



grass valley

A **BELDEN** BRAND

COMPOSER

FOR GV DIRECTOR

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1 About this guide

The Composer 1.8.0 User Guide gives users the latest information and instructions about how to use Composer 1.8.0 for GV Director.

1.1 What's in this guide

- Chapter 2, provides a general description of the Composer characteristics.
- Chapter 3, helps you to get familiar with the window that opens when you launch Composer. It describes its toolbars, panes and tabs, as well as its basic elements.

1.2 How to use this guide

You can use Chapter 2 of this guide to find general information about Composer, such as a brief explanation of this application, and its basic elements. This chapter also explains the setup of the Composer workspace and the tools it includes.

1.3 Document conventions

The formatting of this user guide is designed to help you easily and quickly find information. The following table explains what the different formats in this document mean.

Format	Refers to	Example
Bold	An onscreen object for which a user action is needed. Keyboard keys are not emphasized.	Click Save As .
<i>Italic</i>	Placeholder text. Hyperlink or cross-reference.	Type <i>password</i> . See <i>Chapter 2, Get to know Composer</i> .
■	Single-step procedures.	■ On the View menu, click Ruler.
1.	Multiple-step procedures.	1. On the Tools menu, click Options . 2. Click the Edit tab.
& Note:	A note.	& Note: Only administrators can publish to a server.
•	A list item.	A user can edit: <ul style="list-style-type: none">• Objects• Materials• Visual effects.

1.4 Useful resources

The following related resources might also help you to learn about the features of Composer: Composer topic library located on the Grass Valley website (www.grassvalley.com).

1.5 Grass Valley technical support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 503-478-4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

1.6 Corporate head office

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St-Laurent, Quebec H4S 2C6
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Telephone +1 514-333-1772

2 Get to know Composer

This chapter introduces you to Composer, its basic features and the production elements within the application.

Composer is an animation and compositing tool with which you can design the graphic identity of live productions. It has been developed for broadcast professionals. To make things easy, Grass Valley has made various templates and has made them part of Composer. With these templates you can build a variety of production elements, such as effects, transitions and compound elements.

Composer is part of the GV Director platform, an out-of-the-box, multipurpose tool for live production. It integrates video switching, multi-layer effects, animated graphics, multi-viewer monitoring, and more.

2.1 Basic features

With Composer you can design and compose production elements, such as:

- Transitions
- Templates (used to build effects)
- Effects
- Compound elements.

These elements are edited in a project. The project also contains other design elements such as straps and logos.

The process of working with Composer can be divided into several steps:

1. Create a project.
2. Add and edit objects.
3. Add and edit transitions.
4. Add and edit templates.
5. Add and edit effects.
6. Add and edit compound elements.
7. Create a production pack.

Once the design of the production elements is ready, you can bundle them in a production pack and export this pack to GV Director. The production elements can then be linked to buttons on the GV Director Panel.

2.2 Production elements

This section describes the production elements that you can design and compose in Composer:








- Transitions
- Templates (used to build effects)
- Effects
- Compound elements.

These elements are the building blocks of a production pack.

2.2.1 Objects

Composer works with objects. Objects have properties, such as opacity, position and scale that you can edit and animate. You can edit objects in the Object and Objects pane.

The following prefabricated objects (prefabs) are available in the Composer library:

Category	Icon	Object type	Description
Canvases		Players	You can use players to control how content is played out. You can assign different actions to a player, such as Play (default), Stop, Pause and Resume.
		Animations	You can use an animation to play out an animation. You can create an animation from a series of TGAs with the ANI Generator. There are two different presets for ANI players: Ani and Quality Scaled Ani.
		Audio	You can use the audio object to play out audio.
		Clips	You can use clips to play out a video clip. There are four different presets for clips: <ul style="list-style-type: none"> • Clip • Clip HD 1080 Quality Scaled: with a quality scaler to downscale from HD to SD. • Key Fill: where the clip is used as a fill and with a key player. • Quality Scaled Clip: with a quality scaler suited for downscaling.
		Mesh clips	You can use a mesh clip to play out mesh clips. There are three different presets of mesh clips: <ul style="list-style-type: none"> • Circle Ticker • Helix Ticker • Single Material Cube.
		Stills	You can use a still to play out a still. There are two presets for stills: Still and Key Fill Still. The Key Fill Stills has two players, one for key and one for fill.
		Texts	You can use a text to play out a text and several digital clocks in TrueType fonts. It is possible to play out a static text or a dynamic text with the use of so-called scene parameters. Use the Standard Texture material with a text player to play out text on other objects. Text is shown in a text frame. You can change the size of this frame in the Object pane or on the GV Director panel, and then choose the Copy from Transform Gizmo option. There are four different presets of the text object: <ul style="list-style-type: none"> • Autoclock; a digital clock that shows the system time. • Multiline Text: a text of multiple lines separated by hard returns. • Text: a text of one single line. • Up Counter HMS: a clock in hh:mm:ss format.
		Tickers	Use a Ticker to play out so-called ticker stories (text).
3D shapes		Boxes Cylinders Spheres	
2D shapes		Planes	

Commands



Use a command to run a specific command. Commands are edited on the Template Timeline, where they are placed on command tracks. There are ten different types of command that can be used:

- AFD Command
- Add Ticker Story
- GPIO Command
- Rating Command
- Ticker Command
- Video Index Command
- WSS Command

Supported formats

Stills

Format

BMP

TGA

GIF

JPEG

PNG

TIFF

Details

24 bit, uncompressed

32 bit, uncompressed, with alpha channel

8 bit

24 bit

32 bit, with alpha channels

32 bit, uncompressed with alpha channel

- Interlaced PNG is not supported.
- Both bottom-to-top and top-to-bottom Targa is supported.
- Tiff JPEG compression is not supported.
- GIF transparent color pixels are painted black, no alpha is produced

We recommend the following image editors with which you can export to the TGA format, Composer's native still format (with alpha support).

- Windows: Paint.NET <http://www.getpaint.net/index.html>
- OSX: GIMP <http://www.gimp.org/>

Animations

Animations are played out in a native animation file format. Composer animation files are compressed video files and can be generated from TGA sequences.

TGAs that are used for animations must meet the following requirements:

- 32 bit, uncompressed, with alpha channel
- Image size: a factor of 16, such as 32. If an image has a different size, the encoder adds pixels. The result is that the output image is slightly larger than the input image.
- All images must have the same size.

- You must number TGAs sequentially, such as targa_01.tga, targa_02.tga, targa_03.tga. You do not have to start at 0.
- The file number must be at the end of the file name, such as targa_01.tga.
- The minimum number of TGAs for an animation is 2.

Composer automatically crops full screen animations with a transparent background.

Clips

Format	Codec	Bit Rate Mb/s	Supported Wrappers
SMPTE D10 30 / IMX 30	SMPTE D10 (MPEG-2 4:2:2P@ML)	30	MOV, MXF
SMPTE D10 40 / IMX 40	SMPTE D10 (MPEG-2 4:2:2P@ML)	40	MOV, MXF
SMPTE D10 50 / IMX 50	SMPTE D10 (MPEG-2 4:2:2P@ML)	50	MOV, MXF
DV25	DV25	25	MOV, MXF, GXF, LXF
DVCAM	DV25	25	MOV, MXF, GXF, LXF
DVCPRO25	DVCPRO25	25	MOV, MXF, GXF, LXF
DVCPRO50	DVCPRO50	50	MOV, MXF, GXF, LXF
DVCPROHD	DVCPROHD	115	MOV, MXF, GXF, LXF
XDCAM HD (LP, SP, HQ)	MPEG HD (MPEG-2 MP@HL)	18, 25, 35	MOV, MXF
XDCAM HD422	MPEG HD422 (MPEG-2 4:2:2P@HL)	50	MOV, MXF
XDCAM EX SP	MPEG HD (MPEG-2 MP@HL-1440)	25	MOV, MXF
XDCAM EX HQ	MPEG HD (MPEG-2 MP@HL)	35	MOV, MXF
MPEG-2 4:2:0 SD	MPEG-2 MP@ML	Max 15	MOV, MPG, MXF ⁶ , GXF, LXF
MPEG-2 4:2:2 SD	MPEG-2 4:2:2P@ML	Max 50	MOV, MPG, MXF ⁶ , GXF, LXF
MPEG-2 4:2:0 HD	MPEG-2 MP@HL	Max 100	MOV, MPG, MXF ⁶ , GXF, LXF
MPEG-2 4:2:2 HD	MPEG-2 4:2:2P@HL	Max 100	MOV, MPG, MXF ⁶ , GXF, LXF
AVC Intra 50	H.264 (MPEG-4 AVC Hi10-Intra-P@L4)	50	MXF, GXF
AVC Intra 100	H.264 (MPEG-4 AVC Hi4:2:2-Intra-P@L4.1)	100	MXF, GXF
H.264/AVC	H.264 (MPEG-4 AVC HiP@L4.1)	Max 50	MOV, MXF
Apple ProRes 4:2:2 LT	Apple ProRes 4:2:2 LT	Max 100	MOV

- For supported embedded audio formats, see the Audio section below.
- Grass Valley works hard to ensure compatibility with all leading industry formats. However, to uphold reliable playback, we strongly recommend the validation of content files for new projects.

Restrictions for embedded audio

Format	Details
BWAV / WAV	16 or 24 bit LPCM, sampled at 48 kHz
MPEG 1 Layer 2 / MP2	16 bit, sampled at 48 kHz

GOP size restrictions

- The maximum GOP size for all video formats is 15 frames.
- Both I frame only and long GOP formats are supported.
- Supported are MPEG-2 Transport Stream and MPEG-2 Program Stream.
- H.264/AVC format: 4:0:0 (monochrome) is not supported.
- Only Operational Pattern (OP) 1a is supported.
- For MXF wrappers, only the Operational Pattern (OP)1a is supported.
- A maximum of 36 embedded streams is supported.
- Frame accurate seeking requires availability of a Random Access Pack (RAP) for MXF files encoded with variable frame size (VBE).

Audio

Format	Details
BWAV / WAV	16 or 24 bit LPCM, sampled at 48 kHz
MPEG 1 Layer 2 / MP2	16 bit, sampled at 48 kHz

Fonts

Composer supports TrueType fonts.

Mesh clips

The mesh clip format offers a simple but effective mesh animation system in which each frame of animation is defined by a 3D object. An import feature in Composer converts industry standard 3D object files into mesh clips. The following 3D formats are supported in this conversion:

Format	Details
3ds	Autodesk 3D Studio file format

Composer imports the following data:

- Mesh data, such as vertices, faces, UV coordinates and smoothing groups.

- Materials. A Composer material is automatically made for each 3ds material.
- The first keyframe of the animation track.

Composer does not import this data:

- Non-mesh objects, like lights and cameras.
- Other keyframes.



Materials

Composer offers a selection of material types that represent some of the popular real-time shading models. You can apply one or multiple materials to an object to control the appearance of its surface.

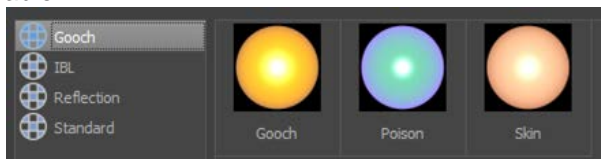
There are four types of materials:

- Gooch materials
- Image Based Lights (IBL) materials
- Reflection materials
- Standard materials.

Gooch materials

You can use gooch materials to create a style with non-realistic shading that is often used in technical illustrations. The following gooch materials are available:

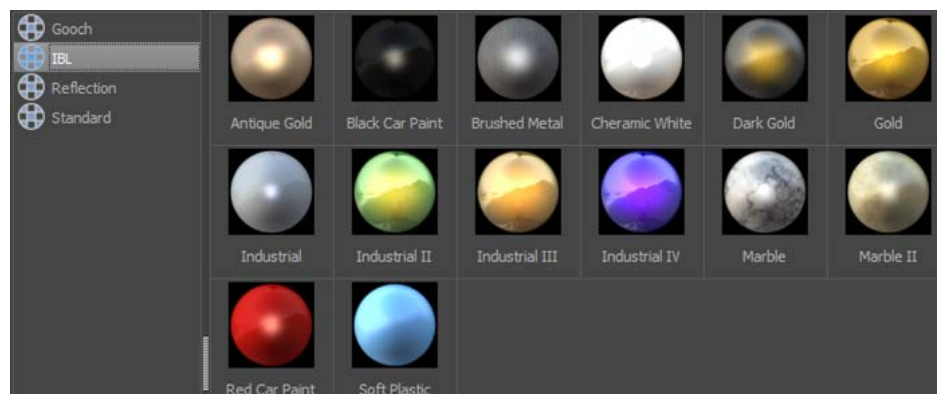
- Gooch
- Poison
- Skin



IBL materials

You can use IBL materials to imitate real-world lighting of 3D objects. The following IBL materials are available:

- Antique Gold
- Black Car Paint
- Brushed Metal
- Ceramic White
- Dark Gold
- Gold
- Industrial
- Industrial II
- Industrial III
- Industrial IV
- Marble
- Marble II
- Red Car Paint
- Soft Plastic.



Reflection materials

You can use Reflection materials to create sharp reflections and refractions. The following reflection materials are available:

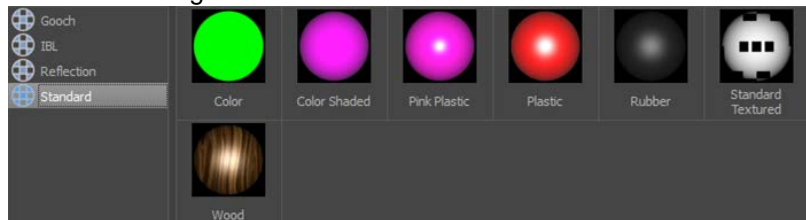
- Car Glass
- Copper
- Reflection
- Silver



Standard materials

You can use Standard materials. For these materials, the Phong shading model is used. This is the most commonly used shading model. The following standard materials are available:

- Color
- Color Shaded
- Pink Plastic
- Plastic
- Rubber
- Standard Textured
- Wood

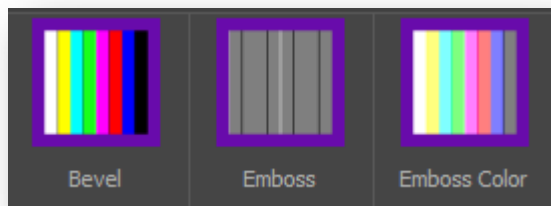


- & Note: You can use the Standard Texture material to play out a video on other objects that are not clips. With this material, for instance, it is possible to play out a video on the side of a Box. You must add a Clip to the textured material.

Layer effects (FX)

Bevel

You can use the bevel effect to add depth to objects.

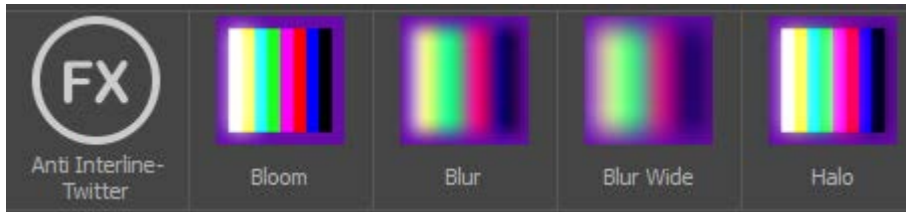


The following layer effects are available:

Blur

Use a blur to blur an object.

The following blurs are available:



Chroma keying

You can use a chroma keying effect to add a chroma key to an object for background removal.

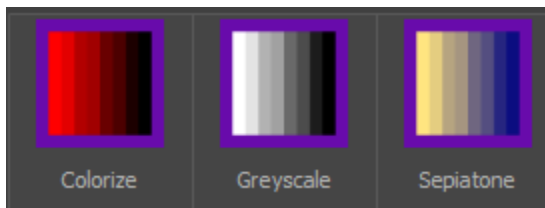


The following layer effects are available:

Colorize

Use the colorize effect to apply a color effect to an already existing object during playback.

The following layer effects are available:



Drop shadow

You can use a drop shadow effect to add a shadow to an object.

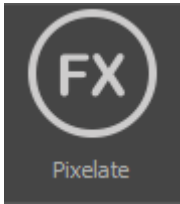
The following drop shadow effects are available:



Pixelate

You can use a pixelate effect to create a low resolution effect.

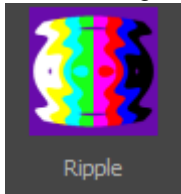
The following pixelate effects are available:



Ripple

Use the ripple effect to create a ripple effect.

The following layer effect is available:



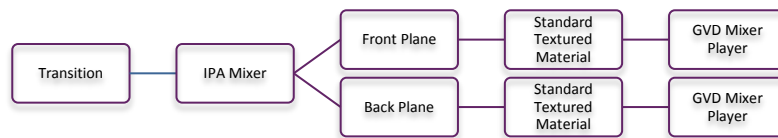


2.2.2 Transitions

An important part of Composer are transitions. A transition is a background change from a front plane (A) to a back plane (B) that you can edit. Each plane has a GVD Mixer Player to play them out. There are two types of transitions:

- (regular) transitions: all objects must start at frame 0 and you cannot add players such as animations or clips to them. You can reverse or accelerate regular transitions with the handle on the GV Director Panel.
- animated transitions: these transitions can include players such as animations, clips and tickers and objects do not have to start at frame 0. These transitions are always linear. You cannot accelerate or reverse them. You must set a duration for animated transitions.

The an example of the hierarchy transitions types is as follows:



& **Note:** All transition objects must be grouped under the IPA Mixer.

You can use other objects than planes for the front (A) and back (B).



2.2.3 Templates

A template contains one or multiple objects that change in time. You can edit these objects and transformations. To transform an object, you can use keyframes and controllers.

2.2.4 Effects

An effect is a series of templates that you can link action name that is visible on the GV Director Panel, such as On, Off or Update. Create one or multiple templates first, and then set effect actions that use these templates.



2.2.5 Compound elements

A compound element is a timed, ordered collection of effects blocks. You can edit a compound element on the Compound Element Timeline. Each effects block has a separate row on the Compound Element Timeline. Each block consists of one or multiple of the following production elements that start simultaneously:

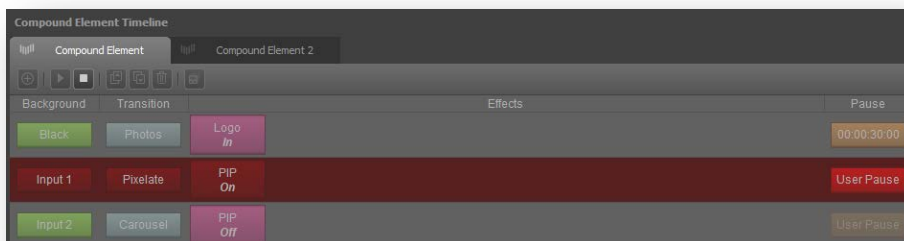
- Background: You can add the following backgrounds to an effects block:
 - Black: a full screen black plane.

- Input: an SDI input line.
- Shotbox: a shotbox location. On the GVD-Panel you can select which clips, animations or stills are visible in this shotbox location.

You can drag and drop backgrounds from the Production Elements pane to the Effects Block section on the Compound Element Timeline. If a background has already been selected, you can replace the existing background.

- Transition: defines the transition from the previous background to this scene's background
- Effects: graphical overlays
- GPOs: You can use a GPO for third party automation purposes.

Effect blocks run chronologically from top to bottom and are separated by pauses. With a pause, you can specify the amount of time between two effects blocks. There are two types of pauses: timed



pauses and user pauses. A user pause pauses playback until the user manually continues playback, either on the Panel or in Composer. You cannot edit the last pause in a sequence of effects blocks. When you preview a compound element, the active effects block is highlighted in red. A user pause will blink when it is active.

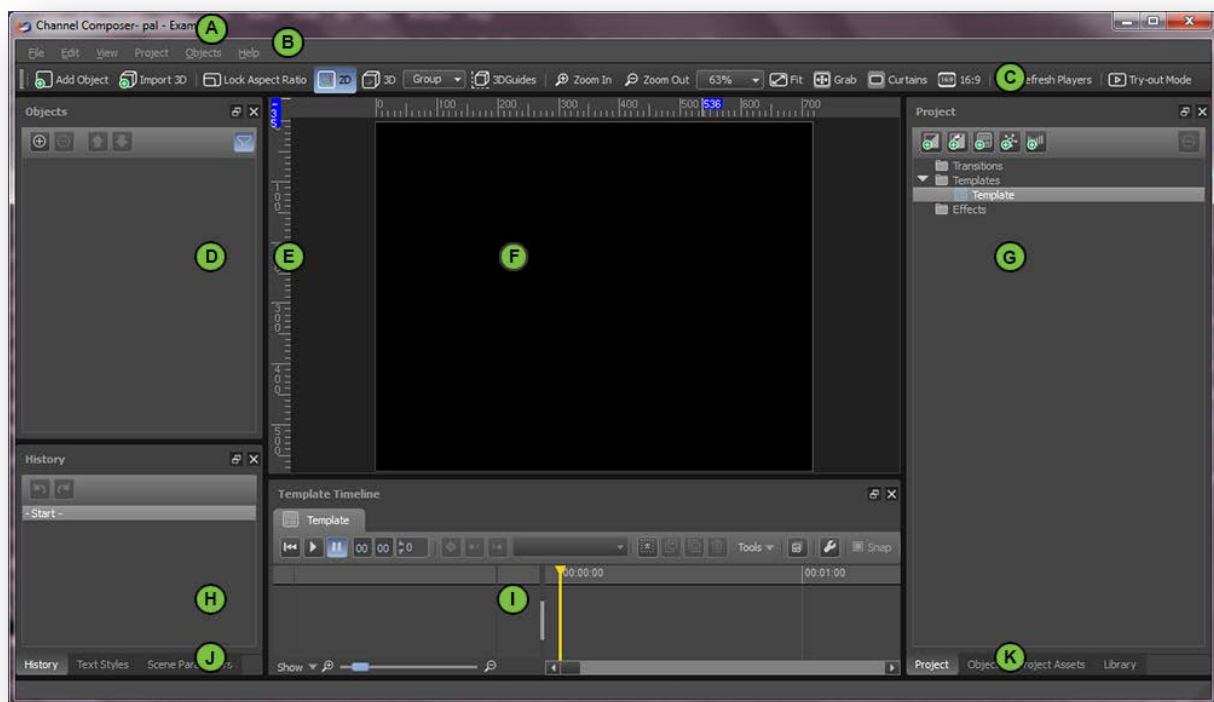
To open the Compound Element Timeline:

- Double-click a compound element in the **Project** pane.

2.3 The workspace

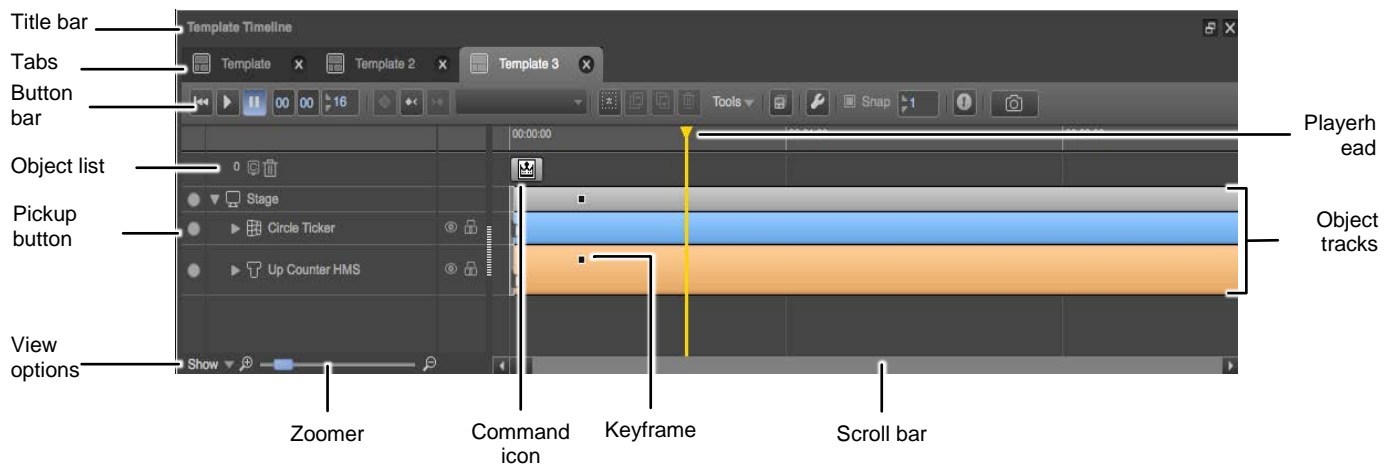
This section introduces you to the Composer workspace and its bars, panes and tabs.

The composer workspace has several bars and panes:



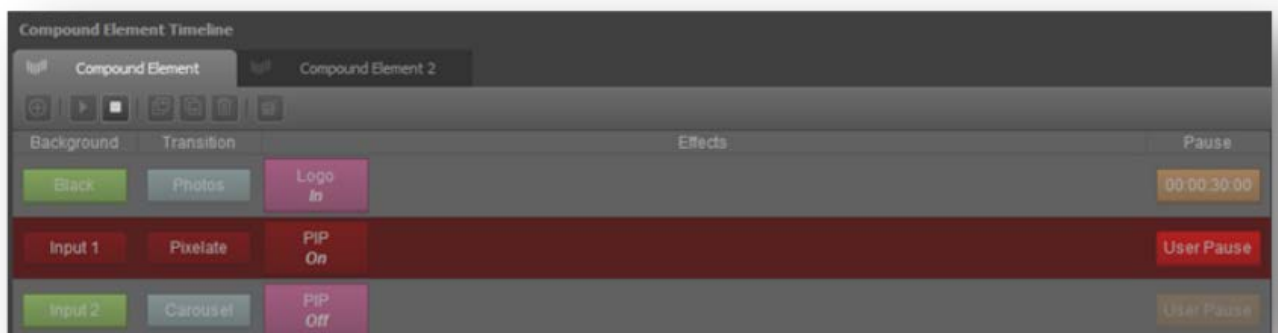
- A Title bar:** shows the broadcast format and name of the project.
- B Menu bar.**
- C Tool bar.**
- D Objects pane:** it lists the objects available in the open project and shows how they are layered.
- E Stage rulers.**
- F Stage:** You can drag and drop a Library object onto the stage to add it to a template or transition.
- G Project pane:** it lists the production elements of a production.
- H History tab:** to view actions and to redo or undo them.
- I Template Timeline:** you can use this timeline to animate objects in time. It shows each template on a separate tab. If you are editing compound elements, this changes into the location of the Compound Element Timeline (not shown in the example above). On the Compound Element Timeline each production element is shown on a separate tab.
- J** Two other tabs are underneath the History tab:
 - **Text Styles tab:** to view and edit text styles. The Text Styles tab lists and lets you manage Text Styles for the open project.
 - **Scene Parameters tab:** to view and edit scene parameters.
- K** Three other panes are stacked under the Project pane:
 - **Object pane:** to view and edit object properties.
 - **Project Assets pane:** to view and edit the project assets and metadata. All the design elements of a production are visible in this pane. The design elements are included in the Production Pack for GV Director.
 - **Library pane,** which contains the:
 - **Prefabs tab.** You can add your own objects to the Prefabs tab in the Library. This makes it easy to reuse them in another project.
 - **Test media tab.** To test production elements, test media such as stills and videos can be added to the Test Media tab. The test media is not included in a production pack.

2.3.1 The Template Timeline



2.3.2 The Compound Element Timeline

You can use the Compound Element Timeline to edit a compound elements and the production elements it contains.



2.4 The tools

2.4.1 Rulers

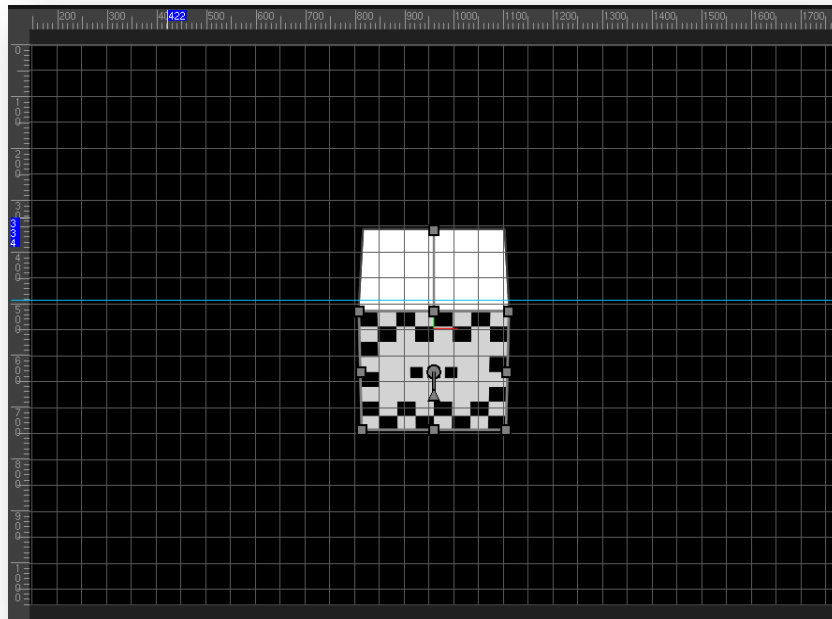
You can use rulers to fine-tune the position of one or multiple objects.

2.4.2 Gridlines

Gridlines help you to align objects with other objects, or to put the object on a specific spot on the stage.

2.4.3 Alignment guides

You can use alignment guides to align objects on the stage.







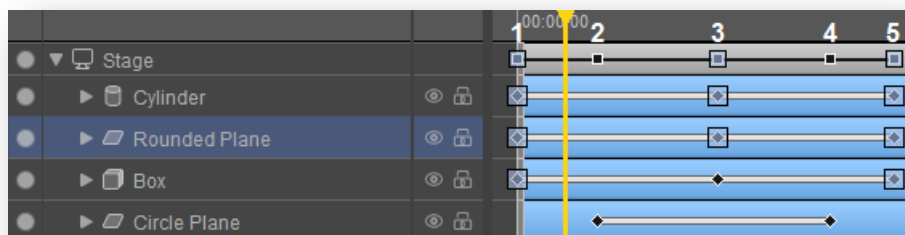
2.4.4 Template rules


You can use template rules to trigger the start of a template by an event, such as the end of a ticker.

2.4.5 Keyframes

Keyframes are used to animate objects. With keyframes you can let objects appear, disappear and transform in time. A keyframe is a snapshot of the properties of one or multiple objects at a specific point in time. The frames between two keyframes are automatically generated by Composer. Keyframes cannot be linked to scene parameters. Keyframe can be linked to several objects.

You need at least two keyframes to animate an object, one for the start and one for the end point of the animation. Intermediate keyframes can be added. The frames in between two keyframes are automatically filled in by Composer. In the Object Pane, the  and  icons indicate that a property has been keyframed. On the Timeline, the  icon indicates that a keyframe is added for an object on a lower layer. The  icon indicates that a keyframe is added.



- The Stage track shows all keyframes that are added to the template.
- 1, 3, 5 This animation has three keyframes and contains three objects, a cylinder, rounded plane and box. Keyframe 3 of the Box is disconnected from the animation and can be moved, copied or deleted independently from the cylinder and rounded plane.
-  The grey color indicates that keyframes are selected.
- 2, 4 These keyframes animate one object - the circle pane - and contain the properties of this object at these points in time.

& **Note:** You can also use controllers to animate objects.

IN points

An IN point defines the moment at which an objects starts audio visual rendering. As a default, the IN point for an object is set at 00:00:00.

OUT points

An OUT point defines the end of the objects audio visual rendering. As a default, no Out Point is set for an object. If you wish to remove an object from the screen, set an Out Point.

& **Note:** If you want a player to automatically stop when an object is no longer visible, you must also enable **Auto-stop at Out Point**.



2.4.6 Controllers

You can use a controller if you wish to automatically animate an object. It is an alternative to using keyframes and is ideal for:

- animations with loops
- animations that depend on real-time data.

Controllers are also described in the Example Project *Controllers*.

Available controllers are:

- *Anchor*
Use an anchor to keep one or multiple sides of an object or an entire object in a specific position: align the left, right, bottom, top, back or front to a anchor point on the X, Y or Z axis.
- *From-To*
Use a FromTo controller to let a property change from one value to another value. This Controller is equal to an animation with two keyframes. However, the 'From' and 'To' values can be linked to a scene parameter. You cannot do this with keyframes.
- *Link*
You can use a link controller to link a property of a source object to a property of a target Object.
- *Oscillate*
Use an Oscillate controller to oscillate (in Sinus, Sawtooth, Square or Triangle mode) an object property. You can only oscillate one property. This controller is often used for endlessly repeating animations.
- *Stack*

Use a stack controller to tightly stack grouped objects, such as a text group, on the X, Y or Z axis and avoid overlap. This Controller can only be used for groups.

You can add a controller to all object properties and you can link a controller value to a scene parameter to make the property dynamic.

2.4.7 Scene parameters

A scene parameter is a variable which value can be set on the GV Director panel. You can link an object property to a scene parameter if you want its values to be dynamic or variable. This can be useful for objects such as tickers, which dynamic ticker texts (called ticker stories).

2.4.8 The ANI Generator

You can use the ANI Generator to convert a sequence of TARGA files to an animation (ANI file). The animation is added to the Project Assets pane and is included in the Production Pack when you export the project. You can also add the animation to the Library.

2.4.9 View pixel perfect information

An object is pixel perfect when the pixels of the content are not changed in the rendering process. This change can happen for many reasons, such as the stretching of an object, texture filtering and/or the application of layer effects. The changes are often unwanted, especially in 2D elements such as texts and clips.

To view pixel perfect information:

1. On the Toolbar, click **View** and select **Pixel Perfect Info**
2. Push CTRL+ P or CMD P.

3 Get started

3.1 System requirements

3.1.1 Mac OSX

- A Mac with a multi-core Intel processor (64 bit).
- Mac OS X 10.6 (Snow Leopard) or higher.
- RAM: 4 GB.
- Video card:
 - VRAM: 768 MB or more.
 - OpenGL 2.1 and the following OpenGL extensions:
 - EXT_framebuffer_multisample
 - EXT_framebuffer_blit
 - ARB_texture_rectangle
 - APPLE_flush_buffer_range
 - We advise not to use Composer with: NVIDIA Quadro cards.
 - Recommended: ATI Radeon HD5670 or higher, NVIDIA Geforce GT320 or higher.

& **Note:** For more information about the OpenGL support for Mac OS X for and compatible video cards, see <http://developer.apple.com/graphicsimaging/opengl/capabilities/>.

& **Note:** For the latest system requirements, see the *readme* document in the installation package.

3.1.2 Windows

- An Intel or AMD 64 bit multiprocessor PC.
- A 64 bit edition of Windows Vista, Windows 7 or Windows 8.
- RAM: 4 GB.
- Video card:
 - VRAM: 768 MB or more.
 - OpenGL 2.1 and the following OpenGL extensions:
 - EXT_framebuffer_multisample
 - EXT_framebuffer_blit
 - ARB_texture_rectangle
 - ARB_map_buffer_range
 - Discouraged: NVIDIA Quadro cards.
 - Recommended: NVIDIA Geforce GTS250 or better.

& [See the *readme* included with the installation image for most recent requirements.]

You cannot run Composer on a Windows Remote Desktop.

We advise you not to use NVIDIA Quadro cards

3.2 Install Composer

3.2.1 Install Composer on a Mac

Double-click the Composer image (.dmg file) to mount the disk image.

The disk image icon appears on the desktop and the next window opens.

Drag the Composer icon on the Applications folder, to copy Composer to your Applications folder.

You can now launch Composer from the Applications folder.

3.2.2 Install Composer on a Windows PC


Double-click the installer exe file and follow the instructions.

- & **Note:** It is recommended to run Composer as an Administrators group user. The easiest way to achieve this is to mark the application to run as Administrator: in Windows Explorer, access 'Composer.exe' properties, navigate to 'Compatibility' tab and tick 'Run as Administrator' checkbox. Composer does not really require elevated privileges to run, but in doing so a wider range of thread scheduling priorities become available thus allowing for faster response times. Note that Composer does not create or modify any files unless instructed by the user, i.e. to save a project on disk. To that effect it is perfectly safe to run Composer as Administrators group user.

3.3 Basic actions

3.3.1 Open Composer

To open Composer:

1. Double-click the Composer icon (.
2. In the Welcome window, do one of the following:
 - a. If you wish to open a recent project, click a recent project in the list of recent projects.
 - b. If you wish to create a new project, click **New Project**.
 - c. If you wish to open an existing project, click **Open Project**.
 - d. If you wish to import a project, click **Import Project**.
 - e. If you wish to restore a project from a backup, click **Restore Backup**.
 - f. If you wish to open a sample project, click **Browse Example Projects**.








3.3.2 Quit Composer

To quit Composer, do one of the following:

- Click **File > Exit**.
- Click **Composer > Quit Composer**.
- Press CTRL+Q (for Windows) or Press CMD+Q. (for OSX)

3.3.3 Navigate the Object pane

Use the buttons at the top of the Object pane to navigate through it, add objects to the Library and close groups:

- Click  to go to the previous selected object.
- Click  to go to the next selected object.
- Click  to go to the parent object.
- Click  to add the object to the Prefabs Library.
- Click  to collapse all expanded sections in the Object pane.

3.3.4 Open and edit items

Open the Object pane

You can open and edit an object in the Object pane.

To open the Object pane, do one of the following:

- On the **Stage**, click the object that you wish to edit.
- In the **Objects** pane, double-click the object.
- On the **Template Timeline**, double-click the object.
- On the **Stage**, double-click the object.

& **Note:** If the Object pane is not visible, go to the Toolbar and click **View > Windows** and enable **Object properties**.

Open a template or transition

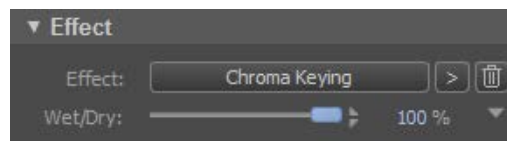
To open and edit an existing template or transition, do one of the following:

- In the **Project** pane, double-click the template or transition that you wish to open.
- Select the tab of the template or transition that you wish to open in the Template Timeline.

Open a layer effect

To open and edit a layer effect:

1. In the Object pane, expand the **Effect** section.
2. Click > to edit the effect.



A section with the name of the effect appears in the Object pane.

Open a material

To open and edit a material, do one of the following:

- In the Objects pane, click the material that you wish to edit and go to the Object pane.
- On the Template Timeline, click the material that you want to edit and go to the Object pane.

Open an effect

To open and edit an effect:

- In the Project pane, double-click the effect.

3.3.5 Select a keyframe

To select a keyframe:

- Double-click a keyframe.

& **Note:** Before you can select a keyframe, you must open the Template Timeline.

3.3.6 Move the player Head

To move the player to a specific location on the Timeline, do one of the following:

- Enter specific values in the mm ss and ff boxes.
- Drag the player to the desired location.
- Press left or right to nudge


3.3.7 Open the Compound Element Timeline

To open the Compound Element Timeline:

- In the **Project** pane, double-click a compound element.


3.3.8 Open an existing project

To open an existing project, do one of the following:

- Double-click the Composer icon () and in the Welcome window, click **Open Project**.
- On the Menu bar, click **File > Open Project**.
- On the Menu bar, click **File > Open Recent**.
- On the Menu bar, click **File > Import Project** and then select **from Disk**.
- On the Menu bar, click **File > Open Project** and then select **from TX/MAM Database**.
- On the Menu bar, click **File > Restore Backup**.

3.3.9 Create a new project

To create a new project, do one of the following:

- Double-click the Composer icon () and in the Welcome window, click **New Project**. In the new window, type a project name, click **Browse** to select a location, click **Open** and click **OK**.
- On the Menu bar, click **File > New Project**. In the New Project window, type a project name, click **Browse** to select a location, click **Open** and click **OK**.

& **Note:** The the New Project has three tabs for project properties:

- The **Format** tab, which shows the broadcast format, the frame size, frame aspect ratio, FPS and interlaced settings. You cannot edit these.
- The **Info** tab, where you enter the author and a description of the project.

3.3.10 Save a project


To save a project, do one of the following:

- On the Menu bar, click **Save**.
- Type CTRL+S (Windows) or type CMD+S (OSX).

3.3.11 Add a production element to a project

Add a template

To add a template to a project, do one of the following:

- In the **Project** pane click the  icon.
- On the Menu bar, click **Project > Add Template**.

Add a transition

To add a transition to a project, do one of the following:

- In the **Project** pane, click the  icon.
- On the **Menu** bar, click **Project** and select **Add a Transition**.

& **Note:** An IPA Mixer is automatically added to the Objects pane.


Add an animated transition

To add an Animated Transition to a project, do one of the following:

- In the Project pane click the  icon.
- On the Menu bar, click **Project > Add Animated Transition**.

Add an effect

To add a new effect to a project:

- In the Project pane, click .

Add a compound element

To add a compound element to a project, do one of the following:

- In the Project pane, click .
- On the Menu bar, click **Project > Add Compound Element**.

3.3.12 Delete a production element from a project



Delete a template

To delete a template from a project, do one of the following:

- In the **Project** pane, click .

Delete a transition or animated transition

To delete a transition or animated transition from a project, do one of the following:

- In the Project pane, select the transition or animated transition that you wish to delete and click .
- In the Project pane, select the transition or animated transition that you wish to delete and press Delete.
- On the Template Timeline, select the transition that you wish to delete and click .


Delete an effect

To delete an effect from a project:

- In the Project pane, right-click the effect you wish to delete and select **Delete**.

Delete a compound element

To delete a compound element from a project, do one of the following:

- In the Project pane, select the compound element that you wish to delete and click .
- In the Project pane, select the compound element that you wish to delete and press Delete.



3.3.13 Rename a production element

To rename a production element, do one of the following:

- In the **Project** pane, right-click the production element, select **Rename** and type a new name in the new window.
- On the Template Timeline, double-click the applicable **template or transition tab** and type a new name in the new window.
- On the Compound Element Timeline, double-click the applicable **template tab** and type a new name in the new window.

3.3.14 Duplicate a production element

To duplicate a production element, do one of the following:

- In the **Project** pane, right-click the production element you wish to duplicate and select **Duplicate**.
- On the tool bar of the Template Timeline, click .
- On the tool bar or the Compound Element Timeline, click .

⌘ **Note:** The objects of the original template or transition are not duplicated. Both original and duplicate use the same objects. If an object is changed in template or transition A, it is also changed in template B.

3.4 Customize the workspace

The Composer workspace can easily be customized. This section explains you how to do that.

3.4.1 Customize panes


Hide or unhide panes

To hide or unhide panes:

- Click **View > Windows**, and then select or clear the panes that you wish to hide or unhide.

Close a pane

To close a pane:

- In the pane you wish to close, click .

Resize a pane

To scale or resize a pane:

1. Click the pane you wish to resize.
2. Hover over the pane's border until the cursor changes into

3. Drag the border while keeping the mouse pressed.

Move a pane


To move a pane:

- Click the **Title bar** and keep the mouse pressed while you drag the pane to another location.

& **Note:** A white dotted line shows where the pane will be put.

Dock or undock a pane

To dock or undock a pane, do one of the following:

- Double-click the pane's title to dock or undock.
- Click  to undock.

3.4.2 Customize the Stage

Enter or exit Clean View mode





In Clean View Mode all panes are hidden and only the Stage is visible.

To enter or exit Clean View Mode:

- On the Menu bar, click **View > Clean View Mode**.

Change the size of the Stage

To change the size of the Stage, do one of the following:

- Click **Menu > View**, select the applicable option (Zoom In, Zoom Out, Zoom to 100% or Fit in Window).
- On the Toolbar, use one of the following buttons:    
- Use the scroll wheel of your mouse to zoom in or out

Add curtains

You can put objects outside of the Stage. This is useful if you wish let an object move onto or off of the Stage. You can use curtains to cover this outside area for a clear view of what the final output is.

To add curtains:

- On the Toolbar, click .

Hide or unhide rulers

To hide or unhide rulers:

- On the **Menu** bar, click **View** and then select **Rulers**.

Hide or unhide the grid

To hide or unhide the grid:

- On the **Menu** bar, click **View** and then select **Grid**.

Hide or unhide alignment guides

To hide or unhide alignment guides:

- On the **Menu** bar, click **View** and then select **Guides**.

Add an alignment guide

To add an alignment guide:

- On a ruler, click the location to which you wish to add the alignment guide.

Move an alignment guide

To move an alignment guide:

- Hover over the location of the alignment guide on the ruler, and drag the guide to the new location.

Delete an alignment guide

To delete an alignment guide:

- Double click on the guide in the location grid
- In the pop-up window, press delete

Enable or disable snap to guides

When you resize or move an object on the Stage, you can let it align or "snap" to the nearest alignment guide.

To enable or disable snap to guides:

- On the **Menu** bar, click **View** and then select **or** clear **Snap to Guides**.

Enable or disable snap to grid

When you resize or move an object on the Stage, you can let it align or "snap" to the nearest intersection in the grid, even if the grid is not visible.

To enable or disable snap to grid:

- On the **Menu** bar, click **View** and then select **or** clear **Snap to Grid**.

Change the color of the alignment guides

To change the color of the alignment guides:

1. On the Menu bar, click **File > Preferences**,
2. In the new window, click **Guides**.
3. Click the **Guide Color** box.
4. In the new window, select a color and click **OK**.
5. Click **Apply** and **OK**.

Adjust the snap distance

To change the snap distance:

1. On the Menu bar, click **File > Preferences**,
2. In the new window, click **Guides**.
3. Enter a number of pixels (px) in the **Snap distance** box.
4. Click **Apply** and **OK**.

Change the grid color

To change the color of the grid:

1. On the Menu bar, click **File > Preferences**,
2. In the new window, click **Grid**.

3. Click the **Grid color** box.
4. In the new window, select a color and click **OK**.
5. Click **Apply** and **OK**.

3.4.3 Customize the Template Timeline

Show properties or commands on the timeline

To make object properties and/or command tracks visible:

- In the left bottom corner of the Template Timeline, click **Show** and then select **Object Properties** or **Command Tracks**.

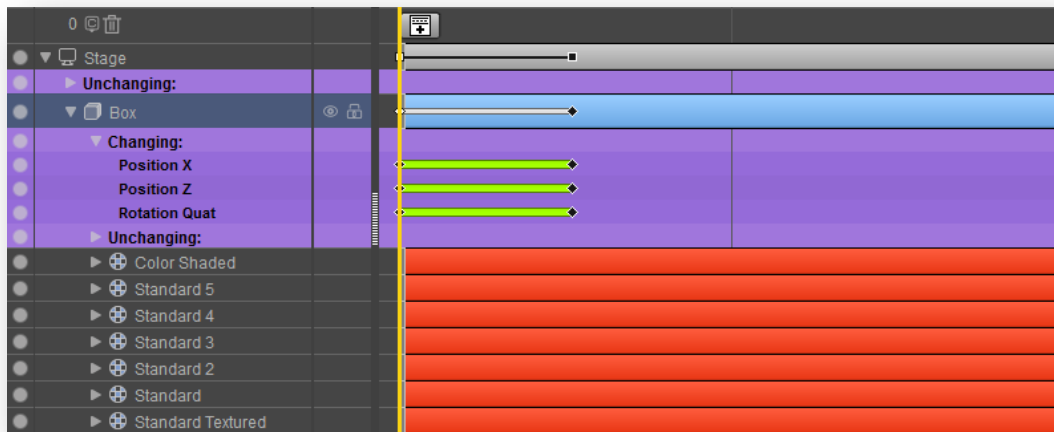
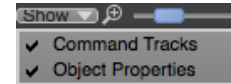


Figure 1. Sample of visible object properties

- & **Note:** There is a color difference between changing and unchanging keyframe lines. A green line between two keyframes indicates that a property changes. When this line is grey, a property does not change.

4 Change the preferences

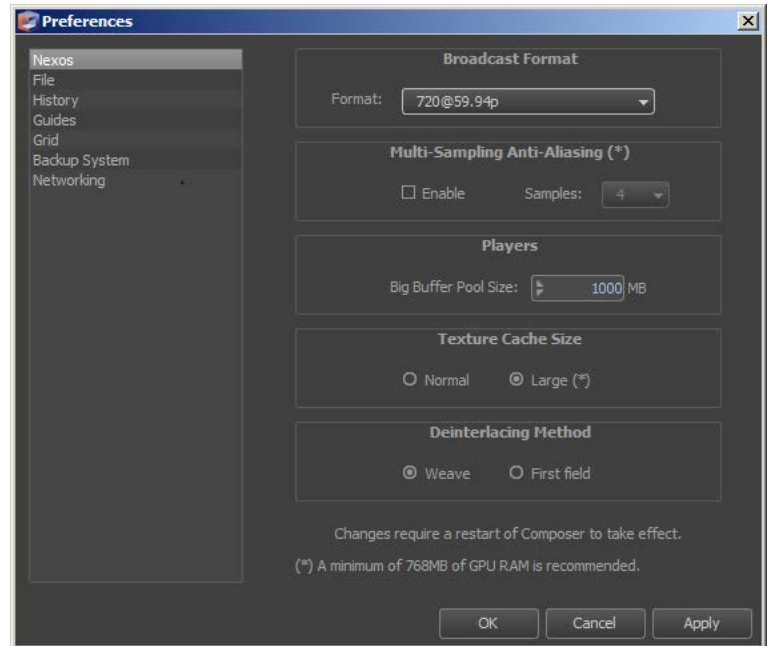
4.1 Change the NexOS settings

4.1.1 Change the broadcast format

Composer opens with the broadcast format that was last used and new projects will automatically have this format.

To change the broadcast format of the current project:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Nexos**.
4. In the Format box, select **pal** or **NTSC**.
5. Click **Apply** and then **OK**.
6. Click **Yes** to restart.
7. Open the existing project.



The default buffer size is 1000 mb. We recommend you choose a higher buffer size if a project includes a high number of HD players. This will avoid the blocking issues with players.

- & **Note:** A warning appears when you open an existing project that was created in a different broadcast format. The change can result in incorrect output and playback speed.

To change the broadcast format for a new project:

1. Close Composer.
2. Click the Composer icon (🎮) to open the application.
3. In the Welcome window, click **Preferences** and then **Nexos**.
4. Select the correct broadcast format from the **Format** box.
5. Click **OK**.
6. Click **Yes** to restart.
7. Add a new project.

4.1.2 Change the image quality

To adjust the image quality of the Stage:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Nexos**.
4. Select the **Multi-Sampling Anti Aliasing** checkbox.
5. If necessary, select a higher or lower sample rate.

- & **Note:** a higher sample rate can remove blurry or jagged edges of an object, but it can also negatively affect the performance of your PC or Mac.

4.1.3 Adjust the multi-sampling anit-aliasing

To adjust the mulit-sampling aliasing:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Nexos**.
4. Under Players in the **Big Buffer Pool Size** dropdown box, select the correct size in MB.

- & **Note:** The default buffer size is 1 GB. We recommend you to choose a higher buffer size if a project includes a high number of HD-players. This will avoid the blocking issues with players.

4.1.4 Adjust the texture cache size

To adjust the texture cache size:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Nexos**.
4. In the **Texture Cache Size** box, select **Normal** or **Large**.

4.1.5 Change the de-interlacing method

To change the de-interlacing method:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Nexos**.
4. In the **Deinterlacing Method** box, select **Weave** or **First field**.

- & **Note:** With de-interlacing, half of the field lines are not rendered. The default de-interlacing method is Weave. Consecutive fields are added together and all lines are visible. In animations this can result in combing (jagged edges). Use **First-field** to avoid combing.

4.2 Change the file settings

4.2.1 Change the default project folder

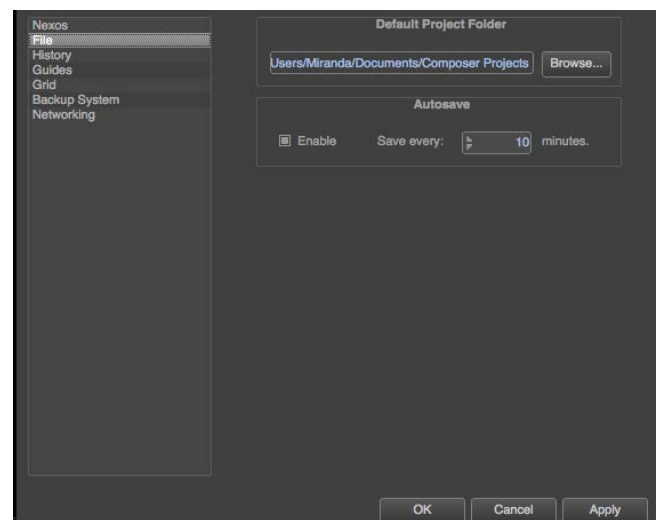
To change the default project folder:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **File**.
4. In the **Default Project Folder** box, click **Browse**.
5. In the new window, select the folder that you wish to use and click **OK** (windows) or **Choose** (Mac).

4.2.2 Enable / disable Autosave

To enable or disable Autosave:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **File**.
4. In the **Default Project Folder** box, select or clear the **Enable** checkbox.
5. If you select the Enable checkbox, in the **Save every x minutes** box, select the correct number of minutes from the dropdown menu.

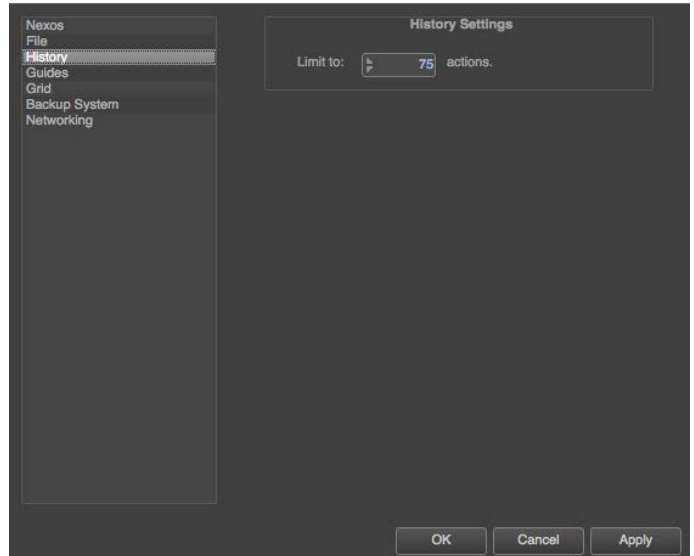


4.3 Change the history settings

To change the history size:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **History**.
4. Under **History Settings**, in the **Limit to x actions** box, select the correct number of actions.
5. Click **Apply** and then **OK**.

& **Note:** A large number of history actions will use more memory.

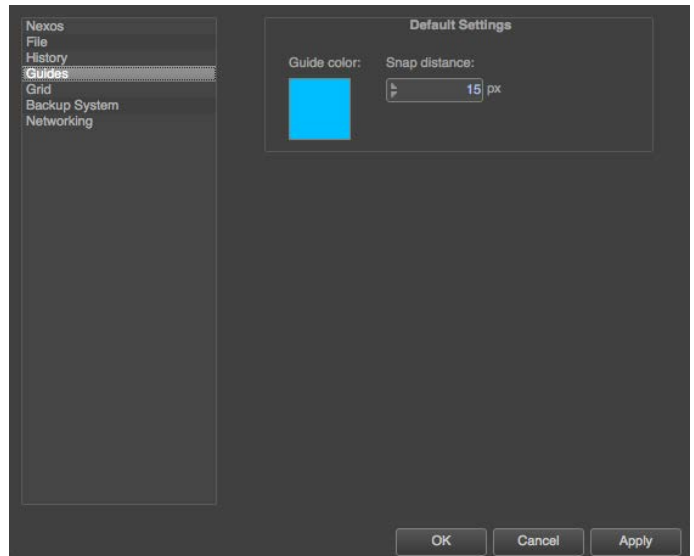


4.4 Change the alignment guide settings

4.4.1 Change the color of the alignment guide

To change the color of guides:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Guides**.
4. Click the **Guide color** box.
5. In the **Select Color** window, select the color that you want to use and click **OK**.



4.4.2 Change the snap distance of the alignment guide

To change the snap distance of the guides:

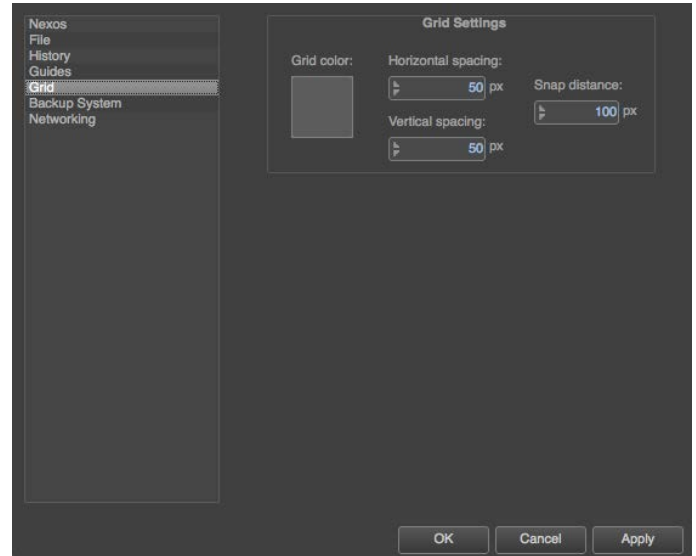
1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Guides**.
4. In the **Snap distance** box, select the number of pixels (px) from the dropdown list.

4.5 Change the grid settings

4.5.1 Change the color of the grid

To change the grid color:

1. On the Menu bar, click **Composer > Preferences**.
2. In the new window, click **Grid**.
3. Click the **Grid color** box.
4. In the **Select Color** window, select the color that you want to use and click **OK**.



4.5.2 Change the horizontal spacing of the grid

To change the horizontal spacing of the grid:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Grid**.
4. In the **Horizontal spacing** box, select the correct number of pixels (px) from the dropdown list..

4.5.3 Change the vertical spacing of the grid

To change the vertical spacing of the grid:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Grid**.
4. In the **Vertical spacing** box, select the correct number of pixels (px) from the dropdown list.

4.5.4 Change the snap distance of the grid

To change the snap distance of the grid:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the new window, click **Grid**.
4. In the **Snap distance** box, select the number of pixels (px) from the dropdown list.

4.6 Change the backup settings

To change the backup settings of Composer:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the **Preferences** window, click **Backup System**.
4. In the **Limit to x backups per project** box, select the correct number from the dropdown list.

4.7 Change the FTP transfer mode

To change the FTP transfer mode:

1. On the menu bar, click **File** (Windows) or **Composer** (Mac).
2. Select **Preferences**.
3. In the **Preferences** window, click **Networking**.
4. In the **Transfer Mode** box, select **Active Mode** or **Passive Mode** from the dropdown list.

5 Manage a project

This chapter instructs you about all the actions involved in managing a project. Learn how to merge a project, import and export projects and production elements, restore a project, view a sample project and organize project elements.

5.1 Merge a project

You can merge projects to easily reuse production elements in another a project or substitute the elements in one project with elements with the same name in another project. This can be useful when you work with several people on the same project.

To merge a project:


1. Click **File > Merge Project**.
2. Select the applicable CCP file and click **Open**.
3. In the new window, select **Rename conflicting merged-in objects/assets** or **Replace existing objects/assets with merged-in objects/assets**.
4. Click **OK**.

5.2 Import and export projects and elements

5.2.1 Import a project

You can import a project from a production pack on a disk.

To import a project from a production pack on a disk:

1. Double-click the Composer icon ()
2. In the Welcome window, click **Import Project**.
3. Click **Browse**.
4. Select the applicable PPK file and click **Open**.
5. Click **Next**.
6. Click **Browse**.
7. Select a destination folder and click **Open**.
8. Click **Next**.
9. Click **Close**.

& **Note:** By default, the imported project is opened after import. You can disable this in the new window after step 8.

Another way to do this is:

1. On the Menu bar, click **File > Import Project**.
2. In the new window, click **Browse**.
3. Select the applicable PPK file and click **Open**.
4. Click **Next**.
5. Click **Browse**.
6. Select a destination folder and click **Open**.
7. Click **Next**.
8. Click **Close**.

5.2.2 Export a project


When you share a project, we recommend that you export a production pack with the project to disk.

To export a project to disk, do one of the following:

- Click **File > Export Project** and then select **to Disk**.
- Click **File > Save Project As**.

Once the design is ready for live production, the Project you can export a production pack with a project to GV Director.

To export a project to GV Director:

1. Click **File > Export Project** and then select **to GV Director**.
2. Click the  icon and then type the *IP address* of GV Director.
3. Click **Next**.
4. Select a folder.
5. Click **Next** to start export.
6. Click **Close**.

5.2.3 Import a production pack

You can import a production pack to import a project. For more information about how to import a production pack, see, section 5.2.1, Import a project.

5.2.4 Export a production pack

You can export a production pack to export a project. For more information about how to export a production pack, see, section 5.2.2, Export a project.

5.2.5 Import a template

To import or reuse a template from another project, you must merge a project.

For more information about how to merge a project, see section 5.1, Merge a project.

5.2.6 Export a template

You can export a template as part of a production pack.

For more information about how to export a production pack, see section 5.2.4, Export a production pack.

5.2.7 Importing assets

You can either insert an asset by adding them to your Project Assets library or adding them directly to an object.

To import assets into Composer from the Project Assets pane, do the following:

1. Go to the **Project Pane**.
2. Go to the **Assets** tab.
3. Click on the **+** button.
4. Select the asset you would like to import.
5. Press **Open**.

To import an asset and add it directly to an object, do the following:

1. Select an object on the stages.
2. In the Object pane, unfold the first object property group and click on the **File** bar.
 - In the window that popped up, select the **Test Media** tab to add an asset as test media.
3. In the pop-up window, click on the **+** button.
4. Select the asset you would like to import.

& You can also choose to add an asset as test media. The selected test media asset will only be visible within Composer but will not be used on GV Director.


5.2.8 Import a 3DS Studio Max file

To import a mesh clip in 3DS Studio Max format, do the following:

1. Click **File > Import Project > from Disk**.
2. Click Browse, select the production pack that includes the mesh clip and click Open.
3. In the 3DS Importer window, do the following:
 - a. If you wish to import the mesh clip as a single file, under Import 3DS scene as, select **One object**.
 - b. If you wish to import the separate objects in the mesh clip as separate mesh clips, select **Separate objects**.
 - c. If you wish to import the normals from 3DS Studio Max, select **From file**.
 - d. If you wish to import generate the normals based on a custom angle, select **From custom angle**.
 - e. If you wish to add one or multiple mesh clips to the production pack but not to the Stage, select **Only create .meshclips**.
 - f. Click **OK**.

5.3 Restore a project

To restore a project from a backup, do one of the following:

- Double-click the Composer icon () and in the Welcome window, click **Restore Backup**, select the backup you wish to restore and click **Restore**.
- On the Menu bar, click **File > Restore Backup**, close the open project, select the backup you wish to restore and click **Restore**.

5.4 View a example project

To view various examples of texts and clocks:

- Click **File > Example Projects**.

5.5 Organize project elements

You can use folders to organize production elements in a project.

5.5.1 Add a production element to a folder

To add an element to a folder, do one of the following:


- Drag and drop a production element into an existing folder.
- In the Project pane, right-click a production element and select Add to Folder.
In this last instance, a new folder is created to which the element is added.

5.5.2 Add an object to the library

You can add your own objects to the Prefabs tab in the Library. This makes it easy to reuse them in another project.

To add an object to Prefabs tab in the Library:

- Select the object, and in the **Object** pane, click the **Export** icon ()

& Note: On the Prefabs tab in the Library, a star on the object icon () indicates that it is a custom made object.

5.5.3 Manage text styles

You can use text styles to easily format text.

Add a text style

To add a text style:

- In the Text Styles tab, click .

Delete a text style

To delete a text style:

- In the Text Styles tab, click .

6 Work on an object

This chapter explains how you can edit objects in a template or transition.

6.1 Copy and paste an object

To duplicate an object, you must copy and paste it in the Object pane or on the stage:



1. Right-click the object that you wish to duplicate and select **Copy**.
2. Right-click the **Object** pane or the **Stage**.
3. Select **Paste**.

Another way to copy an object is:

- Select the object that you wish to duplicate and use the **Copy** and **Paste** shortcuts (CTRL+C and CTRL+V or CMD+C and CMD+V).

& **Note:** When you do this, the object is added to the active template.

6.2 Lock or unlock an object

- To lock or unlock an object on the stage do one of the following:
- On the template timeline behind the name of an object, click .
- In the Objects window, behind the name of an object click .

6.3 Work on a group

6.3.1 Group or ungroup multiple objects

Objects can be grouped, so you can edit and animate them as a group.

To group objects:

1. In the Objects pane, Ctrl-click (Windows) or Command-click (Mac) to select the objects you wish to group
2. On the Menu bar, select **Objects > Group** or right-click the selection on the Stage and then select **Group**.

To ungroup objects, do one of the following:

- On the menu bar, click **Objects > Ungroup**.
- On the Stage right-click the group and then select **Ungroup**.

6.3.2 Edit a group object

To edit an individual object within a group, do one of the following:

- On the menu bar, click **Objects > Open Group**.
- On the Stage right-click the group and select **Open Group**.

& **Note:** When you have completed editing, close the group.

6.3.3 Add ground reflections to a group

To add ground reflections to a group of objects:

1. On the Stage, click the group.
 - a. In the **Object** pane, under Ground Reflection, select **Enable**.




6.4 Change object handling in 2D or 3D

You can use this feature to change between the 2D and 3D handles of the object on the Stage.

To change to 2D mode:

- On the Toolbar, click .

To change to 3D mode:

- On the Toolbar, click .



To enable the 3D alignment guides for a group:

- On the Toolbar, click .

6.5 Change the object layer

The Objects pane lists all objects in a project or template. When you add an object to the Stage, it will have a separate layer. Objects on higher layers overlap objects on lower layers.

To change the order in which objects are layered, do one of the following in the Objects pane:

- Select an object and drag it to another location on the object list.
- Select an object and click the Up and Down arrows ( ).

& You can view objects of other templates by disabling the filter button

6.6 Change the spatial properties of an object


You can change the spatial properties of an object (position, scale and/or rotation) in the Transform section in the Object pane, or on the Stage.

6.6.1 Move an object


To move an object on the Stage:

1. Hover over the object.
2. When the cursor changes into , drag it and drop it on a new location.

The coordinates define the position of the object's center

1. In the Object pane, expand **Transform**.
2. Under Position, click .

The coordinates define the position of the top left object's center:

1. In the Object pane, expand **Transform**.
2. Under Position, click .


Put an object on a 2D plane

To put the front of the object on the 2D stage (setting the Z axis coordinate to 0):

1. In the Object pane, expand **Transform**.
2. Under Position, click **Place on 2D Plane**.

Move an object on the Z-axis (3D)

To move a 3D object on the Z axis (3D):

- Hover over the movement axes of the arrow head ().

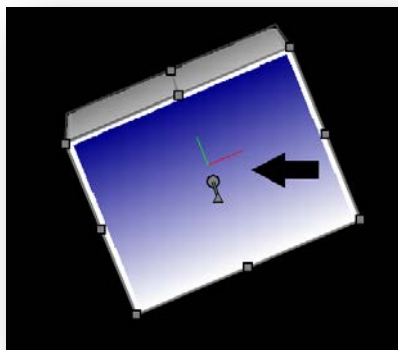
& **Note:** The movement axes can be customized on the tool bar of Composer:

View: the axes are in line with the current view.

Group: the axes are in line with the group to which the object belongs.

Object: the axes are in line with the object. When the object rotates, the axes rotate as well.


Sample 3D Box with the X, Y and Z axes in line with the object.



6.6.2 Change the size or shape of an object

You can change the size or shape of an object on stage.

To change the size or shape of an object:

- Select the object and drag the handles ().
- In the Object pane under Transform > Scaling, move the sliders of the **X**, **Y** and **Z** boxes.


For more information, see chapter *Quality > Scaling* and *Pixel Perfect* and the sample project *Scaling*.

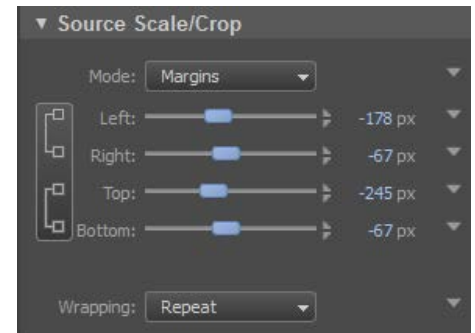
& **Note:** To scale the output of a player instead of the object, edit the **Source Scale/Crop** property of the object.

Change the size of the output of a player

You can scale the output of a player instead of the object in the Source Scale/Crop section of the Object pane. This can be useful when you wish to play out a video on a side of the object, and the video size is smaller than the side of the object. You can choose to repeat the video as a tile or to fill the empty space with border pixels of the video.

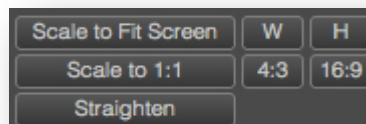
To change the size of the output of player:

1. On the **Stage**, select the object that you wish to edit.
2. In the **Object** pane, do one of the following:
 - a. If you wish to scale/crop the source relative to the margins, select **Margins** in the Mode box.
 - b. If you wish to scale/crop the source to absolute coordinates on the object, select **Coordinates**.
3. Adjust the sliders of the **X1**, **X2**, **Y1** and **Y2** boxes to specify margins or coordinates in pixels.
4. If you wish to lock the aspect ratio of the source file, click the double  button.



Use the scaling buttons

You can change the size of an object to completely fit the stage. The original aspect ratio will be changed by this action.



To scale an object to fit the Stage:

1. In the Object pane, expand **Transform**.
2. At the bottom of the Transform section, click **Scale to Fit Screen**.

To scale an object to fit the width of the stage:

1. In the Object pane, expand **Transform**.
2. At the bottom of the Transform section, click **W**.

& **Note:** When you perform this action, the aspect ratio is not changed.

To scale an object to fit the height of the stage:

1. In the Object pane, expand **Transform**.
2. At the bottom of the Transform section, click **H**.

To scale an object to a 1:1 aspect ratio, based on the object's height:

1. In the Object pane, expand **Transform**.
2. At the bottom of the Transform section, click **Scale to 1:1**.

To scale an object to a 4:3 aspect ratio, based on the object's height:

1. In the Object pane, expand **Transform**.
2. At the bottom of the Transform section, click **4:3**.

To scale an object to a 16:9 aspect ratio, based on the object's height:

1. In the Object pane, expand **Transform**.
2. At the bottom of the Transform section, click **16:9**.

To make a skewed object straight:

1. In the Object pane, expand **Transform**.


2. At the bottom of the Transform section, click **Straighten**.

& **Note:** When a group is scaled to which the object belongs and the group is then ungrouped, an object can become skewed.

Lock the aspect ratio

To lock the aspect ratio during scaling:

1. In the Object pane, expand Transform.

2. Under Scaling, click .


Or this can be activated by the button in the main toolbar

Change the measurement unit

To measure the size of an object, you can choose between pixels (px) and a percentage (%) of the original size of the object.


To change the measurement unit to pixels:

1. In the Object pane, expand **Transform**.

2. Under Scaling, click .

To change the measurement unit to a percentage:


1. In the Object pane, expand **Transform**.

2. Under Scaling, click .

Reset an object to its original size

To reset an object to its original size:

1. In the Object pane, expand **Transform**.

2. Under Scaling, click .

Counter scale for widescreen mode (16:9)

You can enable automatic correction for widescreen mode stretching by toggling the Counter-scale checkbox.

To counter-scale an object for widescreen mode:

1. In the Object pane, expand **Transform**.

2. Under Scaling, select the **Counter-scale for 16:9** box.

6.6.3 Rotate an object

By default, the angles that express the rotation of an object are relative to the axes of the group to which the object belongs. When an object does not belong to a group of objects, the angle is relative to the axes of the Stage.


The rotation order is XYZ.

There are two ways to rotate an object:

- Normal rotation
- Free or arc ball rotation


Normally rotate an object

To normally rotate an object:

1. Hover over the object handles until this cursor () appears.
2. Drag to rotate the object around the Z axis.

Freely rotate an object (3D)

To freely rotate a 3D object:

1. Hover over the center of the movement axes of the object until this cursor () appears.
2. Then drag to rotate the object around its X, Y and Z axes.

Enable or disable Euler interpolation

You can use this feature if you wish to automatically animate the individual rotation angles, such as with the use of a controller.

To enable or disable Euler interpolation:

1. In the Object pane, expand Transform.
2. Under Rotation, select or clear the **Euler Interpolation** checkbox.

6.6.4 Add or remove a camera perspective

You can view the Stage from a perspective that adds depth or from an orthographic view (two dimensional). If you choose to add perspective, you need to specify an angle. The default angle is 55 degrees.

To add or remove a camera perspective:

1. In the Object pane, expand **Transform**.
2. Under Camera in the **Projection** box, select **Perspective** or **Orthographic**.
3. If you have selected Perspective, move the **Angle** slider to specify the degrees of the angle that you wish to apply.

6.7 Change the image quality of an object

6.7.1 Enable or disable anti-aliasing

You can enable the anti-aliasing feature to avoid jagged edges.

To enable or disable anti-aliasing:

1. Select the object of which you wish to improve the image quality.
2. In the Object pane under Quality, in the Anti Aliasing box, select **No Anti-Aliasing** or **Edges**.

& **Note:** This setting is costly in terms of performance. We recommend that you make sure that you only enable this feature for objects for which anti-aliasing is really needed. To see the effect, multi-sampling must be enabled in **File > Preferences**.

6.7.2 View pixel perfect information

An object is pixel perfect when the pixels of the content are not changed in the rendering process. This change can happen for many reasons, such as the stretching of an object, texture filtering and/or the application of layer effects. The changes are often unwanted, especially in 2D elements such as texts and clips.

To view pixel perfect information:

3. On the Toolbar, click **View** and select **Pixel Perfect Info**
4. Push CTRL+ P or CMD+P.

& **Note:** The pixel perfect information is visible on the objects. Below is a list of possible messages.

Message

Pixel perfect

Material distortion

Not on 2D Plane

Description

The object is pixel perfect.

The applied material transforms pixels.

The plane on which content is visible is not on the 2D plane (with z coordinate 0).

Shape/size mismatch

The plane on which content is visible is bigger or smaller than the size of the content.

Rotated

The plane on which content is visible is rotated.

Sub-pixel coordinates

One or multiple edges of an object are on sub-pixel coordinates.

Effect on

The object is changed by an effect.

Texture filtering on

Texture filtering is enabled.

Height is not an even value

The interlaced content is displayed on a plane that does not have a height that is an even number (in pixels).

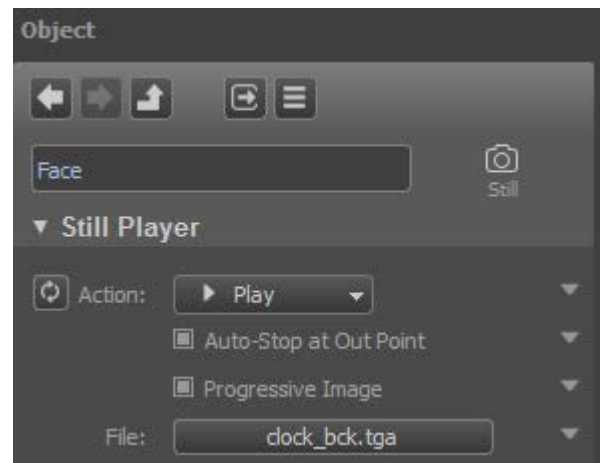
6.7.3 Enable or disable progressive image

When you are scaling text or a still, you can enable or disable progressive imaging to improve or lower the image quality.

To enable or disable progressive imaging:

1. On the stage, double-click the player and in the Object pane, expand the player section.
2. Select the **Progressive Image** checkbox.

& This should only be enabled to improve quality if the content is scaled or rotated.

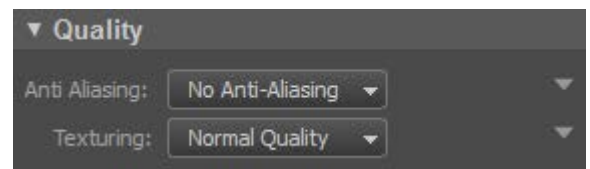


6.7.4 Change the texture quality

When you are scaling an object you can change the texture quality to improve or lower the image quality. We recommend to change the texture quality to High Quality in case of rotated 3D objects.

To change the texture quality:

1. On the stage, double-click the player and in the Object pane, expand the player section.
2. Select the **Progressive Image** checkbox.

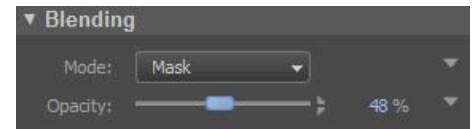


6.8 Blend an object

With the Blending section of the Object pane you can design how at least two layered objects overlap each other. These overlaps are called blends.

To blend an object with one or multiple lower layers:

1. In the Object pane under Blending, select a blending mode from the **Mode** box.
2. Move the slider of the **Opacity** box to set the opacity.



The following blending modes can be selected:


- **Normal:** There is no blending, unless opacity is set. When opacity is set, the object is blended without mixing its colors with the background colors. Instead, the object colors are blended based upon the alpha channel of the source layer.
- **Lighten:** This feature adds the RGB values from the object to the RGB values from the background layer(s).
- **Multiply:** This feature multiplies the RGB values from the object with the RGB values from the background layer(s).
- **Maximum:** This feature blends based on the highest RGB values of the object and the background.
- **Darken:** This feature subtracts the RGB values of the object from the RGB values of the background layer(s).
- **Mask:** This feature lets a grey-scaled object mask the background layer(s). If opacity is set to 100%, a black object completely masks the background layers. If opacity is set to 0% the object is invisible against the background.

& **Note:** An object blends with all objects on all layers within a group. The Stage is also a group and therefore the top object will blend with all layers including the background. If you want to blend an object with specific objects, put these objects in a separate group.

6.9 Work on a player

6.9.1 Refresh the preview of a player

To refresh the preview of a player:









- Click  to refresh.

6.9.2 Show a test feed

To show make a test feed visible on the Stage:

- Click  to make a test feed visible on the Stage.

6.9.3 Set a player action

1. On the Stage, click the object for which you would like to set a player action.
2. In the Object pane under X Player, click the **Action** box.
3. Select the action that you wish to set (**No Action** , **Link to** , **Start** , **Stop** , **Pause** , **Resume** , **Test feed** , **Test feed** ).

& **Note:** The actions Pause and Resume are only available for clips, animations and tickers.

& **Note:** The icons above are inserted on the Template Timeline to indicate a player action.

& **Note:** By default, player actions start at 00:00:00. To let an action start at another point in time, use a keyframe or move the IN point of an object.

- & **Note:** To stop a player, you have three options: add an OUT point and enable Auto-Stop at Out Point; create a separate template with a player Stop action; add a keyframe with a player Stop action; add the Clear All Command. This command stops all players except for the players in the active template.

6.9.4 Change the size of a player

To change the size of a player:

1. On the Stage, double-click the player and in the **Object** pane, expand the player section.
2. Move the sliders of in the **Width** and/or **Height** boxes, or enter the correct number of pixels in these boxes.

6.9.5 Player linkage




Link a player to another player

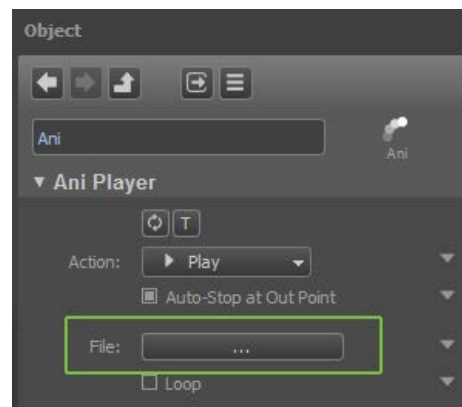
You can link a player to another player to avoid playing out the same video clip twice. This is more efficient in terms of system performance.

1. On the Stage, click the object for which you would like to set a player action
2. In the Object pane under XPlayer, click the Action box.
3. Select the action that you wish to set [the link to]

Playing a file

To link a file to a player for playout:


1. On the Stage, click the object for which you would like to set a player action.
2. In the Object pane, under X player, click the **Action** box.
3. Select the action that you wish to set the link to.
4. In the Object pane, expand X Player.
5. Click the **File** box.
6. In the Select File window, select the file that you wish to use.
 - a. If necessary, click the  sign to browse to a folder and select the file you wish to add.
7. Click **OK**.

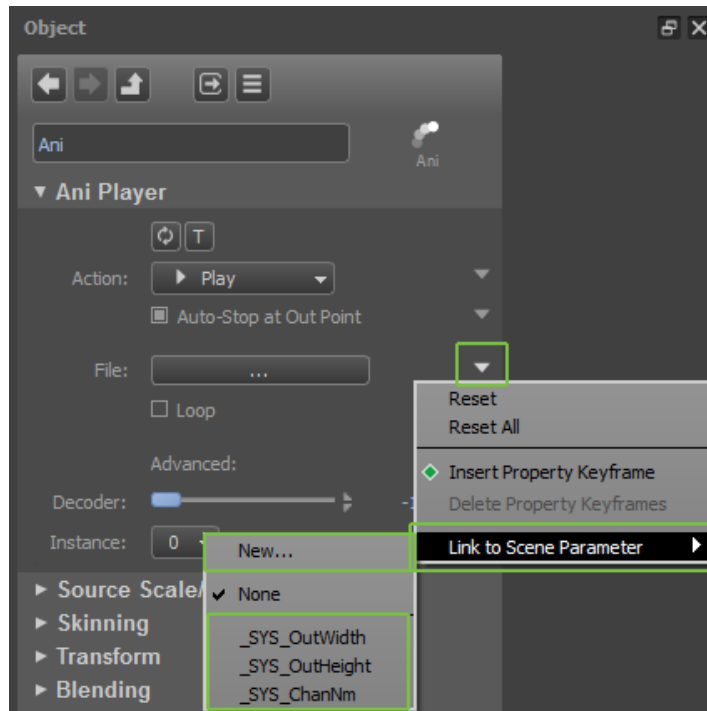


Link a property to a scene parameter

You can link any property to a scene parameter. Scene parameters are dynamically updated.

To link a property to a scene parameter:

1. In the **Object** pane in the X Player section, go to the property to which you wish to link a scene parameter.
2. Click  on the right side of it and select **Link to Scene Parameter**.
3. Then, do one of the following:
 - If you wish to add a new parameter, select **New**.
 - If you wish to link to an existing scene parameter, select one from the list.



& **Note:** A property linked to a scene parameter is marked by the  and  icons.

6.9.6 Automate player action properties

Enable or disable Auto-update for a text object

You can use the auto-update feature to automatically update a text object such as a clock. You can choose if the text is updated every second or every frame.

To enable or disable Auto-update:

- In the Object pane under Text Player, select or clear the **Auto-update** box.

& **Note:** If you enable Auto-update, in the **Resolution** box, select **Seconds** or **Frames**.

Enable or disable Auto-adjust size to contents

This feature auto-adjusts the size of a text frame to its content.

To enable or disable Auto-adjust size to contents:

- In the Object pane under Text Player, select or clear **Auto-adjust size to contents**.

Enable or disable Auto-stop at OUT point

You can enable this feature to let the player stop at the OUT point that is added to the Template Timeline for this action. You will see this icon  on the timeline.

To enable or disable Auto-stop at OUT point:

1. Double-click the player and in the Object pane, expand the player section.
2. Select or clear the **Auto-stop at Out Point** checkbox.

Enable or disable a clip loop

To enable or disable a clip loop:

- In the Object pane under X Player, select or clear the **Loop** checkbox.

6.9.7 Preview the output of a player

To preview the output of a Player:

- In the Toolbar, click the **Try-out Mode** button.

& **Note:** Player output is only visible in Try-out mode.

6.9.8 Play out a video as object texture

To play out a video clip on as a texture on an objects, such as a blue box:

1. In the Objects pane, select the applicable object.
2. Make sure that the side of the object on which you wish to play the video clip has a Standard Textured material.
3. In the Objects pane, select the **Standard Textured** material.
4. In the Object pane under Players, click the **Fill** box.
5. Select the **Clip Player** and click **OK**.

6.9.9 Change audio levels and/or routing

Mute all audio

To mute all audio channels:

1. On the stage, double-click the audio player that you wish to edit.
2. Under Audio Levels/Routing, select **Mute**.

& **Note:** You can also mute all audio if you set the loudness level for all channels to -120 dB.

Set a fade

To set a linear fade in % (for all audio channels):

1. On the stage, double-click the audio player that you wish to edit.
2. Under Audio Levels/Routing, animate the slider of the **Fade** box.

Add a linear fade for all audio channels

To add a linear fade for all audio channels:

- In the Object pane under Audio Levels/Routing, animate the **Fade** slider or enter a percentage in the box at the right side of the slider.

Set the audio output level for all input channels

To set the audio output level (in dB) for all input channel:

1. On the stage, double-click the audio player that you wish to edit.
2. Under Audio Levels/Routing, select **Set for all input channels**.
3. Move the slider of the **All** box or enter a number (-1200 to 300) in the box on the right-hand side of the slider.

Set the audio output level per input channel

To set the audio output level (in dB) for all input channel:

1. On the stage, double-click the audio player that you wish to edit.
2. Under Audio Levels/Routing, select **Set per input channel**.
3. Move the slider of the box with channel **1** or enter a number (-1200 to 300) in the box on the right-hand side of the slider.
4. Repeat step 3 for the next audio channel until you have configured all channels.

Route a channel

You can make sure that a specific input channel is played out on a specific output channel. This is called routing.

To route an input channel to a specific output channel:

1. Go to the column with the number of the input channel that you wish to route.
2. In that column, select the row number with the same number as the output channel to which you wish to route the input channel.
3. Repeat these steps if you wish to route multiple audio channels.

Link input channels to output channels

To link input channels to output channels:

- In the Object pane under Audio Levels/Routing > Routing, in the matrix, select the checkbox on the row of the output channel that you wish to use for input channel 1-16.

6.9.10 Work on a text

Change the text in a text player

To change the text of a text player:

1. On the stage, double-click the text player and in the Object pane, expand the player section.
2. Click the **Text input** box and type the text that you wish to see.

Apply a text style to a text

To apply a text style to a text:

1. On the Stage, double-click the object to which you wish to apply the text style.

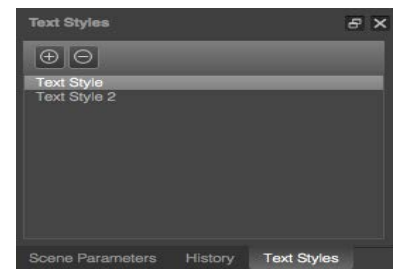
2. In the Object pane, expand the player section.
3. Under Styling, click the **Text Style** box (...).
4. In the Pick a Text Style window, select the style that you wish to apply.
5. Click **OK**.

Change the appearance of a text

In the Object pane under Custom Style – Font and Custom Style – Alignment, you can customize the text of an object.

To change a text style:

1. In the Text Styles tab, click the selected text style.
2. In the Object pane, change the text style.



Change the font

Change the font size

To change the font size:

- In the Object pane under Custom Style – Font, move the **Size** slider or in the box next to it, enter a size in points.

Change the font

To change the font:

1. In the Object pane under Custom Style – Font, click the **Font File** box.
2. In the new window, select a font and click **OK**.

Change the kerning

To change the kerning:

- In the Object pane under Custom Style – Font, move the **Kerning** slider or in the box next to it, enter a kerning as a percentage.

Change the line spacing

To change the line spacing:

- In the Object pane under Custom Style – Font, move the **Interline** slider or in the box next to it, enter a line spacing percentage.

Change the character width

To change the character width:

- In the Object pane under Custom Style – Font, move the **Char Width** slider or in the box next to it, enter a percentage.

Change the anti-aliasing

To change the anti-aliasing:

- In the Object pane under Custom Style – Font, click the **Anti-alias** box and select **Light**, **Medium** or **Normal**.

Change the alignment

Change the horizontal alignment mode

To change the horizontal alignment:

- In the Object pane under Custom Style – Alignment, click the **H-Mode** box and select **Normal**, **Fill width**, **Fill kern**, **AutoFit** or **Word Wrap**.

- & **Note:** Select **Fill width** to scale (stretch or squeeze) text horizontally for it to fit the text frame. Select **Fill kern** to apply horizontal kerning to fit the text into the text frame. Select **AutoFit** to squeeze text horizontally to fit it into the text frame. Select **Word Wrap** to wrap text into the text frame.

Change the horizontal alignment

To change the horizontal alignment:

- In the Object pane under Custom Style – Alignment, click the **H-Align** box and select **Left**, **Center** or **Right**.

Change the vertical alignment

To change the horizontal alignment:

- In the Object pane under Custom Style – Alignment, click the **V-Align** box and select **Top**, **Center** or **Bottom**.

Change the font style

Change the font color

To change the font color:

1. In the Object pane under Custom Style – Styling, click the **Face Color** box.
2. In the new window, select the color that you wish to apply and click **OK**.

Change the font opacity

To change the font opacity:

- In the Object pane under Custom Style – Styling, move the **Opacity** slider.

Change the font border

Change the color of a font border

To change the color of a text box border:

1. In the Object pane under Custom Style – Styling > Border, click the **Color** box.
2. In the new window, select the color that you wish to apply and click **OK**.

Change the font border opacity

To change the border opacity:

- In the Object pane under Custom Style – Styling > Border, move the **Opacity** slider.

Change the font border size

To change the border size:

- In the Object pane under Custom Style – Styling > Border, move the **Size** slider to set the size in pixels.

Change the blur kernel size of the font border

To change the blur kernel size of the font border:

- In the Object pane under Custom Style – Styling > Border, move the **Blur** slider to set the blur kernel size in pixels.

Change the font shadow

Change the font shadow color

To change the font shadow color:

1. In the Object pane under Custom Style – Styling > Drop, click the **Color** box.
2. In the new window, select the color that you wish to apply and click **OK**.

Change the font shadow opacity

To change the font shadow opacity:

- In the Object pane under Custom Style – Styling > Drop, move the **Opacity** slider.

Change the font shadow size

To change the font shadow size:

- In the Object pane under Custom Style – Styling > Drop, move the **Size** slider to set the size in pixels.

Change the blur kernel size of the font shadow

To change the blur kernel size of the font shadow:

- In the Object pane under Custom Style – Styling > Drop, move the **Blur** slider to set the blur kernel size in pixels.

Format a text or clock with strings

Strings to format text

Use special strings to format texts. There are special strings for text formatting, counters and time.

& **Note:** All special strings are case-sensitive.

String to change the character set

■ In the Text Player in the Object pane, type `$3xxxx` in the text input box, in front of the text to which you wish to apply a different character set.

& **Note:** xxxx stands for the character set of your choice.

1250 = Central European

1251 = Cyrillic

1252 = Latin I

1253 = Greek

1254 = Turkish

1255 = Hebrew

1256 = Arabic

1257 = Baltic

1258 = Vietnamese

String to change the font size

■ In the Text Player in the Object pane, type `$7xxx` in the text input box, in front of the text to which you wish to apply the change.

& **Note:** xxx must be a value between 005 and 150.

& **Note:** Trailing space

String to change the foreground color

■ In the Text Player in the Object pane, type `$1AABBGGRR` in the text input box, in front of the text to which you wish to apply the change.

& **Note:** `AABBGGRR` must be a hexadecimal color code.

& **Note:** Trailing space

String to add an indent

■ In the Text Player in the Object pane, type `$9xxx` in the text input box.

& **Note:** xxx represents the horizontal offset in pixels and must be a value between 0 and 999.

& **Note:** Trailing space

String to show the decimal code of a special character

- In the Text Player in the Object pane, type \$4xxx in the text input box, in front of the special character to which you wish to apply the change.

& **Note:** xxx represents the decimal code of a character in the normal font mapping table and must be a value between 0 and 999.

& **Note:** Trailing space

String for Unicode characters

- In the Text Player in the Object pane, type \$5xxxx in the text input box.

& **Note:** xxx represents the hexadecimal code of a character.

& **Note:** Trailing space

String for glyph code characters

When you wish to use special characters that are not in the normal character map.

- In the Text Player in the Object pane, type \$6xxxx in the text input box.

& **Note:** xxx represents the hexadecimal code of a character.

& **Note:** Trailing space

String for a return

- In the Text Player in the Object pane, type \$0 in the text input box.

& **Note:** Trailing space

String to add a tab

To add a tab:

- In the Text Player in the Object pane, type \$2xxx in the text input box.

& **Note:** xxx represents the horizontal offset pixels and must be a value between 0 and 999.

& **Note:** Trailing space

String to add a vertical offset

To add a vertical offset:

- In the Text Player in the Object pane, type \$8xxxx in the text input box.

Strings to edit a clock

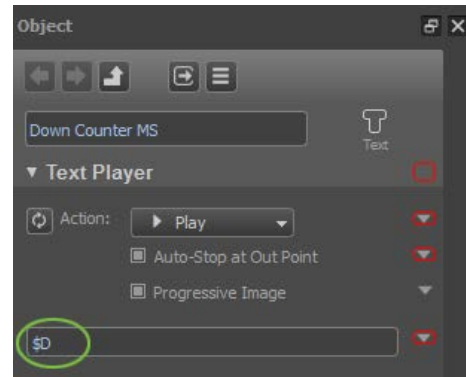
You can use special strings to change the type of clock.

& **Note:** All strings are case-sensitive.

Up counter

If you wish to change the clock into an up counter:

- In the Text Player in the Object pane, type `$D` in the text input box.



Down counter

If you wish to change the clock in to a down counter:

- In the Text Player in the Object pane, type `$C` in the text input box.

& **Note:** If the duration is less than 60 seconds, the clock format is “:ss”. If the duration is longer than 60 seconds, the format is "m:ss".

If you wish to view the sample project *Clocks and Counters*:

- Click **File > Example Projects**.

How to define a counter

Other clock types

Use special strings to set another, very specific type of clock.

To do this:

- In the Text Player in the Object pane, type one of the strings below in the text input box.

String

`$CD<C-syntax>`

`$CM`

`$CS`

Description

Shows a clock in seconds that you can format.

Note: `<C-syntax>` stands for a C language `printf()` style integer format string. Example: “`$CD%3d`”.

Shows a down-counting clock in minutes.

Shows a down-counting clock in seconds, always in ss format, from 00 to 59.

`$CX<C-syntax>`

Shows a down-counting clock in seconds that you can format.

Note: `<C-syntax>` stands for a C language `printf()` style integer format string.
Example: `"$CXsec: %03d"`.

`$CT`

Shows a down-counting clock.

Note: If the duration is longer than 1 hour, the clock format is "hh:mm". If the duration is longer than 1 minute, the format is " mm:ss". If the duration is less than one minute, the format is ":ss".

`'$CF<C-syntax>`

Shows a down-counting clock, with two arguments (h, m).

Note: You must type a C language `printf()` style integer format string behind the F.

Example: `$CFtime: %02d.%02d` results in: **time: 09.34**

Example: `$CF%d: %02d` results in: **9:34**

`$CG<C-syntax>`

Shows a down-counting clock with two arguments (m, s).

Note: You must type a C language `printf()` style integer format string behind the G.

Example: `$CGmin and sec: %02d.%02d` results in: **min and sec: 34.56**

`$CV<C-syntax>`

Shows a down-counting clock with three arguments: h, m, s.

Note: You must specify a C language `printf()` style integer format string behind the V.

Example: `$CVtime: %02d.%02d.%02d` results in: **time: 09.34.56**

`$CW<C-syntax>`

Shows a down-counting clock with four arguments: days, h, m, s.

Note: You must specify a C language `printf()` style integer format string behind the W.

Example: `$CW%d days %02d:%02d:%02d` result in **2 days 23:57:26**.

`$D`

Shows a clock in format ":ss" if the duration is < 60 secs, and "m:ss" if the duration is > 60 seconds.

`$DD<C-syntax>`

Shows a clock in seconds that you can format.

Note: You must specify a C language `printf()` style integer format string behind the D.

Example: `$DD%3d`.

`$DM`

Shows a clock in minutes.

`$DS`

Shows a clock in seconds (ss).

`$DX<C-syntax>`

Shows a clock in seconds that you can format.

Note: Specify a C language `printf()` style integer format string behind the X.

Example: `$DXsec: %03d`.

`$DT`

Shows a clock in hh:mm if duration is >1 hour, in mm:ss if duration is >1 minute and in :ss if duration is < 1 minute.

`$DF<C-syntax>`

Shows a clock with two arguments (h, m).

Note: You must specify a C language `printf()` style integer format string behind the F.

Example: `$DFtime: %02d.%02d` results in **time: 09.34**

Example: `$DF%d: %02d` results in **9:34**.

`$DG<C-syntax>`

Shows a clock with two arguments (m, s).

Note: You must specify a C language `printf()` style integer format string behind the G.

Example: `$DGmin and sec: %02d.%02d` results in **min and sec: 34.56**.

`$DV<C-syntax>`

Shows a clock with three arguments (h, m, s).

`$DW<C-syntax>`

String

`$T`

`$Th`

`$Th0`

`$Tm`

`$Tm0`

`$Ts`

`$Ts0`

`$TZ`

`$TQ`

Note: You must specify a C language printf() style integer format string behind the V.

Example: `$DVtime: %02d.%02d.%02d` results in **time: 09.34.56**.

Shows a clock with three arguments (h, m, s).

Note: You must specify a C language printf() style integer format string behind the V.

Example: `$DVtime: %02d.%02d.%02d` results in **time: 09.34.56**.

Shows the time in h:mm (%2d:%02d).

Shows hours only.

Shows hours only, always 2 digits.

Shows minutes only.

Shows minutes only, always 2 digits.

Shows seconds only.

Shows seconds only, always 2 digits.

Shows time in h:mm:ss (%2d:%02d:%02d).

Show seconds only, always 2 digits.

Shows time in h:mm:ss (%2d:%02d:%02d).

Time offset strings

`'$TO'`

Time with offset defined in minutes, displayed in minutes.

Example: `'$TO-3'`

Time with offset defined in seconds, displayed in minutes.

`'$TM'`

Example: `'$TM-180'`

Example: `'it is $TM10'`

`'$TN'`

Time with offset defined in minutes, displayed in seconds.

6.9.11 Work on a ticker

Add a ticker story to a ticker

If you want to add static text to a ticker, you must add one or multiple ticker stories to a ticker.

To add a ticker story to a ticker:

1. In the Library pane on the Prefabs tab, select **Commands**.
2. Select **Add Ticker Story** and drag it onto the **Template Timeline**.
3. Double-click the **Add Ticker Story** icon on the timeline.
4. In the Object pane under Add Ticker Story Command, click the **Player** box (...).
5. In the **Pick a Ticker Player** window, select the correct ticker player.
6. If you are adding multiple ticker stories, move the slider of the **Number** box to give the story a number that corresponds with the order of appearance (0 is the first story to appear).
7. Click the **Text** box and type the text that you wish to be visible.
8. If you wish to apply a text style available to all players, select **Text Style** under Text Styling.
9. If you wish to apply a style that only available for the player in question, select **Custom** under Text Styling.

Set the ticker speed

To set the speed with which the text of the ticker moves:

1. On the stage, double-click the ticker.
2. In the Object pane, expand **Ticker Player**.
3. Move the slider of the **Speed** box.

& **Note:** The unit of measurement is 0.1 pixel per field (interlaced mode) or frame (progressive mode).

Enable or disable a ticker story loop

You can choose to play the ticker stories in a loop. To do this:

1. On the stage, double-click the ticker.
2. In the Object pane, expand **Ticker Player**.
3. Select or clear the **Repeat** checkbox.

Add a still or animation to a ticker

You can choose to add a still or animation to a ticker. To do this:


1. On the stage, double-click the ticker.
2. In the Object pane, expand **Graphic Players**.
3. Click the **+** button.
4. In the Add Object pane, click the type of graphic that you wish to add.
5. Click **OK**.

6.10 Work on a command

6.10.1 Add a command to a template

To add a command to a template:

1. In the **Library** pane on the Prefabs pane, click **Command**.
2. Select the command that you wish to use, drag it onto the Template Timeline, under all existing tracks.

& **Note:** A separate command track is automatically created with the command icon on it. As long as there is a command track present, you can click the  icon to manually add a command track.

6.10.2 Move a command

To move a command on the Template Timeline:

- Drag and drop the command.



6.10.3 Copy a command

To copy a command to the clipboard:

- Click .

6.10.4 Paste a command

To paste a command to the clipboard:

- Click .

6.10.5 Edit an AFD command

Enable or disable AFD in the playout signal:

1. On the Template Timeline, double-click the AFD command.
2. In the Object pane, click the **Mode** box and select **Enable** or **Disable**.

Change the VBI line number

To change the VBI line number to which the AFD is added:

1. On the Template Timeline, double-click the AFD command.
2. In the Object pane, move the **Line** slider.

Change the aspect ratio

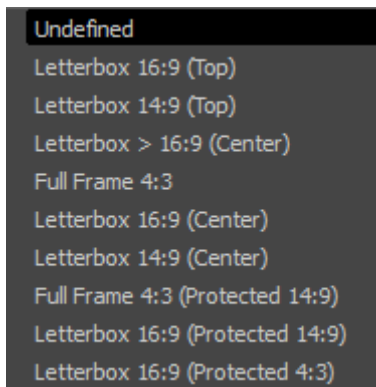
To change the aspect ratio of the coded frame:

1. On the Template Timeline, double-click the AFD command.
2. In the Object pane, click the **Aspect Ratio** box and select **4:3** or **16:9**.

Change the AFD code

To change the AFD code

1. On the Template Timeline, double-click the AFD command.
2. In the Object pane, click the **AFD Code** box and select the applicable option. See illustration.



6.10.6 Edit a ticker story command

Change the ticker player

To change the ticker player:

1. On the Template Timeline, double-click the ticker story command.
2. In the Object pane, click the **Player** box, select the player and click **OK**.

Change the story number

To change the story number of a ticker command:

1. On the Template Timeline, double-click the ticker story command.
2. In the Object pane, move the **Number** slider.

Change the text of a ticker story

To change the text of a ticker story:

1. On the Template Timeline, double-click the ticker story command.
2. In the Object pane, move the **Number** slider.

Change the text style of a ticker story

To change the text style of a ticker story:

1. On the Template Timeline, double-click the ticker story command.
2. In the Object pane under Text Styling, do one of the following:
 - a. If you wish to apply a pre-defined text style, select **Text Style**, click the ... box next to it, select the text style that you wish to apply and click **OK**.
 - b. If you wish to apply a custom text style, select **Custom** and proceed to change the **Font**, **Alignment** and **Styling** properties.

Change the story graphics

You can include stills or animations in your stories. You can either select a TGA-graphic or ANI-animation to add to a ticker story (or link to a scene parameter).

To change the story graphics:

1. On the Template Timeline, double-click the **Add Ticker Story** command.
2. In the Object pane, click the **Still** or **Ani** box (make sure a player is selected, otherwise Still or Ani box cannot be selected).

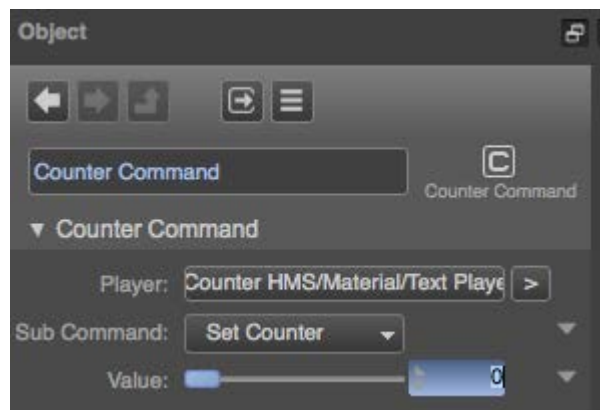
6.10.7 Edit a Counter command

You can use a counter command to stop, start or set a counter.

Add a counter command

To add a counter command:

1. Drag a Counter Command onto the **Template Timeline**.
2. Double-click the command (📄).
3. In the Object Pane under Counter Command, click the **Player** box to select the clock to which you wish to add the command.
4. In the **Sub Command** dropdown box, select the correct sub-command (**Start**, **Stop** or **Set Counter**).



Start a clock

To start a clock, follow the steps in section 0, *Add a counter command*.

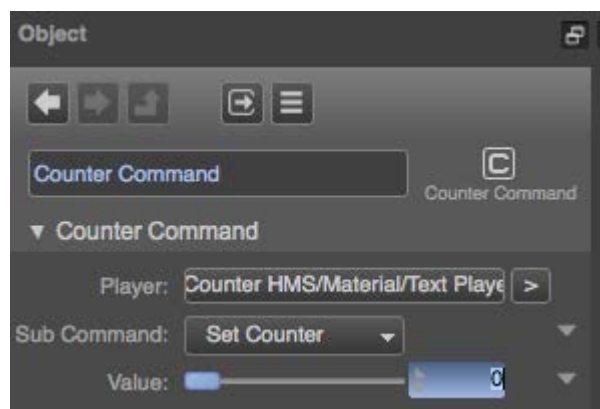
Stop a clock

To stop a clock, follow the steps in section 0, *Add a counter command*.

Set the start time of a clock

To set the initial clock time:

1. Drag a Counter Command onto the **Template Timeline**.
2. Double-click the command (📄).
3. In the Object Pane under Counter Command, click the **Player** box to select the clock for which you wish to set the initial time.
4. In the **Sub Command** dropdown box, select Set Counter.
5. In the input box at the right side of the **Value** slider, enter the correct value in seconds.




6.10.8 Edit a GPIO command

You can use the GPIO command to configure one of the GPIO pins of a device.


Disable a GPIO pin

To disable a GPIO pin:

1. On the Template Timeline, double-click the GPIO command ()
2. In the Object pane, click the **Device** box.
 - a. If you wish to disable a GPIO pin of the internal GPIO device available in the DB9 socket at the back of the machine, select **DB9M**.
 - b. If you wish to disable a *virtual* GPIO pins of a GPIO-over-VBI device, select **VBI**.
 - c. If you wish to disable a GPIO pin of a 410E device, select **410E**.
3. Click the **Value** box and select **0**.

Enable a GPIO pin


To enable a GPIO pin:

1. On the Template Timeline, double-click the GPIO command ()
2. In the Object pane, click the **Device** box.
 - d. If you wish to enable a GPIO pin of the internal GPIO device available in the DB9 socket at the back of the machine, select **DB9M**.
 - e. If you wish to enable a *virtual* GPIO pins of a GPIO-over-VBI device, select **VBI**.
 - f. If you wish to enable a GPIO pin of a 410E device, select **410E**.
3. Click the **Value** box and select **1**.

6.10.9 Edit a Rating command

You can use the rating command to add rating data to the playout signal.

To add rating data to the playout signal:

1. On the Template Timeline, double-click the GPIO command ()
2. In the Object pane, click the **System** box and select the rating system that you wish to use.
3. Click the **Value** box and type the correct value.

& **Note:** For an overview of the available rating systems, see section 0, *Rating systems overview*. For more information about the available rating values, see section 0, *Rating values for US Parental Guideline Ratings*.

Rating systems overview

The following rating systems are supported:

Value	Description
MPA	MPA
U.S.TV PG	U.S. TV Parental Guideline system
Canadian English	Canadian English Language Rating
Canadian French	Canadian French Language Rating

Rating values for US Parental Guideline Ratings

The following table shows the rating values of US Parental Guideline ratings and what they mean:


Rating value	Description
TV-Y	All children.
TV-Y7 TV-Y7,FV	Children aged 7 and above
TV-G	General audience.
TV-PG TV-PG,D TV-PG,D,L TV-PG,D,L,S TV-PG,D,L,S,V TV-PG,D,L,V TV-PG,D,S TV-PG,D,S,V TV-PG,D,V TV-PG,L TV-PG,L,S TV-PG,L,S,V TV-PG,L,V TV-PG,S TV-PG,S,V TV-PG,V	Parental guidance suggested.
TV-14 TV-14,D TV-14,D,L TV-14,D,L,S TV-14,D,L,S,V TV-14,D,L,V TV-14,D,S TV-14,D,S,V TV-14,D,V TV-14,L TV-14,L,S TV-14,L,S,V TV-14,L,V TV-14,S TV-14,S,V TV-14,V	Parents strongly cautioned.
TV-MA TV-MA,L TV-MA,L,S TV-MA,L,S,V TV-MA,L,V TV-MA,S TV-MA,S,V TV-MA,V	Mature audience only.

None	No blocking intended.
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6.10.10 Edit a Main Player command

This command is automatically added to the Template Timeline when you add a first clip or live player to a template. The main player has priority over other players on the stage.

To change the main player of a template:

1. On the Template Timeline, double-click the Main Player command ()
2. In the Object pane, click the **Player** box, select the correct player from the list and click **OK**.


- & **Note:** Only Closed Caption subtitles that are embedded in stream of the main player become part of the output.
- & **Note:** The main player is also the source for the ATC (HD) or VITC (SD) timecode signal in the SDI output.

6.10.11 Edit a Ticker command

You can use a ticker command to clear, pause or unpause a ticker story.


Clear a ticker story

To clear a ticker story:

1. On the Template Timeline, double-click the Ticker command ()
2. In the Object pane, click the **Player** box, select the correct ticker player from the list and click **OK**.
3. In the Command box, select **Clear**.


Pause a ticker story

To pause a ticker story:

1. On the Template Timeline, double-click the Ticker command ()
2. In the Object pane, click the **Player** box, select the correct ticker player from the list and click **OK**.
3. In the Command box, select **Story Pause**.

Unpause a ticker story

To unpause a ticker story:


1. On the Template Timeline, double-click the Ticker command ()
2. In the Object pane, click the **Player** box, select the correct ticker player from the list and click **OK**.
3. In the Command box, select **Story Unpause**.

6.10.12 Edit a Video Index command

You can use the Video Index command to blank certain VBI lines, or to write video index data onto VBI lines.


Change the VBI line for VI data

To change the VBI line for VI data:

1. On the Template Timeline, double-click the Video Index command ()
2. In the Object pane, move the **Line** slider.


Change the scanning system

To change the scanning system:

1. On the Template Timeline, double-click the Video Index command ()
2. In the Object pane, click the **Scanning** box and select the system that you wish to use (**No information**, **525/59.94/4x3**, **625/50/4x3**, **525/59.94/16x9** or **625/50/16x9**).


Change the active format description

To change the active format description:

1. On the Template Timeline, double-click the Video Index command ()
2. In the Object pane, click the **AFD** box and select the system that you wish to use (**Reserved**, **Box 16:9 (top)**, **Box 14:9 (top)**, **Box > 16:9 (center)**, **Active format is same as coded frame**, **4:3 (center)**, **16:9 (center)**, **14:9 (center)**, **4:3 (protect 14:9 center)**, **16:9 (protect 14:9 center)** or **16:9 (protect 4:3 center)**).


Change the signal form

To change the signal form:

1. On the Template Timeline, double-click the Video Index command ()
2. In the Object pane, click the **Signal Form** box and select the signal form that you wish to use (**No information**, **RGB**, **YCbCr**, **YUV**, **Monochrome**, **NTSC**, **PAL**, **PAL-M**, **SECAM**).

Change the sample structure


To change the sample structure:

1. On the Template Timeline, double-click the Video Index command ()
2. In the Object pane, click the **Sampling** box and select the sample structure that you wish to use (**No information**, **4:2:2**, **4:2:2 progr.**, **main** or **4:2:2 progr.**, **sub**).

Change the pan

You can change the location of the left edge of the viewport relative to the center of the source image.


To change the pan:

1. On the Template Timeline, double-click the Video Index command ()
2. In the Object pane, move the **Pan** slider and select the applicable number of source pixels.

Change the tilt

You can change the location of the top edge of the viewport relative to the center of the source image.


To change the tilt:

1. On the Template Timeline, double-click the Video Index command ().
2. In the Object pane, move the **Tilt** slider and select the applicable number of source pixels.

Change the zoom

You can change the height of the viewport.


To change the zoom:

1. On the Template Timeline, double-click the Video Index command ().
2. In the Object pane, move the **Zoom** slider and select the applicable number of lines.

Change the X and Y flags

You can change the X and Y flags that a receiving device uses to calculate the width of the viewport.

To change the X and Y flags:

1. On the Template Timeline, double-click the Video Index command ().
2. In the Object pane, click the **XY Flags** box and select **Normal operation**, **Height = Zoom** or **Width = Zoom**.

6.11 Work with materials

6.11.1 Replace a material

Some objects in Composer come with materials, such as a box, cylinder, plane and sphere. You can replace the materials of these objects in Composer.

To replace a material of an object:

1. On the stage, select the object of which you wish to replace the material.
2. In the Object pane, expand **Materials**.
3. Right-click the material that you wish to replace.
4. Select **Replace**.

6.11.2 Change the lighting of a material

Change the shadow color of an object

1. In the Objects pane, click the material that you wish to edit.
2. Expand **Lighting**.
3. Under Ambient Color, move the **RGB sliders**.

Change the color of lighted parts of the object

You can change the color of the object when it is lighted.

To change the color of lighted parts of the object:

- | | |
|--|--|
| <ol style="list-style-type: none">1. In the Objects pane, click the material that you wish to edit.2. Expand Lighting.3. Under Diffuse Color, move the RGB sliders. | |
|--|--|

Change the specular color

To change the color of specular reflections (highlights):

1. In the Objects pane, click the material that you wish to edit.
2. Expand **Lighting**.
3. Under Specular Color, move the **RGB sliders**.

Change the specular color power

To change the specular color power

1. In the Objects pane, click the material that you wish to edit.
2. Expand **Lighting**.
3. Under **Specular Color**, move the **Power** slider.

Change the alpha channel

To change the alpha channel:

1. In the Objects pane, click the material that you wish to edit.
2. Expand **Lighting**.

3. Move the **Alpha** slider.

6.11.3 Change the image quality of a material

To change the image quality of a material:

1. In the Objects pane or on the Template Timeline, click the material.
2. In the Object pane in the **Miscellaneous** section, in the **Quality** box, select **Low**, **Medium**, **High** or **Best**.

6.11.4 Change the cull property

Culling reduces the render time by filtering out all polygons that are not visible (on the screen). You can use the cull feature to specify which part of the object is not rendered. The available choices are:

- Front facing: The exterior of the polygons (to which the material is applied) is rendered
- Back facing: The interior is rendered.

To change the cull of a 3D object:

1. In the Objects pane or on the Template Timeline, click the material.
2. In the Object pane in the **Miscellaneous** section, in the **Cull** box, select **Front Facing**, **Back Facing** or **None**.

6.11.5 Change the fill mode

To specify the rasterization mode for front facing polygons:

1. In the Objects pane or on the Template Timeline, click the material.
2. In the Object pane in the **Miscellaneous** section, in the **Fill Mode** box, select **Point**, **Wireframe** or **Solid**.

6.11.6 Enable or disable depth occlusion

To enable or disable depth occlusion:

1. In the Objects pane or on the Template Timeline, click the material.
2. In the Object pane in the **Miscellaneous** section, select or clear the **Depth Occlusion** box.

6.12 Work with layer effects

You can add a layer effect such as Bevel or Drop Shadow to objects.

6.12.1 Add and delete a layer effect

Add a layer effect

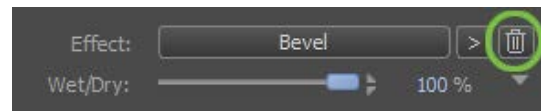
To add a layer effect:

1. In the Object pane, expand the **Effect** section.
2. Click the **Effect** box (...).
3. In the new window, select the effect that you wish to apply.
4. Click **OK**.
5. Move the slider of the **Wet/Dry** box to set the intensity of the effect.



Delete a layer effect

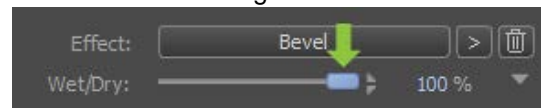
- Click the **Delete object** button.



6.12.2 Set the intensity of a layer effect

To set the intensity with which a visual effect is applied, do one of the following:

- Move the slider of the **Wet/Dry** box.
- Double-click **100** in the % box to enter the intensity of the visual effect (0-100).



6.12.3 Edit a ripple effect

Set the center of a ripple

To set the center of a ripple effect

- In the Objects pane or on the Template Timeline, select the ripple effect and move the sliders of the **X** and **Y** axes.

Set the wavelength of a ripple

To set the wavelength of the ripples:

- In the Objects pane or on the Template Timeline, select the ripple effect and move the **Wavelength** slider.

& **Note:** The wavelength unit is pixels.

Change the ripple amplitude (ripple height)

To set the ripple amplitude (ripple height):

- In the Objects pane or on the Template Timeline, select the ripple effect and move the **Amplitude** slider.

Change the starting point of ripple cycle

To set the starting point of ripple cycle:

- In the Objects pane or on the Template Timeline, select the ripple effect and move the **Phase** slider.

6.12.4 Edit a blur effect

Change the width of a blur

- In the Objects pane or on the Template Timeline, select the blur effect and in the Object pane, move the **X** slider.

Change the height of a blur

To set the height of the blur:

- In the Objects pane or on the Template Timeline, select the blur effect and in the Object pane, move the **Y** slider.

& **Note:** The unit of measurement is pixels.

Change the image quality of a blur

To set the image quality of the blur:

1. In the Objects pane or on the Template Timeline, select the blur effect.
2. In the Object pane, click the **Quality** box.
3. Select **Low**, **Medium** or **High**.

Downsample a blur

With the downsample feature you can make a blur even blurrier.

To downsample a blur:

1. In the Objects pane or on the Template Timeline, select the blur effect.
2. In the Object pane, click the **Downsample** box.
3. Select **None**, **4x** or **16x**.

Put the blurred object over the original

To put the blurred object over the original:

1. In the Objects pane or on the Template Timeline, select the blur effect.
2. In the Object pane, select the **Overlay on original** checkbox.
3. Move the Opacity slider to set the opacity of the overlay.

Enable Luma blur

With Luma blur you can play out a blur in which every pixel has a luminance value above a certain threshold.

To enable Luma blur:

1. In the Objects pane or on the Template Timeline, select the blur effect.
2. In the Object pane, select the **Luma blur** checkbox.
3. Move the **Luma Thres.** slider to set the luminance threshold.

6.12.5 Edit a bevel or emboss effect

Select a bevel mode

To select a bevel mode:

1. In the Objects pane or on the Template Timeline, click the bevel effect.
2. In the Object pane, click the **Mode** box and select **Bevel**, **Emboss** or **Emboss Overlay**.

& **Note:** The Emboss Overlay effect produces an emboss output and overlays the original object.

Set the contrast of a bevel or emboss effect

To set the contrast of a bevel or emboss effect:

1. In the Objects pane or on the Template Timeline, click the bevel effect.
2. In the Object pane, move the **Contrast** slider or enter a percentage in the box at the right.

Change the lighting angle in a bevel or emboss effect

To set the lighting angle in a bevel or emboss effect:

1. In the Objects pane or on the Template Timeline, click the bevel effect.
2. In the Object pane, move the **Angle** slider or enter a number of degrees in the box at the right.

Set the size of a bevel or emboss effect

To set the size of a bevel or emboss effect:

1. In the Objects pane or on the Template Timeline, click the bevel effect.
2. In the Object pane, move the **Size** slider or enter a number of degrees in the box at the right.

Change the color of a bevel or emboss effect

To change the color of a bevel or emboss effect:

1. In the Objects pane or on the Template Timeline, click the bevel effect.
2. In the Object pane, click the **Color** box, move the **RGB** sliders or enter a RGB values in the boxes at the right.

Change the opacity of a bevel or emboss effect

To change the opacity of a bevel or emboss effect:

1. In the Objects pane or on the Template Timeline, click the bevel effect.
2. In the Object pane, move the **Opacity** slider or enter a percentage in the box at the right.

6.12.6 Edit a chroma key effect

Set a chroma key color

To set a chroma key color:

1. In the Objects pane or on the Template Timeline, click the **Chroma Keying** effect.
2. In the Object pane in the **Key Color** box, select **Green** or **Blue**.

Edit the edge between a keyed and unkeyed area

To edit the edge between a keyed and unkeyed area:

1. In the Objects pane or on the Template Timeline, click the **Chroma Keying** effect.
2. In the Object pane under Edge, move the **Offset** and/or **Smoothness** slider.

Suppress the spilling of a chroma key to the foreground

To suppress the spilling of a chroma key to the foreground:

1. In the Objects pane or on the Template Timeline, click the **Chroma Keying** effect.
2. In the Object pane, move the **Spill Suppress** slider or enter a percentage to set the extent to which the spilling is suppressed.

Light wrap an unkeyed area

To wrap an unkeyed area with colors and light from the keyed area:

1. In the Objects pane or on the Template Timeline, click the **Chroma Keying** effect.
2. In the Object pane, move the **Light Wrap** slider or enter a percentage to set the extent of the light wrap.

6.12.7 Edit a pixelate effect

Change the pixel size of the pixelate effect

To change the pixel size of the pixelate effect:

1. In the Objects pane or on the Template Timeline, click the **Pixelate** effect.
2. In the Object pane, move the **Pixel Size** slider or enter a number of pixels in the box at the right.

6.12.8 Edit a drop shadow effect

Change the blur of a drop shadow

To change the blur of a drop shadow:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane under Blur, move the **X** and/or **Y** sliders or enter a number of pixels in the box at the right to specify the radius of the blur on the drop shadow.

Change the image quality of the drop shadow

To change the image quality of the drop shadow:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane in the **Quality** box, select **Low**, **Medium** or **High**.

Downsample a drop shadow

With the downsample feature you can make the shadow blur even blurrier.

To downsample a shadow:

1. In the Objects pane or on the Template Timeline, select the **Drop Shadow** or **Glow** effect.

2. In the Object pane, click the **Downsample** box.
3. Select **None**, **4x** or **16x**.

Change the angle of a drop shadow

To change the angle a drop shadow:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane, move the **Angle** slider or enter a number of degrees in the box at the right.

Change the drop shadow size

To change the drop shadow size (make it smaller compared to the original shadow):

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane, move the **Scaling** slider or enter a percentage in the box at the right.

Change the distance of a drop shadow

To change the distance of a drop shadow:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane, move the **Distance** slider or enter a number of pixels (px) in the box at the right.

Change the drop shadow color

To change the drop shadow color:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane in the **Color** box, click the **Color** box, move the **RGB** sliders or enter a RGB values in the boxes at the right.

Change the opacity of a drop shadow

To change the opacity of a drop shadow:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane, move the **Opacity** slider or enter a percentage in the box at the right.

Hide or unhide the object of a drop shadow

To hide or unhide the object of a drop shadow:

1. In the Objects pane or on the Template Timeline, click the **Drop Shadow** or **Glow** effect.
2. In the Object pane, select or clear the **Hide Object** checkbox.

6.13 Animate an object

6.13.1 Generate an animation from TGAs

To generate an animation from a sequence of TGA files:

1. In the **Project Assets** pane, click **Tools**.
2. Select **Generate Ani**.
3. In the **Pick a Targa File from a Sequence** window, select a TGA file that contains the files you want to add to the sequence.
4. In the Ani Generator Settings window, do the following:
 - a. In the **Decimation** box, select the correct decimation value.
 - b. In the **Bitrate** box, select the correct bit rate.

- c. If you want the top field of each frame in the animation to be played out first, select **Top field first**.
- d. If you want to vertically flip the TGA files, select **Flip targas vertically**.
- e. If you want the last TGA in the sequence to become the first frame in the animation, select **Reverse targa sequence**.

5. Click **OK**.

& **Note:** A higher decimation value or bit rate results in a bigger file size.


6.13.2 Animate with keyframes

To create an animation with the use of keyframes, you must add at least two keyframes. The first key frame represents the start of the animation. The second (or last) keyframe represents the end of the animation.

Add and delete a keyframe

Add a keyframe

To add a keyframe:

1. In the Template Timeline pane, click the tab of the template you wish to edit.
2. On the timeline, move the **player** to select the point in time where you wish to add a keyframe.
3. If necessary, in the Object pane, change the object properties at that point in time.
4. Click the **Add keyframe** button .

& **Note:** The sample project *Optimization* explains how to work with In and Out points.

Add an IN point

The appearance of an object as a timeline track is called an IN point.

To add an IN point, do one of the following:


- Drag the IN point to the location on the timeline where you want the object to appear.
- On the timeline at the point where you want the object to appear, right-click the timeline and select **Set In Point**.

& **Note:** The sample project *Optimization* explains how to work with In and Out points.

Add an OUT point

To add an Out Point:


1. Do one of the following:
 - Right-click the object to which you want to add the OUT point and select **Enable Out Point**.
 - On the timeline at the point where you want the object to appear, right-click the timeline and select **Set Out Point**.
2. Then drag the Object's Out Point (the activity segment's end) to the appropriate position, or right-click the Timeline on the appropriate position > **Set Out Point**.

& **Note:** In the Object pane a Stop action is automatically added when you add an OUT point to an object on the Template Timeline and you have enabled Auto-stop at Out Point. A Stop icon  is visible on the Timeline.

Note: The sample project *Optimization* explains how to work with In and Out points.

Delete a keyframe


To delete a keyframe, do one of the following in the Template Timeline pane:

- Select the keyframe(s) that you wish to delete and then click the **Delete** icon .
- On the object list, right-click the object and select **Object Keyframes > Delete > From All, All + Ripple** or **From Selection**.

& **Note:** The action **All + Ripple** deletes all keyframes of a selected object including its sub objects.

Update a keyframe

To update a keyframe where you have changed the properties of an object:

1. On the Template Timeline, double-click the keyframe of which you have changed the properties and that you wish to update.
2. On the tool bar on the timeline, click .

Or do the following:

1. Right-click a selected keyframe.
2. Select **Object Keyframes** and then **Update Keyframe**.

Move a keyframe


To move a keyframe

1. Hover over a keyframe.
2. Wait until the cursor changes into a two sided arrow.
3. Then drag and drop the keyframe onto a new location on the timeline.

Copy and paste a keyframe

Copy a keyframe

To copy a keyframe:


- On the tool bar on the timeline, click .

To copy the keyframes of one object:

1. In the Template Timeline pane in the object list, right-click the object.
2. Select **Object Keyframes** and then **Copy All**.


Paste a keyframe

To paste a keyframe:

- Select the object onto which you want to paste the keyframe.
- On the tool bar on the timeline, click  or right-click the object, select **Object Keyframes > Paste**.

Reverse a keyframe couple


To reverse a selection of keyframes:

- On the tool bar on the timeline, click  and then select **Scale Time > of Keyframes** or **of All** from the dropdown list.

& **Note:** You have the option to scale selected keyframes [**of Keyframes**] or all keyframes [**of All**].

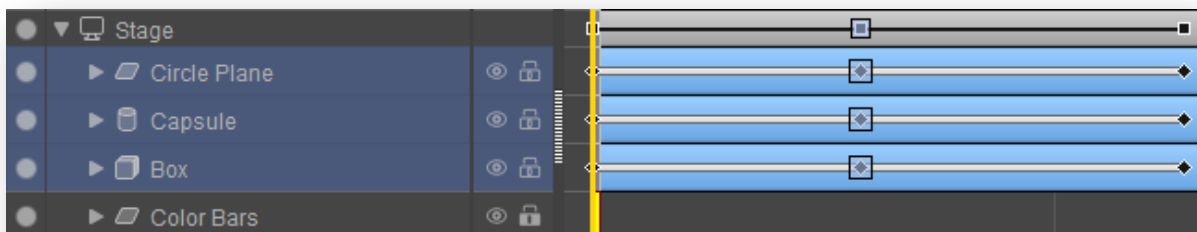
Timescale keyframes

When you timescale keyframes you scale the duration of an animation as a percentage or an x number of frames.

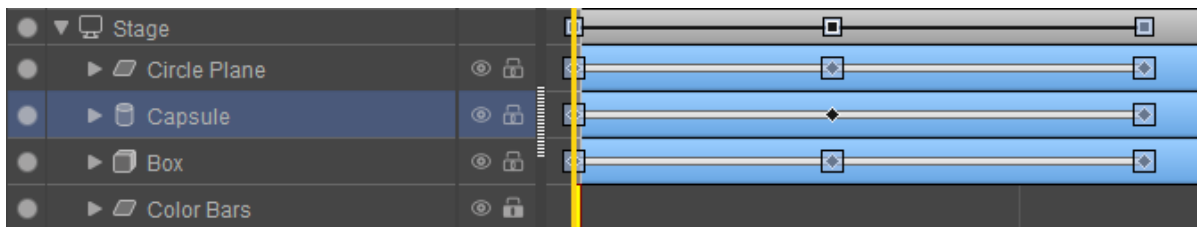
- On the tool bar on the timeline, click  and then select **Reverse Keyframes** from the dropdown list.

Disconnect a keyframe

When an animation has several objects, the keyframes of these objects are connected as is visible in the sample below. When you select a keyframe for one object, the keyframe is selected for the other objects in the animation as well.



Keyframes can be disconnected from an animation, as is visible in the sample below, in which the second keyframe of a capsule is disconnected. You can now move, copy or delete the keyframe without moving the other keyframes.





To disconnect an object from other keyframes in an animation:

- Right-click the object, select **Object Keyframes > Detach > From All, From All + Ripple or From Selection**.

Skip to the next or previous keyframe

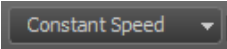
To skip to the next or previous keyframe:

- On the tool bar on the timeline, click  or .

Change the keyframe interpolation

To change the keyframe interpolation:

1. Click a keyframe.

2. On the tool bar on the timeline, click  and select the correct interpolation method from the dropdown list.

& **Note:** You can choose the options Constant Speed, Ease In, Ease Out, Ease In & Out and Step.

6.13.3 Animate with controllers

Add a controller

To add a controller to an object:

1. In the Objects pane or on the Stage, right-click the object and select **Add Controller** and then select the controller you wish to add.
2. Click **OK**.

Edit an anchor controller

You can edit an anchor in the Object pane:

1. Under Anchor Point, move the **XYZ** sliders or enter values in the boxes next to the sliders.
2. If applicable, under Align to X, click the **Side** box and select which side of the object (**None**, **Right** or **Left**) aligns with the X anchor point and then move the offset slider to set the offset in pixels.
3. If applicable, under Align to Y, click the **Side** box and select which side of the object (**None**, **Right** or **Left**) aligns with the Y anchor point and then move the offset slider to set the offset in pixels.
4. If applicable, under Align to Z, click the **Side** box and select which side of the object (**None**, **Right** or **Left**) aligns with the Z anchor point and then move the offset slider to set the offset in pixels.

For information about controllers, see

Edit a fromto controller

You can edit a FromTo controller in the Object pane:

1. In the Property box, select the property that must change in time.
2. Move the **From Value** slider to set the start value of the property.
3. Move the **To Value** slider to set the end value of the property.
4. Move the **Start Delay** slider to set the start delay in frames for the transformation.
5. Move the Duration slider to set the duration in frames of the transformation.
6. Click the Interpol. Box and select the type of interpolation (**Constant Speed**, **Ease In**, **Ease Out**, **Ease In & Out** or **Step**).
7. Move the **Wet-Dry** slider to set the intensity of the transformation.

Edit a link controller

You can edit a link controller in the Object pane:

1. Click the **Src Object** box to select a source object and click **OK**.
2. Click the **Src Prop** box to select the source property to which you wish to link the target property.
3. Click the **Tar Prop** box to select the target property to which you wish to link the source property.
4. Move the **Offset** slider to set the value that must be added to the source property value.
5. Move the **Scale** slider to set the percentage with which the source property must be scaled.
6. Move the **Min Value** slider to set the minimal target property value.
7. Move the **Max Value** slider to set the maximal target property value.
8. Move the **Wet-Dry** slider to set the intensity of the transformation.

Edit an oscillate controller

You can edit an oscillate controller in the Object pane:

1. Click the **Property** box to select the property that you wish to oscillate.
2. Click the **Shape** box to select the shape of the oscillation wave (**Sinus**, **Sawtooth**, **Square**, **Triangle**).
3. Move the **Min Value** slider to set the minimum value of the oscillator wave.
4. Move the **Max Value** slider to set the maximum value of the oscillator wave.
5. Move the **Phase** slider to set the starting point inside an oscillation wave, as a percentage of the wavelength.
6. Move the **Length** slider to set the length of the oscillator wave in frames.
7. Move the **Wet-Dry** slider to set the intensity of the transformation.

Edit a stack controller


You can edit an oscillate controller in the Object pane:

1. Click the **Direction** box and select X Axis, Y Axis or Z Axis to select onto which axis the object need closely to stacked.
2. Move the **Spacing** slider to set the amount of space between objects (in pixels).


6.13.4 Animate with scene parameters




Add a new scene parameter

To add a new scene parameter:

1. Click the **Scene Parameters** pane.
2. Click .
3. In the new window, type a name for the scene parameter.


Or do the following:

1. In the Object pane, click the  icon next to the property to which you wish to link to a scene parameter.
2. Select **Link to Scene Parameter > New** and type a name for the new scene parameter.

& **Note:** The yellow icons in the Object pane indicate that a scene parameter is linked to an underlying object , object  or property .


Delete a scene parameter

To delete a scene parameter

- In the Scene Parameters pane, select the scene parameter that you wish to delete and click the  icon to delete it.

Link an object property to a scene parameter

To link an object property to a scene parameter:


1. In the Object pane and next to the property to which you wish to link to a scene parameter, click the  icon.
2. Select **Link to Scene Parameter** and select the correct scene parameter or **New** to create a new one.

7 Work on a template

7.1 Add and delete objects

7.1.1 Add an object to a template

To add an object to a template:

1. On the **Template Timeline**, select the template to which you wish to add the object.
2. Do one of the following:
 - a. On the **toolbar**, click the  icon, then select the type of Object you wish to add and double-click.
 - b. In the **Library** or **Project Assets** pane, select an object and drag it onto the Stage.
 - c. In the **Objects** pane, select an object. Then right-click > **Add to Template** or drag the object onto the Stage.

Drag an object to a template from the objects window

Drag an object to the template timeline from the objects window

7.1.2 Remove an object from a template


To remove an object from a template:

- On the Template Timeline or Stage, right-click the object you wish to remove and select **Remove from Template**.
- On the Stage, click the object and press Delete and click **Yes**.

& When an object is removed from a template, the object will still be available in the object window.

7.1.3 Delete an object from the project

To delete an object from a project:

- In the Objects pane, select the object and click .


& **Note:** The object is removed from all templates in which it was used.

7.2 Use template rules

7.2.1 Add a template rule

& **Note:** At this moment, it is only possible to create template rules triggered by a ticker end.


To add a template rule:

1. Make sure that the Template Rules pane is visible.
2. In the Template Rules pane, click .

For information about how to hide and unhide panes, see section 0, Hide or unhide panes.

7.2.2 Delete a template rule

To delete a template rule:

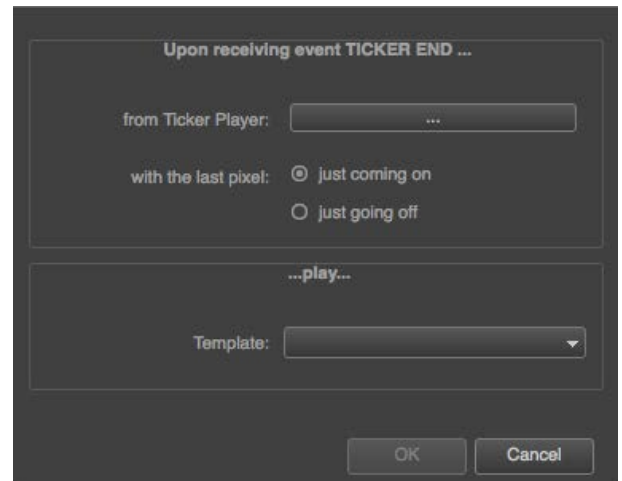
1. Make sure that the Template Rules pane is visible.
2. In the Template Rules pane, click .

7.2.3 Edit a template rule

& **Note:** At this moment, it is only possible to create template rules triggered by a ticker end.

To edit a template rule:

1. Make sure that the Template Rules pane is visible.
2. In the Template Rules pane, double-click the template rule that you wish to edit.
3. In the new window, select the ticker player that must be the trigger.
4. Select the exact trigger, either the last pixel **just coming on** or **just going off**.
5. In the **Template** box, select the template that you wish to trigger.




7.3 Change the template settings

You can change the settings for duration of and cuts within a template.

With regard to duration, you can choose between an infinite and a finite duration of x frames. With regard to cuts, you can choose between hard (default option) and soft cuts. When you choose soft cuts, the property values of this template are slowly blended in.

7.3.1 Open the template settings

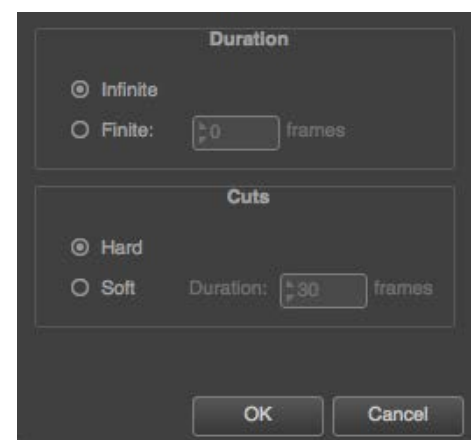
To open the template settings, do one of the following:

- In the **Project pane**, right-click the template of which you wish to edit the settings and select **Settings**.
- On the tool bar of the Template timeline, click .

7.3.2 Edit the template settings

To edit the template settings in the Template Settings window:


1. Select the applicable duration of the template:
 - a. If you want an infinite duration, select **Infinite**.
 - b. If you want a finite duration, select **Finite** and enter a number frames.
2. Select the type of cuts:
 - a. If you want hard cuts, select **Hard**.
 - b. If you want soft cuts, select **Soft** and enter a duration in frames.




7.4 Use the timeline controls

7.4.1 Use the player control buttons


Rewind a template

- On the tool bar of the timeline, click .

Play a template

- On the tool bar of the timeline, click .

Pause a template

- On the tool bar of the timeline, click .


7.4.2 Add a keyframe

There are three options to add a keyframe to the objects timeline.

1. Add keyframe using the tool bar of the timeline
 - a. In the template timeline, drag the CTI to a preferred position.
 - b. On the tool bar of the timeline, click [use current image]
2. Add keyframe using the objects timeline
 - a. In the template timeline, drag the CTI to a preferred position.
 - b. Right click on the objects timeline.
 - c. Click Object Keyframes > Insert Keyframe
3. Add keyframe using the objects property pane
 - a. In the template timeline, drag the CTI to a preferred position.
 - b. Select an object on stage or on the timeline
 - c. Go to the objects property window
 - d. Click on the down arrow of a property
 - e. Click Insert Keyframe

7.4.3 Select all timeline items


To select all timeline items:

- On the tool bar of the timeline, click .

7.4.4 Copy and paste items


Copy to the clipboard

To copy to the clipboard:

- On the tool bar of the timeline, click .


Paste to the timeline

To paste to the timeline:



- On the tool bar on the timeline, click .

7.4.5 Delete an item from the timeline

To delete an item from the timeline:

- On the tool bar of the timeline, click .


To duplicate a production element, do one of the following:

- In the **Project pane**, right-click the production element you wish to duplicate and select **Duplicate**.
- On the tool bar of the Template Timeline, click .
- On the tool bar or the Compound Element Timeline, click .

& **Note:** The objects of the original template or transition are not duplicated. Both original and duplicate use the same objects. If an object is changed in template or transition A, it is also changed in template B.

7.4.6 Scale the time

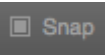
To scale the time:

1. On the tool bar of the timeline, click .
2. Select **Scale time** from the dropdown list, and then select **of Keyframes** or **of All**.
3. In the **Scale Time of** window, select **by percentage** or **by duration**.
4. If you have selected by percentage, type the applicable size as a percentage in the % box.
5. If you have selected by duration, type the applicable size in frames in the **fr** box.

7.4.7 Use the snap controls


Enable or disable player head snap

To enable or disable player head snap:

- On the tool bar of the timeline, click .

Set the snap distance

To set the snap distance:


- On the tool bar of the timeline pane, click .

& **Note:** The snap distance is in seconds.

7.4.8 Hide and unhide items

Hide or unhide an object

To hide or unhide an object on the stage:

- On the timeline behind the name of an object, click .

Hide or unhide command tracks

To hide or unhide command tracks:

1. On the bottom left the timeline pane, click .
2. Select or clear **Command Tracks** from the dropdown list.

Hide or unhide object properties

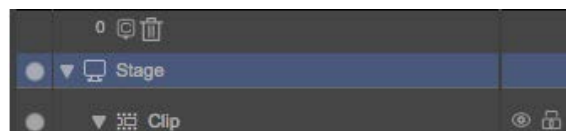
To hide or unhide object properties:

1. On the bottom left of the timeline, click .
2. Select or clear **Object Properties** from the dropdown list.

7.4.9 Enable or disable the pickup

To enable or disable the pickup:


- On the Template Timeline, click .



- & **Note:** As a default, the pickup is selected.
- & **Note:** When the pickup is cleared, the object, sub-object or property is not affected by the template changes.

7.4.10 Lock or unlock an object

To lock or unlock an object on the stage:

- On the timeline behind the name of an object, click .

7.4.11 Zoom in or out of the timeline


To zoom in or out of the timeline:

1. On the bottom left of the timeline, move the slider:
2. Select or clear **Object Properties** from the dropdown list.



7.5 Preview a template

To preview a template:


- On the Template Timeline, click .
- On the toolbar, click the **Try-out Mode** button and double-click a template.

- & **Note:** Players only play content in Try-out mode.
- & **Note:** In try-out mode, the Stage shows a preview of your templates. The output is exactly the same as on the playout system, but is not guaranteed in real-time.
- & An orange color indicates that a templates is loading.
- & Blue indicates that a template is playing. Grey indicates that a templates has been played.
- & **Note:** You cannot edit a template in try-out mode.

7.6 Take a snapshot

You can take a snapshot of a template, transition or effect. This snapshot is then visible on the GV Director Panel when you push the button that is linked to the transition or effect.

To take a snapshot:

1. On the Template Timeline, move the player until the scene is visible on the Stage of which you wish to take a snapshot.
2. Click the  button.

- & **Note:** When a snapshot is taken it is visible in the snapshot button in Composer.

7.7 Rate all templates

You can use the Rate Templates feature to check the performance of all transitions and templates in a project.

To rate all transitions and templates:

- In the Objects menu, select **Rate Templates**.

- & **Note:** In the Project pane, two scores are visible after this action. The first score is the total time in milliseconds to process the entire template (total). The second score is the GPU time in milliseconds to process the template.
- & **Note:** We recommend that you validate values higher than 10 on the playout system.
- & **Note:** Please refer to the Example Project for an explanation on how values can be improved if load is too high.

A third score is the so-called near frame score. This score is visible when you hover over the two scores in the Project pane. The near frame score shows on which frames the two other scores peak. If the near frame score is 0/0, the other two scores each peak at frame 0.

8 Work on transitions


8.1 Edit the transition settings

You can change the settings for duration of and cuts within a transition.

With regard to duration, you can choose between an infinite and a finite duration of x frames. With regard to cuts, you can choose between hard (default option) and soft cuts. When you choose soft cuts, the property values of this transition are slowly blended in.

8.1.1 Open the transition settings

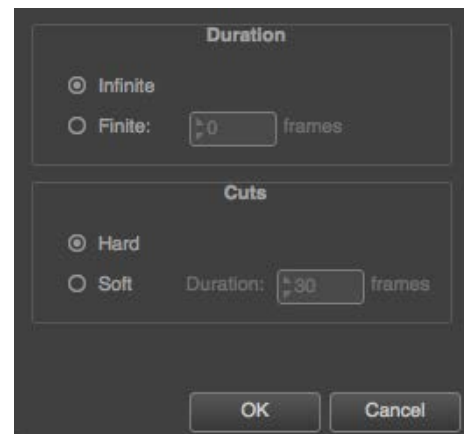
To open the transition settings, do one of the following:

- In the **Project pane**, right-click the transition of which you wish to edit the settings and select **Settings**.
- On the tool bar of the Template timeline, click .

8.1.2 Edit the transition settings


To edit the transition settings:

1. Select the applicable duration of the template:
 - a. If you want an infinite duration, select **Infinite**.
 - b. If you want a finite duration, select **Finite** and enter a number frames.
2. Select the type of cuts:
 - a. If you want hard cuts, select **Hard**.
 - b. If you want soft cuts, select **Soft** and enter a duration in frames.



8.2 Change the A/B objects of a transition

To change the A-B objects of a transition:

1. Drag the objects from the Library or Project Assets pane to the Stage.
2. Make sure that the objects are grouped under the IPA Mixer.
3. Link the IPA Mixer to one or multiple object materials of the A and B objects. Repeat the following steps until you have linked every material:
 - a. In the Objects or Template Timeline pane, select the material  that you wish to link to the IPA Mixer.
 - b. Double-click the material.
 - c. In the Object pane under Players, click the Fill box and select **GVD Mixer Player**.
 - d. On the Template Timeline, expand the selected material and click the GVD Mixer Player underneath.

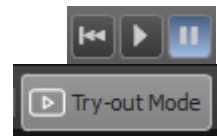
- e. In the Object Pane, make sure that in the **Mixer Buffer** box the correct side (**Front** or **Back**) is selected.

- & **Note:** You cannot add animations to a transition, except when it is an animated transition.
- & **Note:** Make sure that you group all objects under the IPA Mixer.

8.3 Preview a transition

To preview a transition, do one of the following:

- Click **Try-out Mode** and use the buttons of the **Template Timeline**.
- Click **Try-out Mode** or move the **Player** on the timeline.




- **Note:** that Players only run in Try-out mode.

8.4 Take a snapshot

You can take a snapshot of a template, transition or effect. This snapshot is then visible on the GV Director Panel when you push the button that is linked to the transition or effect.

To take a snapshot:

4. On the Template Timeline, move the player until the scene is visible on the Stage of which you wish to take a snapshot.
5. Click the  button.

- & **Note:** When a snapshot is taken it is visible in the snapshot button in Composer.

8.1 Rate all transitions

Same as Rate all templates.

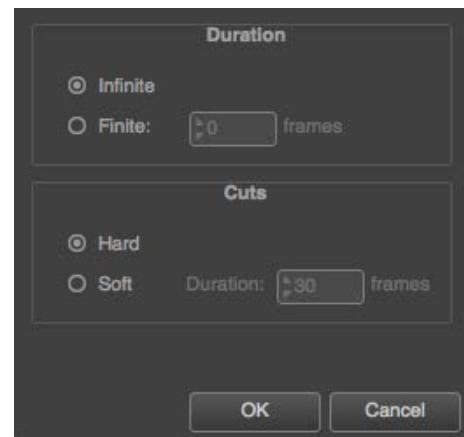
8.2 Work on animated transitions

8.2.1 Set the duration

Animated transitions must have a finite duration.

To set the duration:


1. In the **Project pane**, right-click the transition of which you wish to edit the settings and select **Settings**.
2. Under Duration, select **Finite** and enter a number frames.



9 Work on effects

9.1 Add an action to an effect

To add an action to an effect:

- In the Project pane, double-click an effect, click , type an action name and click **OK**.

& **Note:** The action name is visible on the GV Director Panel.

9.2 Link an action to a template

To link a template to an effect action:

1. In the Project pane, double-click an effect, then double-click the action you wish to link to a template.
2. In the new window, select a template and click **OK**.

9.3 Delete an action

To delete an action:

- In the Project pane, double-click an effect, select the action that you wish to delete and click .

9.4 Preview an effect

You can preview an effect in Try-out Mode.


To preview an effect:

1. On the toolbar, click the **Try-out Mode** button.
2. In the Try-out Mode pane, double-click the templates in the effect to preview them.

9.5 Take a snapshot

You can take a snapshot of a template, transition or effect. This snapshot is then visible on the GV Director Panel when you push the button that is linked to the transition or effect.

To take a snapshot:


3. On the Template Timeline, move the player until the scene is visible on the Stage of which you wish to take a snapshot.
4. Click the  button.

& **Note:** When a snapshot is taken it is visible in the snapshot button in Composer.


10 Work on compound elements

10.1 Add and delete items

10.1.1 Add an effects block

1. On the Compound Element Timeline, click .
2. Add a background to the effects block:
 - a. In the Production Elements pane, drag a **Black**, **Input** or **Shotbox** to the Background section of the effects block.
 - b. In the Object Pane, drag a transition to the Transition section of the effects block.
 - c. Drag Effects from the Object pane or GPOs from the Production Elements pane to the Effects section of the effects block.

10.1.2 Delete an effects block

- On the Compound Element Timeline, select the effects block you wish to delete and click .

10.1.3 Add a transition to an effects block

To add a transition to an effects block:

- In the Project pane, drag the transition that you wish to add and drop it in the effects block on the Compound Element Timeline.

10.1.4 Add one or multiple effects to an effects block

To add one or multiple effects to an effects block:

1. From the Project pane, drag the effect that you wish to add and drop it onto the effects block on the Compound Element Timeline.
2. Double-click the effect.
3. In the new window, select the correct action (such as **None**, **Off**, **On** or **Update**) and click **OK**.

10.1.5 Add a GPO

To add a GPO to an effects block,:


1. From the Production Element pane, drag and drop it onto the effects block on the Compound Element Timeline.
2. Double-click the GPO.
3. In the new window in the **Output pin** box, type the number of the output pin that you wish to use.
4. In the **Output Pin State** box, select the state to which the pin must switch (**Low**, **High** or **Pulse**).
5. In the **Pulse Width** box, type the correct number of frames.
6. In the **Pulse Phase** box, select **Positive** or **Negative**.

& **Note:** You cannot use the same pin number twice in an effects block. When you drop a GPO on an effects block, the new pin number is always +1.

10.2 Copy and paste items

10.2.1 Copy an effects block

To copy an effects block:

- On the Compound Element Timeline, select the effects block you wish to copy and click .

10.2.2 Paste an effects block

To paste an effects block:

- On the Compound Element Timeline, click  or press Ctrl+V / ⌘V.

10.3 Change the order of production elements or effects blocks

To change the order of production elements or effects blocks:

- Select and drag the item.

& **Note:** The drop indicator shows the new location of the item.

10.4 Replace items

10.4.1 Replace a background

To replace a background:

1. From the Production Elements pane, drag the new **Black**, **Input** or **Shotbox** to the background section of the effects block on the Compound Element Timeline.
2. In the pop-up window, click **Yes** to replace the existing background.

10.4.2 Replace a transition

To replace a transition:

1. From the Production Elements pane, drag the new transition to the Transition section of the effects block on the Compound Element Timeline.
2. In the pop-up window, click **Yes** to replace the existing transition.

10.5 Edit a pause

1. Double-click a pause.
2. In the new window, select **User Pause** or **Timed Pause**.
3. If you have selected a timed pause, in the **Duration** box, enter a duration in hh:mm:ss:ff.
4. Click **OK**.

11 Use a keyboard shortcut

This chapter instructs you how to use keyboard shortcuts that work anywhere, as well as keyboard shortcuts that you can use to move through and edit the Stage and the Template Timeline.

11.1 Use a shortcut that works anywhere

These hotkeys are accessible from everywhere.

Windows shortcut

Mac OSX shortcut

Ctrl+O	CMD-O	: open Project.
Ctrl+P	CMD-P	: Toggle Pixel Perfect Information.
Ctrl+S	CMD-S	: save Project.
Ctrl+SHIFT-S	CMD-SHIFT-S	: save Project as.
Ctrl+Z	CMD-Z	: undo.
Ctrl+Y	CMD-Y	: redo.
Ctrl+C	CMD-C	: copy.
Ctrl+V	CMD-V	: paste.
Ctrl+A	CMD-A	: select all.
Ctrl+D	CMD-D	: select none.
Ctrl++	CMD++	: zoom in.
Ctrl--	CMD--	: zoom out.
Ctrl+ALT-F	CMD-ALT-F	: zoom to 100%.
Ctrl+ALT-N	CMD-ALT-N	: fit Stage in window.
Ctrl+ALT-R	CMD-ALT-R	: toggle ruler's visibility.
Ctrl+ALT-G	CMD-ALT-G	: toggle grid visibility.
Ctrl+ALT-U	CMD-ALT-U	: toggle guides' visibility.
Ctrl+SHIFT-G	CMD-SHIFT-G	: toggle snap to grid.
Ctrl+SHIFT-U	CMD-SHIFT-U	: toggle snap to guides.
Ctrl+1	CMD-1	: toggle Project Navigator visibility.
Ctrl+2	CMD-2	: toggle History visibility.
Ctrl+3	CMD-3	: toggle Library visibility.
Ctrl+4	CMD-4	: toggle Project Assets visibility.
Ctrl+5	CMD-5	: toggle Objects visibility.
Ctrl+6	CMD-6	: toggle Object Properties visibility.
Ctrl+7	CMD-7	: toggle Template Timeline visibility.
Ctrl+8	CMD-8	: toggle Text Styles visibility.
Ctrl+9	CMD-9	: toggle Scene Parameters visibility.
Ctrl+SHIFT-T	CMD-SHIFT-T	: new Template.
G	G	: group Objects.
U	U	: ungroup Object.
ALT-A	ALT-A	: add Object to Stage.

SHIFT-SPACE	SHIFT-SPACE	: toggle Clean View Mode.
SHIFT-2	SHIFT-2	: toggle allow only 2D transformations.
SHIFT-3	SHIFT-3	: toggle allow 2D and 3D transformations.
SHIFT-A	SHIFT-A	: toggle lock Object aspect ratio.
SHIFT-M	SHIFT-M	: toggle 16:9 (anamorphic widescreen) mode
SHIFT-Z	SHIFT-Z	: toggle 3D editing guides visibility.
O	O	: open group.
C	C	: close group.
SHIFT-C	SHIFT-C	: toggle curtains.
Ctrl+T	CMD-T	: toggle Template Try-out Mode.
Ctrl+Shift+T	CTRL+Shift+T	Add a Transition.
Ctrl+Shift+R	CTRL+Shift+R	Add an Animated Transition.
Ctrl+Shift+E	CTRL+Shift+E	Add a Template.
Ctrl+Shift+C	CTRL+Shift+C	Add a Compound Element.

11.2 Move through and edit the Stage

left/right/up/down/pgdn/pgup	Nudge (to move an object by one pixel) to the left, the right, up, down, forward or backward.
SHIFT + left/right/up/down/pgdn/pgup	Big nudge to the left, the right, up, down, forward or backward.
R	Reset the rotation of the selection.
Shift+ move an object	Limit the movement to the X or Y axis.
Del	Remove or delete selected objects.

11.3 Edit the Template Timeline

A	: select all Timeline items.
D	: delete Timeline selection.
[/]	: go to previous/next keyframe.
left/right	: decrease/increase player head time by one frame.
+/-	: zoom in/out.
R	: rewind.
Space	: toggle play/pause.
K	: insert/update keyframe for selection.