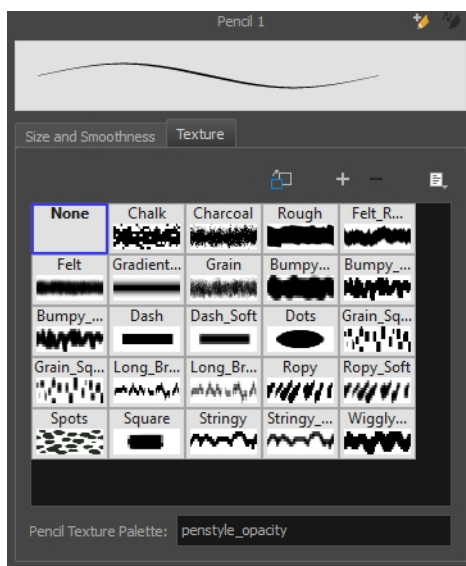
You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.



Tool Name	Description
Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth out the bumps and waves on tour contour shape of your brush strokes.
Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.

Texture Tab

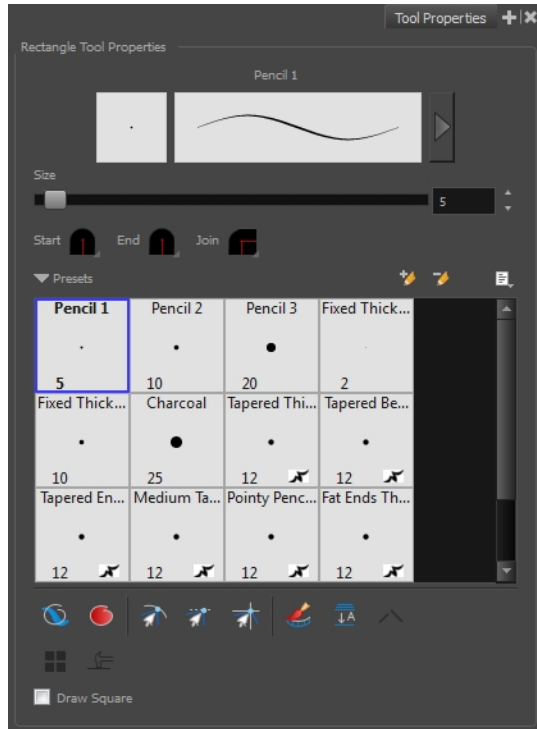
You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.

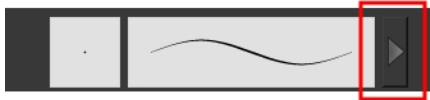
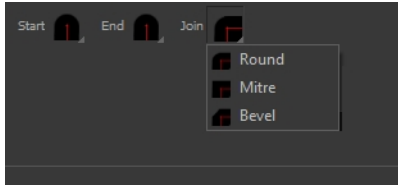





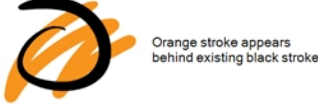

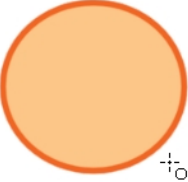


Icon	Tool Name	Description
	Copy to Preferences	You can add a pencil texture to your preset preferences.
	New Texture	Adds a new custom pencil texture to the list.
	Delete Texture	Deletes a texture preset from the list.
	Rename Texture	Renames the selected texture to keep the list organized.
	Presets	Harmony provides a variety of pencil texture presets and also lets you create and save your own.
	Pencil Texture Palette	Displays the colour palette assigned to hold the pencil textures. Use the Colour View menu to assign a new palette.


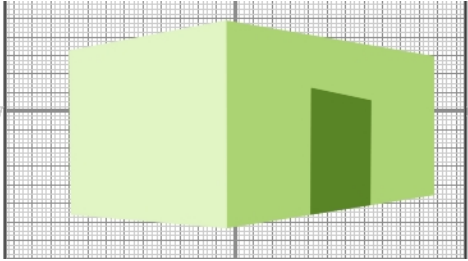





Rectangle Tool Properties

When you select the Rectangle tool, its properties and options appear in the Tool Properties view. There are a few less options available when working on a bitmap layer.



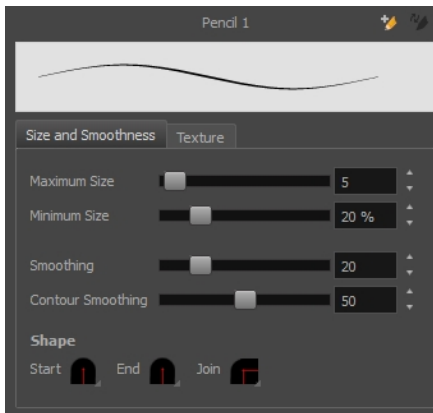
Icon	Tool Name	Description
	Previewing the Stroke	<p>The Preview area lets you see a preview of the selected or customized stroke. You can click on the Show Extended Properties arrow to display advanced customization parameters.</p> 
	Size	<p>Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.</p>
	Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip

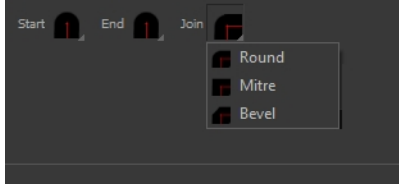
		<p>you drew. You can choose between Round or Flat style.</p> <ul style="list-style-type: none"> • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.
	Presets	<p>Harmony provides a variety of presets and also lets you create and save your own. It is a good idea to create and save pencils with precise sizes and parameters when you draw and design for efficiency and consistency.</p> <p>All tools using pencil lines share the same preset list. Therefore, the Polyline, Line, Rectangle, Ellipse, and Pencil tools share the same preset list.</p>
	New Brush	Allows to create a new preset.
	Delete Brush	Allows you to delete your custom presets.
	Rename Brush	Allows you to rename a custom preset.
	Import Brushes	Allows you to import a set of XML Harmony presets previously exported via the Export Brushes command.
	Export Brushes	Allows you to export Harmony presets to backup or import on a different computer.
	Small Thumbnail, Large Thumbnail, and Stroke View	Allows you to display the presets as small square thumbnails, large square thumbnails or a list of stroke preview.
	Draw Behind	<p>When drawing on vector layers, the Draw Behind mode lets you paint behind existing art. By default, strokes appear over your work until you release the tool.</p>  <p>Orange stroke appears behind existing black stroke</p>
	Automatic Filling	<p>Use the Automatic Filling option to automatically fill your shape with the selected colour as you draw. By default, the Shape tool creates the outline of an empty shape that you can later fill using the Paint tool. This option is unavailable for the line tool.</p> 
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.

	Snap to Grid	<p>Snaps your selection following the currently enabled grid.</p> 
	Automatically Create Colour Art	<p>As you draw in the Line Art layer, the Automatically Create Colour Art option instantly creates the corresponding strokes in the Colour Art layer.</p> 
	Auto-Flatten Mode	<p>When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.</p>  <p>NOTE: Using the Select tool, you can use select and remove a segment of flattened pencil lines. Overlapping pencil lines drawn with the Auto-Flatten mode are essentially cut into segments by the overlap and can be treated as individual lines.</p>
	Use Stored Colour Gradient	<p>The Use Stored Colour Gradient option makes your tool use the previously stored gradient position. This way, every new brush line or colour fill will use the stored gradient position.</p>
	Draw Square	<p>Enable this option to draw perfect square (ratio 1:1) without holding any keyboard shortcuts. As an alternative, you can hold down the Shift key.</p>

Size and Smoothness Tab

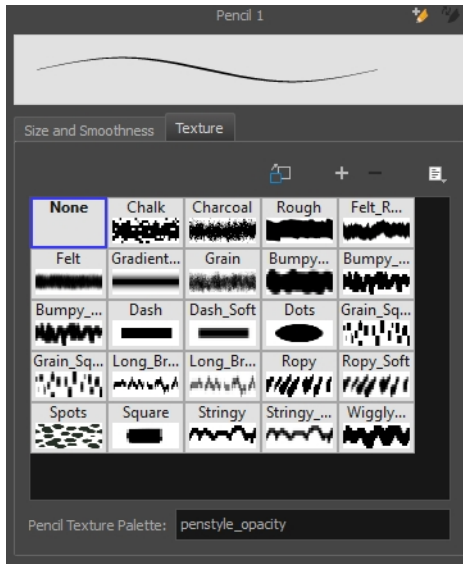
You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.




Tool Name	Description
Maximum Size	Defines the maximum size of your drawing tool. This parameter defines the width of the stroke.
Minimum Size	Defines the minimum size of your stroke as a percentage of the maximum size. If you do not have pressure sensitivity from a pen table, the minimum size value will be ignored.
Smoothing	Defines the number of control points added to the centre line. The fewer the control points the smoother (but less faithful) the line.
Contour Smoothing	Defines the number of points on the contour share of your stroke. This will smooth out the bumps and waves on tour contour shape of your brush strokes.
Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style.

Texture Tab

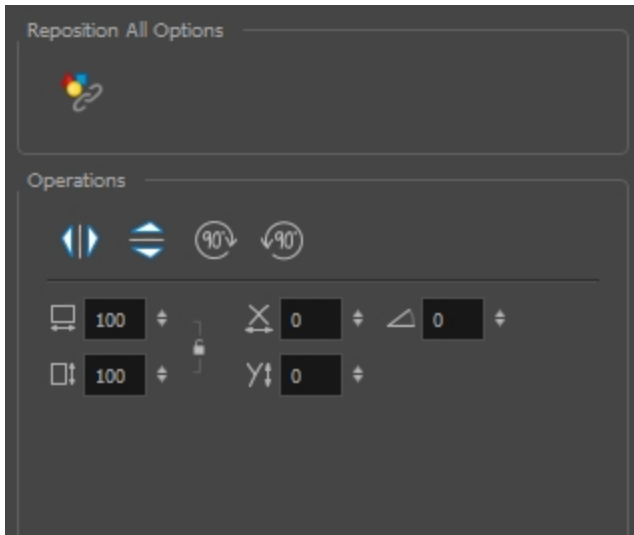
You can access advanced properties by clicking on the Previewing the Stroke button in the Tool Properties view.







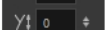


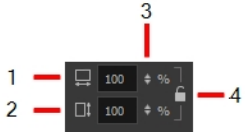
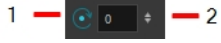
Icon	Tool Name	Description
	Copy to Preferences	You can add a pencil texture to your preset preferences.
	New Texture	Adds a new custom pencil texture to the list.
	Delete Texture	Deletes a texture preset from the list.
	Rename Texture	Renames the selected texture to keep the list organized.
	Presets	Harmony provides a variety of pencil texture presets and also lets you create and save your own.
	Pencil Texture Palette	Displays the colour palette assigned to hold the pencil textures. Use the Colour View menu to assign a new palette.

Reposition All Drawings Tool Properties

When you use the Reposition All Drawings tool, its properties and options appear in the Tool Properties view.

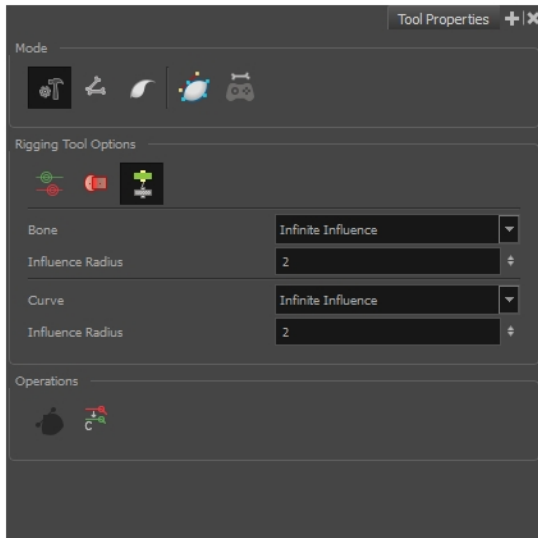


Icon	Option	Description
	Apply to Synced Drawing Layers	Applies to the Camera view only. Works in conjunction with the Works on Single Drawing. Only selects lines from the current drawing and drawing layers synced to the current drawing.
	Flip Horizontal	Flips the current selection horizontally.
	Flip Vertical	Flips the current selection vertically.
	Rotate 90 Degrees CW	Rotates the current selection 90 degrees clockwise.
	Rotate 90 Degrees CCW	Rotates the current selection 90 degrees counter-clockwise.
	Offset X and Y	<p>Use the Offset X and Offset Y operation fields to enter specific values and precisely reposition the selected shape.</p> <p>1 —  — 3</p> <p>2 — </p> <ol style="list-style-type: none"> X: Type a value in this field to reposition your selection along the X-axis. Y: Type a value in this field to reposition your selection along the Y-axis. Up/Down arrows: Use the up and down arrows to modify the value in the X or Y value field.
	Width and Height	Use the Width and Height operation fields to enter specific values to resize the selected

		<p>shape with precision.</p>  <ol style="list-style-type: none"> Width: Type a value in this field to resize the width of your selection. Height: Type a value in this field to resize the height of your selection. Up/Down arrows: Use the up and down arrows to modify the value in the Width or Height fields. Lock icon: Click the lock icon to lock or unlock the ratio between the Width and Height values.
	<p>Angle</p>	<p>The Angle operation lets you to enter specific values and accurately rotate the selected shape.</p>  <ol style="list-style-type: none"> Angle: Type a degree value in this field to rotate your selection. Up/Down arrows: Use the up and down arrows to modify the value in the Angle value field.

Rigging Tool Properties

In the Tool Properties view, you can customize not only the behaviour of the tool but also the settings of the deformers that you will create.



Mode



Name	Button	Description
Automatic Mode		Sets the Rigging tool to automatically create a Bone or Curve deformer, corresponding to the movement of the cursor in the Camera view.
Bone Mode		Sets the Rigging tool to create Bone deformers.
Curve Mode		Sets the Rigging tool to create Curve deformers.
Envelope Mode		Sets the Rigging tool to create Envelope deformers.
Game Bone Mode		Sets the Rigging tool to create Game Bone deformers.

Options

Parameter	Button	Description
Show All Manipulators (Show All Controls)		Lets you immediately see the resting position in red (Setup) and the animated position in green.
Show All Regions of Influence		Lets you visualize the area within which the art will be influenced by the deformation effect—see Rigging Tool Properties on page 625 .
Automatically Create Group when Creating a New Deformation Rig		This option automatically creates a deformation group connected to the input port of the selected element. This group includes all the necessary deformation nodes you created.
Bone and Curve Zone of Influence		The Zone of Influence setting used as the default when creating an articulation, bone deformer or curve deformer using the Rigging tool.
		Zero Influence: The Zone of Influence does not exist. No

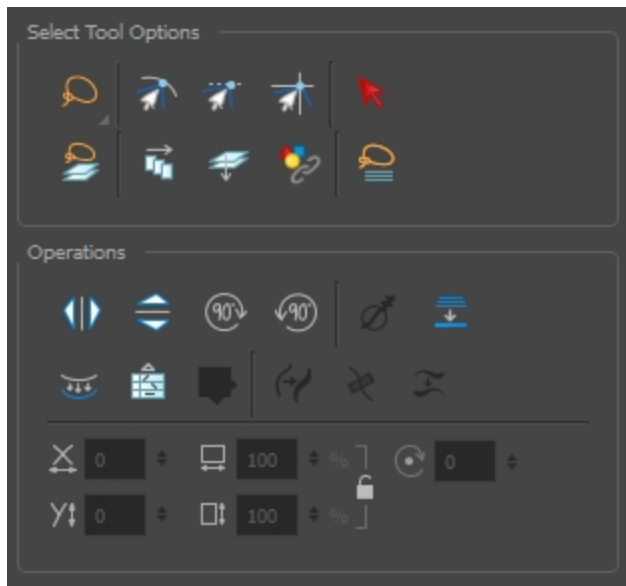
		deformation will happen.
		Infinite Influence: This is the default option and is the most commonly used. The Zone of Influence has no boundary and covers the whole element to which the deformer is linked and its children, excluding areas that are already part of another elliptical or shaped Zone of Influence. The Infinite Influence zone will extend from the centre of your skeleton to infinity, working perpendicularly to the skeleton.
		Elliptic Influence: The Zone of Influence boundary is defined by an elliptical shape; its size can be customized using the Bone, or Articulation or Curve node properties or by using the Transform tool. The Elliptic Influence will most likely be used on a bitmap picture you want to deform.
		Shaped Influence: The Zone of Influence boundary is defined by a shape which you can customize using the Transform tool. The Shaped Influence will most likely be used on a bitmap picture you want to deform.
		Influence Radius: This value is the size of the influence zone. The default value is 2.







Operations



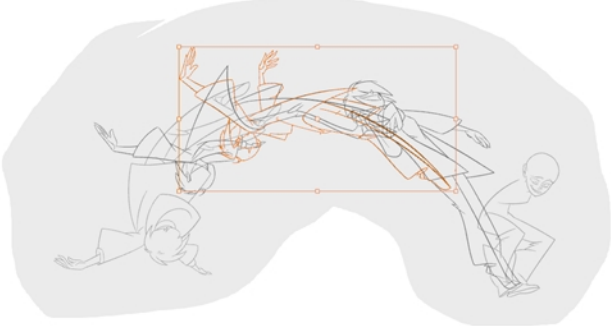

Name	Button	Description
Convert Elliptic Zone of Influence to Shape		After you have created a deformation chain using Elliptic as the Zone of Influence type, you can select your deformer and click on this button to convert it to a Shaped type. Control points will appear around the shape making it easy to customize. You can also convert the Elliptic zone of influence to a shape. 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.
Reset Deform (Reset Current Keyframe)		Copies the resting position of the deformation skeleton to the current frame.

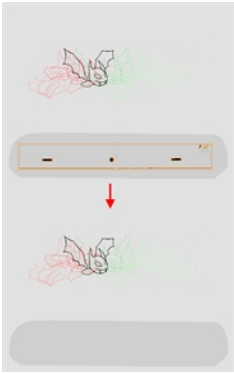



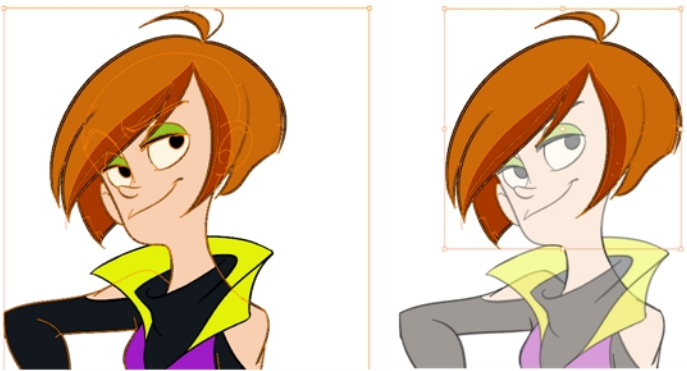
Select Tool Properties

When you use the Select tool, its properties and options appear in the Tool Properties view.






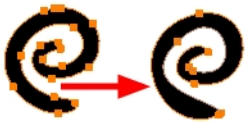

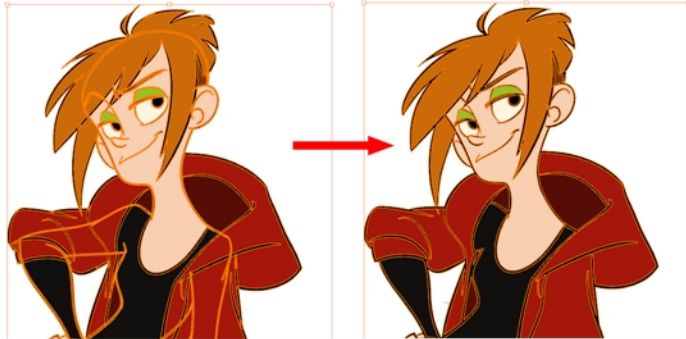









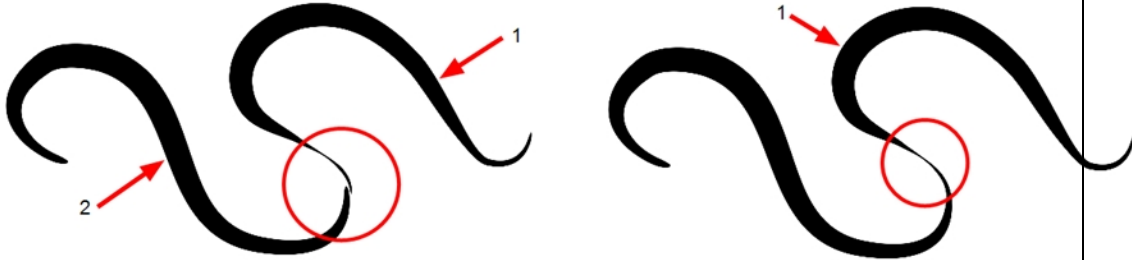

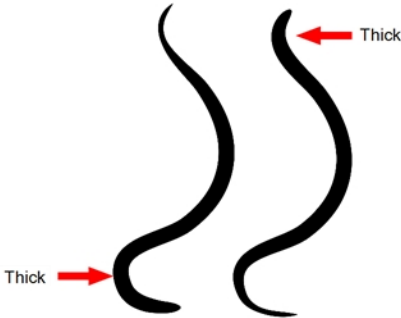
Icon	Tool Name	Description
Selection Tool Options		
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Snap to Contour	Snaps your selection or point to any line you position it on. As soon as you move it close enough to another line, your point or selection will snap to it.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid. <div data-bbox="711 1507 1182 1766" data-label="Image"> </div>
	Select by Colour	Lets you select all the zones and lines in your drawing painted with the same colour swatch.


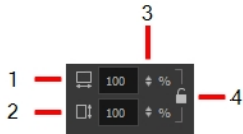
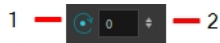
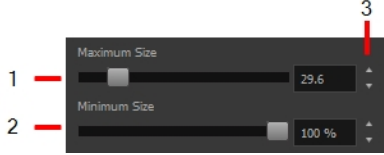
		 <p>In the Camera or Drawing view, click on any zone or line in your drawing. All zones and lines of the same colour are selected. Click the Select tool again to return to the regular Select mode.</p> <p>NOTE: Only the zones painted with the SAME colour swatch will be selected. If another zone is coloured with the exact same RGB value (same colour), but not painted with the same colour swatch, it will not be selected.</p>
	Permanent Selection	<p>Lets you maintain a selection over multiple drawings. Once this option is enabled, the selection zone made using the Select tool will remain as you navigate through drawings of the same layer and drawings from other drawing layers. This option can be used to simultaneously delete artwork inside or outside of the selection on several drawings when combined with the Apply to Multiple Drawings option.</p> 
	Apply to Multiple Drawings	<p>The Apply to Multiple Drawings option is used to perform an action on all the drawings contained in a layer. With the Select tool, this option can be used to select and remove vector shapes on all the drawings contained in a layer. To use it, activate Permanent Selection option and make a selection that can be applied to all your drawings. Then, activate the Apply to Multiple Drawings option and press delete. This will delete all the shapes that would have been selected by the permanent selection on every drawing in the layer. This can be used for example to</p>

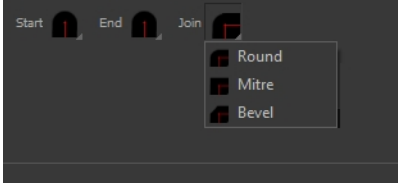

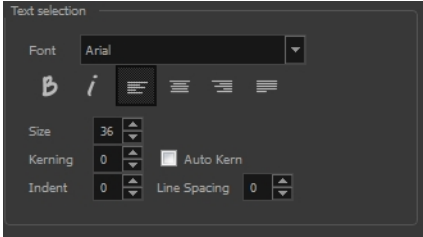
		<p>remove dirt and registration on the same areas of all the drawings simultaneously on a layer.</p> <p>The Apply to Multiple Drawings option disables itself after each action.</p> 
	<p>Apply to Line and Colour Art</p>	<p>The Apply to Line and Colour Art option uses the concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.</p>
	<p>Apply to Synced Drawing Layers</p>	<p>Applies to the Camera view only. Works in conjunction with the Works on Single Drawing. Only selects lines from the current drawing and drawing layers synced to the current drawing.</p>
	<p>Works on Single Drawing</p>	<p>By default, when you draw a selection box in the Camera view, the Select tool will select only the drawing strokes of the current drawing. If you prefer the Select tool to select all the strokes on all layers, you can disable the Works on Single Drawing option in the Tool Properties view or disable the Select tool Works on Single Drawing preference. To do this, go to the top menu, select Edit > Preferences > Camera (Windows/Linux) or Harmony Premium > Preferences > Camera (Mac OS X) and uncheck the Select tool Works on Single Drawing option.</p> 

Icon	Tool Name	Description
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Selection Tool Operations		
	Flip Horizontal	Flips the current selection horizontally.
	Flip Vertical	Flips the current selection vertically.
	Rotate 90 Degrees CW	Rotates the current selection 90 degrees clockwise.
	Rotate 90 Degrees CCW	Rotates the current selection 90 degrees counter-clockwise.
	Smooth	Smooth out selected drawing strokes and remove extra points. 
	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. 
	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.
	Distribute to Layers	The Distribute to Layers option is used to separate the selected art strokes and send them to new drawing layers. In the Camera view, once you have drawn your artwork, you can select the strokes you want to distribute using the Select tool and click on the Distribute to Layers button; you can also select Drawing > Distribute to Layers . It will automatically take every stroke from the drawing selection made in the Camera view and separate them into a different layer for each. If an artwork is composed of several strokes, you must group them using Edit > Group > Group before using the Distribute to Layers option. This option cannot be done from the Drawing view.

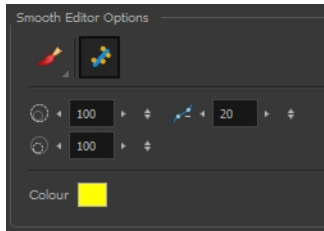
	<p>Store Colour Gradient</p>	<p>Use the Store Colour Gradient operation to record the selected gradient's position. This reuses the stored position of the gradient when drawing new brush lines or painting colour zones. Enable the Use Stored Colour Gradient  option in the Paint or Brush Tool Properties view to do this.</p>
	<p>Pencil to Brush</p>	<p>Converts the selected centre line pencil strokes into contour strokes brush lines.</p> 
	<p>Merge Pencil Lines</p>	<p>Pencil lines are central vector lines and it might be difficult to match pencil line's tips properly to align them and make it look like it is one single line. With the Select tool, you can select several pencil lines and merge them as one single object using the Merge Pencil Lines option. The ends of your lines are adjusted to form one single line.</p>  <p>NOTE: Points must be close enough to be merged. If there is a large gap between the lines, they will not be merged.</p>
	<p>Reverse Pencil Thickness</p>	<p>The Reverse Pencil Thickness option inverts the thick and thin section on a selected pencil line. This option will take the thickest size on the line and apply it to the thinnest, and it will apply the thinnest to the thickest.</p> 
	<p>Offset X and Y</p>	<p>Use the Offset X and Offset Y operation fields to enter specific values and precisely reposition the selected shape.</p>

		 <ol style="list-style-type: none"> 1. X: Type a value in this field to reposition your selection along the X-axis. 2. Y: Type a value in this field to reposition your selection along the Y-axis. 3. Up/Down arrows: Use the up and down arrows to modify the value in the X or Y value field.
	Width and Height	<p>Use the Width and Height operation fields to enter specific values to resize the selected shape with precision.</p>  <ol style="list-style-type: none"> 1. Width: Type a value in this field to resize the width of your selection. 2. Height: Type a value in this field to resize the height of your selection. 3. Up/Down arrows: Use the up and down arrows to modify the value in the Width or Height fields. 4. Lock icon: Click the lock icon to lock or unlock the ratio between the Width and Height values.
	Angle	<p>The Angle operation lets you to enter specific values and accurately rotate the selected shape.</p>  <ol style="list-style-type: none"> 1. Angle: Type a degree value in this field to rotate your selection. 2. Up/Down arrows: Use the up and down arrows to modify the value in the Angle value field.
	Adjusting the Pencil Line Thickness	<p>When you select a pencil line with the Select tool, additional options appear in the Tool Properties view.</p> <p>Use the Adjusting the Pencil Line Thickness operation field to resize the selected centreline strokes. This operation is not permitted on contour line shapes, such as brush strokes or shape fills.</p>  <ol style="list-style-type: none"> 1. Minimum Size: Type a value in this field to set the minimum thickness of the selected centreline stroke. 2. Maximum Size: Type a value in this field to set the maximum thickness of the selected centreline stroke. 3. Up/Down arrows: Use the up and down arrows to modify the value contained in the

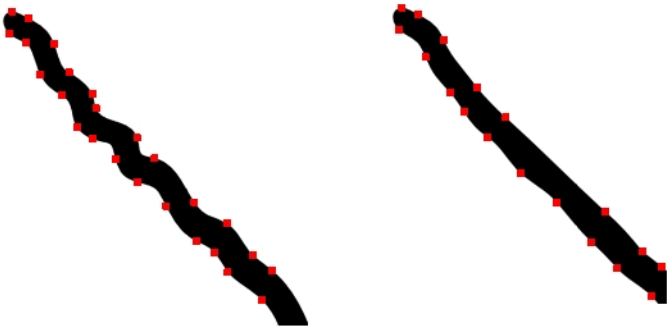
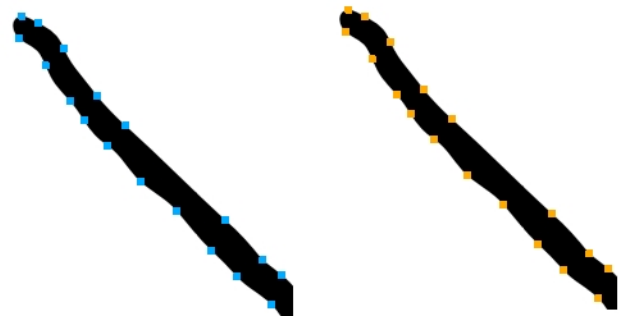
		Thickness value field.
Pencil Line Shape	<p>You can adjust the start, end, and joint style of a pencil line.</p>  <ul style="list-style-type: none"> • Start: Lets you select the style of the start tip, which is the first tip you drew. You can choose between Round or Flat style. • End: Lets you select the style of the end tip, which is the last tip you drew. You can choose between Round or Flat style. • Join: Lets you select the joint style. The joints are where the line curves abruptly. You could also define the Join style as the corner style. You can choose between Round, Mitre and Bevel style. 	
Pencil Stencils	<p>Gives you the flexibility to change the style and thickness of your pencil lines even after they are drawn. You can apply preset pencil stencils or create your own.</p> 	
Adding Texture to a Pencil Line	<p>Pencil lines support texture. Once a pencil line is drawn, you can apply a preset texture or load your own. Textures are independent from pencil stencils.</p>	
Adjusting the Text Selection	<p>When you select text with the Select tool, the tool properties will display the Text tool options on the bottom of the view. You can also press Alt + 9 to display only the Text properties in the Tool Properties view—see Text Tool Properties on page 637.</p> 	

Smooth Editor Tool Properties

When you select the Smooth Editor tool, its properties and options appear in the Tool Properties view.

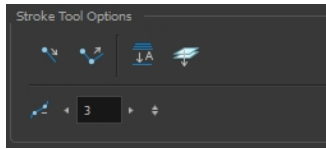






Icon	Tool Name	Description
	Smoothing Style	<p>The Smoothing Style options allow you to smooth a portion of your drawing by tracing a smoothing stroke over the zone to optimize or by selecting an area of the drawing with the Marquee or Lasso.</p> <p>Note that by default, the Smooth Editor tool colour is yellow, it was changed to orange for screen grab clarity.</p>
	Show Control Points	<p>The Show Control Points option allows you to show or hide the Bezier points around lines. When the Bezier points are displayed, you can see the result of your smoothing and the number of points left on the curve. When it is turned off, only the original artwork is displayed.</p>
	Minimum Size and Maximum Size	<p>This is where you set the minimum and maximum sizes of your drawing tool which will produce the thick and thin effect on your stroke. This works with the pressure sensitivity of a pen tablet.</p> <p>This options is available while using the Brush Smoothing style.</p> <ul style="list-style-type: none"> • Maximum and Minimum Size: Defines the maximum and minimum width of the stroke. • Up/Down arrows: Use the up and down arrows to set the minimum and maximum size value.
	Smoothness	<p>The Smoothness impacts the strength of the smoothing result. The higher the value, the more points are removed and the smoother the curve. The Smoothness range is from 0 to 100; the default value is 20.</p>

		 <p>Smoothness = 2</p> <p>Smoothness = 10</p>
	Colour	<p>You can modify the colour of the control points displayed on the artwork while working with the Smooth Editor tool by double-clicking on the colour swatch.</p> 

Stroke Tool Properties

When you select the Stroke tool, its properties and options appears in the Tool Properties view.

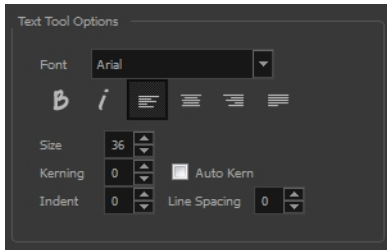








Icon	Tool Name	Description
	Draw Stroke as Straight Lines	Enable the Draw Stroke as Straight Lines option if you want the new strokes you draw to be a perfect straight line. Disable the option if you want the stroke to follow the mouse gesture.
	Connect Line Ends	Enable the Connect Line Ends option if you want the start or end point of your new stroke to connect to your existing strokes to make sure no gaps are left in your drawing.
	Auto-Flatten Mode	When enabled, the Auto-Flatten mode automatically flattens the new lines created with the existing artwork as you draw in the Drawing or Camera view. Brush strokes will flatten with brush strokes and pencil lines will flatten with pencil lines.
	Apply to Line and Colour Art	The Apply to Line and Colour Art option uses the concept of Line Art and Colour Art layers. Use this option to apply an action such as selecting, resizing or erasing a drawing on both Line Art and Colour Art layers, as well as the Overlay and Underlay layers.
	Smoothness	You can modify the central line smoothness of your line using this option. This parameter smooths the initial movement of your line. Increasing the value will result in a smoother line with fewer control points. Use the left and right arrows to increment the value by one full unit. Use the Up - Down slider to quickly increment the value.



Text Tool Properties

Use the Text tool's properties to select the font type and other formatting options you want to apply to the text.

If you already wrote your text, you must first use the Text tool and select the text portion you want to format. You can modify the parameters of an entire text box using the Select tool.



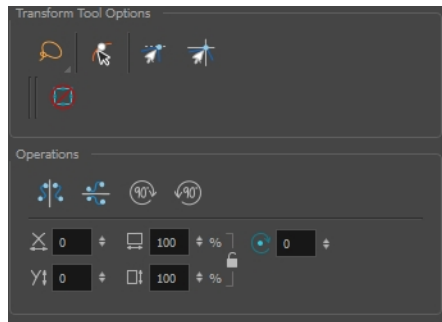
Icon	Tool Name	Description
	Font Type	Use the Font drop-down menu to select a font. OTF fonts are supported. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Vivaldi</p>  </div> <div style="text-align: center;"> <p>Copperplate Gothic Light</p>  </div> </div>
B	Bold	Use this option to bold your text selection. 
<i>i</i>	Italic	Use this option to italicize your text selection. 
	Left Alignment	Use this option to left align the paragraph. <p>LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT. AENEAN VESTIBULUM, METUS AC FERMENTUM PORTTITOR, ODIO TURPIS PORTTITOR NIBH, ID CONSEQUAT MAGNA LIGULA ET ELIT. CURABITUR SOLLICITUDIN ELIT AC LOREM MOLLIS ACC UMSAN.</p>
	Centered Alignment	Use this option to center align the paragraph.






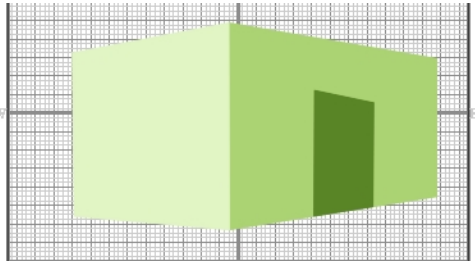



		<p>LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT. AENEAN VESTIBULUM, METUS AC FERMENTUM PORTTITOR, ODIO TURPIS PORTTITOR NIBH, ID CONSEQUAT MAGNA LIGULA ET ELIT. CURABITUR SOLLICITUDIN ELIT AC LOREM MOLLIS ACC UMSAN.</p>		
	Right Alignment	<p>Use this option to right align the paragraph.</p> <p>LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT. AENEAN VESTIBULUM, METUS AC FERMENTUM PORTTITOR, ODIO TURPIS PORTTITOR NIBH, ID CONSEQUAT MAGNA LIGULA ET ELIT. CURABITUR SOLLICITUDIN ELIT AC LOREM MOLLIS ACC UMSAN.</p>		
	Justified Alignment	<p>Use this option to justify align the paragraph.</p> <p>LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT. AENEAN VESTIBULUM, METUS AC FERMENTUM PORTTITOR, ODIO TURPIS PORTTITOR NIBH, ID CONSEQUAT MAGNA LIGULA ET ELIT. CURABITUR SOLLICITUDIN ELIT AC LOREM MOLLIS ACC UMSAN.</p>		
	Font Size	<p>Enter a size for the text.</p> <p>small text big text</p>		
	Kerning	<p>Use the kerning field to modify the spacing between letters and characters. You can select the Auto Kern option to set the kerning automatically based on the font's predefined standard. A negative value decreases spacing between each character, creating a letter overlap and a positive value increases it.</p> <p> <table border="0"> <tr> <td> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p> </td> <td> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p> </td> </tr> </table> </p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p>
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	Indent	<p>Enter a value in the Indent field to increase or decrease the indentation on the first line of your text. A positive value sets the first line of your paragraph farther to the right and a negative value sets it farther to the left.</p>		



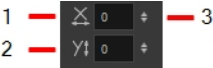
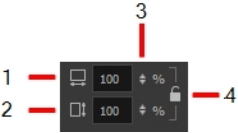
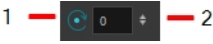
		<div data-bbox="818 197 1065 327" style="border: 1px solid #add8e6; padding: 5px;"> <p> Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p> </div> <div data-bbox="1101 197 1347 327" style="border: 1px solid #add8e6; padding: 5px;"> <p> Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p> </div>
	<p>Line Spacing</p>	<p>Enter a value in the Line Spacing field to decrease or increase the space between each line of text.</p> <div data-bbox="812 491 1058 621" style="border: 1px solid #add8e6; padding: 5px;"> <p> Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p> </div> <div data-bbox="1101 491 1347 663" style="border: 1px solid #add8e6; padding: 5px;"> <p> Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean vestibulum, metus ac fermentum porttitor, odio turpis porttitor nibh, id consequat magna ligula et elit. Curabitur sollicitudin elit ac lorem mollis acc umsan.</p> </div>

Transform Tool Properties

When selecting the Transform tool, several options are available in the Tool Properties view.

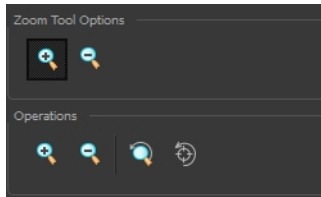








Icon	Tool Name	Description
	Lasso	Sets the selection mode to Lasso. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Marquee	Sets the selection mode to Marquee. Click and hold Alt to temporarily switch between the Marquee and Lasso modes.
	Peg Selection Mode	In the Camera view, the Peg Selection Mode limits the selection to peg layers instead of drawing layers. This mode is useful when you have created a character rig using peg layers for each drawing. That way, you do not accidentally select the drawing layer when you want to animate on the peg. When disabled, the Transform tool selects the drawing layers.
	Snap and Align	Snaps the selected anchor point to any existing line while displaying temporary rulers as a guide that you can also snap your anchor point to.
	Snap to Grid	Snaps your selection following the currently enabled grid. 
	Hide Manipulator Controls	The Hide Manipulator Controls button lets you hide the bounding box and manipulator controls from the Camera view when an element is selected.
	Flip Horizontal	Flips the current selection horizontally. You can also select Animation > Flip > Flip Horizontal from the top menu or press 4 or 5.
	Flip Vertical	Flips the current selection vertically. You can also select Animation > Flip > Flip Vertical from the top menu or press 4 or 5.

	Rotate 90 Degrees CW	Rotates the current selection 90 degrees clockwise.
	Rotate 90 Degrees CCW	Rotates the current selection 90 degrees counter-clockwise.
	Offset X and Y	<p>Use the Offset X and Offset Y operation fields to enter specific values and precisely reposition the selected shape.</p>  <ol style="list-style-type: none"> X: Type a value in this field to reposition your selection along the X-axis. Y: Type a value in this field to reposition your selection along the Y-axis. Up/Down arrows: Use the up and down arrows to modify the value in the X or Y value field.
	Width and Height	<p>Use the Width and Height operation fields to enter specific values to resize the selected shape with precision.</p>  <ol style="list-style-type: none"> Width: Type a value in this field to resize the width of your selection. Height: Type a value in this field to resize the height of your selection. Up/Down arrows: Use the up and down arrows to modify the value in the Width or Height fields. Lock icon: Click the lock icon to lock or unlock the ratio between the Width and Height values.
	Angle	<p>The Angle operation lets you to enter specific values and accurately rotate the selected shape.</p>  <ol style="list-style-type: none"> Angle: Type a degree value in this field to rotate your selection. Up/Down arrows: Use the up and down arrows to modify the value in the Angle value field.

Zoom Tool Properties

When you select the Zoom tool, its properties are displayed in the Tool Properties view.



Parameter		Button	Description
Zoom Tool Options	Zoom In		Zooms in
	Zoom Out		Zooms out
Operations	Perform Zoom In		Zoom in the Camera or Drawing view. The keyboard shortcut is 2.
	Perform Zoom Out		Zoom out the Camera or Drawing view. The keyboard shortcut is 1.
	Reset Zoom		Restores the current zoom level to 100%.
	Reset View		Restores the original display by resetting any pan, rotation or zoom actions.

Chapter 6: 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.

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Top Toolbars

Harmony has a series of toolbars that are added by default at the top of the interface. These toolbars can be moved on the sides of the interface as well as within specific views.

All top toolbars can be added through the top menu **Windows > Toolbars > *desired toolbar***.

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Art Layer Toolbar	646
Control Point Toolbar	647
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Advanced Animation Toolbar

The Advanced Animation toolbar contains tools to position and animate layers. The Scale, Translate and Rotate tools can be used to reposition the permanent pivot position of a layer. Unlike the Transform tool, each tool in the Advanced Animation toolbar performs a single operation, either rotate, scale, translate or scale in relation to the camera distance.



How to access the Advance Animation toolbar

1. Select **Windows > Toolbars > Advanced Animation**.

Icon	Tool Name	Description
	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.

Art Layer Toolbar

The Art Layer toolbar lets you access the art layers. By default, only the Line Art and Colour Art are displayed. A drawing is composed of two layers, a line layer and a colour layer. The colour layer is always placed under the line layer. These layers are accessible in the Drawing or Camera view (using drawing tools). When you view the final drawing, you will see the final composition of the lines and colours, not two separate layers.



You can draw and paint in all layers. If you prefer to work in a single layer, everything can be done in the Line Art layer.

You can change your preferences to enable the advanced use of layers and have access to four layers instead of two:






- Overlay
- Line Art
- Colour Art
- Underlay

How to access the Art Layer toolbar

1. Select **Windows > Toolbars > Art Layer**.

How to enable the Support Overlay and Underlay Arts option

1. Select **Edit > Preferences** (Windows/Linux) or **Harmony Premium > Preferences** (Mac OS X).
2. In the Preferences dialog box, select the **Advanced** tab.
3. In the Advanced Options section, select the **Support Overlay and Underlay Arts** option.
4. Click **OK**.

Icon	Tool Name	Description
	Preview Line Art and Colour Art	Displays all Art layers.
	Overlay Art	Makes the Overlay Art layer current.
	Line Art	Makes the Line Art layer current.
	Colour Art	Makes the Colour Art layer current.
	Underlay Art	Makes the Underlay Art layer current.

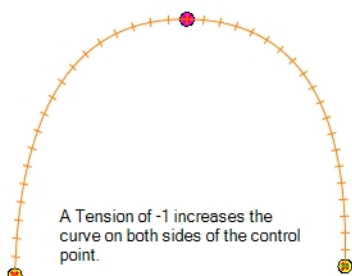
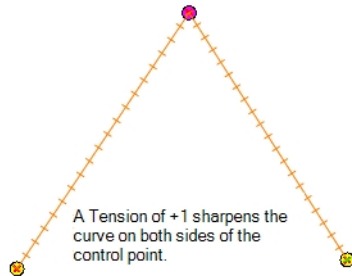
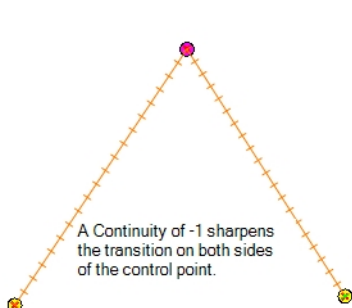
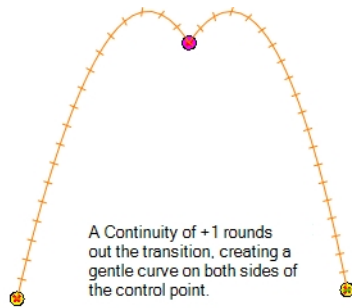
Control Point Toolbar

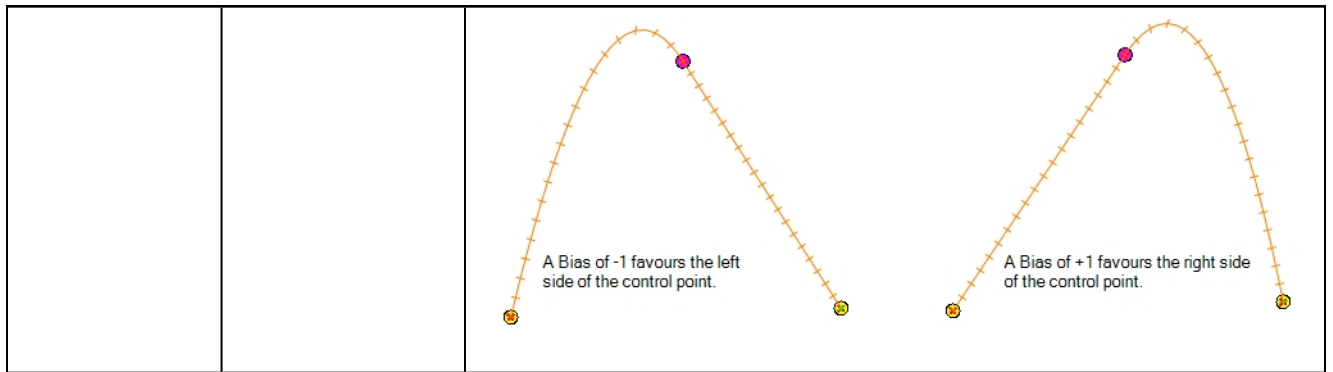
The Control Point toolbar displays parameters when you select a keyframe or control point in the Camera, Timeline or Xsheet view. You can edit keyframes and control point parameters, such as the continuity, bias, tension and lock-in-time.

Frame: 0 Locked in Time Constant Keyframe T 0.06 C 0.06 B -0.05

How to access the Control Point toolbar

1. Select **Windows > Toolbars > Control Point**.

Icon	Tool Name	Description
	Frame	Indicates the current frame.
	Locked in Time	Locks a control point in time, making it a keyframe.
	Constant Keyframe	Removes any interpolation and keeps the keyframe value constant up to the next keyframe.
T	Tension	Controls how sharply the path bends as it passes through a control point or keyframe. <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 10px;"> <div style="text-align: center;">  <p>A Tension of -1 increases the curve on both sides of the control point.</p> </div> <div style="text-align: center;">  <p>A Tension of +1 sharpens the curve on both sides of the control point.</p> </div> </div>
C	Continuity	Controls the smoothness of a transition between the segments joined by a point. <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 10px;"> <div style="text-align: center;">  <p>A Continuity of -1 sharpens the transition on both sides of the control point.</p> </div> <div style="text-align: center;">  <p>A Continuity of +1 rounds out the transition, creating a gentle curve on both sides of the control point.</p> </div> </div>
B	Bias	Controls the slope of the path so it flows towards one side of the motion point or the other.



Coordinate Toolbar

T-ANIMCO2-001-001

The Coordinate toolbar displays parameters of keyframes or control points in the Camera, Timeline or Xsheet view. You can edit keyframes and control point parameters, such as the position, scale and rotation coordinates.



For tasks related to this toolbar, see [Coordinates and Control Points View on page 685](#).

How to access the Coordinate toolbar

1. Select **Windows > Toolbars > Coordinate**.

Parameter	Description
Translation	The translation fields display the X, Y and Z translation values of the selected layer. You can enter precise values to set the first frame and last frame position of a layer. By default the Z value field is disabled. It will automatically become active when the 3D option is enabled.
Scale	The scale fields display the X, Y and Z scaling values of the selected layer. You can enter precise values to set the first frame and last frame size of a layer. By default the Z value field is disabled. It will automatically become active when the 3D option is enabled.
Rotation	The rotation fields display the X, Y and Z rotation values of the selected layer. You can enter precise values to set the first frame and last frame rotation of a layer. By default the Z value field is disabled. It will automatically become active when the 3D option is enabled.
Skew	The skew field displays skew value of the selected object. You can enter a precise value to set the skew of the object.

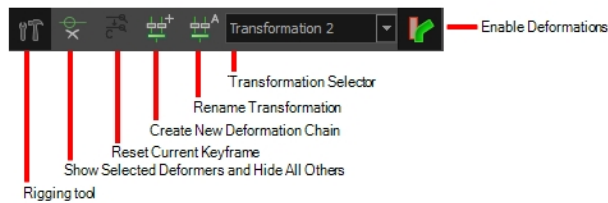
Deformation Toolbar

T-RIG-007-009

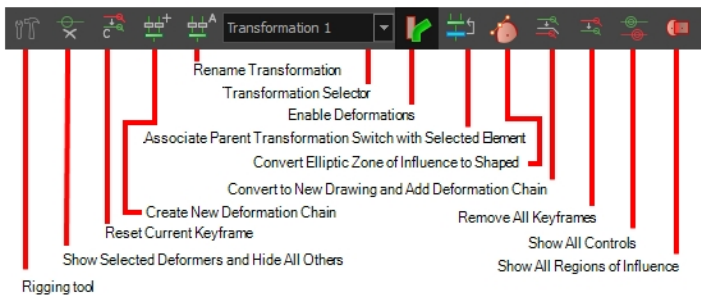
The Deformation toolbar contains the various tools and options used to create a deformation rig. This toolbar is displayed in the default interface.





By default, the Deformation toolbar only contains the essential options. If you right-click on the toolbar and select **Customize**, you can add additional buttons.


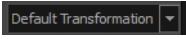



Default toolbar




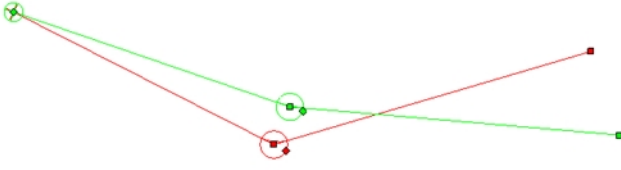




Customized toolbar



Icon	Tool Name	Description
	Rigging Tool	The Rigging tool is used to create either a Bone or Curve deformation chain. You also use it to set up the resting position. To learn more about the Rigging tool's properties, see Rigging Tool Properties on page 625.
	Show Selected Manipulators and Hide All Others	The Show Selected Manipulators and Hide All Others button hides all manipulators displayed in the Camera view. Only the manipulators of the selected deformation node are displayed
	Reset Current Keyframe	The Reset Current Keyframe copies the resting position, the original setup of your skeleton before undergoing any deformation, to your current frame. Once you have created a deformation chain, you can use the Rigging tool to adjust the position and appearance of the rig to fit the element. When the skeleton is in place, you can use the Reset Current Keyframe button to reset the current frame position to the resting position.
	Create New Deform-	The Create New Deformation Chain option allows you to

	ation Chain	create a new deformation chain on a same character. For example, if you have drawings for the different views of your puppet (front, profile, back, etc.), you can use this feature to setup a new set of chains for each angle without having to create completely different puppets.
	Rename Transformation	The Rename Transformation option allows you to give specific names to your different transformation chains. By default, chains are named Transformation plus the number of the chain, such as Transformation 2. You can rename these to identify them easier, such as front, side, back, and so on.
	Transformation Selector	The Transformation Selector drop-down menu allows you to assign an existing chain to a set of drawings. For example you might want to reuse the front deformation chains for another series of drawing. When creating a new drawing, the Default Transformation is assigned. While on the new drawing frames, from the drop-down menu, select a different chain to automatically assign it.
	Enable Deformations	The Enable Deformations button allows you to display your drawings in their original state or with deformations while creating additional drawings. Depending on the artwork you need to create, you might need to refer to the other images either deformed or in their original position. NOTE: Disabling deformations is only a display mode. Although drawings will not appear deformed in the Camera view, even in Render View mode, they will still be deformed in the rendered images.
	Associate Parent Transformation Switch with Selected Element	Matches the drawing name and drawing location path in the Transformation Switch node's Properties with the drawing name and drawing location path found in the Drawing Layer's Properties. For this button to work, a drawing node connect to a deformation group, with a Transformation Switch inside, must be selected—see Reusing Deformation Groups for Multi-pose Rigs .
	Convert Elliptic Zone of Influence 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. You can also convert the Elliptic zone of influence to a shape. 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.

		<p>NOTE: You can also convert the Elliptic zone of influence to a shape. 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.</p>
	<p>Convert to New Drawing and Add Deformation Chain</p>	<p>Takes the pose/drawing and the deformer of the selected frame and converts it to a new pose/drawing with the corresponding deformer.</p>
	<p>Remove All Keyframes</p>	<p>The Remove All Keyframes option removes all keyframes on the selected deformation chain.</p>
	<p>Show All Controls</p>	<p>The Show All Controls button lets you visualize the resting position in red (Setup mode) and the active position (Animation) in green at the same time</p> 
	<p>Show All Regions of Influence</p>	<p>The Show All Regions of Influence button displays all regions of influence in the deformers in your project. Note that the deformer's controls must be visible in order for its zones of Influence to show. The regions will not be displayed when a deformer's zone of Influence is set to Infinite or Zero.</p>  <p>NOTE: Region of influences are not available for Game Bone deformers.</p>

Display Toolbar

The Display toolbar lets you select the different Display nodes available in the node system.



When your scene does not have a Display node, it is automatically set to Display All which uses the Timeline view ordering and shows floating nodes from the Node view. You can also set your scene to use Display All using the Display toolbar.

NOTE: If you try to add a peg or other transformation layer in the Timeline view without having a layer selected, an error message will display. Make sure to change to Display All. The peg layer will be floating in the Node view and will not be visible in the Timeline view. The Timeline view shows only layers that are connected to the Composite node.

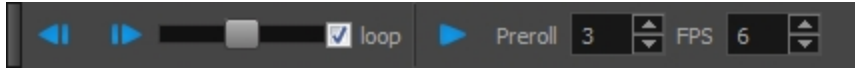
If you switch to Display All, you run the risk of not realizing when you have floating nodes that are not connected to your composite. For this reason, it is not recommended to work in Display All mode.

How to access the Display toolbar

1. Select **Windows > Toolbars > Display**.

Easy Flipping Toolbar

The Easy Flipping toolbar lets you rapidly flip through drawings in the Drawing view as is done with paper drawings. In order for the features in this toolbar to work, you must be in the Drawing view.



How to access the Easy Flipping toolbar

1. Select **Windows > Toolbars > Easy Flipping**.

Icon	Tool Name	Description
◀	Previous Drawing	Displays the previous drawing of your animation.
▶	Next Drawing	Displays the next drawing of your animation.
	Slider	Lets you flip forwards or backwards through your drawings by moving the slider.
	Loop	Displays drawings in the first frame after you reach the last frame of your animation.
▶	Easy Flip	Automatically flips through the drawings based on the FPS.
	Preroll	Sets the number of drawings to be flipped through before the starting drawing. The starting drawing is determined by the position of the red playhead in the Timeline view.
	FPS	Sets the speed of playback in the units of frames per second.

Edit Toolbar

The Edit toolbar contains common operations such as Copy, Paste, Cut, Undo and Redo. These options can also be found in the Edit menu.



How to access the Edit toolbar

1. Select **Windows > Toolbars > Edit**.

Icon	Tool Name	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.
	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.

File Toolbar

The File toolbar contains the common file operations such as New, Save and Open. These options can also be found in the File menu.



How to access the File toolbar

1. Select **Windows > Toolbars > File**.

Icon	Tool Name	Description
	New (Harmony Stand Alone)	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.
	Save	Saves all changes made to the opened scene, drawings, palettes, and palette lists.
	Save As	<p>Saves the current file with a different name and at a different location.</p> <p>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.</p> <hr/> <p>NOTE: The scene name cannot exceed 23 characters.</p>
	Import Images	Imports bitmap images which you can choose to vectorize.







Flip Toolbar

The Flip toolbar lets you determine the type of drawing to include in your flipping selection. You can flip through the key, breakdown or in-between drawings individually, or view a combination.



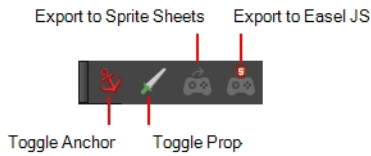
How to access the Easy Flipping toolbar

1. Select **Windows > Toolbars > Easy Flipping**.

Icon	Tool Name	Description
	Show Key Drawings	Displays key drawings when flipping through drawings.
	Show Breakdown Drawings	Displays breakdown drawings when flipping through drawings.
	Show In-between Drawings	Displays in-between drawings when flipping through drawings.
	Show Retake Key Drawings	Displays retake key drawings when flipping through drawings.
	Show Retake Breakdown Drawings	Displays breakdown retake drawings when flipping through drawings.
	Show Retake In-between Drawings	Displays retake in-between drawings when flipping through drawings.





Game Toolbar

The Game toolbar contains tools for setting anchors and props, as well as exporting to sprite sheets and Easel JS.



How to access the Game toolbar

1. Select **Windows > Toolbars > Game**.

Icon	Tool Name	Description
	Toggle Anchor	Adds the Anchor parameter to the selected layer.
	Toggle Prop	Adds the Prop parameter to the selected layer.
	Export to Sprite Sheets	Opens the Export to Sprite Sheets window where you can export your animation as sprite sheets .
	Export to Easel JS	Opens the Export to Easel JS window where you can export your animation as Easel JS.







Mark Drawing Toolbar

The Mark Drawing toolbar lets you identify drawings such as key, breakdown and in-between. The drawing Identification feature can help the animator stay well organized and save time when identifying key, breakdown or in-between drawings in the Xsheet and Timeline views.



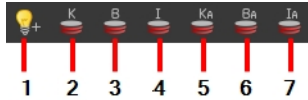
How to access the Mark Drawing toolbar

1. Select **Windows > Toolbars > Mark Drawings**.

Icon	Tool Name	Description
	Mark as Key Drawing	Identifies the selected drawing as a key drawing.
	Mark as Breakdown Drawing	Identifies the selected drawing as a breakdown drawing.
	Mark as In-between Drawing	Identifies the selected drawing as an in-between drawing.
	Mark as Retake Key Drawing	Identifies the selected drawing as a key retake drawing.
	Mark as Retake Breakdown Drawing	Identifies the selected drawing as a breakdown retake drawing.
	Mark as Retake In-between Drawing	Identifies the selected drawing as a in-between retake drawing.

Onion Skin Toolbar

The Onion Skin toolbar displays previous and subsequent drawings. When designing or animating, it is useful to see previous drawings. By default, previous drawings appear in a shade of red and next drawings are displayed in green. In the Onion Skin toolbar, you can select the type of drawing to display.



1. Enable Onion Skin in Other Elements
2. Show Key Drawings
3. Show Breakdown Drawings
4. Show In-between Drawings
5. Show Retake Key Drawings
6. Show Retake Breakdown Drawings
7. Show Retake In-between Drawings

NOTE: You can change the default onion skin display colours in the Preferences dialog box.

For tasks related to this toolbar, see .

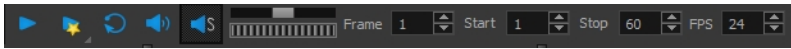
How to access the Onion Skin toolbar

1. Select **Windows > Toolbars > Onion Skin**.

Icon	Tool Name	Description
	Enable Onion Skin in Other Elements	Displays previous and next drawings in other layers than the current one. In the Drawing view, use the Enable Onion Skin in Other Elements feature to see the previous and next drawings of the layers visible in Light Table mode.
	Show Key Drawings	Displays all drawings marked as key drawings.
	Show Breakdown Drawings	Displays all drawings marked as breakdown drawings.
	Show In-between Drawings	Displays all drawings marked as in-between drawings.
	Show Retake Key Drawings	Displays all key drawings marked to be retaken.
	Show Retake Breakdown Drawings	Displays all breakdown drawings marked to be retaken.
	Show Retake In-between Drawings	Displays all in-between drawings marked to be retaken.

Playback Toolbar

The Playback toolbar 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.



Name	Button	Description
Play		Plays and stops the animation. You can also select Play > Play Scene Forward or Stop .
Render and Play		Creates a render of your scene to play back the final result including the effects.
Loop		Repeatedly plays back your animation indefinitely. You can also select Play > Loop .
Sound		Enables sound in the playback. You can also select Play > Enable Sound .
Sound Scrubbing		Enables sound scrubbing in the playback. You can also select Play > Enable Sound Scrubbing .
Jog Frames		Lets you scroll through the playback's frames.
Frame	---	Lets you move the playhead by entering a frame number.
Start	---	Lets you change the start frame by entering a new value in the Start field. You can also click on Start button to set the start frame at the current frame.
Stop	---	Lets you change the end frame by entering a new value in the Stop field. You can also click on Stop button to set the end frame at the current frame.
FPS	---	Lets you enter a new value to change the speed of the playback.



Scripting Toolbar

The Scripting toolbar lets you import and access scripts for automating actions and operations.



How to access the Scripting toolbar

1. Select **Windows > Toolbars > Scripting**.

Icon	Tool Name	Description
	Manage Scripts	Opens the Scripts Manager dialog box where you can add scripts and functions to your Scripting toolbar.
	Stop Script	Stops the execution of a script launched from the Scripting toolbar.



Tool Presets Toolbar

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



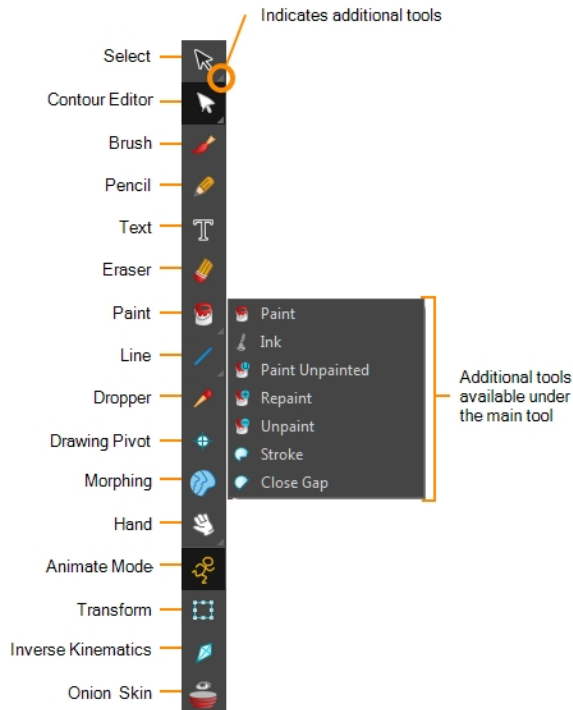
How to access the Tool Presets toolbar

1. Select **Windows > Toolbars > Tool Presets**.

Icon	Tool Name	Description
	New Tool Preset	Creates a new tool preset from the current tool settings.
	Manage Presets	Opens the Manage Tool Preset dialog box where you can update, organize, and delete existing presets.

Tools Toolbar

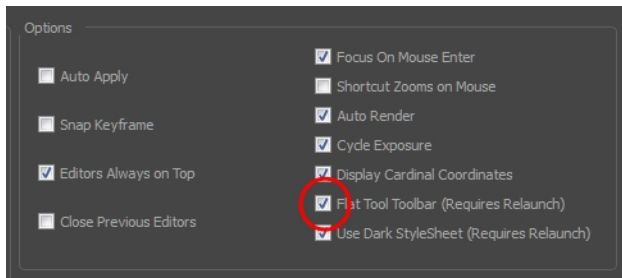
The Tools toolbar contains all the main tools you need to work in Harmony. In the default workspace, this toolbar is located on the left-most side of the interface. A small triangle at the lower-right corner of a tool indicates additional tools under the main tool. To access these tools, hold down the left mouse button until the additional tools appear, then select one.




















You can display the Tools toolbar horizontally if you find it more efficient for your workflow. Be sure to restart Harmony in order to see the new position of the Tools toolbar.

How to display the Tools toolbar as a flat (horizontal) toolbar

1. Do one of the following:
 - Select **Edit > Preferences** (Windows/Linux) or **Harmony Premium > Preferences** (Mac OS X).
 - Press **Ctrl + U** (Windows/Linux) or **⌘ + U** (Mac OS X).
2. Select the **General** tab.
3. In the Options section, select the **Flat Tool Toolbar** option.



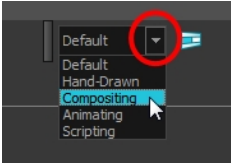
4. Click **OK** and restart Harmony.

Tool Name	Icon	Description
Select		Lets you select elements from the Camera and Drawing views.
Cutter		Lets you cut a drawing area to move, copy, cut or delete it.
Reposition All Drawings		Lets you reposition, scale, rotate or skew all drawing strokes on every drawing included in a layer.
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 contours of a pencil line.
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.
Edit Gradient/Texture		Lets you modify the position of a gradient or texture colour within a specific zone.
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.
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.
Paint Unpainted		Lets you paint only empty zones. Lines and filled zones remain unchanged.
Repaint		Lets you paint zones except empty zones. Any zone that is not

		Painted remains intact.
Unpaint		Lets you unpaint empty and filled zones.
Stroke		Lets you draw strokes, connect line ends and flatten lines.
Close Gap		Lets you close small gaps in a drawing by creating small, invisible strokes between the two closest points.
Line		Lets you draw straight lines which you can then edit.
Rectangle		Lets you draw rectangles which you can then edit.
Ellipse		Lets you draw ellipses which you can then edit.
Polyline		Lets you draw polylines lines which you can then edit.
Dropper		Lets you pick a colour directly from a drawing.
Drawing Pivot		Lets you set pivots on a characters, drawings and symbols.
Morphing		Lets you control a morphing sequence by placing different types of hints to help Harmony morph the animation the way you want it.
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.
Animate Mode		Automatically creates a keyframe on the drawing layer. Used to animate layers over time.
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.
Onion Skin		Displays the previous and next frames of an animation. Useful when animating cut-out characters.



Workspace Toolbar

The Workspace toolbar lets you load other workspaces. The first time you start Harmony, the default workspace is loaded. Other workspaces are available such as the Hand-Drawn Animation and Compositing workspaces; these display different views and toolbars. You can access these workspaces and any you create, from the Windows menu and the Workspace toolbar.



How to access the Workspace toolbar

1. Select **Windows > Toolbars > Workspace**.

Icon	Tool Name	Description
	Workspace List	Allows you to select an existing workspace.
	Workspace Manager	Opens the Workspace Manager where you can organize, display, and remove workspace from your list.
	Save Workspace	When the Automatically Save Workspace preference is disabled, the Save Workspace button becomes available. This allows you to manually save your new workspace configuration.

View Toolbars

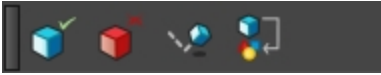
Harmony has a series of view specific toolbars that are only available in a given view. These toolbars can be moved only within their view.





All view toolbars can be added, as long as the view is visible, through the top menu **Windows > Toolbars > *desired toolbar***.

3D Graph View Toolbar	669
Node View Toolbar	670
Timeline View Toolbar	671
Xsheet View Toolbar	672

3D Graph View Toolbar

The 3D Graph toolbar works in conjunction with the elements in the 3D Graph view.



Button	Name	Description
	Enable Subnode	Enables the visibility of a subnode or selection of subnodes.
	Disable Subnode	Disables the visibility of a subnode or selection of subnodes.
	Make Properties Available	Creates transformation attributes for the selected subnode (makes it animatable) and automatically creates a corresponding subnode layer in the Timeline view.
	Add 3D Kinematic Output	Adds a 3D Kinematic Output node under the 3D model (and Subnode Animation node) and sets it to use the selected subnode's transformation values. You can use the 3D Kinematic Output node to move the another layer in sync with the moves done on the 3D subnode.

How to access the 3D Graph toolbar

You can add the 3D Graph toolbar to the 3D Graph view by:

- Going to the top menu and selecting **Windows > Toolbars > 3D Graph**.
- Right-clicking on the space at the top of the 3D Graph view and selecting **3D Graph**.

Node View Toolbar

Timeline View Toolbar

The 3D Graph toolbar works in conjunction with the elements in the 3D Graph view.



Button	Name	Description
	Set Ease Type	
	Create Empty Drawing	
	Duplicate Drawing	
	Insert Keyframe	
	Delete Keyframes	
	Set Motion Keyframe	
	Set Stop-Motion Keyframe	
	Go to Previous Keyframe	
	Go to Next Keyframe	
	Add Key Exposure	
	Delete Key Exposure	
	Centre On Selection	
	Set Ease for Multiple Parameters	
	Create Keyframes On	Opens the Create Keyframes On dialog box, where you can set the options to create a new keyframe every x number of frames.
	Fill Empty Cells	
	Paste Mode: All Drawing Attributes	
	Paste Mode: Keyframes Only	
	Paste Mode: Exposures Only	
	Add Prefix or Suffix	

How to access the Timeline view toolbar

You can add the Timeline view toolbar to the Timeline view by:

- Going to the top menu and selecting **Windows > Toolbars > Timeline view**.
- Right-clicking on the space at the top of the Timeline view and selecting **Timeline view**.

Chapter 7: Views

The Harmony interface is composed of different views, each one designed for a specific purpose. You can modify the location of the views by adding a new view as a tab or as a window. You can also swap the location of a view.

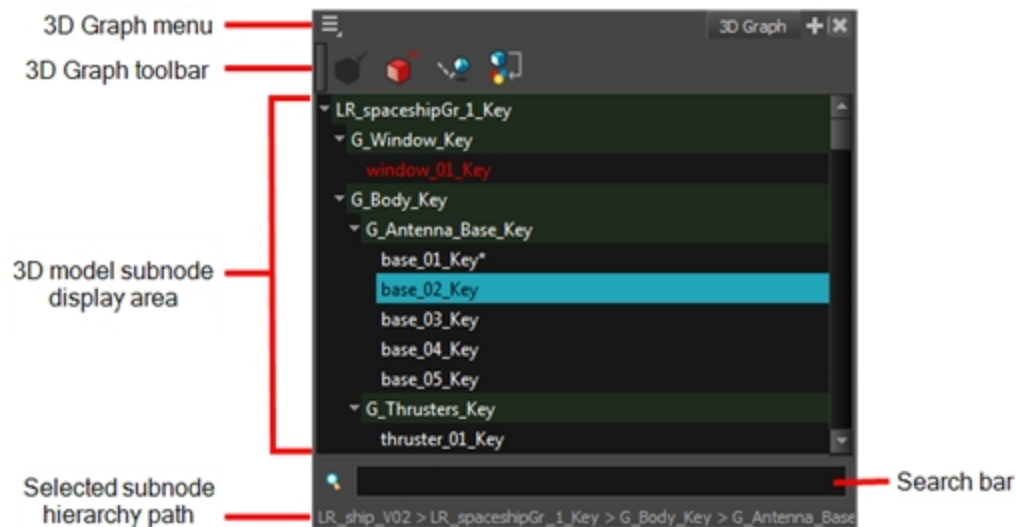
When a view is active, a red rectangle appears around the view. Keyboard shortcuts and top menu options are associated with the active view. If a menu option is greyed out, it means it does not apply to the layer, drawing or other type of selection or the option does not apply to the active view.

3D Graph View	674
Camera View	675
Colour View	681
Coordinates and Control Points View	685
Drawing View	688
Function View	690
Integrated Help View	692
Layer Properties View	693
Library View	695
Message Log View	697
Model View	698
Node View	699
Node Library View	701
Perspective View	704
Script Editor View	706
Side View	708
Timeline View	710
Tool Properties View	717
Top View	718
Xsheet View	720

3D Graph View

When a 3D model is selected, the 3D Graph view allows you to view a list of the subnodes composing the 3D model, arranged in their hierarchy. You can select a subnode from the list. When a subnode is selected, you can manipulate it with the Transform tool, disable or enable it.

If your 3D model is connected to a Subnode Animation node, you can also animate the selected subnode, add its properties to the Subnode Animation's properties in the Timeline, or connect it a 3D Kinematic Output node to it so that its animation can be applied to another element.



How to access the 3D Graph view

Do one of the following:

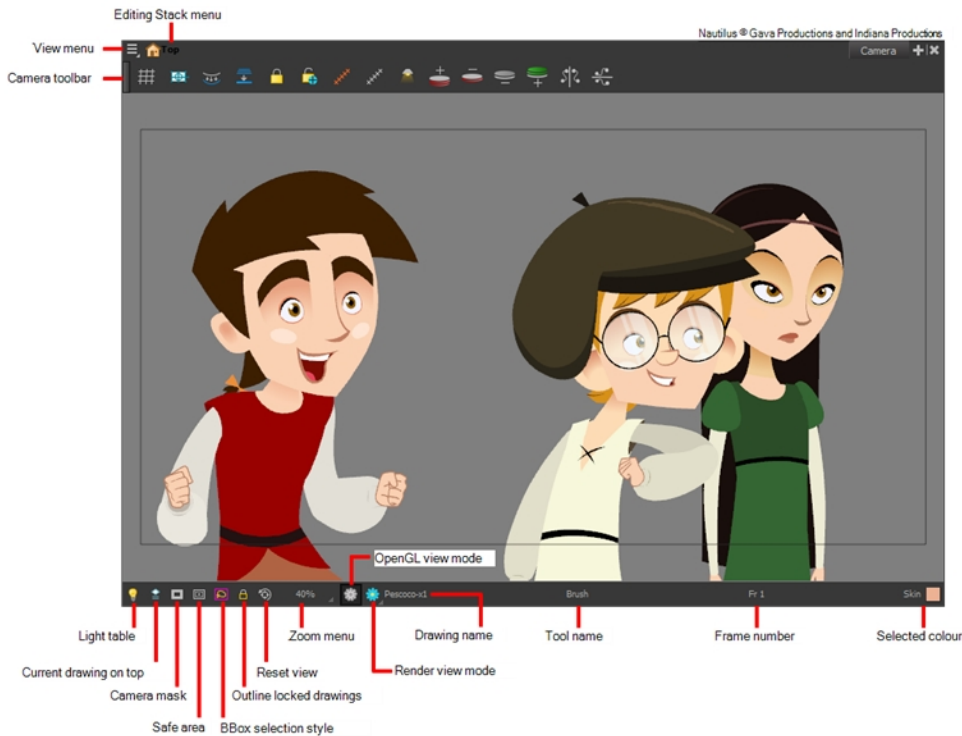
- From the top menu, select **Windows > 3D Graph**.
- From any of the other views, click the Add View **+** button and select **3D Graph**.

Section	Description
3D Graph menu	Access commands through this menu—see 3D Graph View Menu .
3D Graph toolbar	See 3D Graph View Toolbar .
3D model subnode display area	Displays the parts (subnodes) of the selected 3D model. Selecting the Subnode Animation node of a 3D model will also display the 3D model's subnodes.
Selected subnode hierarchy path	Displays the subnode's parent hierarchy chain within the 3D model.
Search bar	Use this field to search for a specific subnode within the 3D model.

Camera View

The Camera view is the centre of operations in Harmony. In this view, you will draw, paint, animate, create animation paths and see your results. You can also move through your symbol's hierarchy.

The Camera view has a top and bottom toolbar that you can use to navigate in the view, change the display mode, or go back up your symbols hierarchy.


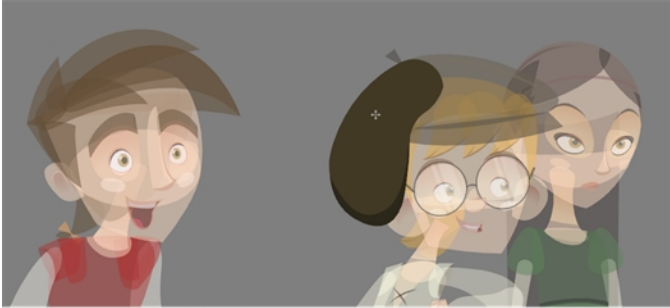



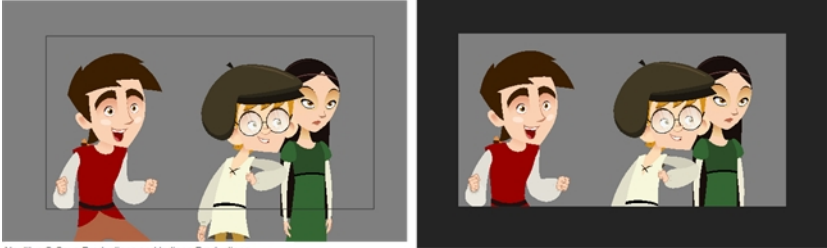









How to access the Camera view

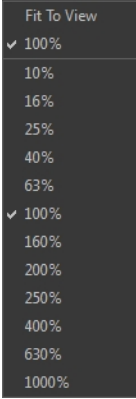

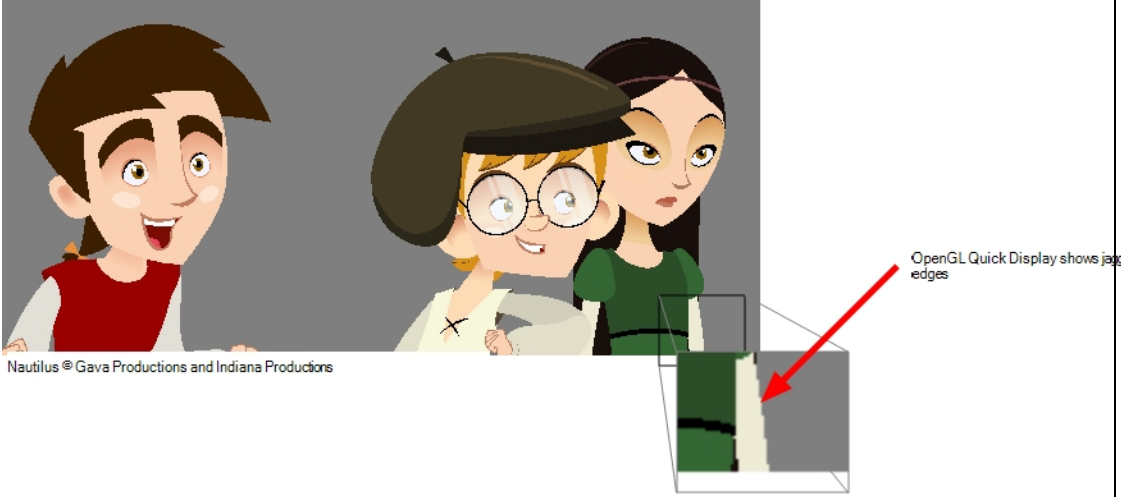

Do one of the following:


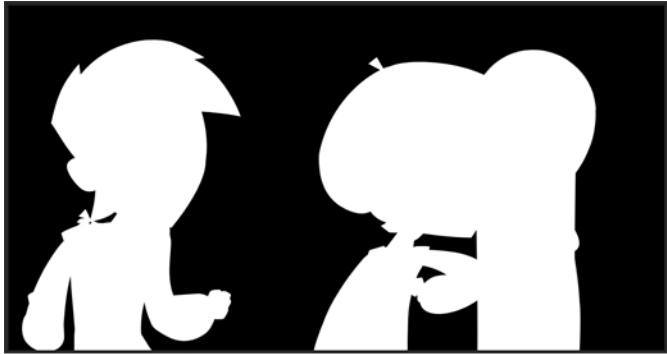
- From the top menu, select **Windows > Camera**.
- From any of the other views, click the Add View **+** button and select **Camera**.

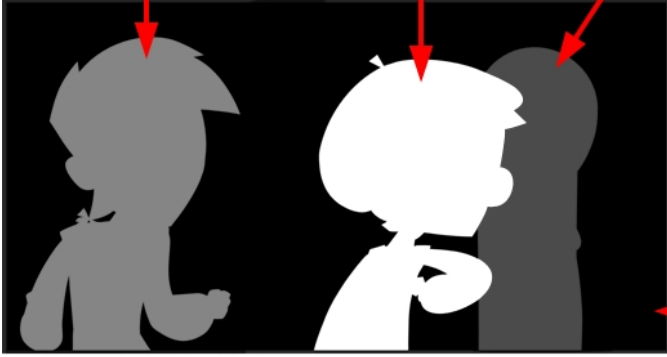
Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use in the Camera view to draw, animate or set up the scene.
	Editing Stack	The Editing Stack menu displays the names of the symbols and their hierarchy when you are editing a symbol. You can click on the different names to go back up to the different parent symbols or the top/current project.
	Camera View Toolbar	The Camera View toolbar contains all the tools and options you can use in the Camera view to draw, animate or set up the scene. The toolbar can be displayed or hidden by right-clicking on it and selecting or deselecting the Camera View toolbar—see Camera View Toolbar .

	Light Table	<p>When you have a drawing layer or drawing selected, the Light Table button allows you to fade the colours of the other layers so you can see the current artwork better as you edit with a drawing tool. Note that the light table does not work when using a layer editing tool, such as the Transform tool.</p>  <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
	Current Drawing on Top	<p>When this button is enabled, the drawing that you are currently editing with a drawing tool is temporarily displayed in front of all the other elements. The actual scene is not modified.</p>  <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
	Camera Mask	<p>The Camera Mask button shows or hides 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.</p> <p>You can also access this from the top menu by selecting View > Show > Camera Mask.</p>  <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
	Safe Area	<p>The Safe Area button shows or hides 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.</p> <p>You can also access this feature from the top menu by selecting View > Show > Safe Area.</p>

		 <p>Nautilus © Gava Productions and Indiana Productions</p>
	<p>BBox Selection Style</p>	<p>When you select an object in the Camera view with the Transform tool, a bounding box always appears around the object and the artwork is tinted in fuchsia, red or yellow. Enabling this option will only keep the bounding box and remove the colour tint.</p>  <p>Nautilus © Gava Productions and Indiana Productions</p>
	<p>Outline Locked Drawings</p>	<p>Drawings that are locked in the Timeline view (cannot be selected in the Camera view) are displayed as wireframes.</p>  <p>Nautilus © Gava Productions and Indiana Productions</p>
	<p>Reset View</p>	<p>The Reset View button resets any panning, zooming or rotation done in the Camera view and returns the display to the initial settings. You can also press Shift + M.</p>
	<p>Zoom Menu</p>	<p>The Zoom menu lets you enlarge or reduce the Camera or Drawing view display.</p> <p>To make the camera frame size always match the size of your view, select the Fit to View option. Click the drop-down arrow and select a zoom level or press 1 and 2.</p>

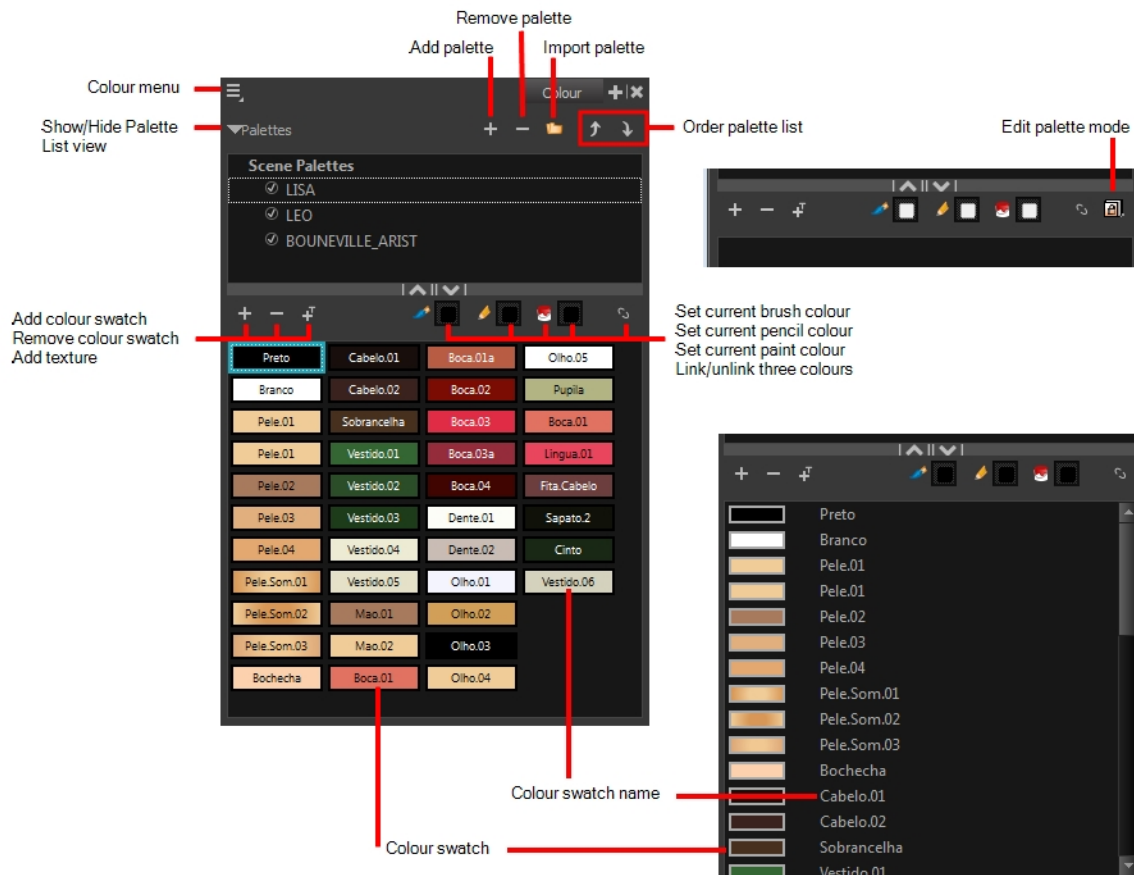
		
	<p>OpenGL View Mode</p>	<p>The OpenGL View Mode button switches the Camera view to fast display, letting you see your animation play in real time. The OpenGL display requires less memory. The final look of your effects is not shown in the OpenGL View Mode. You must switch to the Render View Mode to see your effects.</p>  <p>Nautilus © Gava Productions and Indiana Productions</p>
	<p>Render View Mode</p>	<p>The Render View Mode button 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.</p>

		 <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
<p>✿</p>	<p>Matte View Mode</p>	<p>The Matte View Mode button 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.</p> <ul style="list-style-type: none"> To access the Matte View mode, click on the Render View button and select Matte View from the drop-down menu.  <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
<p>Z</p>	<p>Depth View Mode</p>	<p>The Depth View mode displays images in a relative white to black gradient scale. The object(s) closest to the camera are displayed in white and the object(s) furthest from the camera are displayed in black. If the position of the last object changes along the z-axis, that object will still remain black, so long as it retains its position as the object the farthest back. It does not matter where that object is in 3D space, it just matters what its position is relative to the other object in the same space. The objects closest and farthest from the camera set the range of the white to black scale. All the other objects fall somewhere in between.</p>

		<p>Mid-range object appears in a mid-range grey value</p> <p>Closest object to the camera sets the white position for the range</p> <p>Mid-range object appears in a mid-range grey value</p>  <p>Nautilus © Gava Productions and Indiana Productions</p> <ul style="list-style-type: none"> To access the Depth View mode, click on the Render View button and select Depth View from the drop-down menu.
Drawing Name		The Drawing Name field displays the name of the selected drawing, as well as the layer containing it. If the cell does not contain any drawing, an Empty Cell text is shown in the field.
Tool Name		The Tool Name field displays the name of the selected tool. If you temporarily override a drawing tool using a keyboard shortcut, the tool's name will be highlighted in red. You can temporarily override a tool by holding its keyboard shortcut without the Alt key. For example, the Select tool shortcut is Alt + S. If you hold down the S key, you will switch to the Select tool. When you release the key, you will return to the tool you were using.
Frame Number		The Frame Number field displays the number of the current frame.
Selected Colour		The colour swatch displays the currently selected colour in the Colour view.

Colour View



The Colour view is where you create colours and palettes and import existing palettes into your project. The Colour view is also necessary for drawing, painting and creating colour styling.

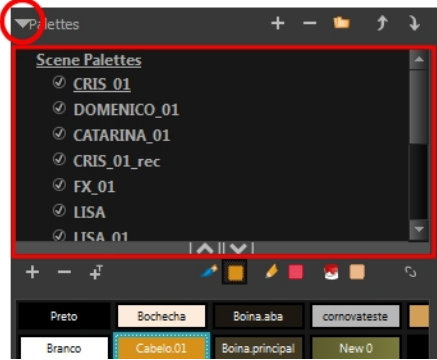






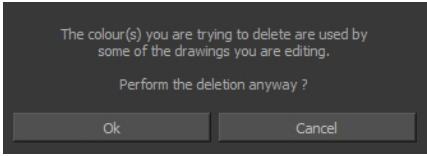






How to access the Colour view

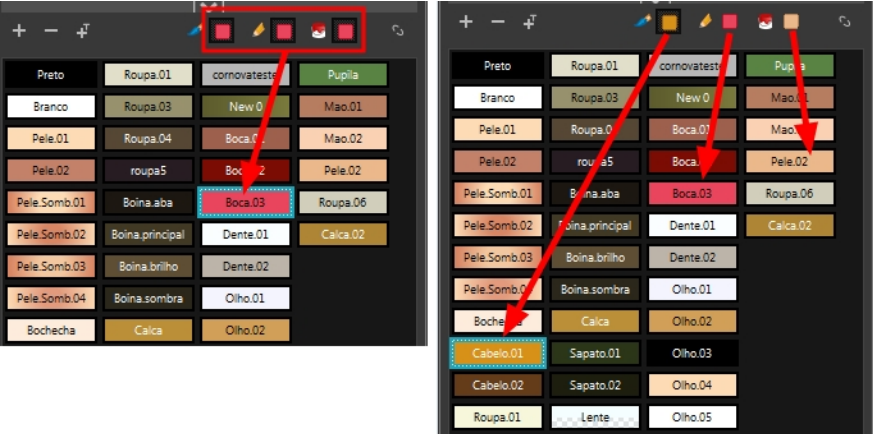










Do one of the following:

- From the top menu, select **Windows > Colour**.
- From any of the other views, click the Add View **+** button and select **Colour**.

Icon	Section	Description
	View Menu	The View menu contains all the commands and options that you can use in the Colour view to manage colours and palettes.
	Show/Hide Palette List View	The Show/Hide Palette List View button lets you display the Palette List view in the Colour view. This option is for the advanced user who wants to create colour palettes for their props and characters.

		
+	Add Palette	The Add Palette button lets you add a new palette to the bottom of your palette list.
-	Remove Palette	<p>The Remove Palette button lets you delete the currently selected palette. If the colour swatch is used in your project, zones painted with colour swatches which have been deleted will turn red, easily identifying them so you can repaint them with another colour swatch.</p>  <p>Nautilus © Gava Productions and Indiana Productions</p>
	Link Palette	The Link Palette button lets you access other palettes created in the project and link them to your scene.
	Order Palette List	The Up and Down arrows let you reorder the selected palette. When using clone palettes (colour styles), the highest palette in the list will override its clone located lower in the list.
	Edit Palette Mode	In Harmony Server, the Edit Palette Mode button lets you get the rights to modify the palette. The palette files can be locked to avoid accidentally modifying the palette.
+	Add Colour	The Add Colour button lets you add a new colour swatch to the bottom of your colour list.
-	Remove Colour	The Remove Colour button lets you delete the currently selected colour swatches. If the colour swatch is used in your project, the Delete Colour dialog box will appear asking you to confirm the operation. Click OK to confirm the operation or Cancel to cancel it.

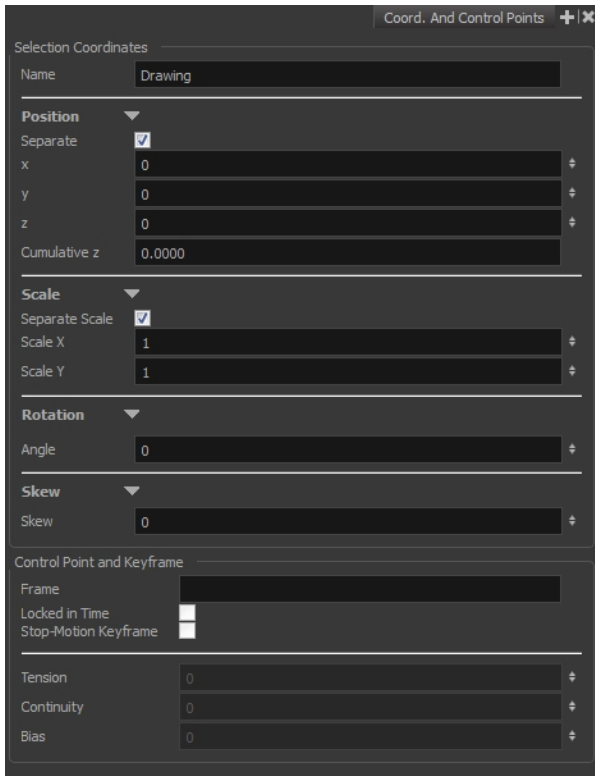
		 <p>Zones painted with colour swatches which have been deleted will turn red, easily identifying them so you can repaint them with another colour swatch.</p>  <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
+	Add Texture	<p>The Add Texture button lets you add a bitmap colour 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.</p>  <p><small>Nautilus © Gava Productions and Indiana Productions</small></p>
	Set Current Brush Colour	<p>The Set Current Brush Colour button let you set the currently selected colour swatch as the colour used by the Brush tool. If you select a new colour in the Colour view while using the Brush tool, the Set Current Brush Colour swatch will be updated.</p>
	Set Current Pencil Colour	<p>The Set Current Pencil Colour button lets you set the currently selected colour swatch as the colour used by the Pencil , Polyline , Ellipse , Rectangle and Line tools. If you select a new colour in the Colour view while using any of these tools, the Set Current Pencil Colour swatch will be updated.</p>
	Set Current Paint Colour	<p>The Set Current Paint Colour button lets you set the currently selected colour swatch as the colour used by the Paint tool. If you select a new colour in the Colour view while using the Paint tool, the Set Current Paint Colour swatch will be updated.</p>
	Link/Unlink Three	<p>The Link/Unlink Three Colours button lets you link the Set Current Brush</p>

	<p>Colours</p>	<p>Colour, Set Current Pencil Colour and Set Current Paint Colour switches to the currently selected colour swatches in the Colour view.</p> 
	<p>Colour Swatch Name</p>	<p>Each colour swatch available in the Colour view can have its own name, making it easy to identify which colour is used to paint what part of your character or background.</p> <ul style="list-style-type: none">  Skin  Teeth  Horns  Helmet <p>Two colours can have the same name.</p>
	<p>Colour Swatch</p>	<p>A colour swatch is a specific colour used to paint a certain zone of a character or background. Colour palettes are composed of colour swatches. They can also be called <i>colour pots</i>. When you paint a zone with a colour swatch, the zone is linked to the swatch. So if you update the swatch's tint, the zone will be updated along with it. This allows you to modify your animation colours even after it is completely painted.</p> <ul style="list-style-type: none">  Colour 2  Colour 3  Colour 4  colour 5  colour 6  colour 7

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.

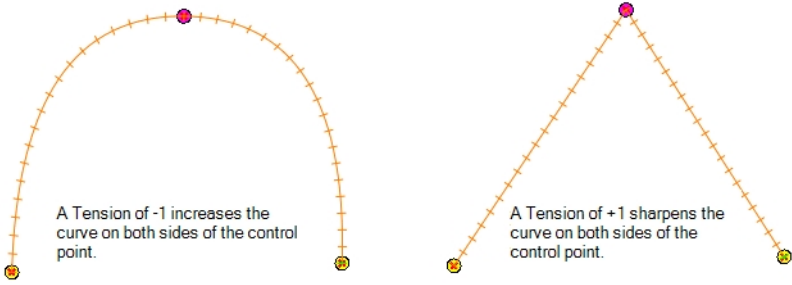
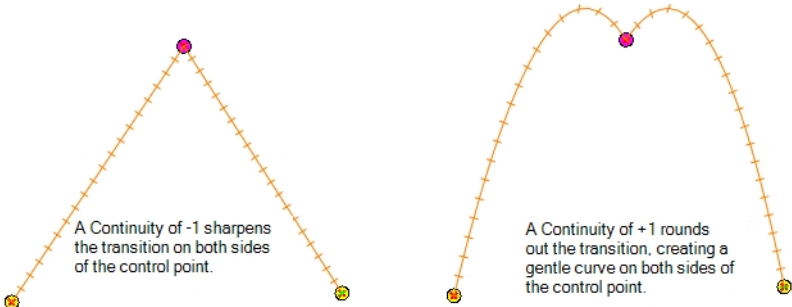


How to access the Coordinates and Control Points view

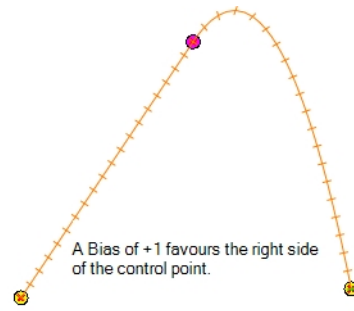
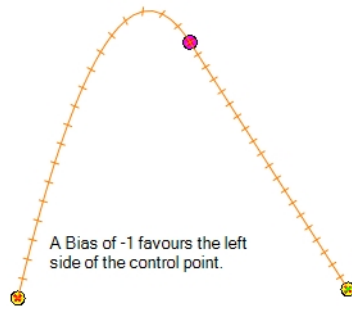
Do one of the following:

- From the top menu, select **Windows > Coordinates and Control Points**.
- From any of the other views, click the Add View **+** button and select **Coordinates and Control Points**.

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 whether 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	<p>Controls how sharply the path bends as it passes through a control point or keyframe.</p>  <p>A Tension of -1 increases the curve on both sides of the control point.</p> <p>A Tension of +1 sharpens the curve on both sides of the control point.</p>
Continuity	<p>Controls the smoothness of a transition between the segments joined by a point.</p>  <p>A Continuity of -1 sharpens the transition on both sides of the control point.</p> <p>A Continuity of +1 rounds out the transition, creating a gentle curve on both sides of the control point.</p>
Bias	Controls the slope of the path so it flows towards one side of the motion point or

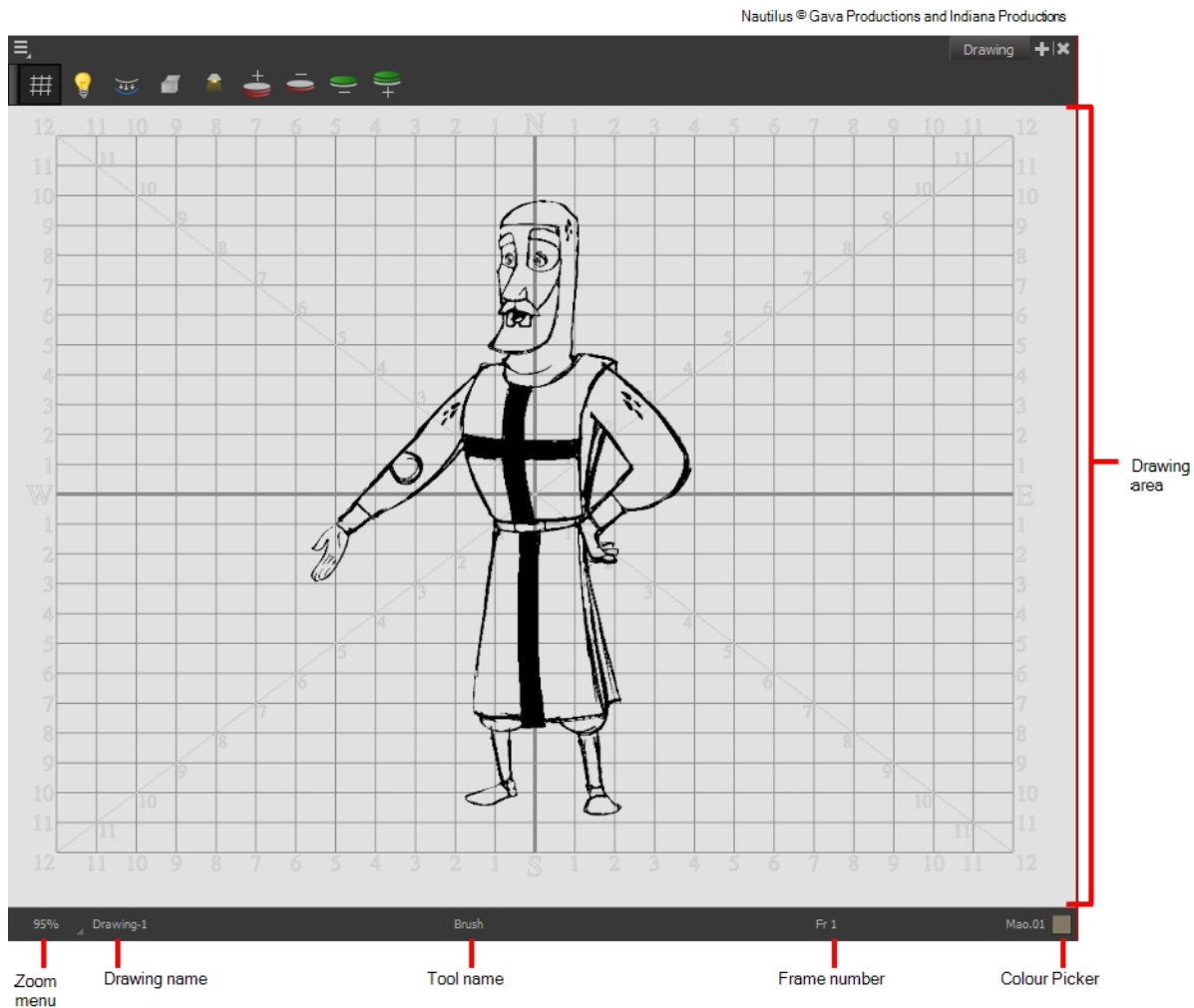
the other.



Drawing View

In Harmony, you can draw in the Drawing or Camera view. Although the two views are similar, when it comes to drawing, there are some differences.

Only the selected drawing is displayed by default in the Drawing view. You can use features, such as the light table to display the current drawing of all the enabled layers of your scene in washed-out colours, or the Onion Skin to display the previous and next drawings of the currently selected drawing layer.


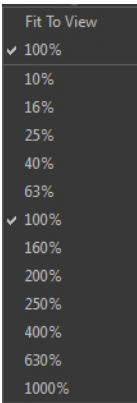


How to access the Drawing view

Do one of the following:

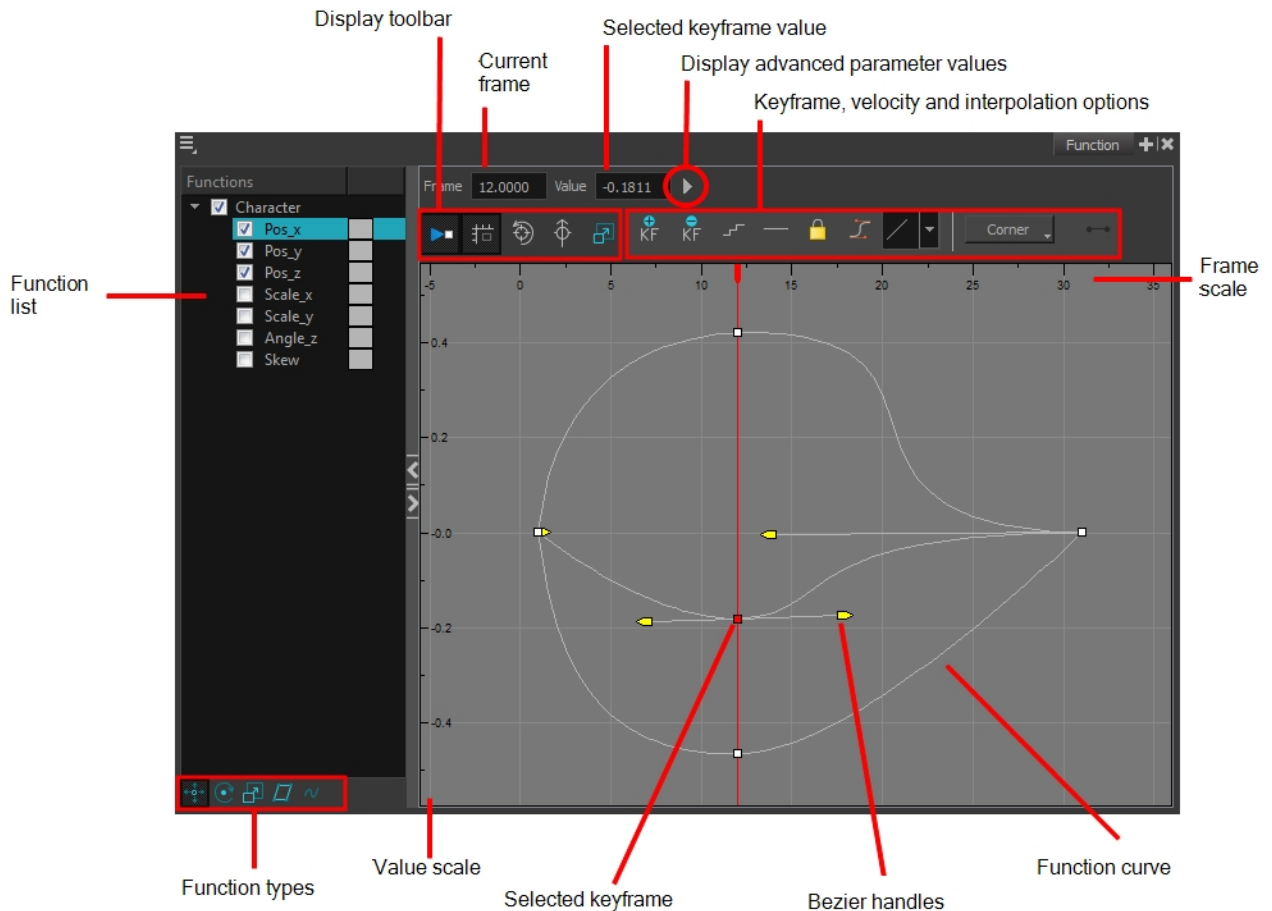
- From the top menu, select **Windows > Drawing** .
- From any of the other views, click the Add View **+** button and select **Drawing**.

Icon	Section	Description
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	View Menu	The View menu contains all the tools and options that you can use in the Drawing view to draw, animate and paint.
	Drawing Area	This is the main space in the Drawing view. It is where you draw and where the drawings are displayed.
	Zoom Menu	<p>The Zoom menu lets you enlarge or reduce the Camera or Drawing view display.</p> <p>To make the camera frame size always match the size of your view, select the Fit to View option. Click the drop-down arrow and select a zoom level or press 1 and 2.</p> 
	Drawing Name	The Drawing Name field displays the name of the selected drawing, as well as the layer containing it. If the cell does not contain any drawing, an Empty Cell text is shown in the field.
	Tool Name	The Tool Name field displays the name of the selected tool. If you temporarily override a drawing tool using a keyboard shortcut, the tool's name will be highlighted in red. You can temporarily override a tool by holding its keyboard shortcut without the Alt key. For example, the Select tool shortcut is Alt + S. If you hold down the S key, you will switch to the Select tool. When you release the key, you will return to the tool you were using.
	Frame Number	This field displays the current frame of the animation you are working on.
	Cursor Coordinates	This indicates the position of the your pointer in the drawing area.
	Colour Picker	The Colour Picker allows you to select a colour for drawing.

Function View

The Function view lets you edit function curves and parameters. It contains a visual graph for adding, removing, and editing keyframes, as well as adjusting the velocity. The Function view allows you to display multiple functions in the background as a reference.



How to access the Function view

Do one of the following:

- From the top menu, select **Windows > Function**.
- From any of the other views, click the Add View **+** button and select **Function**.

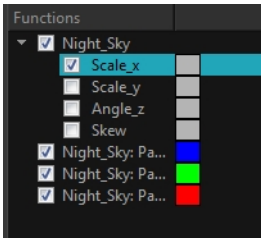

How to display functions in the Function view

1. Open the Function view.

The Function view is blank until you select the layer containing the functions you want to display.

2. To display a function in the Function view, click on the layer containing the functions to adjust in the Timeline view.

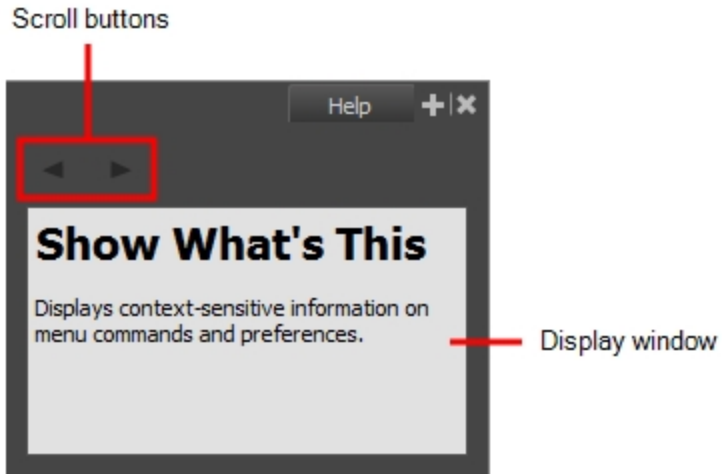
3. To select the functions you want to edit, select them in the Function list.

Parameter	Description
Function List	 <p>When selecting a layer in the Timeline view, all the corresponding functions are displayed (if any). Select the functions you want to see and edit, and hide the ones you don't.</p>
Display Toolbar	Allows you to modify how the editing area is displayed. You can hide the grid, disable the synchronization with the current frame, reset the zoom level and normalize the function display by stacking them one over the other to compare them regardless of their value range.
Current Frame	Displays the current scene frame.
Selected Keyframe Value	Displays the value of the selected keyframe.
Display Advanced Parameter Values	 <p>Displays the Projection, Bias, Tension and Continuity parameters to adjust the curve around the selected keyframe.</p>
Keyframe, Velocity and Interpolation Options	This toolbar lets you add and delete keyframes, adjust the velocity curve, adjust the segments to motion or stop-motion keyframes and set the velocity to create steps instead of a constant progression.
Function Types	This toolbar lets you click on the different function types to enable or disable all the listed functions of that type.
Value Scale	Displays the value range for the displayed editing area. It can be referenced to know the value of a keyframe.
Selected Keyframe	The selected keyframe is displayed in red. When selected, the keyframe values are displayed in the corresponding fields.
Bezier Handles	The Bezier handles let you adjust the ease in and ease out of each keyframe. The more the handle is pulled out horizontally, the slower the animation will be. The more the handle is pulled out vertically, the faster the animation will be.
Function Curve	The thin line going from keyframe to keyframe is the actual curve. The section of a curve located between two keyframes is called a segment.
Frame Scale	The Frame Scale displays the frame range for the displayed editing area. It can be referenced to know the current frame of a keyframe.

Integrated Help View

Use the Integrated Help when you are unsure about what a certain menu item is or the function of a specific preference in the Preferences panel,

If you keep the Integrated Help window open for the entire duration of your work session, then you can use the forward and backward arrows to scroll through a history of the help information that you called up during your session.



How to access the Integrated Help view

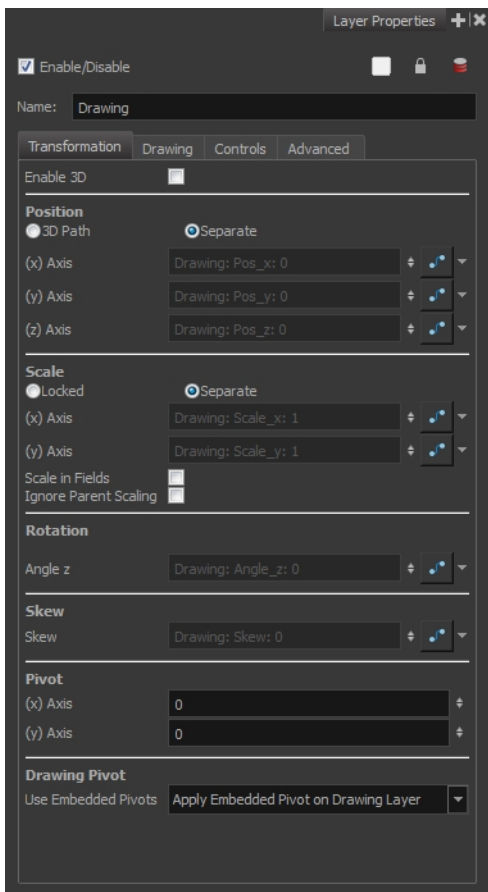
1. Do one of the following:
 - From the top menu, select **Windows > Integrated Help**.
 - From any of the other views, click the Add View **+** button and select **Integrated Help**.

Layer Properties View

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.

NOTE: To know more about the parameters displayed in the Layer Properties view, see [Nodes](#).



How to access the Layer Properties view

Do one of the following:

- From the top menu, select **Windows > Layer Properties**.
- From any of the other views, click the Add View **+** button and select **Layer Properties**.

How to access the Layer Properties editor

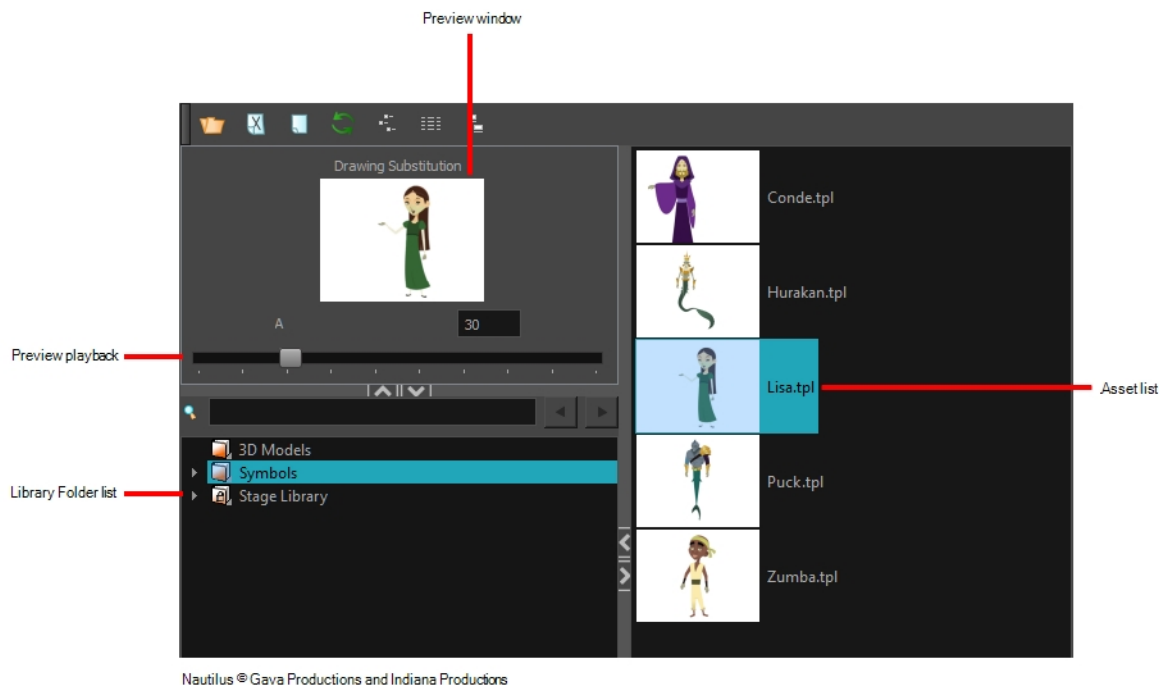
- Double-click on a layer in the Timeline view or a node in the Node view.
- Right-click on a layer in the Timeline view or a node in the Node view and select **Layer Properties**.
- Select a layer in the Timeline view or a node in the Node view and press Shift + E.

Library View

The Library view is used to store elements such as animation, drawings, backgrounds and puppets to reuse in different projects. You can also use the Library view to create and store symbols.

To reuse an element from another project, you must create a template from your drawings. A template is a mini scene that you import in other projects. A template has no link to the original scene. When you create a template, the full content of your selection is copied in the template.

Additionally, the Library view's Drawing Substitution panel allows you to quickly change the current frame's exposure to one of the existing drawings in a layer. This is especially useful for animating a cut-out character's mouths, hands, eyelids and other such body parts which typically contain several drawings to choose from.

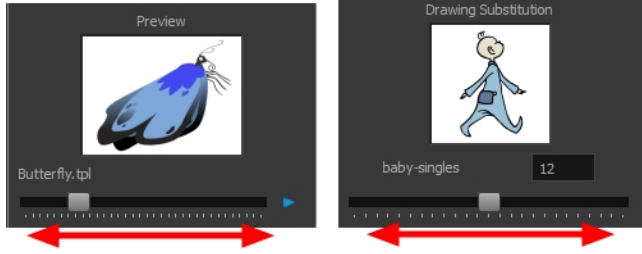
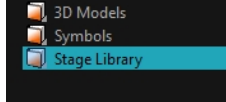
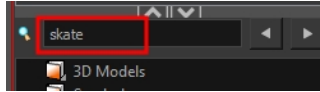


How to access the Library view

Do one of the following:

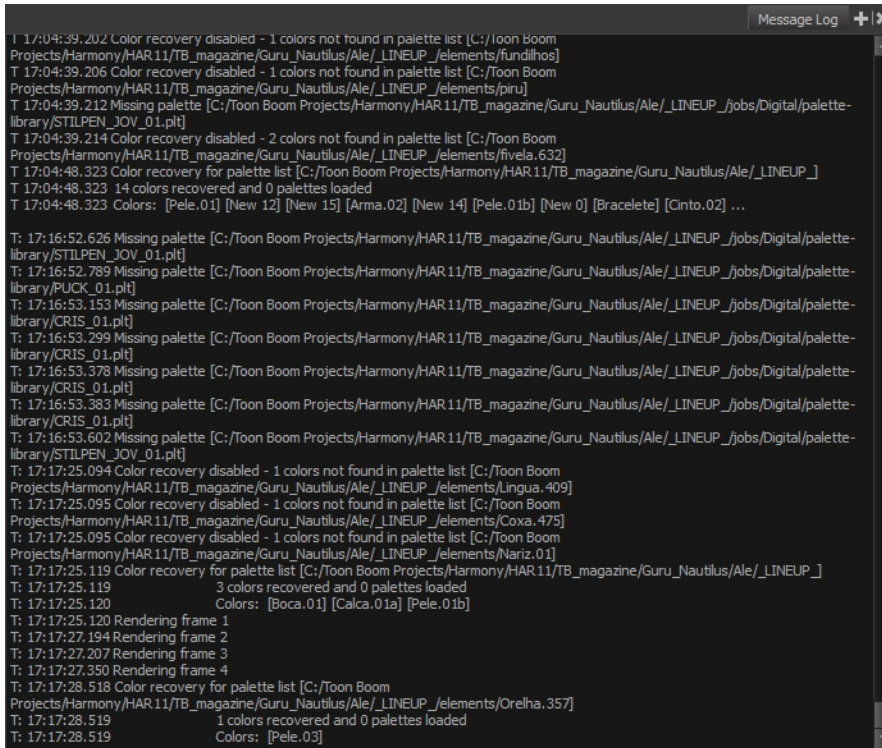
- From the top menu, select **Windows > Library**.
- From any of the other views, click the Add View **+** button and select **Library**.

Icon	Section	Description
	View Menu	The Library menu lets you access commands related to the Library view, importing .swf movies and Illustrator files, add a new folder, and refresh the library's content.
	Preview Window	The Preview window lets you see the content of the currently selected template or symbol in the Template/Symbol list.

		
	<p>Preview Playback</p>	<p>The Preview Playback button lets you play back the content of the selected template or symbol if it contains more than one frame. Press the Play button to play back the preview.</p>
	<p>Library Folder List</p>	<p>The Library Folder List displays all the folders linked to the Library view.</p>  <p>There are two default folders:</p> <ul style="list-style-type: none"> • Symbols: This folder is the only folder containing symbols. You can organize it by adding subfolders inside. • Harmony Premium Library: This is a default folder found on the hard drive in your user documents. This folder can contain templates, but no symbols. <p>You can link new library folders to the Library view and organize them with subfolders.</p>
	<p>Library Search tool</p>	<p>When working on a movie or series, you will probably end up with many templates and symbols in your library. Using the Search tool, you can quickly find the templates and symbols in your folders.</p> 
	<p>Template/Symbol List</p>	<p>The Template/Symbol list displays the templates or symbols contained in the selected library folder. You can display the templates by right-clicking the symbols' thumbnails and selecting View > Thumbnails.</p>

Message Log View

The Message log view displays information gathered during a render task, such as which frames and at what time they were each rendered. The view also contains a list of the colour recovery operations.



```

T 17:04:39.202 Color recovery disabled - 1 colors not found in palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/fundilhos]
T 17:04:39.206 Color recovery disabled - 1 colors not found in palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/piru]
T 17:04:39.212 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/STILPEN_JOV_01.plt]
T 17:04:39.214 Color recovery disabled - 2 colors not found in palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/fivela.632]
T 17:04:48.323 Color recovery for palette list [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_]
T 17:04:48.323 14 colors recovered and 0 palettes loaded
T 17:04:48.323 Colors: [Pele.01] [New 12] [New 15] [Arma.02] [New 14] [Pele.01b] [New 0] [Bracelete] [Cinto.02] ...

T: 17:16:52.626 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/STILPEN_JOV_01.plt]
T: 17:16:52.789 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/PUCK_01.plt]
T: 17:16:53.153 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/CRIS_01.plt]
T: 17:16:53.299 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/CRIS_01.plt]
T: 17:16:53.378 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/CRIS_01.plt]
T: 17:16:53.383 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/CRIS_01.plt]
T: 17:16:53.602 Missing palette [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/jobs/Digital/palette-
library/STILPEN_JOV_01.plt]
T: 17:17:25.094 Color recovery disabled - 1 colors not found in palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/Lingua.409]
T: 17:17:25.095 Color recovery disabled - 1 colors not found in palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/Coxa.475]
T: 17:17:25.095 Color recovery disabled - 1 colors not found in palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/Nariz.01]
T: 17:17:25.119 Color recovery for palette list [C:/Toon Boom Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_]
T: 17:17:25.119 3 colors recovered and 0 palettes loaded
T: 17:17:25.120 Colors: [Boca.01] [Calca.01a] [Pele.01b]
T: 17:17:25.120 Rendering frame 1
T: 17:17:27.194 Rendering frame 2
T: 17:17:27.207 Rendering frame 3
T: 17:17:27.350 Rendering frame 4
T: 17:17:28.518 Color recovery for palette list [C:/Toon Boom
Projects/Harmony/HAR11/TB_magazine/Guru_Nautilus/Ale/_LINEUP_/elements/Orelha.357]
T: 17:17:28.519 1 colors recovered and 0 palettes loaded
T: 17:17:28.519 Colors: [Pele.03]

```

How to access the Message Log view


Do one of the following:

- From the top menu, select **Windows > Message Log**.
- From any of the other views, click the Add View **+** button and select **Message Log**.

Model View

T-ANIMPA-004-004

Once you have a fully painted drawing, you can use it as a colour model and load it in the Model view. This drawing can be used and loaded in any of your Harmony scenes.


Once a drawing is loaded in the Model view, you can use the Dropper  tool to select a colour from the model and use it to paint in the Camera or Drawing view without having to pick the colour from the colour palette.




Erik, Di-Gata Defenders © Nelvana Limited, Corus® Entertainment Inc.

How to access the Model view

Do one of the following:

- From the top menu, select **Windows > Model**.
- From any of the other views, click the Add View  button and select **Model**.

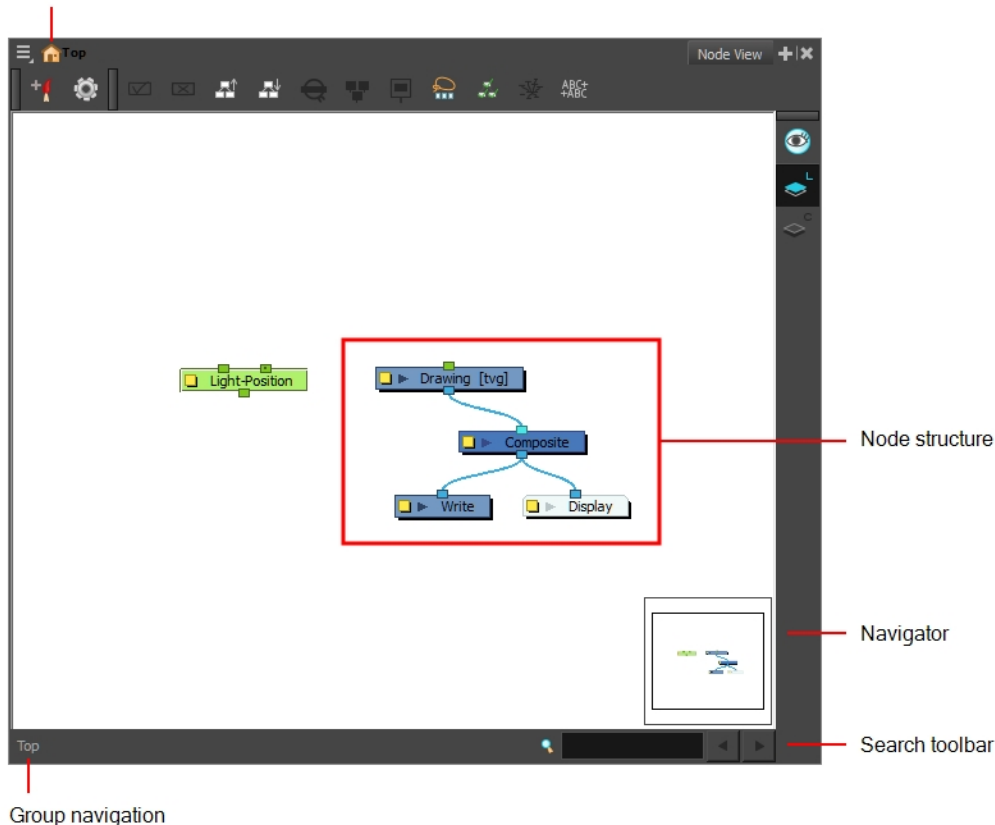
Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to manage models.
	Model View Toolbar	The Model View toolbar contains all the tools and options you can use in the Model view to navigate through and manage models.

Node View

T-HFND-010-002

In the Node view, you can connect effects and compositing nodes to form a network, also known as a *node system*. This view is very useful for rigging puppets, creating advanced effects and having a clear view of complex scenes. The organization and order of the nodes determines the flow of data during the compositing process and how your animation elements will be composited.

Symbol stack

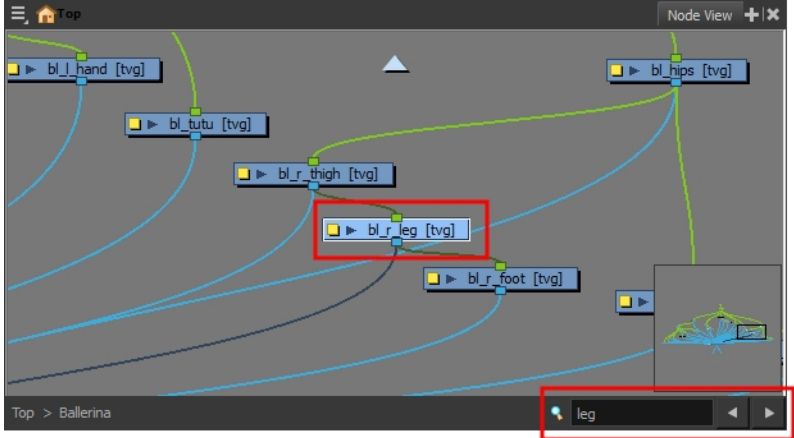


How to access the Node view

Do one of the following:

- From the top menu, select **Windows > Node View**.
- From any of the other views, click the Add View **+** button and select **Node**.

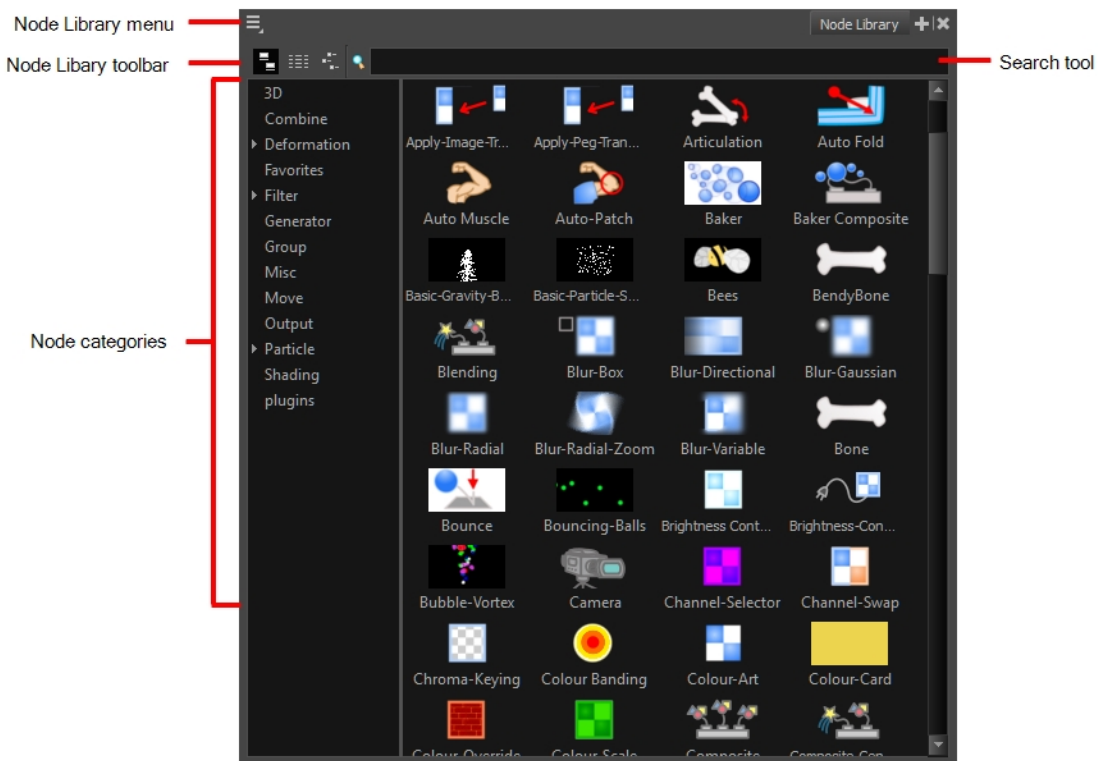
Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to manage the node system.
	Editing Stack	The Editing Stack menu displays the names of the symbols and their hierarchy when you are editing a symbol. You can click on the different names to go back up to the different parent symbols or the top/current project.

	Node System	The main area of the Node view is where you can add and organize different nodes to represent a scene.
	Navigator	The Navigator view lets you pan the visible area to move quickly through extensive node sets.
	Search Toolbar	<p>The Search toolbar lets you find and match a node in the project. The search is not case-sensitive. Once you have entered characters in the search field, press Enter/Return to validate and find the pattern in the node names. If successful, the node is selected and centred in the view. If many instances are found, use the Previous and Next buttons to cycle through each node.</p>  <p>The screenshot shows a Node View window titled 'Node View' with a search toolbar at the bottom. The search field contains the text 'leg'. The main area displays a hierarchy of nodes for a character named 'Ballarina'. The nodes are: 'bl_l_hand [tvg]', 'bl_tutu [tvg]', 'bl_r_high [tvg]', 'bl_r_leg [tvg]', 'bl_r_foot [tvg]', and 'bl_hips [tvg]'. The 'bl_r_leg [tvg]' node is highlighted with a red box. A small thumbnail view of the scene is visible on the right side of the main area.</p>
	Group Navigation	When entering a group, the Group Navigation allows you to navigate back to the top and see the hierarchy of the group in which you are.

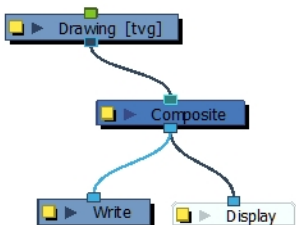
Node Library View

T-HFND-010-003

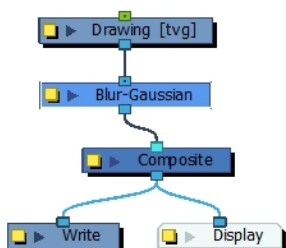
To add effects or other types of nodes to the Node view, you must first find them in the Node Library view.



When you create a new project in Harmony, the default node system that appears in the Node view looks similar to the one below.





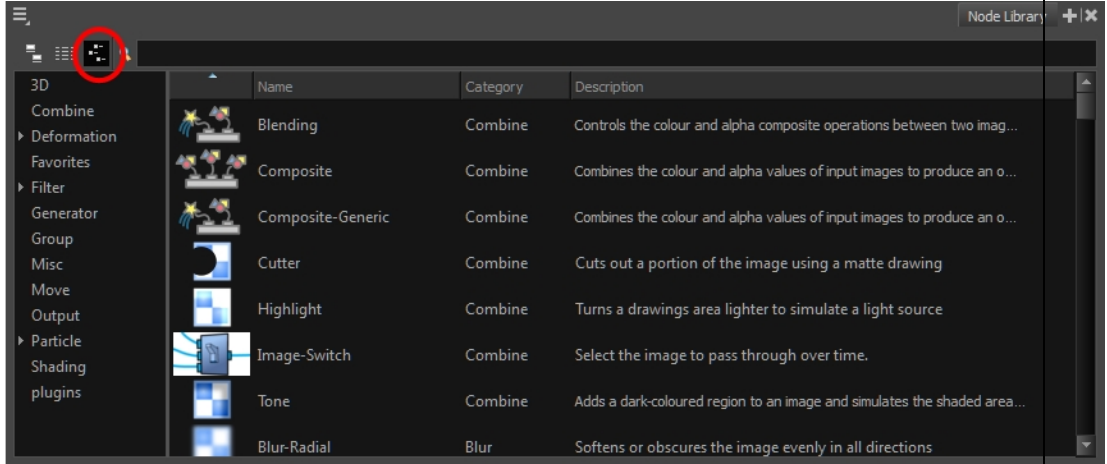
Notice how layers are connected to your scene's composite. For an effect to work, it must be connected as an intermediary between a layer and its composite, as if it was made to filter the layer's drawing information before it reaches the composite.



How to access the Node Library view

Do one of the following:

- From the top menu, select **Windows > Node Library View**.
- From any of the other views, click the Add View **+** button and select **Node Library View**.

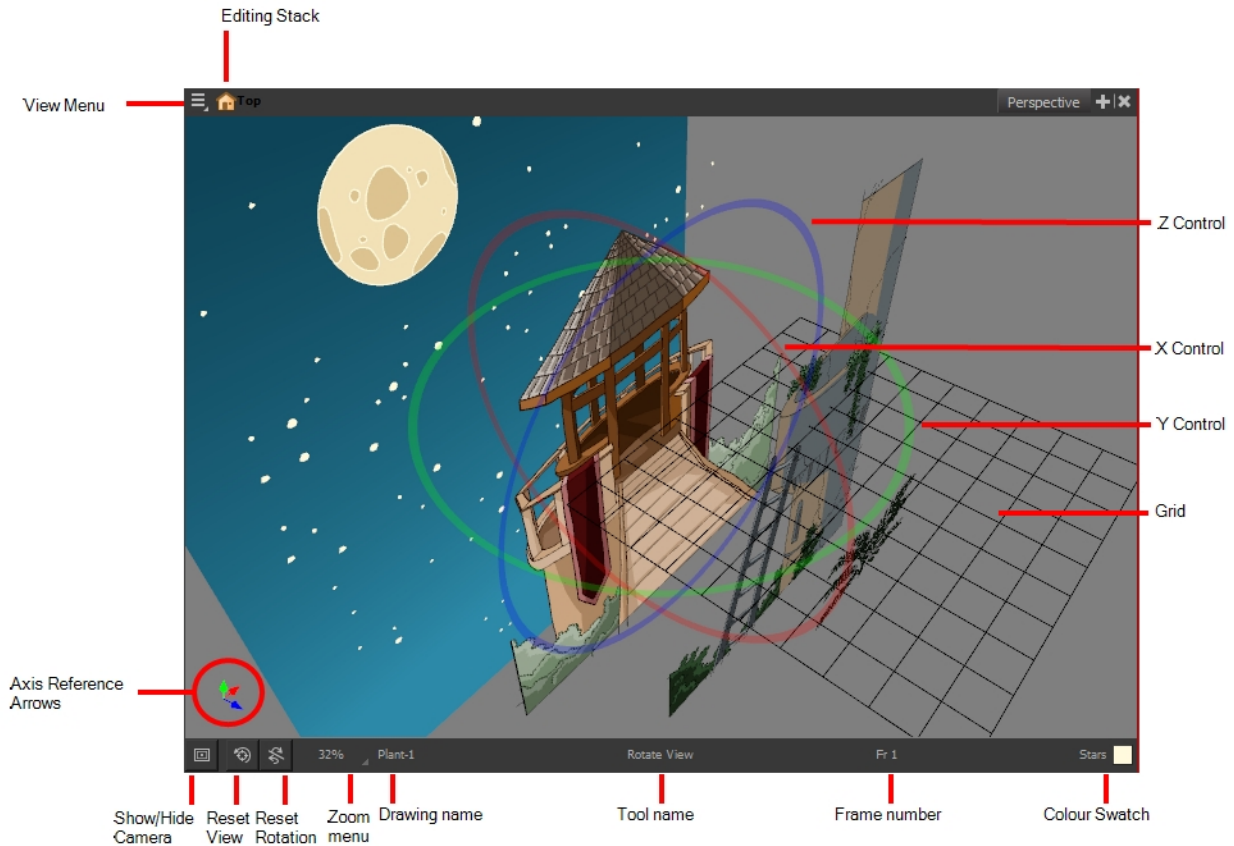
Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to manage the Node Library.
	Node Library View Toolbar	<p>In the Node Library View toolbar, you can change how the nodes are displayed. You can display nodes as icons, as a textual list or as icons with their names and a description.</p>  <p>Node Library toolbar</p>  <p>Nodes displayed as icons, text and descriptions</p>
	Node Categories	The Node Library view is conveniently divided into several categories retaining the related nodes.
	Category	Description
	3D	Nodes related to working with 3D models within Harmony.
	Combine	Nodes for combining images.
	Deformation	Nodes needed for building a deformation chain, as well as advanced effects such as Fold and Auto Muscle. The Deformation category is divided into the Bone and Distort categories.
	Favorites	Nodes most commonly used. To add nodes to the Favorites category, select any node from any other section and drag it onto the Favorites category.
	Filter	Effect nodes, such as blurs. This category is subdivided into the following categories: Adjust, Blur, Colour Correct, Isolate and Stylize.
	Generator	Nodes that create an image, such as a gradient or colour.

	Group	Nodes for grouping, like Group nodes and Multi-Port-In nodes.
	Misc	Various nodes including External, Note, Script and Visibility.
	Move	Nodes for changing elements over time, like Peg nodes, as well as certain transformations.
	Output	Output (Export) nodes such as Crop, Display, Scale-Output and Write nodes.
	Particle	Nodes needed to construct complex particle systems. This category includes a series of examples of particle effects and is subdivided into the following categories: Basic, Examples and Modifier.
	Plugins	Plugin nodes.
	Shading	Nodes for light shading.

Perspective View

T-HFND-008-016

The Perspective view is used during scene setup. It allows you to see a multiplane scene's orientation. The Perspective view is similar to a 3D display, as it lets you rotate the scene through all possible angles to understand the spacing between the elements. You can also position and rotate your layers and the camera inside the 3D display to achieve some 3D setup and camera moves.




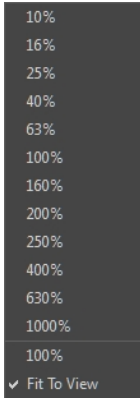


How to access the Perspective view

Do one of the following:

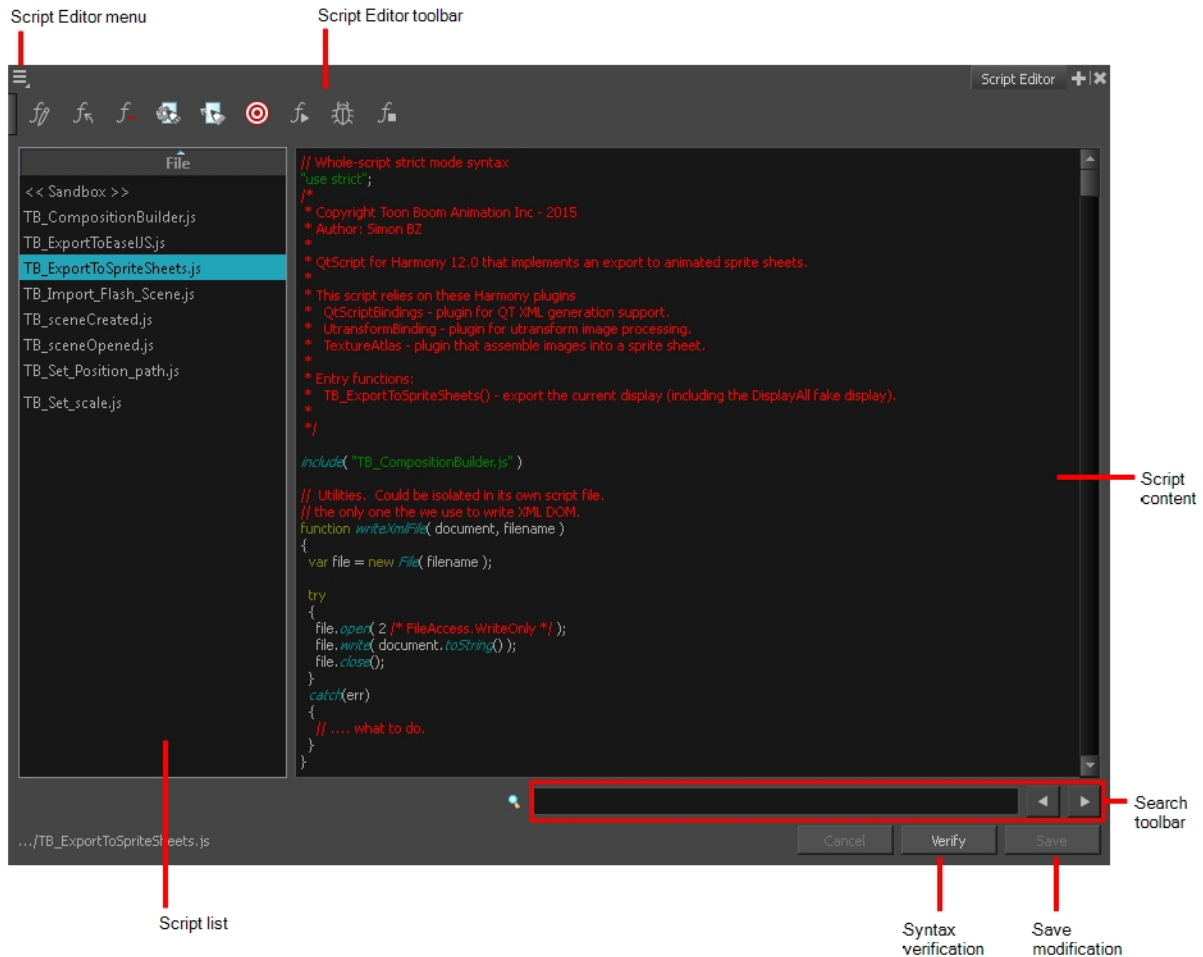
- From the top menu, select **Windows > Perspective**.
- From any of the other views, click the Add View **+** button and select **Perspective**.

Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to work in the Perspective view.
	Editing Stack	The Editing Stack menu displays the names of the symbols and their hierarchy when you are editing a symbol. You can click on the different names to go back up to the different parent symbols or the

		top/current project.
	X Control	The red circle rotates the view on its X axis.
	Y Control	The green circle rotates the view on its Y axis.
	Z Control	The blue circle rotates the view on its Z axis.
	Grid	This is a perspective (3D) grid reference.
	Axis Reference Arrows	The axis reference arrows let you maintain your orientation when navigating in the Perspective view.
	Show/Hide Camera	Shows or hides camera frame in the Perspective view.
	Reset View	Resets the pan, rotation, and zoom of the Perspective view.
	Reset Rotation	Resets the rotation of the Perspective view.
	Zoom Menu	<p>This field displays the current zoom level in the Perspective view. You can use the Zoom level drop-down menu to select a specific zoom level from the list. Zoom levels from 2.5% to 6400% are available; you can also select Fit To View to automatically use a zoom level that lets you see all your scene layers and information in the Perspective view at once.</p> 
	Layer Name	This field displays the currently selected layer and drawing name.
	Tool Name	This field displays the currently selected tool.
	Frame Number	This field displays the currently selected frame of your animation.
	Colour Swatch	This field displays the currently selected colour in the palette.

Script Editor View

Qt Script provides access to many of the functions supported in the interface. With Qt Script, you can automate a number of Harmony functions to speed the completion of various repetitive tasks. The Script Editor view allows you to edit existing scripts and create new ones. Refer to the Scripting guide to learn more about scripting with Harmony.



How to access the Script Editor view

Do one of the following:

- From the top menu, select **Windows > Script Editor**.
- From any of the other views, click the Add View **+** button and select **Script Editor**.

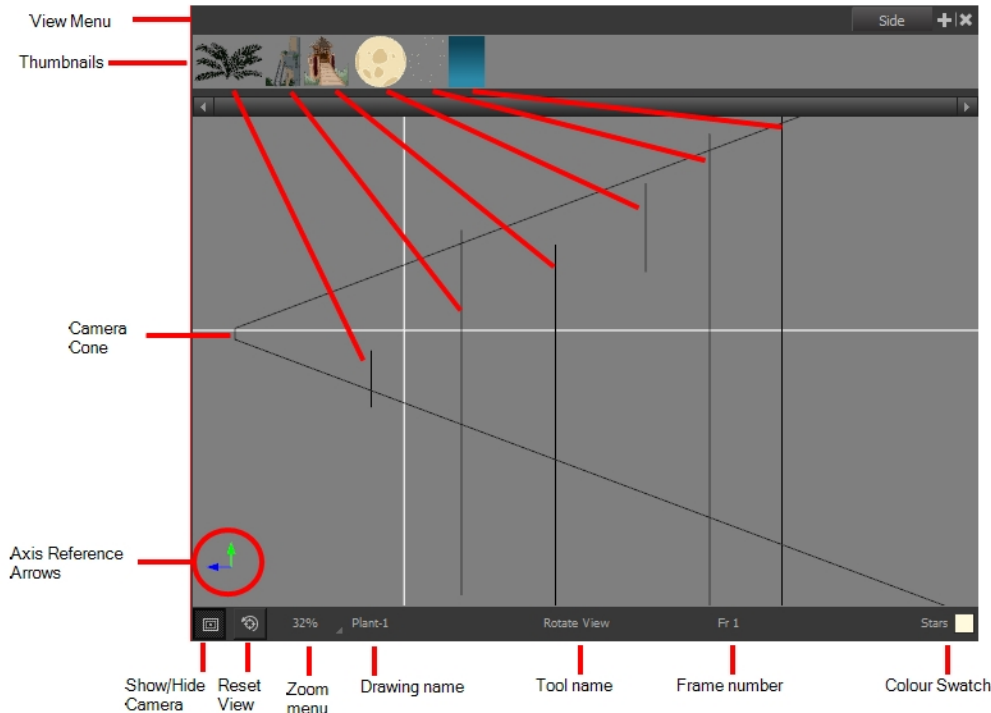
Parameter	Description
Script list	On the left side of the Script Editor view, all existing script files are listed and can be modified in this view. The script format is JavaScript. Click on a file to display its content in the Script Content window of the view.
Script content	On the right side of the Script Editor view, the contents of the selected script

	are displayed and can be edited.
Search toolbar	The Search toolbar allows you to search a string within the selected script content. You can use the Previous and Next buttons to navigate through the results.
Verify	This function verifies the syntax of the currently displayed script and lists any errors found.
Save	Once you are satisfied with the modifications made to the script, click Save Changes to save the modifications.

Side View

T-HFND-008-015

The Side view is used mainly for multiplane scenes and to position elements in 3D space. It allows you to see a scene's stage from the side. This lets the camera cone and spacing between the elements to be seen.



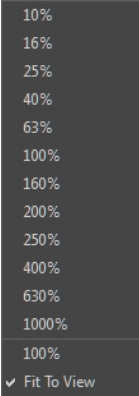


How to access the Side view

Do one of the following:

- From the top menu, select **Windows > Side**.
- From any of the other views, click the Add View **+** button and select **Side**.

Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to work in the Side view.
	Thumbnails	A thumbnail of each drawing layer in the scene. The order of the thumbnail images is based on each element's FB position in the scene space. You can see a representation of the FB position of each layer in the camera cone.
	Camera Cone	The camera cone represents the camera's position and field-of-view (FOV).
	Axis Reference Arrows	The axis reference arrows let you maintain your orientation when navigating in the view.

	Show/Hide Camera	Shows or hides camera frame in the Perspective view.
	Reset View	Resets the pan, rotation, and zoom of the Perspective view.
	Zoom Menu	<p>This field displays the current zoom level in the Perspective view. You can use the Zoom level drop-down menu to select a specific zoom level from the list. Zoom levels from 2.5% to 6400% are available; you can also select Fit To View to automatically use a zoom level that lets you see all your scene layers and information in the Perspective view at once.</p> 
	Layer Name	This field displays the currently selected layer and drawing name.
	Tool Name	This field displays the currently selected tool.
	Frame Number	This field displays the currently selected frame of your animation.
	Colour Swatch	This field displays the currently selected colour in the palette.

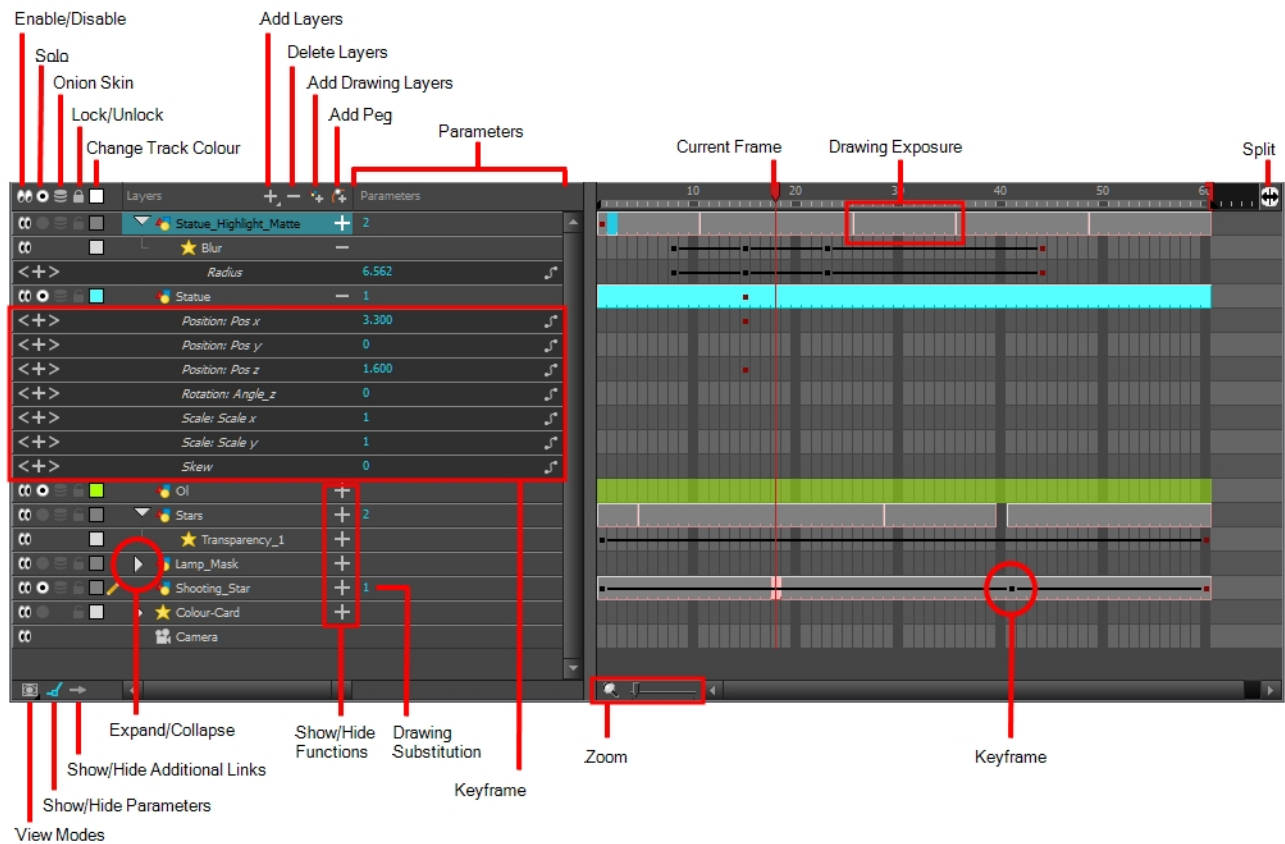
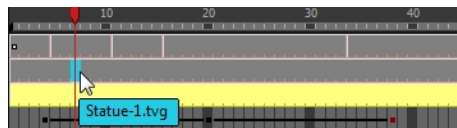
Timeline View

T-HFND-006-002

To set your animation timing, you will mostly work with the Timeline and Xsheet views. It's extremely useful to become familiar with the Timeline view, how it works, and its interface.

The Timeline view is the main view used when adjusting the timing of drawings, adding keyframes and ordering layers. The Timeline view displays layers, effects, sounds, keyframe values, scene length, layer names, drawings, keyframes, timing, and frames.

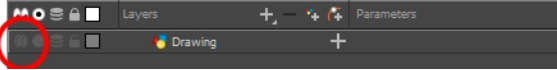
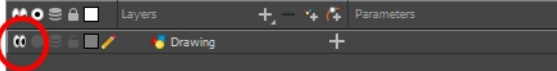
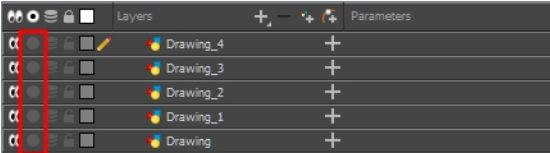
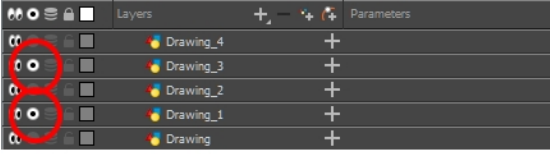
The Timeline view allows you to read your timing from left to right. It represents the scene's elements in their simplest form. You can also see the layers and their names, as well as the drawing's exposure. The drawing name is displayed when you place your pointer over the drawing's exposure.



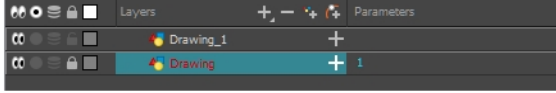





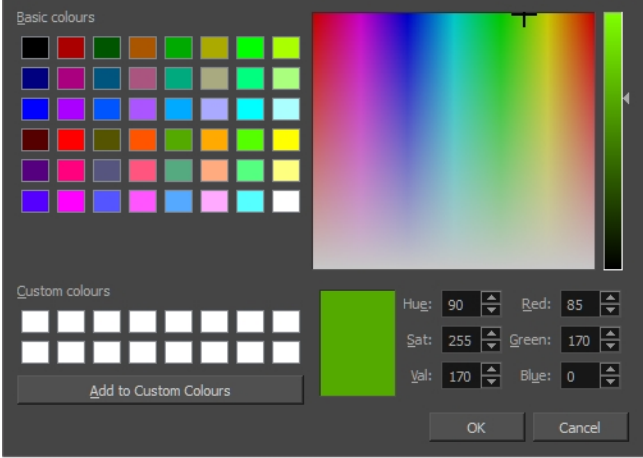










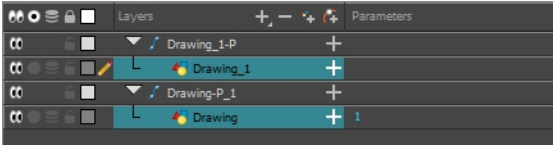
How to access the Timeline view

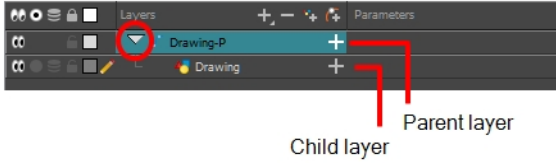
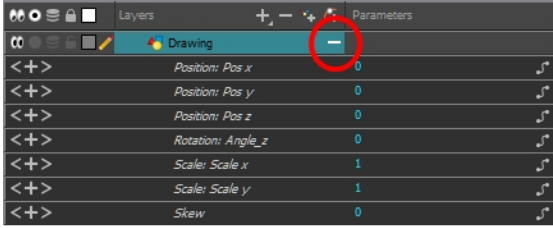
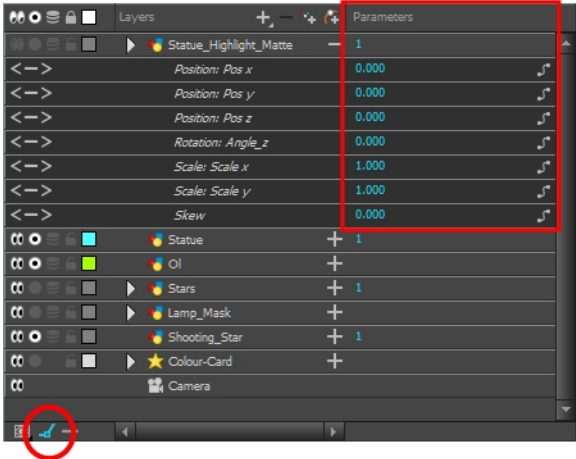
Do one of the following:


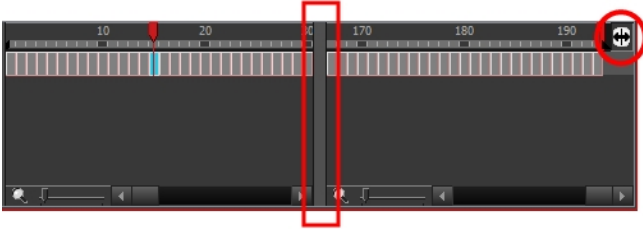


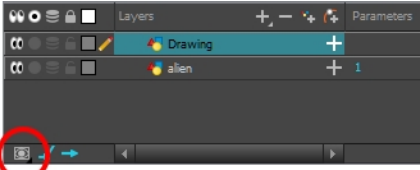

- From the top menu, select **Windows > Timeline**.
- From any of the other views, click the Add View **+** button and select **Timeline**.

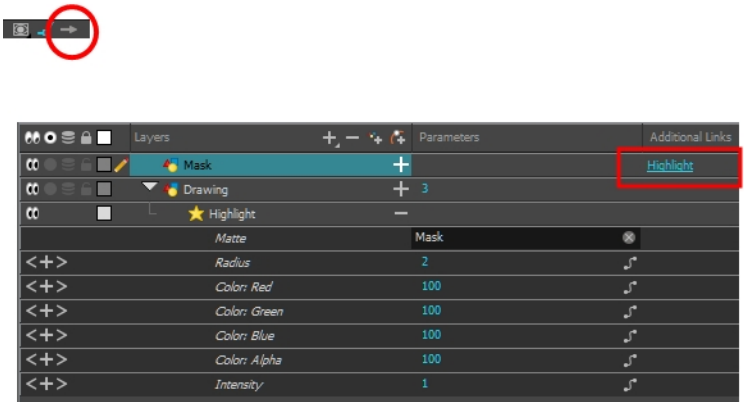

Icon	Section	Description
☰	View Menu	The View menu contains all the tools and options that you can use to manage models.
	Model View Toolbar	The Model View toolbar contains all the tools and options you can use in the Model view to navigate through and manage models.
🔊	Enable/Disable All	<p>The Enable/Disable All button lets you show or hide layers.</p> <p>When you deselect a layer in the Timeline view, the corresponding column is hidden in the Xsheet view. When a column is hidden in the Xsheet view, the corresponding layer is disabled in the Timeline view.</p> <p>To disable a layer, click the layer's Enable/Disable All button or press D.</p>  <p>To enable a layer, click the layer's Enable/Disable All button or press A.</p> 
🕶	Solo	<p>The Solo button lets you view drawing or sound layers in the Camera view. You can enable this mode on multiple layers. When the Sole mode button is deselected, everything is visible in the Camera view. When one or more layers are soloed, only those layers appear in the Camera view.</p>  <p>All layers are visible in the Camera view</p>  <p>Only soloed layers are visible in the Camera view</p>
☰	Onion Skin	<p>The Onion Skin button enables the Onion Skin option on a particular layer. If you want to see the previous and next frames of a specific layer, go to the Timeline view and click the Onion Skin button for that particular layer. Blue arrows appear on both sides of the play head. Drag the blue arrows to add more frames to the onion skin display.</p> <p>To activate the general Onion Skin preview, in the Tools toolbar, click the Onion Skin button.</p>

		
	<p>Lock/Unlock Layer</p>	<p>The Lock/Unlock Layer button lets you prevent the selection or editing of a layer in the Camera view. To select some of the layers without selecting others, in the Timeline view, lock the layers you do not want to select. When a layer is locked, its name is displayed in red.</p>  <p>In the top menu, there is a series of locking options. Select Animation > Lock > select one of the following:</p> <ul style="list-style-type: none"> • Lock: Locks the currently selected element. • Unlock: Unlocks the currently selected element. • Lock All: Locks all the elements in the Camera view. • Unlock All: Unlocks all the elements in the Camera view. • Lock All Others: Locks all the elements in the Camera view except the currently selected one. <p>You can display the locked drawings as outlines in the Camera view to quickly find out which drawings are locked.</p> 
	<p>Change Track Colour</p>	<p>The Change Track Colour button lets you change the colour of the exposed frames; this helps you to quickly locate a layer in the Timeline view. Click the Change Track Colour button to open the Select Colour window and choose a new colour. You can modify the colour for any type of layer, such as group, peg, drawing, and effects.</p> 

		
+	Add Layers	<p>The Add Layers button lets you add new layers to the Timeline view. When you click the Add Layers button, a menu appears displaying the layer types available. You can add several different types of layers:</p> <ul style="list-style-type: none"> •  Camera •  Deformation •  Drawing •  Generator •  Group •  Transformation •  Effects •  Sound
-	Delete Layers	<p>The Delete Layers button lets you delete the currently selected layers in the Timeline view.</p>
	Add Drawing Layer	<p>The Add Drawing Layer button lets you automatically add a new drawing layer to the Timeline view. By default, the layer is named Drawing.</p>
	Add Peg	<p>The Add Peg button lets you add a peg layer to the timeline. If several layers are selected, a peg is added and parented to each layer.</p> 
	Expand/Collapse	<p>The Expand/Collapse button is used to display the children layers of a parent layer. Once a layer is parented to another layer, it is indented to the right and the Collapse/Expand Children button appears on the parent layer allowing you to show or hide the child layer.</p>

		
+	<p>Show/Hide Functions</p>	<p>The Show/Hide Functions button lets you display the functions embedded in each layer. The functions are the different coordinates and values used to record a layer's parameters at each frame. This information is stored on the function curves using keyframes.</p> 
⚡	<p>Parameters</p>	<p>The Parameters section lets you add, remove or modify a keyframe at the current frame. You can show or hide the Parameters section by clicking the Show/Hide Parameters button.</p> 
+	<p>Add Keyframe</p>	<p>Adds a keyframe at the current frame.</p>
-	<p>Delete Key-frame</p>	<p>Removes an existing keyframe at the current frame.</p>
👉	<p>Hand Cursor</p>	<p>Lets you change the current keyframe or drawing exposure. When you hover the cursor over the value, the hand cursor appears. Drag left or right to change the value. Or double-click on the keyframe value and enter a new value.</p>
<	<p>Previous Key-frame</p>	<p>Lets you navigate through the previous keyframes.</p>
>	<p>Next Key-frame</p>	<p>Lets you navigate through the next keyframes.</p>
🎵	<p>Show Function Menu</p>	<p>Displays the Function menu where you can link a layer to an existing function or create a new function.</p>

	Keyframe	<p>A black or red square is displayed in the Timeline view when a keyframe exists. You can select these keyframes and drag them wherever you want on the timeline. You can also copy, cut, and delete them.</p> <hr/> <p>NOTE: To delete a keyframe without deleting the drawing exposure, go to the Timeline view and select the keyframe to be deleted and then select Animation > Delete Keyframe from the top menu or press F7.</p> <hr/> <p>When a parent layer is collapsed and a child layer contains a keyframe, a white square will be displayed.</p>
	Split	<p>The Split button lets you split the Timeline view in two sections, allowing you to see two different portions of the Timeline view. This way, if your scene length is very long, you can see the beginning and the end at the same time.</p> 
	Drawing Exposure	<p>In the Timeline view, when a drawing is exposed, it is represented as a grey block. If the drawing is exposed for several frames, the block is extended. When a second drawing is exposed, a new grey block is displayed.</p>  <p>The exposure's colour can be changed. To pick a new colour, click the Change Track Colour button in the corresponding layer.</p>
	View Modes	<p>The View Modes button lets you streamline the process of working with elements in the Timeline view. There are three different view modes you can choose to work in. With each mode you select, certain elements may or may not be visible in the Timeline view. Depending on your workflow, this can be useful for quickly hiding elements when you want to focus on specific ones. To select a view mode, use the drop-down menu in the bottom-left corner of the Timeline view.</p> 
	Show/Hide Additional Links	<p>The Show/Hide Additional Links button lets you display links associated with a layer. For example, if you connect a mask to more than one effect such as a Tone and a Highlight, you can see these connections in the Additional Links section, as well as links to composite nodes.</p>

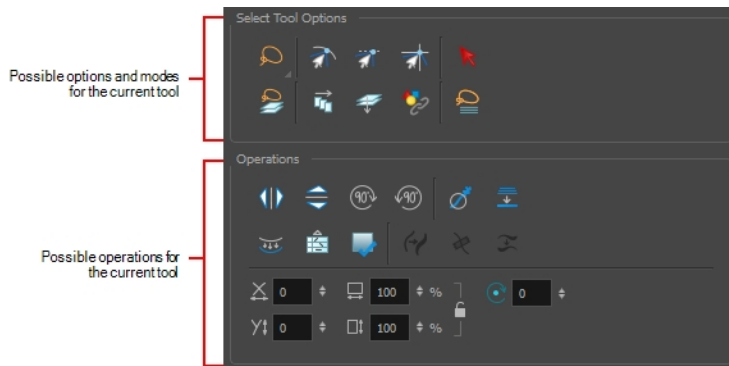
		 <p>The Mask layer is associated with the Highlight effect.</p>
Zoom	Zoom	<p>The Zoom tool increases or reduces the width of the frames in the Timeline view. Move the slider right to increase the width or left to reduce it. You can also press 1 and 2. Reset the zoom by click the Reset Zoom button.</p> 

Tool Properties View

T-HFND-004-002

The Tool Properties view contains the most common options and operations related to the currently selected tool. When you select a tool from the Tools toolbar, the Tool Properties view updates.

For example, if you choose the Select tool, the Tool Properties view will display the options and operations related to it, such as Snap to Contour, Apply to All Drawings, Flip Horizontal, and Flatten.



NOTE: To learn more about the options appearing in the Tool Properties view, see [Tools Properties on page 543](#).

How to access the Tool Properties view

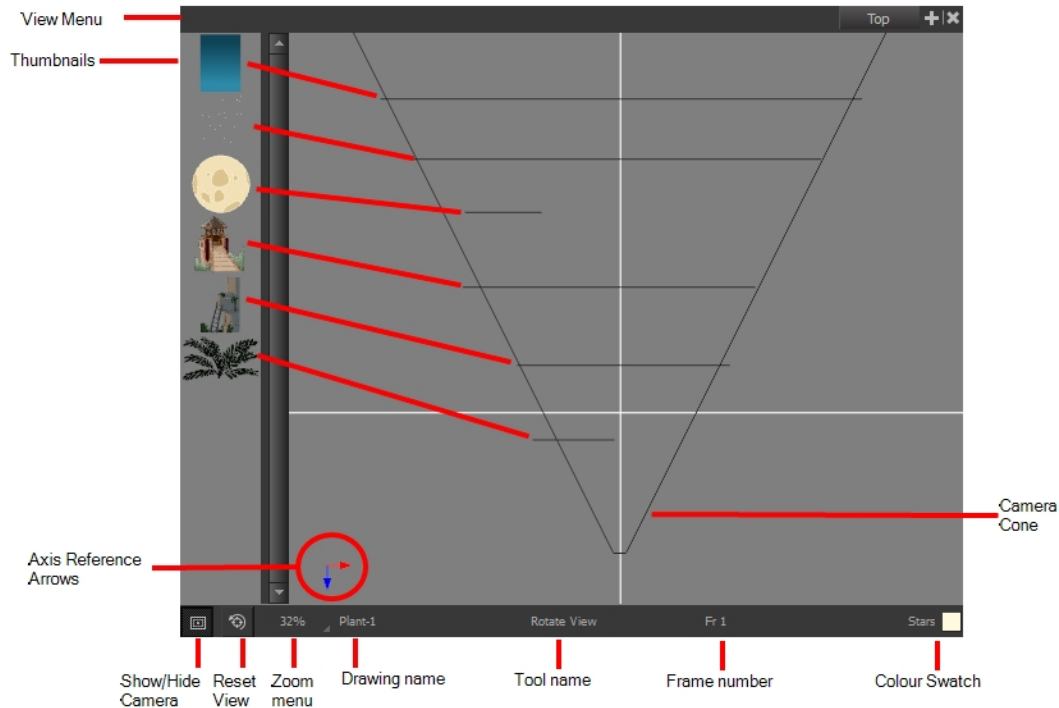
Do one of the following:

- From the top menu, select **Windows > Tool Properties**.
- From any of the other views, click the Add View **+** button and select **Tool Properties**.

Top View

T-HFND-008-014

The Top view is used mainly for multiplane scenes and to position elements in 3D space. It allows you to see the scene's stage from above. This lets the camera cone and the spacing between the elements be seen.



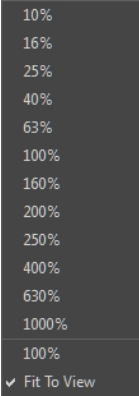


How to access the Top view

Do one of the following:

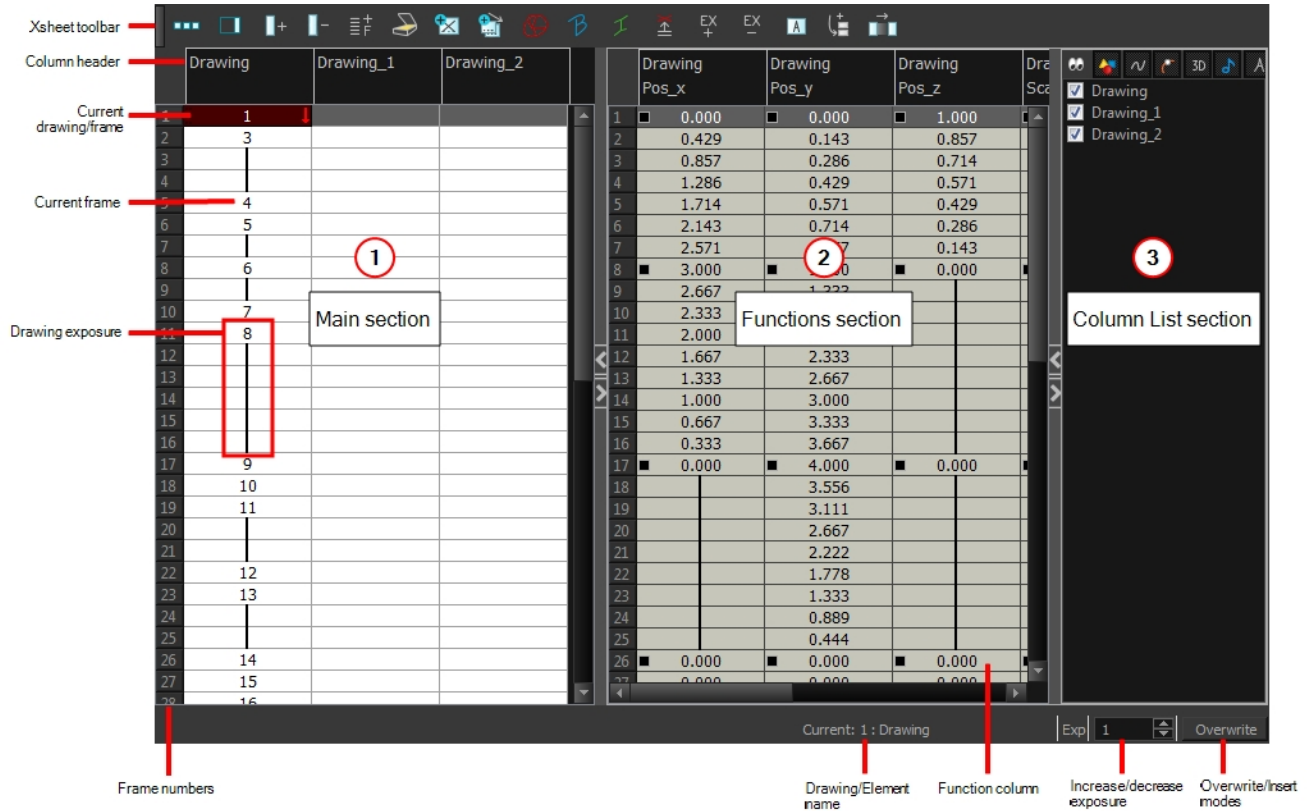
- From the top menu, select **Windows > Top**.
- From any of the other views, click the Add View **+** button and select **Top**.

Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to work in the Side view.
	Thumbnails	A thumbnail of each drawing layer in the scene. The order of the thumbnail images is based on each element's FB position in the scene space. You can see a representation of the FB position of each layer in the camera cone.
	Camera Cone	The camera cone represents the camera's position and field-of-view (FOV).
	Axis Reference Arrows	The axis reference arrows let you maintain your orientation when navigating in the view.

	Show/Hide Camera	Shows or hides camera frame in the Perspective view.
	Reset View	Resets the pan, rotation, and zoom of the Perspective view.
	Zoom Menu	<p>This field displays the current zoom level in the Perspective view. You can use the Zoom level drop-down menu to select a specific zoom level from the list. Zoom levels from 2.5% to 6400% are available; you can also select Fit To View to automatically use a zoom level that lets you see all your scene layers and information in the Perspective view at once.</p> 
	Layer Name	This field displays the currently selected layer and drawing name.
	Tool Name	This field displays the currently selected tool.
	Frame Number	This field displays the currently selected frame of your animation.
	Colour Swatch	This field displays the currently selected colour in the palette.

Xsheet View

The Xsheet view lets you read the timing vertically, displays the drawing layers as columns, and shows the drawing's name. You can also see the functions and keyframes of the motion paths in the Xsheet's function columns. The value of each keyframe is shown in the Xsheet view; these are displayed as black squares in the Timeline view. The Xsheet view contains more detail than the Timeline view, and is faster and easier to read.



How to access the Xsheet view

Do one of the following:

- From the top menu, select **Windows > Xsheet**.
- From any of the other views, click the Add View **+** button and select **Xsheet**.

Icon	Section	Description
	View Menu	The View menu contains all the tools and options that you can use to manage columns and timing.
	View Toolbar	The view toolbar contains all the tools and options you can use in the Xsheet view to manage columns and timing.
	Xsheet Main Section	The Xsheet view has three sections. By default, only the main section is visible. It displays the drawing layers, also known as <i>drawing columns</i> .

	Drawing	Drawing_1	Drawing_2
1	1	1	1
2	3	1	
3	1	2	
4	4	3	
5	4	4	
6	5	5	
7	1	6	
8	6	7	
9	7	8	
10	7	9	
11	8	10	
12		11	
13		12	
14		13	
15		14	
16		15	
17	9	16	
18	10	17	
19	11	18	
20		19	
21		20	
22	12	21	
23	13	22	
24		23	
25		24	
26	14	25	
27	15		1
28	16		1

When using advanced compositing and animation techniques, unconnected functions (motion paths) also appear in the main section. Unconnected functions mean that some motion paths are not attached to any particular layer.

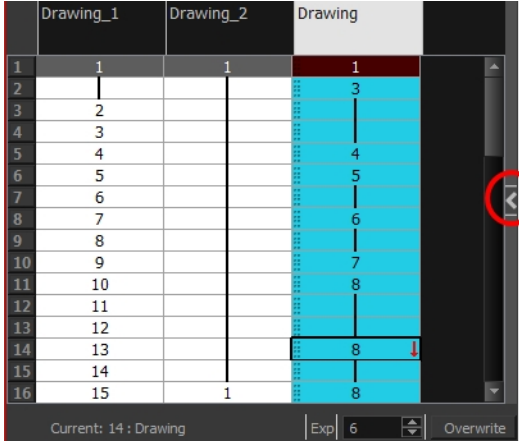
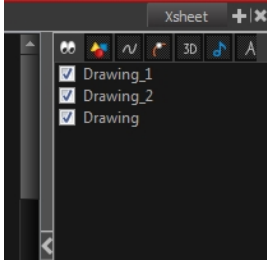

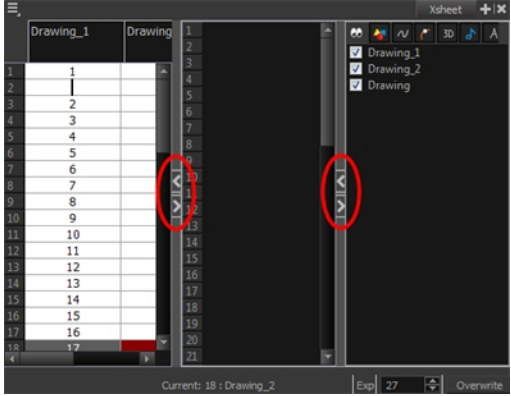
When you reconnect functions to a layer, they are still visible in the main section.

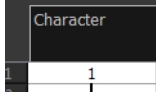
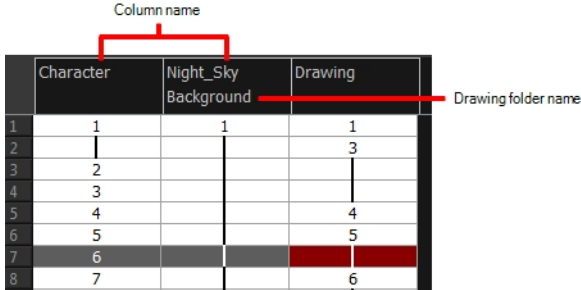
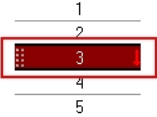

	Drawing_1	Drawing_2	Drawing	Drawing_Pos_x	Drawing_Pos_y	Drawing_Pos_z
1	1	1	1	0.000	0.000	1.000
2	1		3	0.429	0.143	0.857
3	2		1	0.857	0.286	0.714
4	3		1	1.286	0.429	0.571
5	4		4	1.714	0.571	0.429
6	5		5	2.143	0.714	0.286
7	6		1	2.571	0.857	0.143
8	7		6	3.000	1.000	0.000
9	8		1	2.667	1.333	
10	9		7	2.333	1.667	
11	10		8	2.000	2.000	
12	11		1	1.667	2.333	
13	12		1	1.333	2.667	
14	13		1	1.000	3.000	
15	14		1	0.667	3.333	
16	15		1	0.333	3.667	
17	16		9	0.000	4.000	0.000
18	17		10		3.556	
19	18		11		3.111	
20	19		1		2.667	
21	20		1		2.222	
22	21	1	12	0.000	1.778	0.000

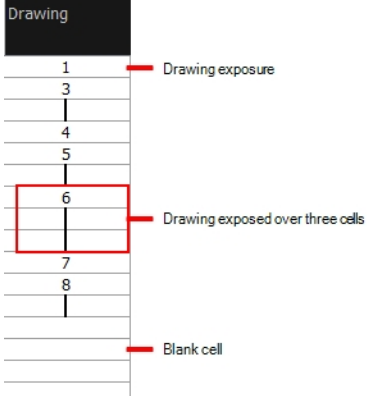
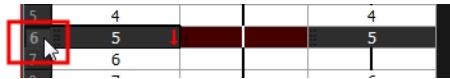
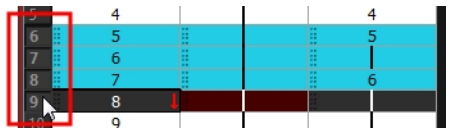
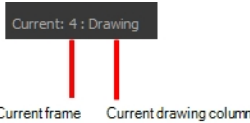
Functions Section

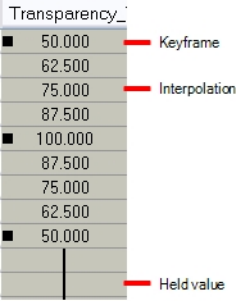

The Functions section is used for more advanced techniques. This section displays the functions (paths) related to the selected layer in the Timeline view. By default, the Functions section is hidden.

In the Xsheet view, click the Expand button located on the right side of the main section. Click on the same button to collapse it. You can also use the Show Column List button in the Xsheet View toolbar. If you select a drawing column in the main section of the Xsheet view, the function columns will not be displayed. You must select the layer from the Timeline view.

		
	<p>Column List Section</p>	<p>The Column List section allows you to show and hide columns in the Xsheet view. When you hide a layer in the Xsheet view, it is also disabled in the Timeline view.</p>  <p>You can use the Column List to hide individual columns or hide an entire column type (drawing or function) from the Xsheet view. By default, the Functions section is hidden.</p> <p>In the Xsheet view, click the Expand button on the right side of the main section to show the Functions section. Click on the same button to collapse it. You can also use the Show Column List  button in the Xsheet toolbar.</p> <p>Go to the Xsheet view menu and select View > Show Column List. Click the Expand button on the right side of the Functions section to display the Column List section.</p> 
	<p>Column Header</p>	<p>Each column available in the Xsheet view has a header</p>

		<p>displaying the column's name. The column's name is the same as the corresponding timeline layer. If you rename one or the other, they will both be renamed.</p> <p>A quick access menu is available when you right-click. This menu contains the command affecting an entire column such as renaming, changing the default colour, or deleting a column.</p> <p>The tooltip that appears when you hover at the top of each Xsheet column shows the folder path to the source drawings for that column.</p>  <p>In Harmony, the column header shows the layer's name and the name of the drawing folder to which it is linked. If the name of the layer is the same as the drawing folder, the drawing folder's name will not be displayed. For example; when you link a Timing column to a certain element (and thereby the Element's folder). To modify the name of the element folder independently from the column and layer name, you must select the Advanced Element Mode option preference in the Advanced tab of the Preferences dialog box.</p> 
	<p>Current Drawing</p>	<p>A drawing selected in dark red indicates that the drawing is currently displayed in the Drawing and Camera views. The current drawing selection is not linked to the drawing displayed in the Camera view since drawings from each visible layer are displayed at once.</p> 
	<p>Current Frame</p>	<p>The darker frame appearing in the Xsheet view represents the current frame.</p> 

	<p>Drawing Exposure</p>	<p>In the drawing columns, you can see the drawing names and their exposure. You can use any alphanumeric symbol to name your drawing. When a drawing is exposed over more than one cell, a vertical black line is displayed to indicate the continuity of the exposure. When there is no drawing in a cell, the cell will be blank.</p>  <p>The diagram shows a vertical column of cells numbered 1 through 8. A vertical black line runs through the center of the column, indicating a drawing exposure. A red box highlights cells 6, 7, and 8, with a label 'Drawing exposed over three cells'. A red arrow points to the line in cell 1, labeled 'Drawing exposure'. A red arrow points to a blank cell below cell 8, labeled 'Blank cell'.</p>
	<p>Frame Numbers</p>	<p>On the left side of the Xsheet view, the frame numbers are shown indicating where you are. These read vertically instead of being displayed horizontally as they are in the Timeline view.</p> <ul style="list-style-type: none"> To go to a particular frame, click the frame number.  <p>The diagram shows a vertical column of frame numbers 5, 6, and 7. A mouse cursor is clicking on the number 6. A red box highlights the numbers 5, 6, and 7.</p> <ul style="list-style-type: none"> To select an entire range of frames, click and drag a selection downwards.  <p>The diagram shows a vertical column of frame numbers 5 through 9. A red box highlights the numbers 5, 6, 7, 8, and 9. A mouse cursor is clicking on the number 9.</p>
	<p>Current Frame Display</p>	<p>At the bottom-right of the Xsheet view, you can see the current frame number, as well as the column containing the drawing currently displayed in the Drawing view.</p>  <p>The diagram shows a box containing the text 'Current: 4 : Drawing'. Two red arrows point from the box to the labels 'Current frame' and 'Current drawing column' below it.</p>
	<p>Functions Column</p>	<p>The functions columns are displayed in the Functions section of the Xsheet view. They represent the motion and rotation you applied to a drawing layer. Only the function columns related to the selected layer are displayed.</p>

		<p>A function column can also be related to an effect. Selecting the effect layer shows you the corresponding function column in the Xsheet view.</p> <p>The function columns display the position value or effect value on each cell. If there is a keyframe on a cell, a black square is displayed. Holding the same value for several frames displays a vertical black line.</p> 
	Increase/Decrease Exposure	<p>You can quickly increase or decrease the exposure of the selected cell by clicking on the up and down arrows in the Increase/Decrease Exposure field.</p> 
	Overwrite/Insert Modes	<p>The Overwrite/Insert button allows you to decide the way the values are inserted into the Xsheet.</p>