Harmony17

Toon Boom
Harmony 17
Release Notes

Toon Boom
Bring Your Stories To Life

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Publication Date

06-17-2019

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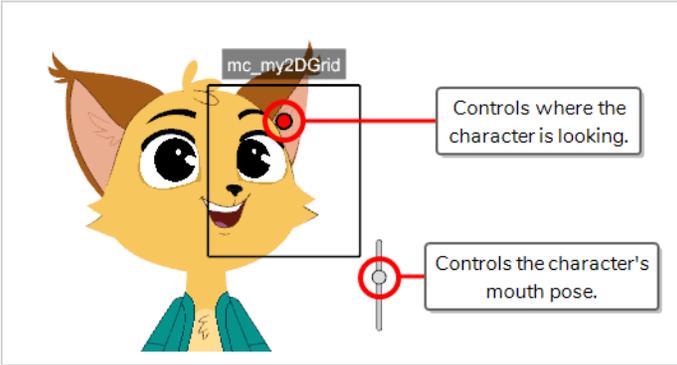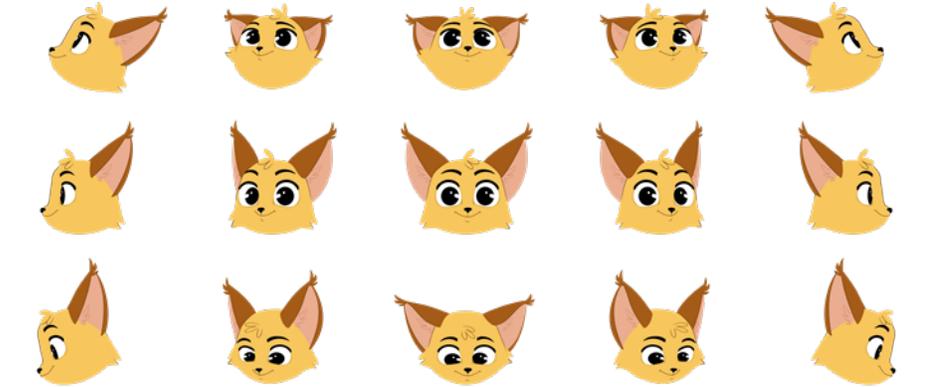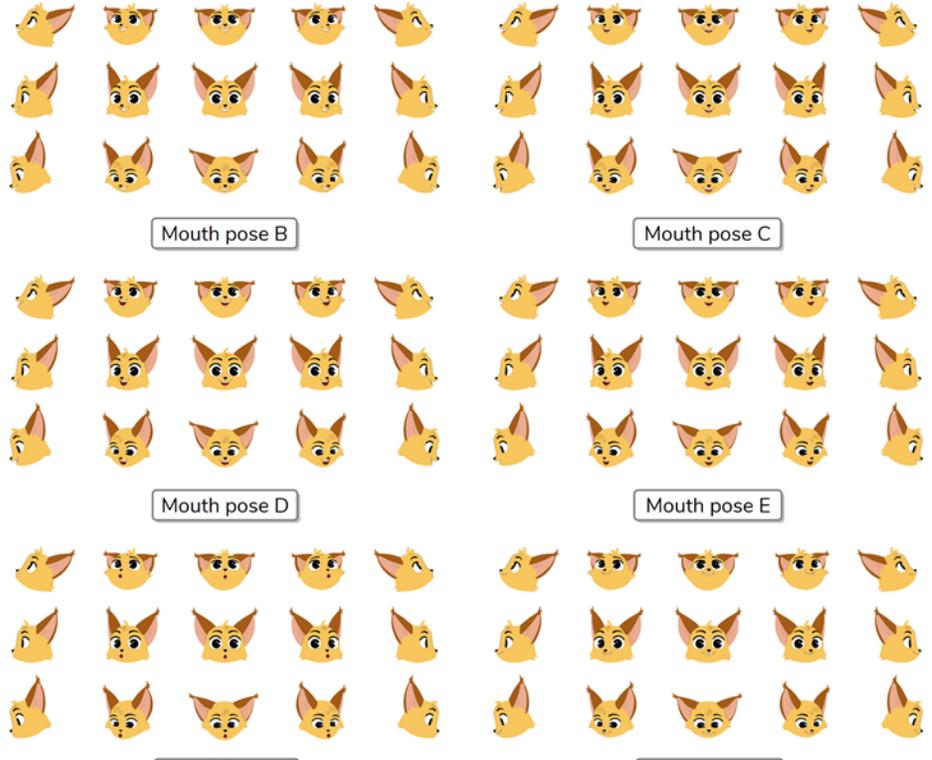
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Toon Boom Harmony 17.0.0

Here is the list of changes in Harmony 17.0.0, build 14765 (2019-06-07):

Master Controller

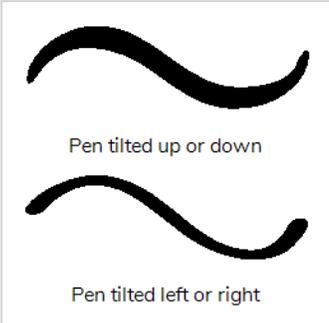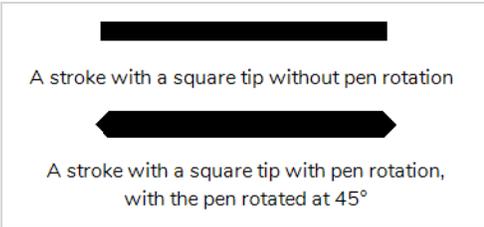| Feature	Description
Stack Wizard	A new Master Controller wizard, the Stack Wizard, allows you to create a Master Controller that combines a 2D point widget and a slider widget. It works similarly to the Grid Wizard, except that it allows you to combine several grids of poses. The 2D point allows you to pose your character based on the current grid of poses, and the slider allows you to switch between grids.

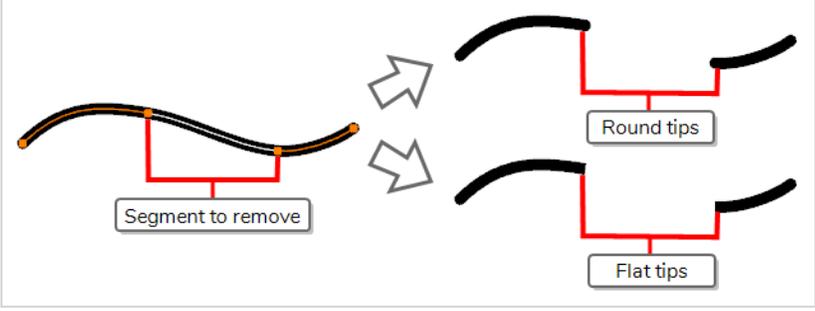| Feature	Description
	A good example of how this can be used is by creating a 2D point widget that sets the angle your character's head is facing, and a slider that sets its mouth pose. By creating a grid of the character's head looking in every direction, then creating alternate versions of this grid for each mouth pose, you can use the Stack Wizard to generate a Master Controller that controls both aspects of your character. Base Grid (Mouth pose A) Mouth pose B Mouth pose C Mouth pose D Mouth pose E Mouth pose F Mouth pose G To use this wizard, create a grid of poses in a scene like you would for the Grid Wizard, then all the variations needed for that grid of poses. Then, in the Master Controller toolbar, click on the

Feature	Description
	📚 Stack Wizard button.
New widgets	The following new Master Controller widgets can be created in Harmony: • **Button**: This widget can be scripted to fire an action when clicked on. My Button • **Checkbox:** This widget is like a button, except that it toggles on and off. It can be scripted to fire different actions depending on whether it's switched on or off. My Checkbox • **Label:** This widget creates a simple text label inside a rectangle. It cannot be interacted with, but it can help make other widgets easier to identify. My Label For more information, refer to the scripting API documentation.
Editing Master Controllers	The new Unroll Wizard allows you to "unroll" the original character poses of a Master Controller into the current scene, and makes changes to them. For example, if you have a character with a Master Controller that controls the direction in which it is looking, you can use the Unroll Wizard to recreate the poses of your character looking in every direction that were used to generate this Master Controller, into the current scene. Unrolling a Master Controller can be useful if you wish to make changes to an existing Master Controller. By unrolling its poses into a scene, you get to make changes to the poses, then create a new Master Controller that uses the modified poses. To use the Unroll Wizard, select a Master Controller in your scene. Then, in the Master Controller toolbar, click on the 🖥 Unroll Wizard button.
Stepped Slider	When creating a Slider-type Master Controller with the Slider Wizard, you now have the option to make the slider "stepped". This means that, when you manipulate the slider, instead of

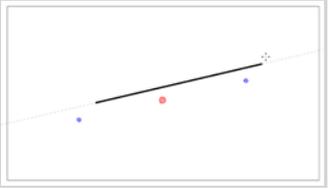| Feature	Description
	interpolating between the different poses that were used to create the Master Controller, it will set the character to one of these poses, with no interpolation. This can be useful if you wish to create a slider to select between a set of poses that are not meant to interpolate between one another, such as mouth poses.. To use this option, simply uncheck the **Interpolate Between Poses** option when using the Slider Wizard.
Pose database storage	When creating a Master Controller in Harmony Server using the Stack Wizard, the Grid Wizard or the Slider Wizard, you will be prompted to select at which level (scene, job, environment or global) you want the Master Controller's poses database to be stored.
Show Master Controllers button	A new button in the **Master Controller** toolbar, 🖌 Show Master Controllers, allows you to pull a list of Master Controllers in the selected group, and select which ones to display or hide.
Nudging Master Controller widgets	It is now possible to select a Master Controller widget and nudge it in any direction by pressing the arrow keys.
Persistent Wizard state	When you close the Grid Wizard or the Stack Wizard, the current configuration of its grid or grid stack is saved to your preferences, and will be reloaded the next time you open that wizard.
Jumping to selected frame	In the Grid Wizard and the Stack wizard, when you associate a point in the grid to a frame, the current frame in the Harmony user interface is automatically set to that frame.

Labels	In addition to the Label widget, the following Master Controller widgets can be configured to have labels by setting some of their properties:
	
	    • 2D Point
	    • Slider
	    • Button
	    • Checkbox
	
	This can be done by setting the widget's `label` property, as well as other related properties, when creating the widget. For more information, refer to the scripting API documentation .

Customization	It is now possible to make the 2D point widget appear either as circle, a square, a triangle or a diamond. This can be done by setting the widget's `point_style` property when creating it. For more information, refer to the scripting API documentation

Drawing Tools

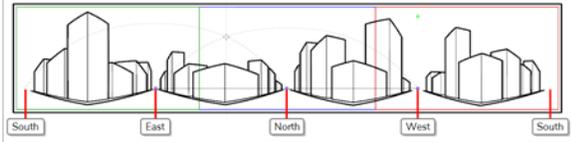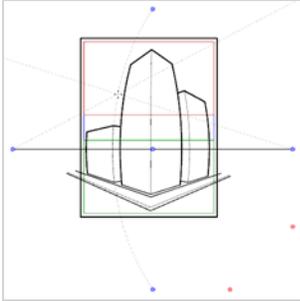| Feature	Description
Pen stabilizer	The new pen stabilizer can help you draw smooth, stable lines by stabilizing your drawing strokes as you draw, without having to smoothen them afterwards and potentially impact their shape. It works by letting you draw a stroke without generating a line immediately. Once your stroke is of a certain length, it starts generating a line that trails behind your mouse cursor or tablet pen. By trailing behind, it can use the information of your drawing gesture between the line and the current position of your mouse cursor or tablet pen to generate a smooth line. This feature can be enabled by adding the **Pen Settings** toolbar to your workspace, and selecting either **Average** or **Pulled String** in the toolbar's drop-down menu.
Pen tilt support	If you have a tablet and pen that support reading the tilt angle of your pen, you can configure the Brush tool to use this information and draw with a tilted tip. A tilted tip is stretched in the angle in which you tip your tablet pen, simulating the effect of drawing with a tilted pencil or felt pen. This feature can be used by adjusting the **Pen Tilt Sensitivity** parameter in the **Brush Properties** dialog.
Pen rotation	If you have a tablet and pen that support reading the rotation angle of your pen, you can configure the Brush tool to use this information to rotate your brush tip based on how you rotate your tablet pen. This featured can be used by enabling the **Use Pen Rotation** property in the **Brush**

Feature	Description
	Properties dialog.
Pen pressure feel editor	Harmony now allows you to configure the curve by which it processes the amount of pressure you put on your pen tablet to calculate the thickness of your brush or pencil lines. The Pen Pressure Feel dialog can be accessed by adding the **Pen Settings** toolbar to your workspace, then clicking on the 🖋 Pen Pressure Feel button.
Adjust thickness when drawing straight lines	When drawing straight lines with the 🖌 Brush or ✏ Pencil tool using a pressure sensitive pen tablet, you can drag your pen back over your stroke to adjust or increase its thickness, as if you were drawing with a pressure-sensitive pen against a ruler. There are two different approaches to this: • If you draw while pressing and holding the Shift key, you will draw a horizontal or a vertical line. • If you draw while pressing and holding both the Alt and Shift keys, you will draw a straight line in any direction. If you drag your pen in the opposite direction of your line, the angle of your line will lock and you will be able to draw over it.
Stroke tool smoothing	The 🗨 Stroke tool now creates smoother lines with less unnecessary control points.
Keyboard shortcut for Draw Behind	It is now possible to assign a keyboard shortcut to toggle the 🖊 Draw Behind tool property. This shortcut is listed as **Draw Behind** under the **Drawing Mode** section of the keyboard shortcuts list, and has no default assignment.
Tip Style option for the Contour Editor	The 🔖 Contour Editor tool now has a 🖍 Tip Style option in the Tool Properties view. This option allows you to select which style of tips should the extremities of pencil lines be left with when you select and delete a pencil line segment with the Contour Editor tool.

Feature	Description
Default Tip Style	When you set the ⬛ Tip Style for the ✐ Cutter, 🖌 Eraser or 🖋 Ink tool in the **Tool Properties** view, it is now saved in your preferences, separately for each tool.
Synchronize Brush and Eraser size	It is now possible to synchronize the size of the Brush and Eraser tools. To do this, open the **Preferences** dialog and, in the **Drawing** tab, check **Synchronize Eraser and Brush**.

Drawing Guides

Feature	Description
New Drawing Guides	Many new drawing guides have been added: • The **Ruler** allows you to position and rotate a simple axis, then draw a line along that axis, like a regular ruler. • The **Isometric Perspective** guide helps you draw lines that are parallel to one of three axes: The x-axis, the y-axis and the z-axis. The angle of each axis can be customized as needed. This type of pseudo-perspective, also referred to as parallel projection, is often used in 2D games, computer graphics and schematics to depict 3D objects and environments without using any actual perspective, foreshortening or 3D rendering. In 2D animation, it is often used to draw long panning backgrounds from a low or high angle.

Feature	Description

	- The **3-Point Perspective (Horizontal Pan)** guide helps you draw horizontally panoramic backgrounds, with curvilinear horizontal lines. A vanishing point is placed in the middle of the horizon line, to help draw lines on the z-axis, and two vanishing points are placed on the horizon line outside of the camera field, to define the curve of horizontal lines. Vertical lines are made perpendicular to the horizon line.
	
	  This is useful for drawing backgrounds meant to be panned over horizontally. Panning the camera horizontally over a background drawn with a 3-Point Perspective (Horizontal Pan) guide will simulate a rotation of the camera on the y-axis.
	
	- The **3-Point Perspective (Vertical Pan)** guide helps you draw vertically panoramic backgrounds, with curvilinear vertical lines. A vanishing point is placed in the middle of the horizon line, to help draw lines on the z-axis, and two vanishing points are placed above and below the horizon line, outside of the camera field, to define the curve of vertical lines. Horizontal lines are made parallel to the horizon line.
	
	  This is useful for drawing background meant to be panned over vertically. Panning the camera vertically over a background drawn with a 3-Point Perspective (Vertical Pan) guide will simulate a vertical rotation of the camera on the x-axis.
	
	- The **4-Point Continuous Perspective** guide is very similar to the 3 Point Perspective (Horizontal Pan) guide, except that it is designed to help draw full 360° panoramic backgrounds.

Feature	Description
	This guide uses 5 vanishing points. When drawing a horizontal line, it is curved by arching over one of the vanishing points and reaching down to the two surrounding vanishing points. This creates a perspective effect where each vanishing point represents one of the cardinal points, except that the leftmost and the rightmost points represent the same cardinal point, effectively creating a looping background. Backgrounds made with the 4-Point Continuous Perspective guide can be looped horizontally to simulate a full rotation of the camera on the y-axis. • The **4-Point Perspective (Vertical Pan)** is a lot like the 2-Point Perspective guide, except that its vertical lines are curvilinear, so ti can be used to make vertically panning backgrounds. Two vanishing points are on the horizon line, outside of the camera field, to help draw lines on the x-axis and the z-axis, and two vanishing points are placed above and below the camera field to define the curve of the vertical lines. This is useful for drawing backgrounds meant to be panned over vertically, in which cuboids objects are seen from an angle. • The **5-Point Perspective (Fish Eye)** guide helps you draw backgrounds that are curvilinear on both the x-axis and the y-axis. It has one central vanishing point on the horizon line, from which lines on the z-axis are drawn, two vanishing points at the extremities of its horizon line, to define the curve of horizontal lines, and two vanishing points above and below the horizon line, to define the curve of the vertical lines. This guide can be used to draw backgrounds with a fisheye-style wide angle lens effect. It can also be used to draw backgrounds that are meant to be panned in various directions.

Feature	Description
	Each guide is available in the ✚ Add Guide pop-up menu of the **Guides** view.
Rework line	If you press and hold the Alt key while drawing a line using a drawing guide, keep the Alt key pressed afterwards, and start drawing again, you will keep drawing on the same axis. This can be used to rework the thickness or length of lines you are drawing with a guide.
Guide angle display	When you rotate a guide, its exact angle is displayed in the top-left corner of the Camera view.
Rotate guide from centre	Some guides are rotated by moving one of the two points on their horizon line, which rotates them around the opposite point. If you press and hold the Alt key while moving one of their points, it will rotate the guide around its centre instead. This works for the following guides: • Ruler • 2-Point Perspective • 3-Point Perspective (Bird's-Eye View) • 3-Point Perspective (Worm's-Eye View)

Deformations

Feature	Description
Free Form Deformation	The new Free Form Deformation is a type of deformer that can be used to deform textures. It works by creating points anywhere inside an element, then manipulating these points to deform the element in a way similar to pulling on different parts of a piece of cloth.

Feature	Description
	A Free Form deformation is used on this character's mane. By moving the control points in the middle towards the left, the mane's texture follows the head's movement. The left half is squished, and the right half is stretched. To create a Free Form Deformation, select the Rigging tool in the Deformation toolbar. Then, in the Tool Properties view, select 🗾 Free Form Mode. Select the element you want to deform, and click where you want to create deformation points.
Show deformations without hiding others	A 🖧 Show Selected Deformers button was added to the Deformation toolbar. Contrary to the existing ⊖ Show Selected Deformation Chains and Hide All Others button, this button displays the deformation chain for the selected element without hiding others.

Digital Animation

Feature	Description
Alignment guides in the Camera view	It is now possible to add horizontal and vertical rulers, referred to as alignment guides, to the Camera view. Alignment guides are visible when the Transform tool is selected, and can be used to help you align elements to specific areas of the stage. • You can add guides using the ┬₊ New Horizontal Alignment Guide and ┬₊ New Vertical Alignment Guide buttons in the toolbar above the **Camera** view. • You can manipulate alignment guides using the ⣏⣹ Transform tool. • You can hide or display guides by toggling the ┬👁 Show Alignment Guides button in the toolbar below the **Camera** view. • You can lock or remove alignment guides using the menu commands available when selecting **View > Alignment Guides** in the top menu.

Feature	Description
	• You can make elements snap to alignment guides by enabling the ⛳ Snap to Alignment Guides option of the Transform tool in the Tool Properties view.
Frame markers	It is now possible to add coloured markers to frames in the Timeline view. Frame markers differ from drawing markers in that they are not tied to a drawing, but to a frame. They can be added to any frame, whether or not it contains a drawing. They also differ from scene markers as they are added to specific layers rather than the entire scene, and only mark a single frame. To add a frame marker, right-click on a frame in the **Timeline** view and select **Mark Frame**, then select the desired colour to mark the frame with. It is possible to assign keyboard shortcuts to quickly navigate between frame markers, whether of any colour or of a specific colour. Those keyboard shortcuts can be set in the **Timeline** section of the **Keyboard Shortcuts** dialog.
Exclude layers in Pose Copier	The Pose Copier dialog now allows you to select layers in your rig to exclude from the pose copying process. This can be useful if you have a template containing many full character poses, but you only want to paste certain parts of these poses on your character. To use this feature, first, select every layer you want to exclude in the Timeline view. Then, right-click on them and select **Tag > Timeline Tag**. Then, once in the Pose Copier dialog, check the checkbox next to the **Exclude Layers** button, then click on this button.

Node View

Feature	Description
Preference for pass through composite as default	There is now a preference to make new Composite nodes in Pass Through mode by default. This preference, named **Default Pass Through Composite**, is available in the **General** section of the **Preferences** dialog.
Rip & insert composite	It is now possible to insert a composite in the middle of a connection cable by holding the Alt key and moving it over the cable. It is also possible to rip a composite from a connection by holding the Alt key and moving it out of its cables. Up until Harmony, this was possible with every node that has at least one input and one output port, except for the Composite node.
Straight cable display	It is now possible to display cables in the Node view as straight lines going directly from one port to the other. This can be useful if your node network uses a lot of waypoints, as

Feature	Description
	connections between waypoints display as straight lines.
Set composite mode on several composites	Using the Set Properties on Many Layers dialog, you can change the mode of all composite nodes in the selection to either As Bitmap or Pass Through. To access this dialog, click on the ⚒ Set Properties on Many Layers button in the Node View toolbar.

Effects

Feature	Description
New Motion Blur effect	A new Motion-Blur effect was added to Harmony. This effect has four significant enhancements over the legacy Motion-Blur node: • It can blur animations on the angle and scale of elements, whereas the legacy Motion-Blur effect only blurred translations. • It can be connected to a peg that will dictate the direction of the blurring effect, if desired. Otherwise, it will use the direction of its input image, like with the legacy Motion-Blur node. • It has a Preroll Motion option that allows you to simulate that the motion started before the first frame of the scene, making the motion blur already in effect in the first frame. • The motion blur effect continues even after its input element has exited the camera field. **NOTE** The legacy Motion-Blur node was renamed **Motion-Blur-Legacy**.
New Chroma Keying effect	A new chroma keying effect, the RGB-Difference-Keyer node, was added to Harmony. It has the following enhancements over the legacy Chroma-Keying node: • It has a lot more parameters, allowing you to customize properly how to select which pixels in the input image to key out. • It is able to *despill* the borders of the output image without blurring it. • It can be used to apply the keyed matte to another image that the image used to generate the matte.

Performance

Feature	Description
Node & Rig Caching	It is now possible to make Harmony cache the output image of nodes and composites for the OpenGL preview of the Camera view: • Each node that outputs an image has a **Cached** option. When enabled on a node, Harmony generates the OpenGL preview of that node once, stores it in a cache, and uses the cached image to display in the Camera view. • More importantly, if this option is enabled on a Composite node, the composite will store each of its input images into separate caches. This can significantly improve the performance of Harmony when working on heavy scenes with several character rigs. For example, by enabling the **Cached** parameter on a Composite node to which several character rigs are connected, the preview image of each of these character rigs becomes cached. Since a character rig that is cached cannot be manipulated, it is possible to temporarily uncache a cached node or rig simply by clicking on it. Then, if you click on another cached node or rig in the scene, the previously active node or rig becomes cached again, and the newly selected node or rig becomes uncached. To enable cache on a node or composite, open its layer properties and, in the top-right corner, check the **Cached** checkbox. You can also add the **Node Caching** toolbar to your workspace, with which you can enable or disable caching on selected nodes and control how caching is temporarily disabled and re-enabled. The ⚡ OpenGL Node Caching Enabled button in the toolbar below the Camera view allows you to toggle caching on and off, control what happens when a cached rig has elements that are too far apart on the z-axis, and adjust the resolution of cached images.

Export

Feature	Description
Export as MP4	It is now possible to export a movie in MPEG-4 (`.mp4`) format. To export an MP4 movie, select **File > Export > Movie** from the top menu. Then, in the **Video Format** drop-down, select **H.264/MPEG-4 (*.mp4)**. > **NOTE** > Movies export in MP4 format from Harmony use the H.264 video codec and have no audio.

Feature	Description
New QuickTime movie interface for macOS	On macOS, Harmony now uses the Apple AVFoundation framework that is built into macOS to export movies in QuickTime Movie (.mov) format, instead of the QuickTime application. This allows Harmony to export using the **H.264**, **Apple ProRes 442** and or **Apple ProRes 4444** codecs built into AVFoundation.

Import

Feature	Description
Import MP4/M4V	It is now possible to import MP4 or M4V movies into your scene. To import an MP4 or M4V file, select **File > Import > Movie** from the top menu.

Preferences

Feature	Description
Keyboard Shortcuts dialog	The Shortcuts tab of the Preferences dialog is now its own dialog, the Keyboard Shortcuts dialog. To access this dialog box, in the top menu, select **Edit (Windows/Linux) or Harmony [Edition] (macOS) > Keyboard Shortcuts**.
Create, export, import and switch between keyboard shortcuts sets	It is now possible to create your own keyboard shortcut sets. You can also export your keyboard shortcut sets as XML files and use them as backups or share them with project collaborators. You can create, export and import keyboard shortcut sets using the **New**, **Load...** and **Save...** buttons at the top of the **Keyboard Shorcuts** dialog.
Export and import preferences	It is now possible to export your preferences as XML files, and use them as backups or share them with project collaborators. You can export and import preferences using the new **Load...** and **Save...** buttons at the top of the **Preferences** dialog.
Default preference sets	Harmony now comes preloaded with five different sets of default preferences, which you can quickly switch between in the Preferences dialog. Most of the preferences in these sets are the same, except for key workflow preferences such as

Feature	Description
	Focus on Mouse Enter, **Default Separate Position for Pegs**, **Stop-Motion Keyframes**, **Support Overlay Arts and Underlay Arts**, **Advanced Palette List** and others. For more information, refer to the Preferences guide.
Default preference overrides	You can use a specific preference set as the default preferences for Harmony users. To do this, save this preference set as the file `prefs_override.xml` in the `resources` sub-folder of the Harmony installation folder.

Installation

Feature	Description
Single application on macOS	The Harmony package for macOS now only contains a single application. You can launch any of the side applications bundled with Harmony, such as **License Wizard**, Control Center and Configuration Assistant, by first launching Harmony, then selecting **Harmony [Edition] > Harmony Tools** from the top menu.
Easy authorization on macOS	The way Harmony is packaged for macOS no longer triggers the operating system's security mechanisms. Hence, it is no longer required to right-click on Harmony, select Open and authorize the application as a user with administrative privileges to be able to run Harmony and its side applications. You will be able to launch Harmony as soon as it is copied to your Applications folder.

Enhancements

- When drawing, the preview of the stroke now refreshes four times as fast, making it feel smoother and more responsive.

- The version of the Cisco OpenH264 library used by Harmony was upgraded to 1.8.

- The Draw Circle and Draw Square options for the ○ Ellipsis and □ Rectangle tools are now togglable icon buttons in the **Tool Properties** view.

- The **Centerline Smoothing** slider has been removed from the **Tool Properties** view for the 🖌 Brush and 🖌 Eraser tool. It is now only available in the **Brush Properties** and **Eraser Properties** dialogs.

- The **Apply Parent Modifier's Transformation** property of Curve nodes has been renamed **Apply Parrent Transformation**.

Fixed Issues

- Harmony sometimes fails to initialize the sound drivers before playback on Windows.

- Crash when attempting to view the layer properties of an Element node created when the **Preserve Line Thickness By Default** preference is enabled.

- Rare crash when using curve or envelope deformations on a drawing with pencil lines.

- Rare crash when undoing a modification with the ⮢ Contour Editor.

- Harmony may crash when attempting to move the Playback toolbar on macOS.

- Harmony crashes when selecting artwork from multiple art layers and multiple drawing layers at the same time, then copying and pasting it into a different layer.

- Harmony crashes when selecting **Top** in the **Monitored Attributes** list of a Master Controller wizard, then clicking on the 🔍 Search button.

- Harmony crashes when manipulating a 3D Rotation widget in a Master Controller node.

- Harmony crashes when attempting to rename a newly created template while the Library view is in Detailed display mode on Windows in Stand Alone mode.

- Crash when copying and pasting Master Controller nodes using the `copyPaste` scripting object.

- Crash when dragging and dropping a vector or bitmap image from the Library view to a cell in the Xsheet view.

- Hang when opening the ☰ View menu of the Drawing Substitutions view if no layer is selected.

- Output image of composite node does not appear in rendered image if the composite is connected both an element that is at a position higher than 0 on the z-axis and a node such as the Line Art, Color Art, Underlay, Overlay, Image Switch or Layer Selector node with no input image.

- Drawing slowly on a pen tablet on macOS results in shaky lines.

- When drawing a very long brush stroke, then immediately drawing another stroke, the second stroke starts off with a straight line segment.

- When using the 🕭 Stamp tool with the 🜂 Draw Behind option, the order in which the strokes in the artwork of the stamp are laid on top of each other is reversed.

- Random effect of Quake node, Shake node and Lens Flare node renders differently on Windows, macOS and GNU/Linux.

> **NOTE**
>
> To avoid affecting existing scenes, this fix only applies to Shake, Quake and Lens Flare Nodes created in Harmony 17 or later. To use the new, platform-independent random effect on a node created in an older version, open its layer properties and set the **Version** property to **2**.

- Rendering of 3D models through Maya using Renderman does not work with Renderman 22.0 or later.

- Attempting to use Unicode characters in a scene or layer name does not work on certain GNU/Linux machines.

- Dependencies of Master Controller do not get copied into the scene when inserting a template that contains a Master Controller from a different job folder.

- Elements connected to a Pixelate node are invisible in the OpenGL preview of the Camera view.

- After having synced a layer with another layer, then unsyncing it, it is impossible to sync it with a different layer.

- Using the 🖾 Reposition All Drawings tool in the Drawing view offsets a drawing multiple times if it is exposed multiple times.

- Copying and pasting text with rich text formatting into any of the script fields of the Layer Properties for a Master Controller or Script node may result in illegible or scrambled text.

- Exporting a QuickTime movie via the scripting interface fails when passing -1 as the horizontal and vertical resolution. Using -1 is supposed to make it use the default preview resolution instead.

- When pasting layers using Paste Special, with the **Palettes** option set to **Copy and create new palette files in element folder**, the palette files get copied to their origin folder and renamed.

- Empty Group layer gets locked and cannot be unlocked when collapsed in the Timeline view.

- Many translation issues across the user interface.

- The Play application always launch in Stand Alone mode in Japanese.

- No option to import 3D models in trial mode in Japanese.

- Error message when clicking on the 🖾 Save Grid Preset button in the Grid Wizard.

- The 📁 Load Grid Preset button of the Grid Wizard opens an Open File dialog, then displays an error message.

- Layer properties of Master Controller or Script node do not have a scroll bar when they exceed the available display space.

- When using a Master Controller wizard on GNU/Linux, the `.tbState` extension is not automatically added to the pose databases file generated for the Master Controller.

- Seams may appear where different colour zones meet when looking at a drawing with the Backlight mode enabled, at certain zoom levels, in the Drawing view.

- Pencil icon next to modified drawings in Xsheet view is not properly centred on macOS that use a Retina display.

- Some brush tips and paper textures that were included in Harmony 15 were missing in Harmony 16.

- Progress bar window appears at the top of the screen when movie file on macOS.

- Up & down buttons right of decimal number input fields appeared only on Windows and GNU/Linux, and only when using dark style.

- Cannot select a node by clicking on its debug information, when Debug mode is enabled.

- Empty item in Undo/Redo list after using the Rename Transformation button of the Deformation toolbar.

- Tool tips of Game Skinning toolbar are not translated in other languages.

- Buttons to flip a stamp horizontally or vertically in the Tool Properties view appear too small when using a Retina display on macOS.

- When customizing certain toolbars such as Master Controller, Deformation, Shift and Trace, Mini Playback, Game Skinning and Master Controller, clicking on **Default** will remove all the buttons from the toolbar.

- When nudging a deformation point with the keyboard while in 🕴 Animate Off mode, the deformation point moves too far.

- If the toolbar for a specific view is hidden, it reappears after switching to another view, then back to that view.

- Impossible to select a point with the ▷ Contour Editor using a tablet pen.

- Some frames may be corrupted when exporting a Windows Media Video (`.wmv`) file at 100% quality.

- When copying and pasting artwork from multiple art layers, with the ▱ Apply to Line Art and Colour Art tool property enabled, all of the artwork ends up only on the current art layer.

- Content of Grid Wizard dialog shifts when selecting or deselecting a grid point on macOS.

- Exporting layout images in **PSDDP4** format results in 8-bit/channel PSD images, whereas they should be 16-bit/channel.

- Many preferences are not restored to their default value by the **Restore All Defaults** button.

- When using drawing guides, using the arrow keys to switch between axes also changes the current Stamp tool drawing.

- Using the [and] keyboard shortcuts to substitute the current drawing does not work in the Timeline view, the Node view or the Library view.

- Crash when deleting a composite node inside a group if the composite node is connected to multiple input images going from the Multi-Port-In node and some of its cables are crossed.

- Keyframe is created when modifying a deformation point with the ⵑ Rigging tool.

- Custom configuration of certain toolbars is not preserved after closing Harmony.

- Harmony cannot load SDK plugins unless their path is specified in the **TOONBOOM_PLUGINPATH** environment variable on GNU/Linux.

- Some synced layers are ignored when using the Pose Copier dialog with a template that has synced layers.

- Drawings offset with the ⵗ Shift and Trace tool appear offset when using Mini Playback.

- Selected preset for the ✎ Pencil tool and the ⌫ Eraser tool are swapped each time Harmony is launched.

- Changing the scene's length from the Timeline view while it is fully zoomed-in positions the end-of-scene handle one frame off the actual end of the scene.

- Errors in the script samples of the Master Controller widgets provided in the scripting documentation.

- Bounding box of element selected with the Transform tool is inaccurate if the element is selected while the Camera view is rotated, then the Camera view is reset to its default angle.

- Render Preview node does not update when selecting a frame in the Timeline view if the **Enable Interactive Camera View Cache** preference is enabled.

- Error messages appear when cancelling any operation while creating a Master Controller using one of the Master Controller wizards.

- View-specific toolbars are not listed in the context menu when right-clicking on the toolbar area of a view.

- Using the **Lock All** or **Lock All Others** commands lock group layers in the Timeline view.

- Opening the Layer Properties dialog for a locked layer locks all of its children in the Timeline view.

- Using the Configuration Assistant to add the path to the Harmony executables to the $PATH environment variable on macOS does not always work.

- If two Harmony Server scenes with the same name but different environments are open at the same time, the Database Lock Manager will always display the locks for both scenes when trying to view the locks for only one of them.

- The `-adjustpencil` parameter of the `utransform` does not work.

- The △ Perspective tool performs excessive smoothing on the selected artwork.

- The **Line Art** options in the **Nodes ViewLayer** tab of the Preferences dialog are inverted.

- Options for the ✖ Centerline Editor tool are labeled "Contour Editor Options" in the Tool Properties view.

- Wrong translation of the word "name" is used in the Welcome dialog in Japanese.

- Name of some tool properties may not appear translated when using Harmony in a language other than English.

- The `FixURLHandler.sh` script packaged with the macOS edition does not work when run from any directory but its own directory.