

Igniting LiquiFire, Number 4:
Product Colorization

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Overview

LiquidPixels' LiquiFire can be used to dynamically render a product image in any color, pattern, or texture available. Beyond the cost savings from reduced photography for a small collection of colors and patterns, there are an increasing number of situations where photography is simply cost prohibitive. With the advent of mass customization, computer controlled embroidery, and the ability to manufacturer personalized products, the associated capability to preview custom products is required. Enabling shoppers to configure a dozen parameters of a sneaker leads to millions of possible permutations. Only through dynamic imaging can product preview be offered.

Below, we explore the steps needed to accomplish product colorization and/or patternization.

Step 1: Raw Materials


















A photograph of the product

This image, preferably in a neutral color such as tan, off-white, or gray provides the baseline for the product image. It is not necessary that the shirt be photographed flat on a light table. In fact, it is perfectly acceptable for the shirt to be worn by a mannequin or live model. White is also fine but care must be taken to not over expose the picture otherwise the details are lost in the bright high-light portions of the shirt. If the product is not available in a neutral color, the least saturated color choice should be used. This picture will be the **base image**.



Color values

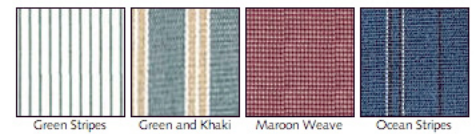
The specific colors, are needed for each color in which the shirt is available. RGB values, Pantone® colors, or other industry standard colors are all acceptable. More likely, it will be necessary to match an on screen color (utilizing a program such as Photoshop™ or any other desktop imaging software) with a physical sample. This is a subjective process and one best performed under proper viewing conditions with color calibrated monitors.

					
Black	Butter	Celey	Dark Navy	Gold	
					
Heather	Hunter	Jade	Kelly Green	Light Blue	Maroon
					
Navy	Purple	Red	Royal	Tangerine	White

Are your images fluid?®

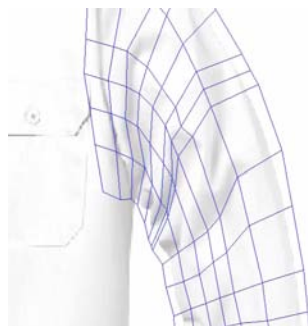
Pattern or Texture Images

If, in addition to different colors, the product is also available in a variety of patterns, a picture must be provided of each available pattern. Care must be given to capture a full repeat of the pattern. It is also important to know the scale of the image for both the pattern and the base image so that the stripes, flowers, etc. are applied in the correct size. If a pattern is available in multiple colors, only one such photograph is needed as the pattern itself can be colorized.



Step 2: Masking

A digital mask is necessary to identify what portion of the base image is to be colorized. Creating a mask is a common task for Web designers, graphic artists, etc. LiquiFire can make use of masks created by any of the popular desktop software programs such as Photoshop. LiquidPixels does not require one to learn and use a proprietary tool. It may be necessary to create several masks for a single base image, for each area of the product to be colorized separately. These masks are themselves digital images and appear to be grayscale versions of the base image – black in the area not to be affected and white in the area targeted for colorization. This digital image can be saved in a file separate from the base image file or as an additional layer in the base image file.



If a pattern is to be applied to the shirt and the pattern has direction (i.e. stripes), then one additional step is required. At the time the graphic designer is creating the masks, flowlines are also created indicating the direction the pattern needs to flow. Of all the steps discussed in this document, creating flowlines is likely the most time consuming. A simple image of a dress shirt is likely to have a dozen sets-of-flowlines – one for each fabric area – describing the flow down the arm, across the cuff, around the collar, or within the breast pocket. The resulting flowlines file is just another digital file to be associated with the base image.

Step 3: The Image Chain

A recipe is needed to instruct LiquiFire how to process the raw materials. This recipe is called an image chain and is written in the LiquidPixels' script language. The language utilizes simple English verbs such as rotate, annotate, colorize, brightness, contrast, etc. and is well documented in the detailed LiquiFire Reference Guide. For colorization, fundamentally, the image chain specifies a base image, a mask image, and a desired new color. LiquiFire performs the magic of modifying the color of the base image as per the target color without changing the brightness, shadows, and texture. This dynamic image processing happens in milliseconds – the image arrives to the browser without delay. If a directional pattern is being applied to the shirt, then the image chain will reference the grid file in addition to the pattern file and the base image file.

Step 4: The User Interface



The product Web page needs to be enhanced. In the simplest implementation, selecting any of the available colors from a list, clicking on a swatch, etc. sends a request to LiquiFire containing the image chain. LiquiFire creates the requested image and returns it directly to the browser as needed. This dynamically created picture replaces the product picture on the page. If the product being colorized has multiple areas of colorization each with dozens of possible colors, this product configurator interface needs to provide a clear process to guide the shopper into making the selections. Displaying the product after each individual selection or waiting until a set of selections has been made is a choice for the user interface. Any available technology, from simple HTML to Flash, Java, Javascript, AJAX, etc., can be used. The user interface design and implementation is independent of utilizing LiquiFire to dynamically create the desired permutation of the product image.

Step 5: The Shopping Cart

Once a shopper presses the buy button, it is the combined task of the user interface design and E-Commerce platform to track the shopper's requested selections. LiquiFire is not involved with any of the ordering process. However, by utilizing the selected parameters and the image chain, LiquiFire can create thumbnail pictures of the ordered product for display in the shopping cart as well as larger images for use in a confirmation e-mail.

Summary

Preparing images for dynamic colorization and/or patternization is a straightforward gathering of the raw assets, identifying what will be modified, and creating the instructions to have LiquiFire perform the operations in real-time.

These steps require specific skills and talents typically found within Web design organizations. If your organization is presently outsourcing such tasks, LiquidPixels' professional services group is available to train your outside contractor and/or bid on such projects themselves. Please contact sales@liquidpixels.com for additional information.

About LiquidPixels

Founded in 2000, LiquidPixels, Inc. provides LiquiFire® — the premier middleware solution for enterprise dynamic imaging.

LiquiFire products yield greatly reduced costs, streamlined workflows, and easy integration while significantly enhancing online environments, increasing the likelihood of purchase, and uniquely fulfilling the one-to-one promise of the Internet. The patented LiquiFire suite of solutions is available both as enterprise servers and as a hosted service.

A privately held company, LiquidPixels operates facilities in Rochester, NY and Boston, MA. For more information, visit www.liquidpixels.com, call 866.808.4937, or write to info@liquidpixels.com.