



Mural: A tool for visual storytelling

Version 0.2.8

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What is Mural?

Visual storytelling is different from writing in text only, and we believe it requires a purpose-built tool to work with the richness and power of multimedia.

Mural is a tool for visual storytelling. It's a program that helps you sequence your visual story, and then generates everything needed for that story to be displayed on most modern web browsers and served from any web server.

You can see the way your story will look, test out all of the elements, and make changes if necessary before it's uploaded to the web.

When a story is made with Mural, its visual elements are displayed at full screen by default, letting the strength and richness of your work shine through. Images can be combined with sound, videos combined with text, and numerous other combinations are possible.

Mural uses the metaphor of a storyboard to lay out the different elements of your story. With Mural, you can easily rearrange the sequence of the different items that make up your story.

You don't have to know how to code in order to use Mural. But if you do know how to code, you'll appreciate being able to go into the web standard code that Mural generates and make the changes you want using standard tools.

Funding for Mural was provided in Round 3 of Google's Digital News Initiative Prototype Fund.

Mural is released as open source under the GNU Affero General Public License. See Appendix 2 for the text of this license.

What's new in Mural 0.2.8

Improved support for vertical video playback

We've added a new feature that lets you shift the video (we call it an offset) to better fit the video when a reader holds their phone vertically.

Readability

Based on user feedback, we've added new features to the Background Video item that greatly help text readability. Now you can set the opacity and color of the text background box, which means that you can make the text box more or less transparent and set the background color accordingly.

Sound transitions

We've also improved sound transitions when a reader navigates from one item to the next. Now the sound crossfades from one to the next.

Video pre-loading

Finally, we've improved the way videos pre-load.

Mural is an open source project, and as such we welcome people forking the project on Github to adapt it to their needs. Our Github repository is at: <https://github.com/GetMural/Mural>

If you're not a developer but would still like to see new features added to Mural, get in touch with us at info@getmural.io.

Getting started

Installing Mural

1. Download Mural

The current version of Mural is 0.2.7. To install Mural, go to www.getmural.io and download the appropriate version. There are versions for Windows (32 or 64 bit), Mac and Ubuntu.

2. Unzip Mural and its components

Create a new folder on your hard disk called 'mural' and unzip the Mural .zip file there. All of the files in the .zip must be extracted.

3. Start the Mural program

Find the Mural program (either Mural.app for the Mac or mural.exe for Windows) and double click it to start the program.

Mac users should copy the Mural.app to their Applications folder.

Mac users may have their security settings so that they can only install trusted applications from the Mac App Store. If this happens, here are the steps:

1. Hold down the “Control” button
2. Click on the Mural app
3. Select “open” to override and run the application.

Windows users may have issues with their antivirus programs. If Mural starts but then shows errors, check your Antivirus settings to make sure that Mural is listed among your trusted applications.

4. Helper programs: FTP and video converter

In addition, you should install two helper programs: One to convert your videos for optimum display and one to send your completed Mural story to a web server.

We recommend [Cyberduck](#) or Filezilla. Both have Mac and Windows versions and do the same thing, which is to upload your files to a remote web server using the File Transport Protocol, or FTP.

For converting videos, we recommend [Handbrake](#) (see “Choosing a video converter,” below) as a relatively user-friendly converter. Advanced users should use FFmpeg.

Using Mural

Mural and your media

Mural can work with a number of different digital media formats, most by default at full screen size. They include:

- Video (both as full-screen and as background)
- Still images (either as background or with parallax scrolling effect)
- Slideshows of still images (both vertical and horizontal)
- Centred text

Three main steps

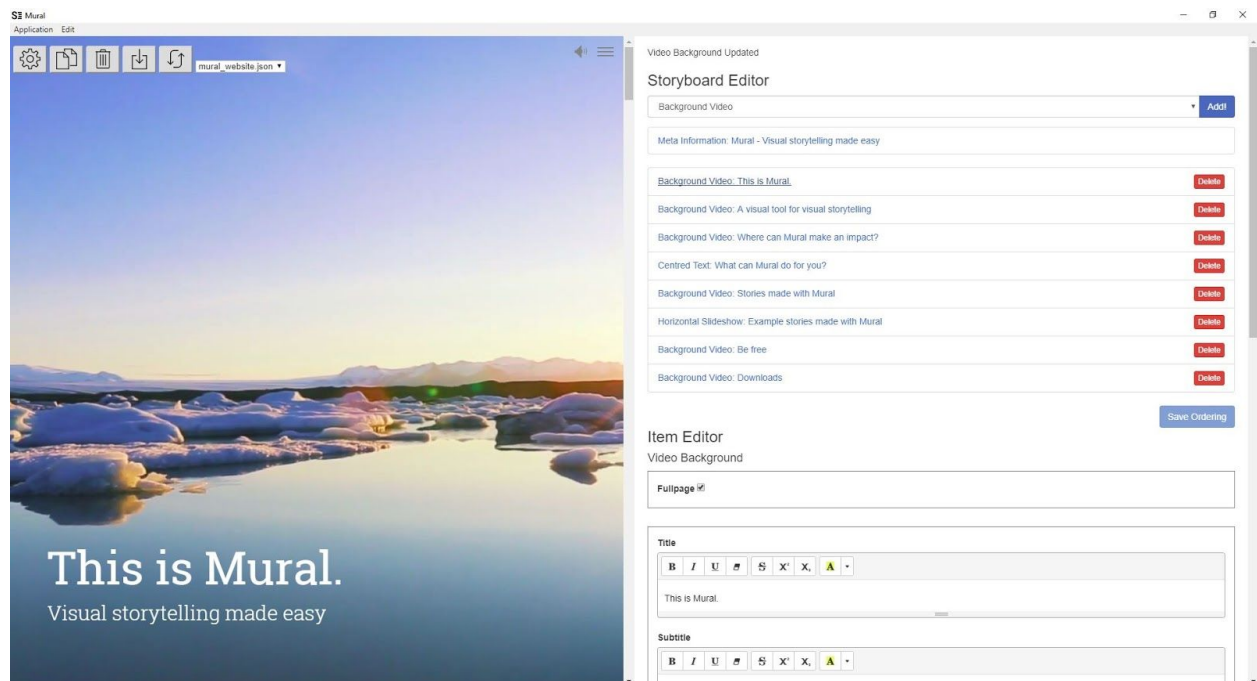
There are three main steps when you create a Mural story.

1. Preparing your videos and images for optimal display
2. Creating your story in the Mural editor
3. Uploading the completed files to your web server for publishing

Creating your story in the Mural editor

The Mural editor

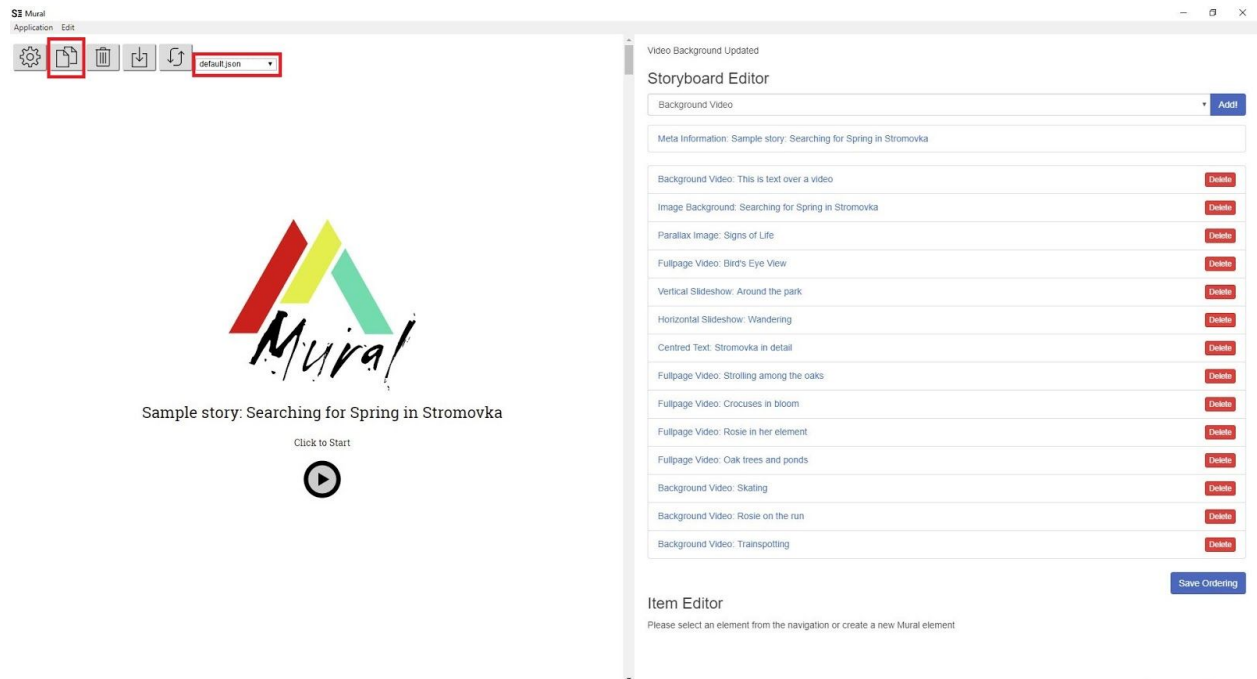
The Mural editor uses the metaphor of a storyboard which is divided into two parts: The left side of the screen is called the *preview pane*, and the right side of the screen is the *storyboard editor*.



Starting a story

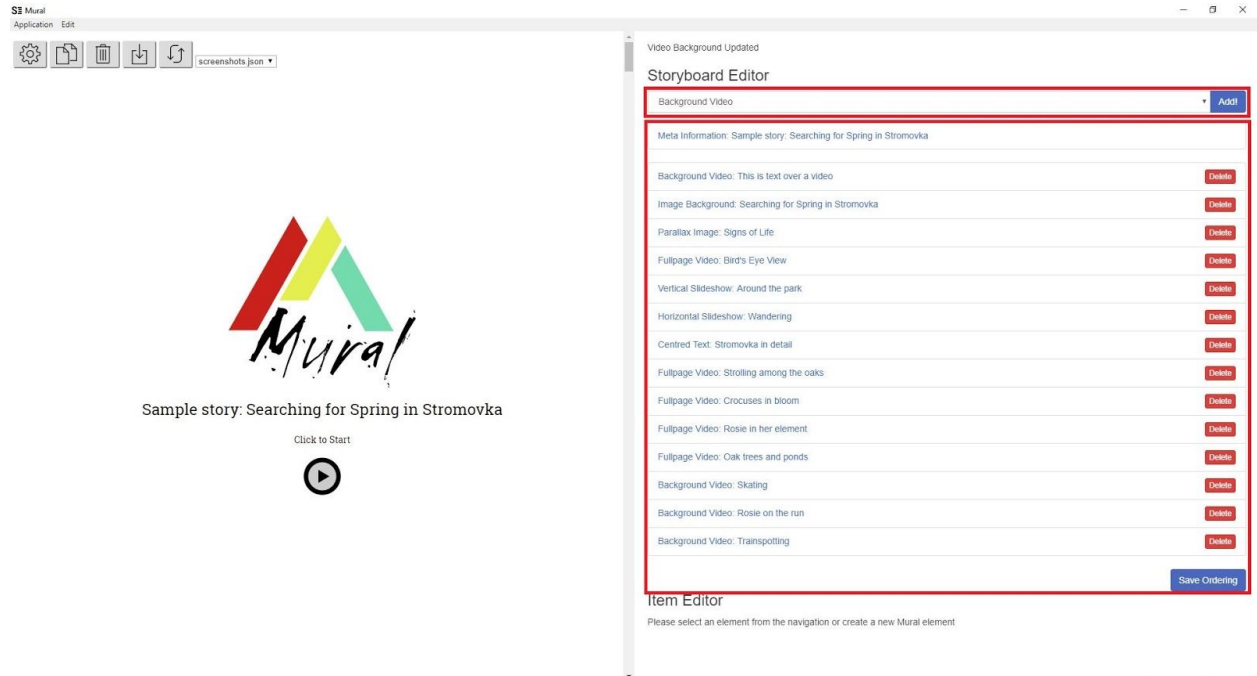
A Mural story is made up of several different items, and each item has a different media type, including video, still images, audio and text. It's good to think of each item in Mural as taking up at least one full screen.

Start your new Mural story by duplicating an existing story. This will give you an idea of the different possibilities available to you. Select default.json from the pulldown menu at the top of the preview pane.



Working with items

A Mural story is made up of a sequence of items, and Mural has several items which correspond to the different types of storytelling elements available to you. The items are listed on the right side of the screen in the storyboard editor.

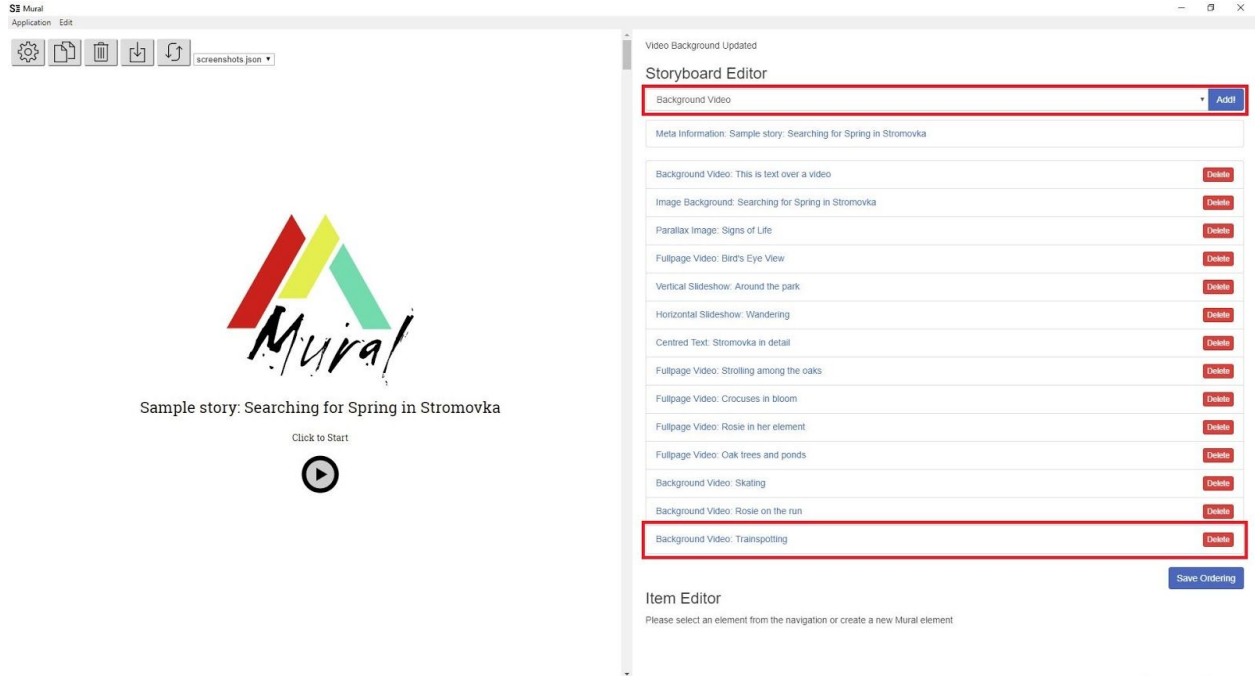


Adding an item

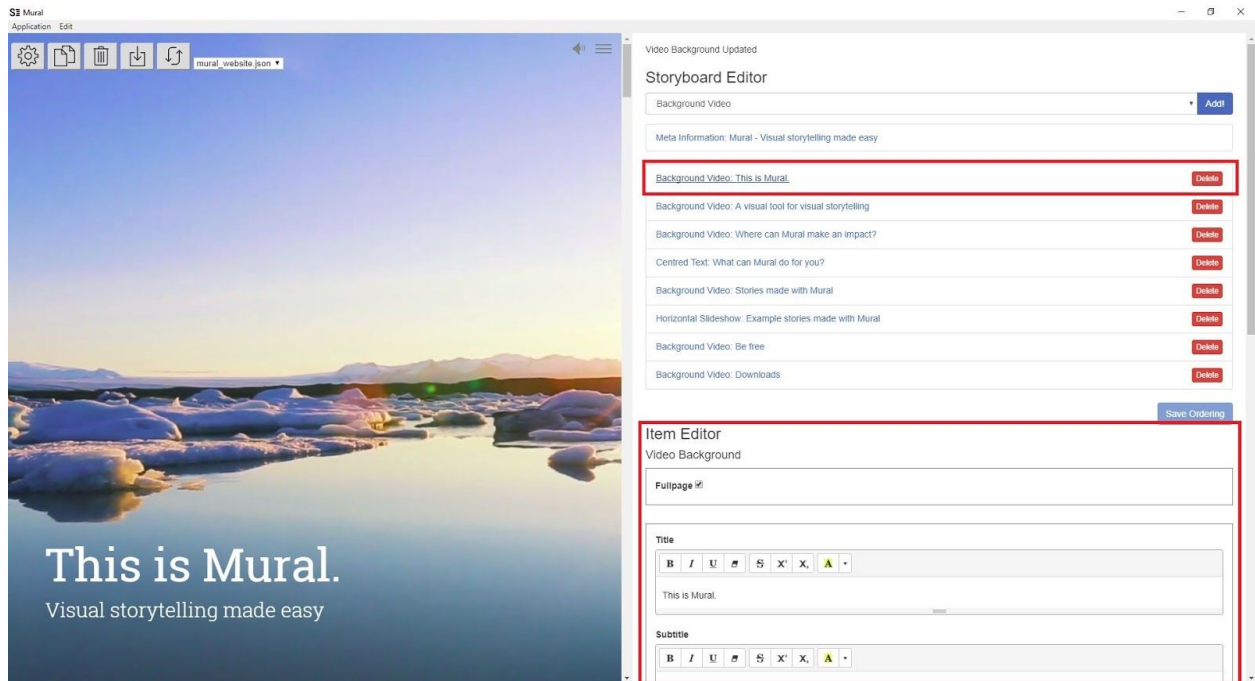
At the top of the right part of the screen, there is a pull-down menu that lists the different types of items available to use. These include:

- Fullpage video
- Background video
- Image parallax
- Image audio
- Image background
- Vertical slideshow
- Horizontal slideshow
- Centred text


To add an item, select one from the pull-down menu at the top of the Storyboard Editor and click 'Add.' It will appear at the bottom of the list of items:



When you click on the item itself, you will see the fields relevant to that item.



Here is a list of all of Mural's Storyboard Editor items and their fields you can work with:

- Fullpage video item
 - The **Fullpage video** item refers to a section of your Mural story where there is a video that takes up the entire screen, and which can have video controls. Note: You can have a headline on a fullpage video item, but cannot have body text.
 - Fullpage video items have the following fields to work with:
 - **Fullpage (checkbox)** - When this is checked, the video takes up the entire page. When it is not checked, the video is displayed at its original size.
 - **Title** - this is where you write your title for the item, such as a headline.
 - **Text** - this is where you write the body text for the page
 - Video sources
 - **MP4** - this is where you input your MP4 video file
 - **Webm** - this is where you input your uploaded Webm file
 - Both video formats have a preview window available.
 - **Poster Image** - This is a still image that loads before the video and serves as an alternate.
- Background video item
 - As opposed to a Fullpage video item, a **Background video** item has video that is intended to play behind both headline and body text. Background videos do not have player controls, and by default will loop - automatically play again from the beginning until the user scrolls away from the item.
 - Background video items have the following fields to work with:
 - **Fullpage (checkbox)** - When this is checked, the video takes up the entire page. When it is not checked, the video is displayed at its original size.
 - **Title** - this is where you write your title for the item, such as a headline.
 - **Text** - this is where you write the body text for the page
 - Video sources
 - **MP4** - this is where you input your MP4 video file
 - **Webm** - this is where you input your Webm video file
 - Both video formats have a preview window available.
 - **Offset portrait video** - This lets you offset the video so that when a user holds their mobile phone vertically, the most important part of the video is shown to them. In all cases, the video will be stretched to fit the height of the mobile phone screen. There are four options to offset the video:
 -  **Left** aligns the upper left corner of the video with the upper left corner of the mobile phone viewport. This is the default when the feature is not activated.



- **Center** aligns the center of the video to the upper left corner of the viewport, as is shown.



- **Right** aligns the top right corner of the video with the top right corner of the viewport, as is shown.



- **Custom offset** lets you set an arbitrary value for your offset. This may take some trial and error to get the right offset, but it will give you greater control over what is shown.
- **Text background box** - You can set the color and opacity of the text background box. This is especially helpful for improving text readability for videos where the color includes both light and dark areas. By picking a background color and opacity level, you can have a more consistent background for your text.

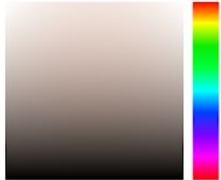
Background Text Box

Active


Colour (R, G, B)

eg: 255, 0, 0

If you know the RGB value that you want to use you may enter it here and just click save.



Opacity Level: 50%



- **Opacity** - The text box color and opacity can be set when the **Active** checkbox is ticked.
- **Setting the background color** - You can set a background color either by typing in the RGB color value in the form of three numbers between 0 and 255 separated by commas, or by clicking on a color using the color picker.
- **Setting opacity** - You can set the level of opacity by moving the opacity slider. 0 % opacity means the text background box is completely transparent and the background video is displayed at

full intensity, while 100% opacity means that the text background box has a completely solid color.

- **Poster Image** - This is a still image that loads before the video and serves as an alternate.

- Parallax image with text item

- A **Parallax image with text** item has a still image with text that has a parallax scrolling effect, meaning that the text seems to move above the image. Select your image and input the text you want to display with it.
- A **Parallax image with text** item has the following fields to work with:
- **Title** - this is where you write your title for the item, such as a headline.
- **Text** - this is where you write the body text for the page
- Image Sources
 - **Small image** - this is where you input the small version of your still image. This will be useful for display on mobile. The small image works best at 600 pixels wide X 400 pixels high.
 - **Medium image** - this is where you input the medium version of your still image. This will be useful for display on older computers or lower-resolution screens. The medium image works best at 1024 pixels wide X 768 high.
 - **Large image** - this is where you input the large version of your still image. This will be useful for display on high-resolution screens. The large image works best at 1920 pixels wide X 1080 pixels high.

- Image background item

- An **Image background** item has a still image that takes up the entire screen, but which has both headline and body text over it. An Image background item's image remains unmoving when a user scrolls until all of the text has scrolled. Then the story advances to the next item.
- The **Image background** item has the following fields to work with:
 - **Title** - this is where you write your title for the item, such as a headline.
 - **Subtitle** - this is where you write the subtitle for the item
 - **Text** - this is where you write or paste the text for the item.
 - Image Sources
 - **Small image** - this is where you input the small version of your still image. This will be useful for display on mobile. The small image works best at 600 pixels wide X 400 pixels high.
 - **Medium image** - this is where you input the medium version of your still image. This will be useful for display on older computers or lower-resolution screens. The medium image works best at 1024 pixels wide X 768 high.
 - **Large image** - this is where you input the large version of your still image. This will be useful for display on high-resolution screens.

The large image works best at 1920 pixels wide X 1080 pixels high.

- Image audio item
 - An **Image Audio** item is a still image that can play audio in the background. This is useful for ambient, environmental sound, or for sound material with images attached.
 - An audio file attached to an Image Audio item will loop until the user scrolls away to advance to the next item.
 - The Image Audio item has the following fields to work with:
 - **Title** - this is where you write your title for the item, such as a headline.
 - **Text** - this is where you write or paste the text for the item.
 - Image Sources
 - **Small image** - this is where you input the small version of your still image. This will be useful for display on mobile. The small image works best at 600 pixels wide X 400 pixels high.
 - **Medium image** - this is where you input the medium version of your still image. This will be useful for display on older computers or lower-resolution screens. The medium image works best at 1024 pixels wide X 768 high.
 - **Large image** - this is where you input the large version of your still image. This will be useful for display on high-resolution screens. The large image works best at 1920 pixels wide X 1080 pixels high.
 - Audio Sources
 - **MP3** - this is where you select the sound file you want that is in the MP3 format.
 - **Ogg** - this is where you select the sound file you want that is in the Ogg format.
 - **Note:** You can only upload one audio file per image. However, if you do input two audio files, the MP3 will play.
- Centred text item
 - A **Centred text** item handles a large amount of text, laid out in the center of the screen, and can have images on either side of the text column. This is good for the parts of your story which have long texts.
 - A **Centred text** item has the following fields and options to work with:
 - **Light (checkbox)** - this makes the text dark on a light background when checked, or light on a dark background when it is not checked.
 - **Title** - this is where you write your title for the item, such as a headline.
 - **Subtitle** - this is where you write the subtitle for the item
 - **Intro** - this is where you write introduction text for your item.
 - Content Blocks
 - **Image [+]** - Clicking this adds an image to your text.

- **Align:** left, center or right - this places the image either left, center or right in the text column.
- **Src:** Input the image here
- **Credits:** This is where the photo credit is written.
- **Text:** This is where your body text goes, until you decide to add another content block for images and text.
 - **Embeds in text:** You can embed other content into the text area. To do so, click the Code View </> button in the browser to see the HTML code, as is seen below:

Text

```

<iframe src="https://www.google.com/maps/embed?
pb=!1m14!1m8!1m3!1d2558.9132872613163!2d14.418903999999999!3d50
.10663!3m2!1i1024!2i768!4f13.1!3m3!1m2!1s0x0%3A0xbf37fce6eea927
fb!2sStromovka!5e0!3m2!1sen!2scz!4v1525345453799" width="600"
height="450" frameborder="0" style="border-width: 0px; border-
style: initial;" allowfullscreen=""></iframe><br><br>Its most
important remnant till today is the Oak Hillock (Dubový
pahorek), which is a raised island of the former pond where
mighty well-preserved oaks grow. In the years between 1582 and
1593 a unique work was created in order to supply the pound
with water from the Vltava River: the Rudolph's Adit (Rudolfova
štola). Although the Great Pound was later filled, the

```

Paste your embed code where you want it to be placed in the text. When you click the Code View </> button again, the text window will be back in WYSIWYG mode, and you should be able to see your embed.

Instagram embeds

If you wish to support iPhone 5 screen portrait dimensions without introducing a horizontal scrollbar then Instagram embeds need to have their `min-size` CSS value reduced from `326px` to `290px`. This simple change has no effect on any other display properties on any other platform and will allow you to continue supporting your audience's older phones for longer. We've tested other embeds such as YouTube, Vimeo, Google Maps and Soundcloud, and all work fine on smaller phone displays; it seems to be an Instagram-specific issue.

- Vertical slideshow item
 - A **Vertical slideshow** item refers to a collection of images that can be displayed in a slideshow with controls on the top and bottom, and where the images advance vertically when a user clicks on the control.

- The **Vertical slideshow** item has the following fields and options to work with:
 - **Title** - This is for the title of the overall slideshow.
 - **Slide [+]** - Clicking this adds another slide to the slideshow. You can have as many slides in the slideshow as you want.
 - **Title** - This is for the title for the individual slide
 - **Credits** - This is for the image credit
 - Image Sources
 - **Small image** - this is where you input the small version of your still image. This will be useful for display on mobile. The small image works best at 600 pixels wide X 400 pixels high.
 - **Medium image** - this is where you input the medium version of your still image. This will be useful for display on older computers or lower-resolution screens. The medium image works best at 1024 pixels wide X 768 high.
 - **Large image** - this is where you input the large version of your still image. This will be useful for display on high-resolution screens. The large image works best at 1920 pixels wide X 1080 pixels high.
- Horizontal slideshow item
 - A **Horizontal slideshow** item refers to a collection of images that can be displayed in a slideshow with controls on the left and right, and where the images advance horizontally when a user clicks on the control.
 - The **Horizontal slideshow** item has the following fields and options to work with:
 - **Title** - This is for the title of the overall slideshow.
 - **Slide [+]** - Clicking this adds another slide to the slideshow. You can have as many slides in the slideshow as you want.
 - **Title** - This is for the title for the individual slide
 - **Credits** - This is for the image credit
 - Image Sources
 - **Small image** - this is where you input the small version of your still image. This will be useful for display on mobile. The small image works best at 600 pixels wide X 400 pixels high.
 - **Medium image** - this is where you input the medium version of your still image. This will be useful for display on older computers or lower-resolution screens. The medium image works best at 1024 pixels wide X 768 high.
 - **Large image** - this is where you input the large version of your still image. This will be useful for display on high-resolution screens. The large image works best at 1920 pixels wide X 1080 pixels high.

Sequencing items

In the Storyboard Editor, you can quickly rearrange the sequence of your items by dragging and dropping them. Your new sequence will be saved when you click the “Save ordering” button at the bottom of the storyboard. The changes you make will then be reflected in the preview pane when you click the ‘Refresh preview’ button.

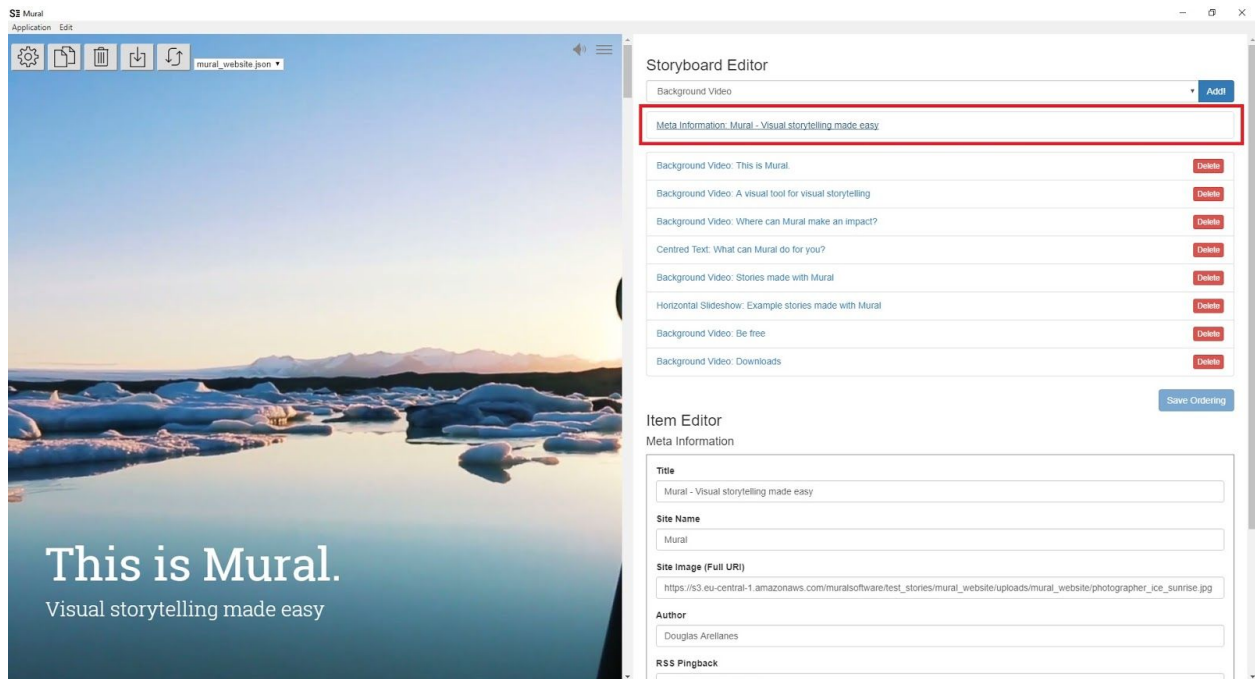
Deleting items

Any item can be deleted by pressing the delete button. Please note that there is no undo function for a deleted item, so be sure you want to permanently remove it from your story.

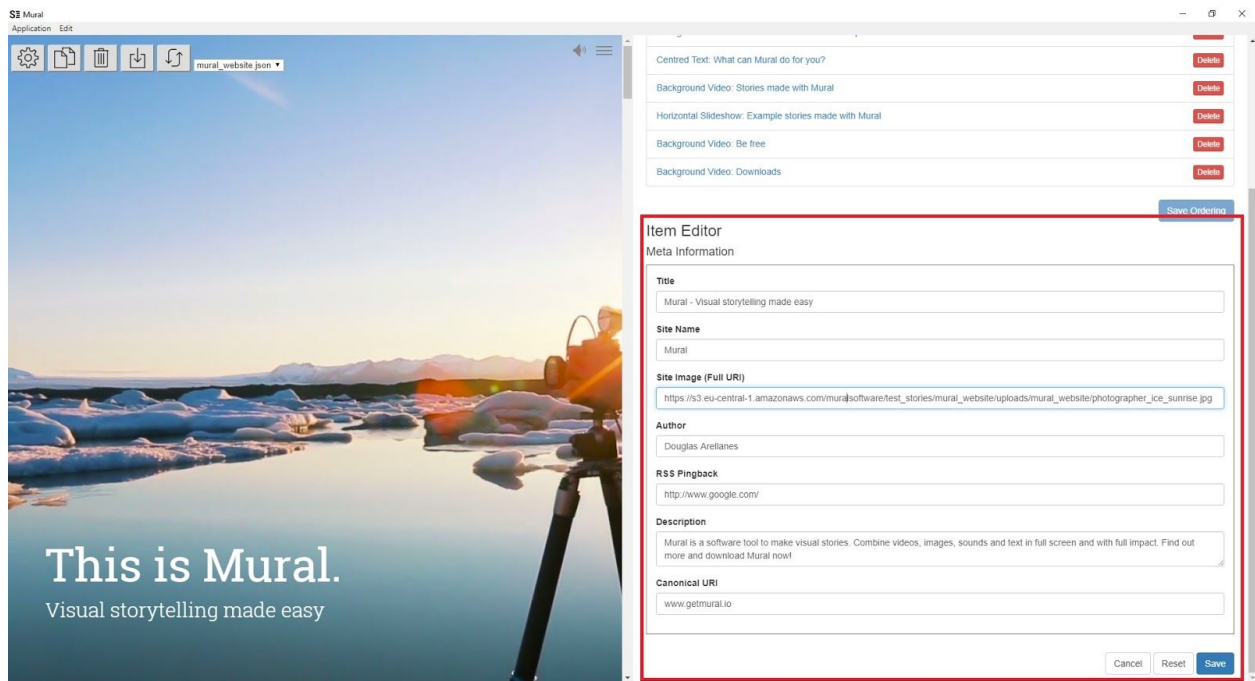
Deleting an item does not delete its component elements, so rest assured that your video or images are not removed from your computer’s file system when its item is deleted from the storyboard.

Working with meta information

In order for your Mural story to look good when shared on social media or when someone searches for it, you must fill in certain meta information about your story. This is included in the meta information area at the top of the Storyboard Editor.

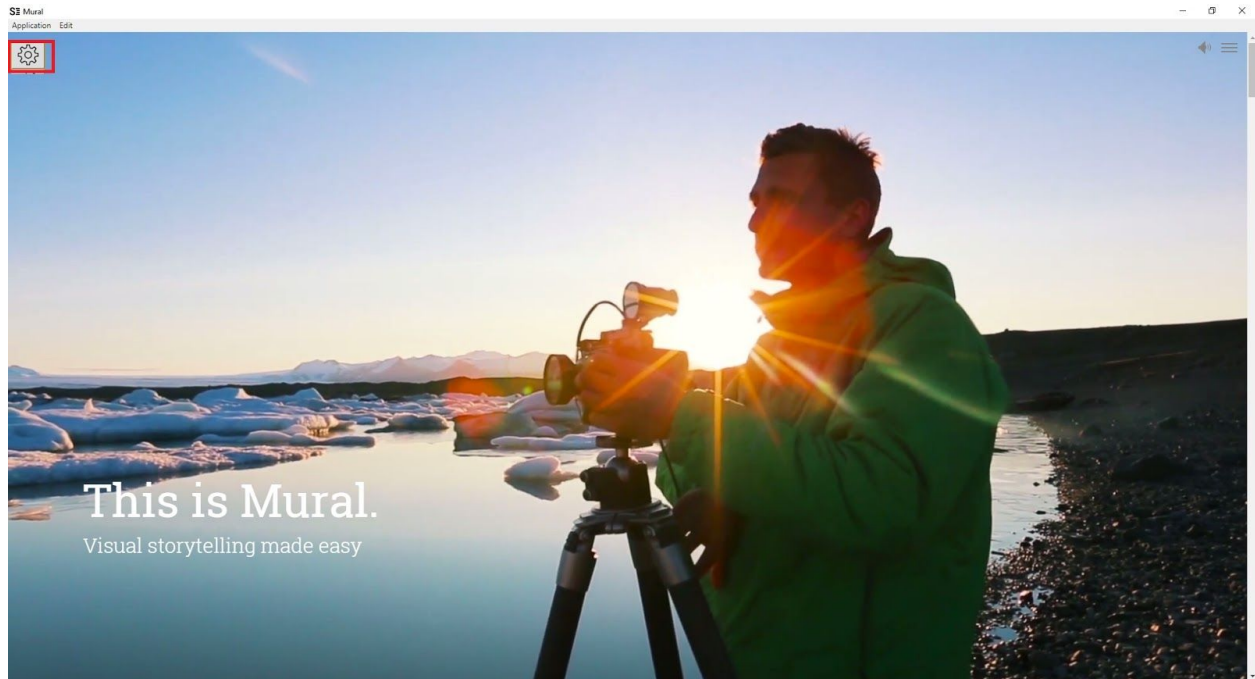
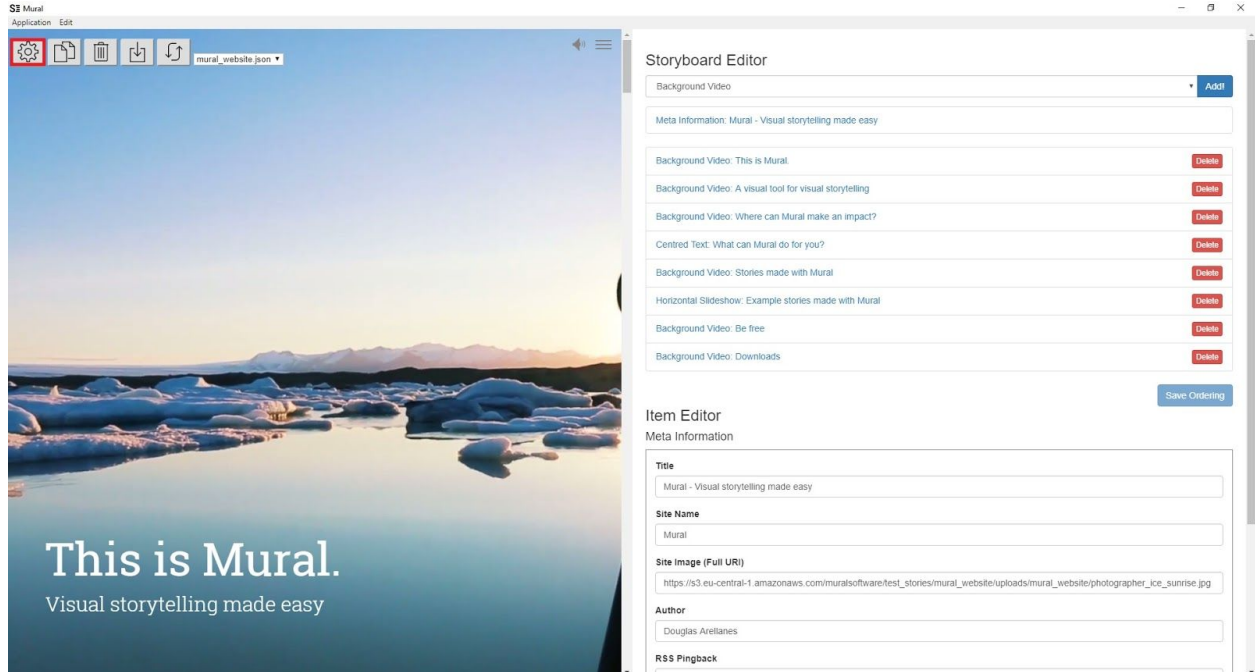


When you click on the meta information, a number of different fields will appear in the Item Editor.



Previewing your story

By default, the preview pane takes up half of the Mural editor. But if you want to preview how your story will appear in its final form, you can hide the Storyboard Editor by pressing the show/hide toolbar button (marked with a gear icon) in the upper left corner. Pressing the show/hide toolbar button again will bring back the Storyboard Editor and all other buttons.



Ready to go? Download your Mural story

After going through your preview, when you feel your story is in the right sequence, with all of its components correctly in place, you are ready to download the story to send to your web server. Clicking the Download button will gather all of the component files into a single ZIP. This can then be used for upload to your web server.

Please note that video files are very large, and you may find that your download takes up several gigabytes of disk storage. Be sure you have enough room on your destination disk before you start the download process.

Once your file is downloaded, you're ready for the last step. Read on.

Uploading your Mural story files to a web server

You will need to upload your Mural story files to your remote web server.

1. Unzip your files in a folder on your local computer.
2. Open your FTP program (this will likely be either Cyberduck for Mac or FileZilla for Windows) and open the connection to your remote server. You will need to put in your remote server's username and password.
3. Create a folder for your Mural story on the remote server.
4. Copy all of the local Mural files to the story folder on your remote server. This includes:
 - a. index.html
 - b. app.js
 - c. app.css
 - d. The /uploads/ folder and everything in it.
5. Check that your Mural story is working by opening its URL in your web browser. This will likely be something like www.yoursite.com/<whatever you named your Mural story folder>

All of the component files that are in the .zip file need to be copied to the remote server in order for your Mural story to work.

Embedding a Mural story in another website

Once your story has been uploaded, you can embed it in another website running software like Wordpress or Drupal by using the free Embedly service, which works in the same way as embedding a YouTube video or Google map. Here are the steps:

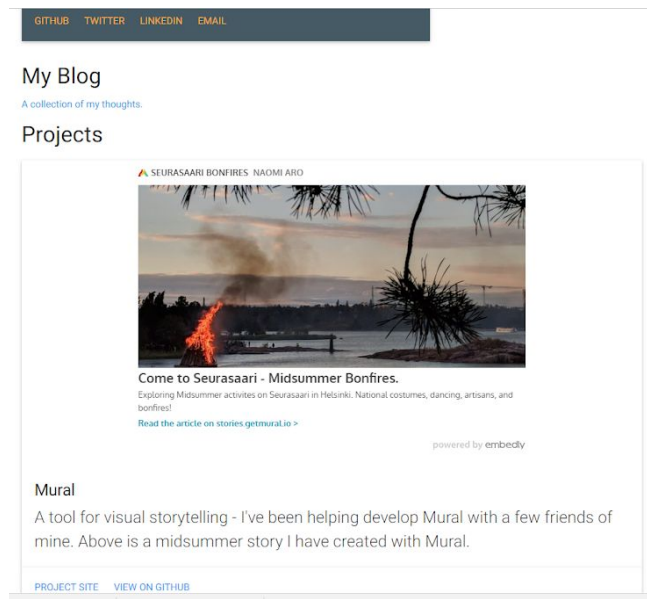
1. Visit <https://embed.ly/code>
2. Paste the URL of your Mural story
3. Embedly will create an embed code. Copy this code, which will look like this:

```
<blockquote class="embedly-card"><h4><a href="https://stories.getmural.io/isisarts/european_ferries/">European Ferries</a></h4><p>Photographs of European passenger ferries arriving at the UK coastline. Physically the images depict historical links connecting the UK to its current continent but that is subject to change. Metaphorically the
```

photographs consider horizons and our cultural attitude towards them.

```
</p></blockquote><script async  
src="//cdn.embedly.com/widgets/platform.js"  
charset="UTF-8"></script>
```

4. Log in your website's content management system (Wordpress, Drupal, etc.)
5. Create a new article or open the article where you want to put the embed
6. Paste the embed code into your article and publish it. The article will appear with the embed in it like this:



The screenshot shows a blog page with a dark navigation bar at the top containing links for GITHUB, TWITTER, LINKEDIN, and EMAIL. Below the navigation bar is the heading "My Blog" with a subtext "A collection of my thoughts." and a "Projects" section. The main content area features a project titled "SEURASAARI BONFIRES" by NAOMI ARO. It includes a photograph of a bonfire at dusk, with the text "Come to Seurasaari - Midsummer Bonfires." and a description: "Exploring Midsummer activities on Seurasaari in Helsinki. National costumes, dancing, artsans, and bonfires!" A link "Read the article on stories.getmural.io" is provided. Below the project is a section titled "Mural" with the text "A tool for visual storytelling - I've been helping develop Mural with a few friends of mine. Above is a midsummer story I have created with Mural." At the bottom of the page, there are links for "PROJECT SITE" and "VIEW ON GITHUB".

Preparing your videos and images for optimal display

We're going to take a brief detour from talking about the Mural software for a moment to discuss the preparation steps that will make your life easier when creating a story with Mural.

Mural serves as a frame to display your images and videos. It does not do anything to your content on its own - it only displays and adds interactivity.

Just as a restaurant has most of its ingredients prepared in advance (bell peppers are diced, apples are peeled, soup stock is made), before being assembled together in a pan, so the component elements of our story also have to be made ready before we can start using them.

Organization is key. It's a very good idea to be familiar with the material you have, and to have the files organized in a project folder, and inside that, a folder for the videos you want to use.

With Mural, we assume that the videos you want to use have already been edited. If you haven't edited yours, you can use any number of different digital video editing programs, including paid commercial programs like [Adobe Premiere](#), [Avid](#), or [iMovie](#) or free and open source programs like [OpenShot](#).

Because your videos will be part of a larger interactive story, you may find that the kinds of videos you create will be different, owing to the fact that a user can navigate through the story themselves. This means that the videos you edit should assume that a user will be scrolling through several as part of a larger piece, and that your individual clips may not have to be assembled into a single long edit. Also, because you have the ability to loop videos, you can try to edit clips that look visually similar at the beginning and end.

You have the ability to overlay text over your video, which can be very effective as well. You should keep this in mind both when shooting video (leaving more room on one side of the shot, for example, so that text can be overlaid on it), or when editing video (possibly making one side of the shot darker or lighter, so that text can be overlaid and legible).

Optimizing your media for Mural

Mural uses full-screen images and video, and it's important to make sure the material you shoot is at the optimum size. On one hand, if the files are too high-resolution, they will take longer to download. If they're too low-resolution, they won't look good, especially when played large.

What's your workflow?

There are a lot of ways you can get your videos ready for Mural. You'll have to use an external program or service to optimize your videos; in order to keep Mural as small and nimble as possible, we don't include file conversion. Luckily, there are a number of very good tools available, including several that are free.

The converter you choose depends on the way you do your work - your workflow. Here are a few good questions to ask in the beginning:

- Are you shooting video using an DSLR or video camera?
 - Because DSLRs and video cameras can shoot in very high quality, you may have to bring the sizes down, otherwise you'll end up with very large files and stuttering playback on older machines
- Do you edit your videos before uploading them?
 - Trimming the beginning and end at least can make the clips more effective and bring the file size down
- Are you shooting your videos using a mobile phone?
 - Newer mobile phones shoot in HD by default. Check your settings to make sure this is the case
- Are the videos shot by someone else and given to you?
 - Often videos shot by someone else will be of lower quality. Is there a better version of the video that someone can send you?

Mural's recommended settings

Images

Images are intended for three target use cases

Small images: 600 pixels wide x 400 pixels high

Medium images: 1024 pixels wide x 768 high

Large images: 1920 pixels wide x 1080 high

Videos

For full-screen videos in Mural, much depends on what user experience you want to prioritize. Large, high-resolution desktop videos are gorgeous, but require very fast internet connections and newer computers. Playback on mobile will be smaller and faster, but when enlarged to HD size on a desktop, some videos may look grainy or blurry. Here are some benchmarks to give you an idea of the implications:

For desktop browsers:

HD 1080p (1920 x 1080 pixels): 5000 kbps (35MB per minute file size)

HD 720p (1280 x 720 pixels): 2500 kbps (20MB per minute file size)

SD 480p (640 x 480 pixels): 1200 kbps (10 MB per minute file size)

For mobile:

LD 360p (480 x 360 pixels): 700 kbps (6 MB per minute file size)

LD 240p (426 x 240 pixels): 350 kbps (3 MB per minute file size)

Formats: Webm vs. MP4

Another concern is making sure they're in a format that modern browsers can play, namely the Webm and MP4 formats. [Webm](#) was originally a Google-supported format, while [MP4](#) has its roots in Apple's QuickTime format. Both Webm and MP4 play well on modern browsers, and you'll have good results on your Mural project with either (Mural works with both). If you need to know the difference, Webm videos tend to have smaller file sizes, while MP4 files have better image quality but are larger.

We recommend testing a bit of trial and error with your file formats to see what works best for you.

Choosing a video converter

There are a lot of great tools out there for optimizing your video, and many of them are free.

Handbrake

Handbrake (www.handbrake.fr) is a free and open source program available for Windows, Mac and Linux. It will convert from just about any format to Webm or MP4, and most non-technical users like the fact that they don't have to do the conversion in a command line.

Miro Video Converter

Miro Video Converter is a free and open source converter built on top of the powerful FFmpeg software, but has a dead-easy, drag-and-drop interface. Once you have your settings ready, literally all you have to do is drag and drop your files. Miro is available for Windows, Mac and Linux.

FFmpeg

FFmpeg is an extremely powerful and versatile tool for converting multimedia files - it's really a Swiss army knife for doing the work. But because it works in a terminal window, and because all of its options have to be input as text, it can be intimidating for non-technical users. FFmpeg is free and open source, and once a user finds their optimal settings, it's not as hard as it looks at

first glance. This tutorial includes settings that you can copy and paste into your ffmpeg:
<https://www.imarc.com/blog/ffmpeg>.

If you're a Mac user and are fearless enough to work with FFMpeg in the command line, we are working on a set of scripts you can use that automate the optimization process. Check back to the Mural website for updates.

VLC

Most people know VLC as an excellent video player, but it also contains a lot of powerful conversion features - you just have to know where to look. Luckily there are some easy-to-understand tutorials like this one that walk you through the conversion process:
<https://www.ghacks.net/2011/08/02/how-to-convert-videos-with-vlc/>.

Adobe Premiere Pro - Webm plugin

If you're using Adobe Premiere Pro for your editing, you can install a free Webm plugin (get it here: <http://www.fnordware.com/WebM/>) and then export your Premiere project as Webm. This [short video](#) shows how.

Mobile converter apps

iConv for iOS

If you're shooting and editing your videos on an iOS device, you may find it easier to convert them there using the iConv app for iOS.
<https://itunes.apple.com/us/app/iconv-video-audio-converter/id972534752?mt=8>

Converting videos takes a loooooong time

Converting videos takes a lot of time and CPU power, no matter how you slice it. If possible, consider designating a second computer for conversion, or possibly even a recent iPhone or iPad. We recommend that you start converting your videos as one of the first tasks, mainly because it takes so long.

Bonus: After download, before upload - Customizing your Mural story

Because Mural outputs standard HTML, CSS and JavaScript, more web-savvy users can make alterations in the files to customize them. This section will try to collect some of the more useful tips and tricks.

Changing fonts

Mural uses standard web fonts, and you can change this.

By default, Mural uses the web font Roboto Slab, which is made freely available by Google. To change the font, you must change two lines, one in the HTML file, and one in the CSS file.

The lines to look for are:

```
@import
url (http://fonts.googleapis.com/css?family=Roboto+Slab:400,300,700);
```

and

```
{font-family:Roboto Slab,arial,serif}
```

Replace these with the font you select from a webfonts source, such as Google's web fonts page.

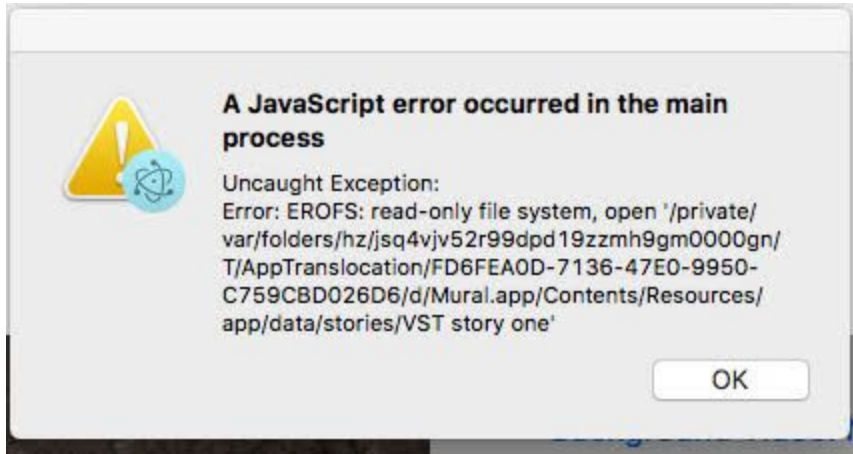
```
@import
url (http://fonts.googleapis.com/css?family=Playfair+Display:400,700,900);
```

and

```
{font-family:Playfair,arial,serif}
```

Troubleshooting

When I try to run Mural, I get an error:



For Macs: Try extracting all of the files from the Mural download .zip to the Applications folder on your hard drive and then starting the Mural app from there. Because of the way MacOS deals with file permissions (by default, applications often can't write to the MacOS Desktop), we recommend copying the Mural app into the Applications folder and putting your working files in your Documents folder.

Also, Windows users should check their antivirus settings to make sure that Mural is listed among trusted applications, and that it has the ability to make changes in protected folders; this has been observed especially with Bitdefender.

My item is black where there should be video or an image. What's wrong?

This happens because the file isn't where the browser expects it. Please check to make sure you have the correct URL for your asset. This can also happen because the file name has spaces or other problematic characters in it. Try renaming the file so that it gets rid of those.

There's a file in the ZIP called <mystoryname>.json? What do I do with that?

We include a JSON file in the ZIP for added protection in case something happens to your story. That JSON file contains everything the Mural editor needs to build your story. It also means that you can use JSON file to share your story sequence with another Mural user - just send them everything in the .ZIP, and then have them copy the files into the following places:

```
index.html
app.css      ----> <path to your mural folder>/resources/app/public
app.js
```

```
/uploads/<story name> folder → <path to your mural folder>/resources/uploads/<story name>
```

<story name.json> → <path to your mural folder>/resources/data/stories/

I've uploaded my Mural story files to Amazon S3, but when I try to open the index.html, all the images are black. What happened?

Check to make sure that all your story assets and files are set to Public.

Appendix 1: Glossary

Terms used in Mural

We figured we'd include a glossary of terms used by the Mural project just to make sure everyone is on the same page.

Asset

An asset is a multimedia file used in a story. These include:

- Photos
- Video files
- Audio files
- Data visualization files such as those from D3
- Embeds (YouTube, Vimeo, Soundcloud, etc.)

Build

A build is the complete collection materials required to display a Mural story. This includes:

- Video files
- Photos and graphics
- Audio files
- HTML (including text)
- Javascript
- Mural JSON files
 - Storyboard
 - Manifest

Items

An item is a part of the story that usually takes up a screen of information, although it can be either shorter or longer than a screen. The item is where a user performs the following actions:

- Add/edit/remove assets
- Select the type of presentation the item will have
 - Background video
 - A full-page video running in the background and looping by default. The difference between a background video and a full-page video is that a background video can have text overlaid over it.
 - Text can be overlaid over the video

- Full page toggle
 - Title
 - Subtitle
 - Video sources
 - MP4 and Webm
 - Poster image
- Fullpage video
 - Toggle for whether item is full page
 - Title.
 - Video sources
 - MP4 or Webm
 - Poster image
 - Toggle for auto-advance
 - Moves to the next item when the media has been played
- Text Centred
 - Toggle for Light
 - Title
 - Subtitle
 - Intro
 - Content block
 - Image
 - Align (Left, Right, Center)
 - Title
 - Source
 - Credits
 - Text (allows HTML tags)
- Image background
 - Toggle for full page
 - Title
 - Subtitle
 - Image sources
 - Small image
 - Medium image
 - Large image
- Parallax image
 - Toggle for full page
 - Title
 - Subtitle
 - Image sources
 - Small image
 - Medium image
 - Large image
- Horizontal slideshow

- A horizontal slideshow has controls on the sides to advance the slide.
- Toggle for Inline
- Title
- Text (allows HTML tags)
- Slide
 - Add/remove slide
 - Title
 - Source
 - Credits
- Vertical slideshow
 - A vertical slideshow has controls on the top and bottom to advance the slide.
 - Add/remove slide
 - Title
 - Credits
 - Image sources
 - Small image
 - Medium image
 - Large image

Preview pane

The preview pane gives the user a WYSIWYG view of what their story will look and act like, including all interactions and effects

Metadata

The metadata screen is where the information about the story is presented. This includes:

- Title
- Site name
- Site image
- Author
- Keywords
- RSS Pingback
- Description
- Source

Storyboard

The storyboard is the area of the application where users work on their story. A storyboard allows users to:

- Select the sequence of individual items. This can be done by drag-and-drop.

- Remove individual items
- Set and edit the story's metadata (including credits)
- Save the story
- Open a story
- Publish the story
 - By default, Mural outputs all files in a ZIP file. This includes:
 - Images
 - Videos
 - Audio files
 - HTML
 - JavaScript
 - CSS
 - Users must then upload this ZIP file to their web server, where it can then be unpacked.
 - There are several good tools for uploading ZIP files to a web server, including:
 - FTP clients such as Filezilla (<https://filezilla-project.org/>)
 - SSH and Telnet clients such as PuTTY for Windows (www.putty.org), or PuTTY for Mac (<https://www.ssh.com/ssh/putty/mac/>)

Appendix 2: GNU AFFERO GENERAL PUBLIC LICENSE

Version 3, 19 November 2007

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