



Digimarc Discover™ | Implementation Guide

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INTRODUCTION

This guide describes the benefits of using the Digimarc Discover platform, with step-by-step instructions for embedding digital watermarks into printed materials and best practices for implementation. The guide also discusses how to use the Digimarc Discover Online Services Portal and illustrates the importance of creating compelling mobile payoffs to ensure a superior user experience.

DIGIMARC DISCOVER OVERVIEW

What is Digimarc Discover?

The Digimarc Discover platform is a solution enabled by digital watermarking technology that allows readers to interact with printed materials in a new and exciting way. By holding a smartphone over watermarked content in newspapers and magazines, readers can instantly access a variety of interactive content and multimedia experiences online. In effect, Digimarc Discover transforms print into a Web browser. The comfortable experience of browsing a print publication is extended to the full range of activities available on the Web, thus providing added value for readers, advertisers, and publishers.

Why Digimarc Discover Offers Readers and Publishers a Better Experience

- Transforms printed materials into interactive media and keeps audiences engaged.
- Requires readers only to hold a smartphone over watermarked content to link to enriched content and multimedia experiences.
- Allows publications to keep their layout intact and avoid using distracting barcodes and tags.
- Provides readers with additional content not available in print after production.
- Enables published content to remain current with instant online updates.
- Offers a unique, engaging experience that builds reader loyalty and brand recognition.
- Provides organizations with unprecedented marketing opportunities by enabling the activation of “hidden,” interactive content within printed materials.
- Introduces new opportunities for publishers to offer proprietary or premium content.
- Gives publications the opportunity to make both text and images interactive.
- Provides publishers with a product enhancement that can be easily added into existing workflow.

Digimarc Discover Demonstration Links and Videos

The following links and videos provide more information on Digimarc Discover:

- **Demonstration Videos**
<http://video.digimarc.com/discover1.asp>
- **Real World Examples**
www.digimarc.com/discover/realworld.asp
- **Demonstration Materials**
www.digimarc.com/discover/demos.asp

OVERVIEW OF DIGITAL WATERMARKING, KEY DIFFERENTIATORS AND PAYOFFS

What is a Digital Watermark?

A *digital watermark* is basically data that can be embedded into all forms of media content. A digital watermark is imperceptible to people, but easily detectable by electronic devices such as computers, networks and digital devices like our mobile phones. Conceptually, a digital watermark is analogous to a traditional watermark on paper, where a barely perceptible mark is applied to paper during manufacturing; and they are similarly persistent, staying with the content through all types of manipulation, file conversions, etc.

The Benefits of Digital Watermarking: Key Differentiators

Watermarking has clear advantages over other print-to-Web and image identification technologies such as two-dimensional (2D) barcodes, QR codes and fingerprinting. Barcodes can provide essentially the same functionality as watermarks, but they occupy valuable advertising and editorial “real estate” and can be an unattractive and distracting addition to an otherwise carefully designed layout or presentation. The imperceptibility of watermarks also allows publishers to conduct “silent” tests of the technology in actual issues of their publications before publicly launching a pilot, which isn’t possible with barcodes.

Fingerprinting (or image recognition) is sometimes presented as an alternative content-identification technology, but has several disadvantages. Most significantly, fingerprinting is not capable of content serialization. For example, with fingerprinting it is difficult, if not impossible, to differentiate between instances of the same ad or image in different publications or in different issues of the same publication. This is particularly important in the case of large, global campaigns where an ad may appear in different publications, in different geographic locations, and on different dates, and precise reporting of user interactions is critical.

Digimarc Discover is helping to enhance the reading experience, while maintaining the long enjoyed pleasure of flipping through the newspaper or magazine and scanning the printed pages. With Digimarc Discover, publishers can keep content fresh and relevant, while creating high value opportunities for advertisers, since consumers can finally take immediate action on the products and services they see in printed ads. No more waiting to access a computer with Internet access. Consumers simply point their phone at the item they’re interested in and they are instantly connected to additional information, product reviews, special offers, and even e-commerce sites to complete the purchase.

What’s a Payoff?

A payoff is enhanced content or a “reward” that a consumer receives after reading a watermark in a publication. After reading a watermark, a consumer is taken to a specific URL that corresponds with the watermarked image or text. The payoff provides extra information, assistance, and/or entertainment to the consumer.

Types of Payoffs

Payoffs can direct users to Web pages, videos, music, polls, trivia, prizes, coupons, contests, or any type of engaging content. Payoffs allow publishers to create new, rich media experiences from print such as:

- View a video from a photo in the Sports section from yesterday's big game – the one you missed.
- Get real-time updates on top news stories as they unfold.
- Download recipes and watch chefs prepare dishes from the Food section.
- Forward articles of interest or information on products to your friends, or save them for later.
- Contribute to the news by voicing your comments and uploading photos to share.
- Purchase products or services directly from stories and advertisements.
- Add events, reservations, and reminders into your daily calendar.

The Importance of Creating Compelling Payoffs

Payoffs give companies and organizations an opportunity to engage users and provide unique experiences combining print, mobile, and Web. For both publishers and advertisers, it's essential that the payoff consists of persuasive, interactive, and engaging content that will create a relationship with users and deliver added value that builds loyalty and engagement. Payoffs can also educate consumers and provide additional content not found in printed publications. Keep in mind that users are choosing to actively use the technology, so it's important for them to perceive value in the experience and have an incentive to use it again. Users won't feel engaged or compelled to revisit the experience if they are directed to an existing or static Web page – especially one that is not mobile optimized. Think of payoffs as your chance to provide exclusive, rich media content to a captivated audience at the moment when their interest is highest. Ideally, users should experience a “wow factor” – the payoff should significantly augment and enhance the print reading experience and allow them to experience the content in a deeper, more meaningful way.

Lessons Learned: Our Recommendations for Developing Effective Payoffs

Every publication will use the Digimarc Discover platform differently. You should consider the following to achieve the best results for your campaign:

- **Educational Materials**

Every time you include digital watermarks in your publication you will need to include instructions for downloading the Digimarc Discover app (or a custom branded app that includes the Digimarc Discover feature). You will also need to provide your readers with directions on how they can read digital watermarks and find mobile-optimized content in your publication. The instructions should be visible and remain in a consistent location where your readers can easily find this information. For example, avoid placing instructions for downloading the app in the front of the magazine in one issue and in the back of the magazine the next issue. We have provided sample instructions in the [Sample Download Instructions](#) section below. Successful implementations of Digimarc Discover have included educational material on or near the Table of Contents with watermarked articles highlighted in bold or a separate color. Additionally,

these publications have provided a separate listing of the interactive content with their corresponding page numbers.

- **Include Watermarks in Every Issue**

It will take time for readers to adapt and familiarize themselves with this new technology in your publication. We recommend you make watermarks a consistent feature of your publication for a minimum of six months. We have seen an increase in payoff interaction when readers are repeatedly exposed to watermarked content.

- **Compelling Payoffs**

Readers respond best to compelling payoffs, especially when they consist of exclusive content that can be found only through the watermark. An existing website that can easily be found online is less appealing. The most successful payoffs provide readers with the opportunity to extend their interaction with the subject of a printed article, image or advertisement. Behind-the-scenes videos, interactive games, promotional offers, and the ability to share and save content are some of the most popular types of payoffs.

- **Create an Incentive**

Create a strong incentive for readers to read a watermark. Readers are more likely to read a watermark if they get something valuable in return. We have seen an increase in payoff interaction when readers receive a discount, a coupon, or something free after reading the watermark.

- **Easy to Use**

Compelling payoffs should be engaging, but they don't need to be complicated. Readers enjoy simple activities like watching a short video or participating in a quiz, poll, or trivia game.

- **Mobile-Optimized**

Create payoffs which are mobile-optimized. A payoff that is difficult to view and interact with on the phone creates a poor user experience. Readers are less likely to revisit payoffs if they are not designed specifically for mobile devices.

- **Create a Memorable Experience for First-Time Users**


Most of your readers have not had an opportunity to experience interactive content on their mobile phones. Users will immediately be turned off if they have a disappointing initial experience interacting with a payoff. If a reader does not see the benefit of the payoff, they are more likely to ignore the rest of the payoffs in your publication.

- **Payoff Placement**

The most successful payoffs tend to be located in the most visible areas of the publication. Payoffs located on the front cover, back cover and the first few pages in the front and back of publications attract more users.

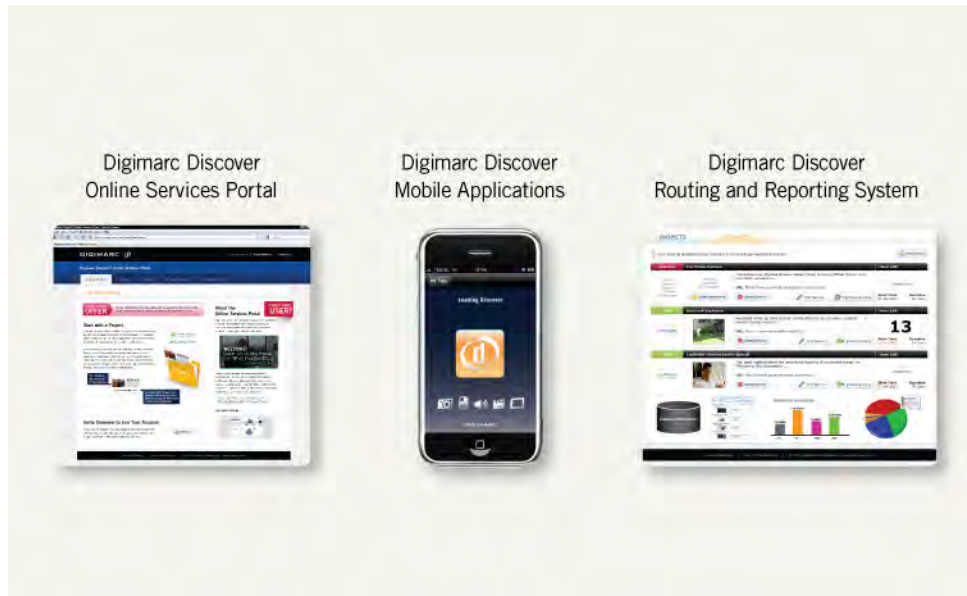
- **Payoff Description**

We recommend including descriptive text next to the watermarked image or text. Ideally, the description will briefly indicate what readers can expect from the payoff and create a sense of excitement. The text should not only be informative, but inviting. For example, beneath a watermarked photo of a model you could say: "Point and focus to see exclusive, scintillating back-stage videos from Fashion Week."

- **Use a Visible Cue**
Include the Circle D symbol  next to the watermarked image or text to let readers know there is interactive content they can access. Use the same symbol consistently so that readers, over time, will automatically associate the Circle D symbol with the presence of engaging, interactive content. This visual cue corresponds with the symbol they will also see in the mobile application.
- **Silent Test**
Before adding hundreds of digital watermarks to your publication, we suggest doing a silent test. A silent test allows you to incorporate digital watermarks into your publication without readers' knowledge so you can try out the technology in real-world conditions and see how best to include it in your workflow.
- **Small Batch**
Start off with a few payoffs and see how your readers respond. Then develop new payoffs based on which were most successful.
- **Watermark Larger Images**
We have seen greater reader interaction with payoffs that are located in larger images. Full-page interactive advertisements have produced exceptional results.
- **Table of Contents**
Let readers know what articles and images are interactive in your publication in the Table of Contents. We recommend including the Circle D symbol next to article titles.
- **Test**
Most importantly, test your payoffs before you go to print. Make sure the correct URL is assigned to your payoff and the payoff is mobile-optimized. Payoffs can look different depending on the type of smartphone and operating system a reader is using. You should test payoffs on different smartphones and operating systems before your content is live.

USING THE DIGIMARC DISCOVER PLATFORM

There are three main components of the Digimarc Discover platform. The first is the ability to embed digital watermarks using the Digimarc Discover Online Services Portal or the Adobe® Photoshop® plug-in that publishers will incorporate into their workflow. The embedding software allows publishers to add imperceptible watermarks into everyday objects such as magazines, newspapers, brochures, displays and more. The second component is the reader application which includes the Digimarc Discover mobile application that readers will use to detect the watermark and link to payoffs. And, the third is the backend routing and reporting system provided to users through the Online Services Portal.



How Your Readers will Get the Digimarc Discover App

Readers will need to download the Digimarc Discover app from the iTunes App Store or Android Market. The app is free and can be accessed from either source by searching for “Digimarc.” The Digimarc Discover app will appear at the top of the list of search results. These applications can also be custom branded as needed.

How Your Readers will Use the Digimarc Discover App

Once readers have identified the enhanced content in your publication, they will need to launch the mobile app with the Digimarc Discover feature. After launching, they can watch a short animation that shows them how to use the app. To “read” watermarked content in the publication, readers should hold their smartphone about 3–5” parallel to the page, allowing the camera to focus. If the detection is not immediate, they should slowly adjust the phone’s distance from the page. When the watermark is detected the phone will make a sound and/or vibrate indicating success!

EDUCATING READERS ON THE PRESENCE OF WATERMARKED CONTENT

Regular Visibility in the Publication

Newspapers and magazines using watermarks for the first time must allocate space within their publications and educate readers on the new capabilities within the print edition. Readers must clearly understand how to download and use the app, and how to find the watermarked content within the publication. At the launch, publishers should consider devoting a full page in magazines and an equivalent size in newspapers to this education, with a column or standard space in the first 8 pages of issues following the launch that continues to remind readers of this information.

How Users will Find Watermarks in Your Publication

Users will identify watermarked content either by the Circle D symbol, a publication's custom-designed symbol or logo, or blue hyperlinked text. Below is an example of how the Circle D symbol can appear in publications to inform readers of the presence of watermarked content:



Sample Downloading Instructions

Publishers will need to provide directions to their users on how to download the Digimarc Discover app, and how to use the app to find watermarked content within the publication. Below are sample instructions.

- 1) DOWNLOAD the free app from the iTunes App Store or Android Market (simply search for "Digimarc").
- 2) LAUNCH the app and view the animated tutorial showing how it works.
- 3) LOOK for the Circle D symbol throughout the publication and point the phone at the center of the accompanying images (not the symbol). The app works best in well-lit areas.
- 4) HOLD your phone about 3-5" away and parallel to the page, allowing the camera to focus. If you do not get an immediate connection, slowly adjust the distance from the page.
- 5) TAP the symbol that appears on your phone's screen and experience print come to life.

DIGIMARC DISCOVER ONLINE SERVICES PORTAL

What is the Digimarc Discover Online Services Portal?

The Digimarc Discover Online Services Portal (OSP) is a Web-based service for linking embedded digital watermarks to new, rich media experiences, such as viewing a video, launching an application, making a purchase, sharing with a friend, saving for later, and more; the possibilities are endless. Through the OSP, digital watermarks can easily be embedded into the images or text used in magazines, newspapers, marketing collateral, store displays, etc. Once the digital watermark is embedded and linked, the printed content can be recognized by mobile applications enabled by Digimarc Discover.

How it Works

The OSP will enable you to embed digital watermarks into your images or behind text. This can be done directly from the OSP, so there is no additional software required. Anyone can setup a free account at www.digimarc.com/portal, and once signed in, it's easy to create a project and start embedding digital watermarks.

The OSP includes tools for organizing projects and downloading data to track user activity associated with individual mobile links. Pricing is based on the length of time a link is in service. Rates begin at just \$4.99 USD, payable by credit card or PayPal, for a link that remains in service for two weeks. There are no upfront costs or setup fees, and no long-term contracts are required. Embed digital watermarks into content in seconds, with minimal impact to workflow. The OSP is a user-friendly, self-service, affordable way to get started and experience the potential of Digimarc Discover first-hand.

To support the OSP, Digimarc has deployed a cloud-based, scalable backend routing and reporting system that resolves the signal when a watermark is detected. The system matches the URL(s) associated with specific watermarks and returns the information or experience to the handset within seconds, while capturing data for each instance of user engagement.

Note: Users may also choose to use a version of the embedder application for use in Adobe® Photoshop®. Please contact us for more information.

HOW TO START USING THE DIGIMARC DISCOVER ONLINE SERVICES PORTAL

Visit the Digimarc Discover Online Services Portal Website

Go to www.digimarc.com/portal to get started. Here you will be able to sign up for an account or sign in if you're already a user.

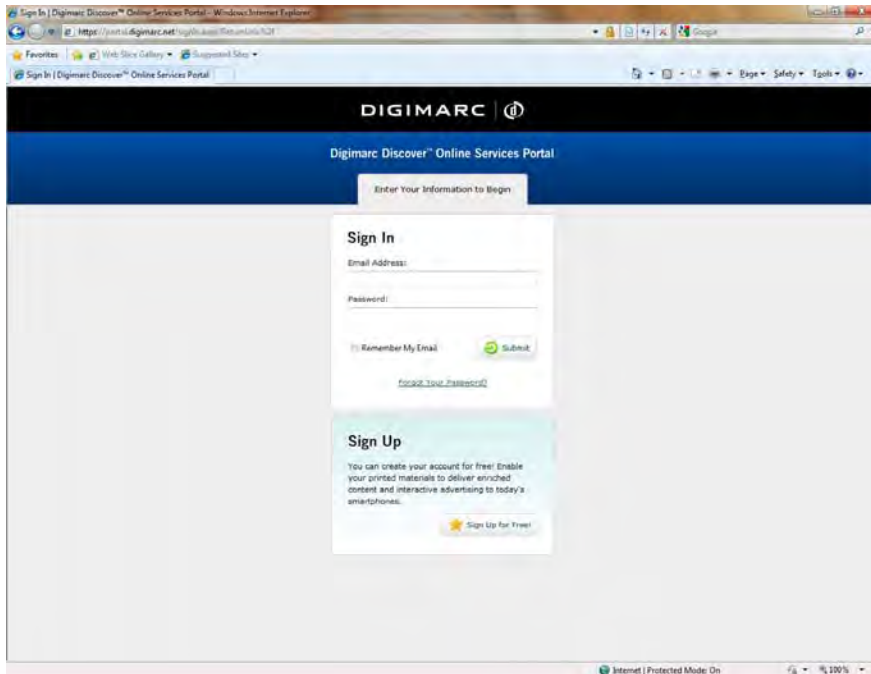


Figure 01.

If you don't have an account, select "Sign Up for Free!" located beneath the "Forgot Your Password?" link. After selecting "Sign Up for Free!" you'll be taken to the Create Your Free Account page.

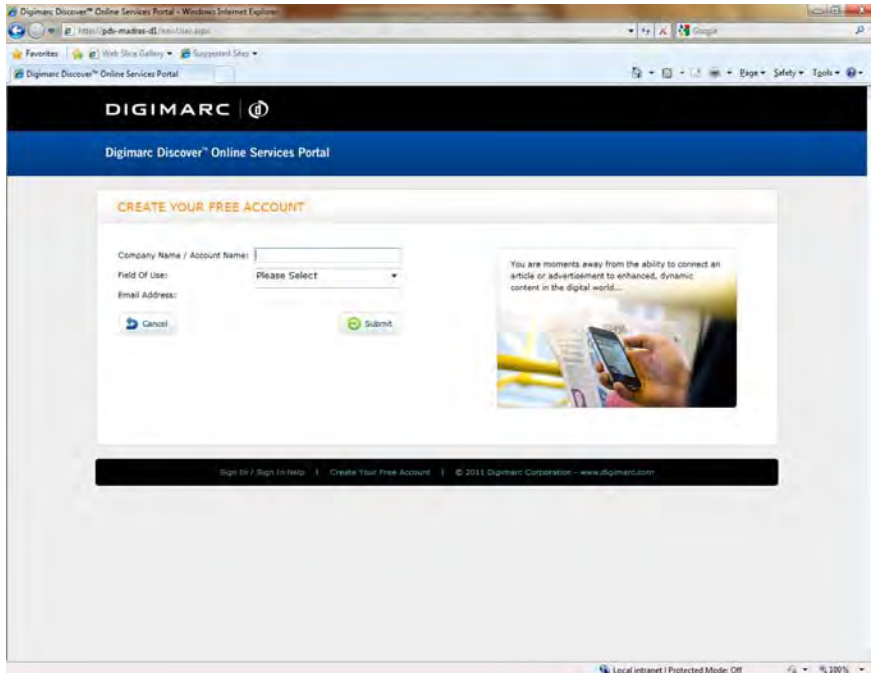


Figure 02.

If you already have an account, sign in using your email address and password. If you forgot your password, click on the "Forgot your Password?" link, and you will be taken to the Sign In Help page.

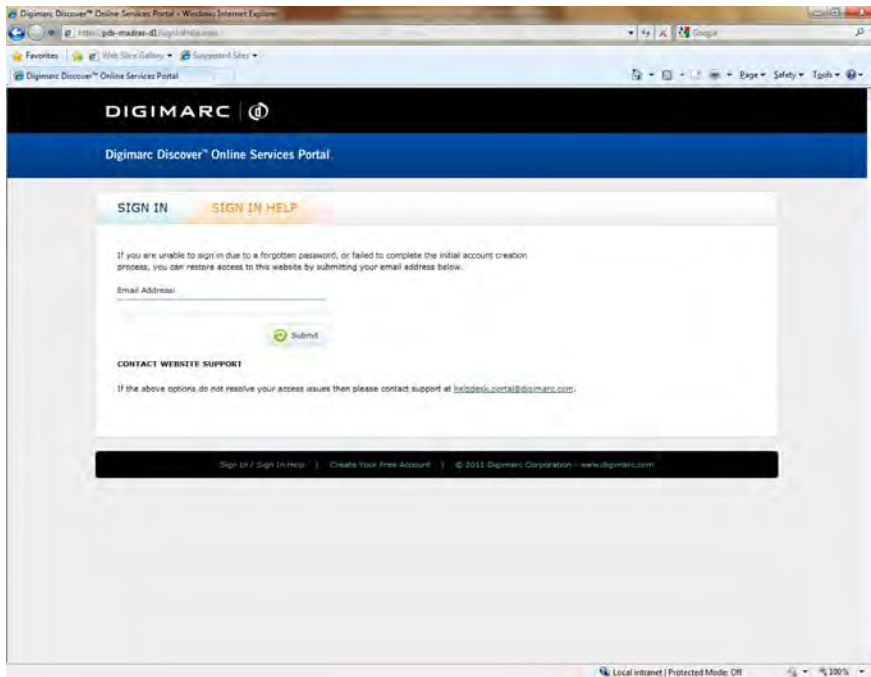


Figure 03.

You'll need to enter the email address assigned to your account to retrieve your password. If you have an account and are still experiencing issues signing into the Digimarc Discover Online Services Portal, please contact support at helpdesk.portal@digimarc.com.

Create Your Free Account

To set up a free account, enter your Company Name/Account Name, Field of Use (select one from the dropdown list), and Email Address (*See Figure 02*). The Company Name/Account Name describes the owner of the account. For example, if you are embedding watermarks into a publication called "Widgets R Us" you would enter "Widgets R Us" into the Company Name/Account Name. If you do not work for a company or publication, you can put your name in the Company Name/Account Name.

After choosing your Field of Use, a pop-up dialog will appear that highlights some of the restrictions for using the OSP. Please take a moment to review these Application Restrictions and click "OK" when you are finished.



Figure 04.

Click “Submit” after entering all your information and an email will be sent to the email address you assigned to this account with instructions on how to complete the registration process.

If a profile is already set up under the Company Name/Account Name that was submitted, you’ll receive the following message: “An account already exists for that name. Please enter a different company name or account name and try again.” An account with this name may have already been setup by someone from your company. Only members of that account can send you an invitation to join the account. If you do not know who owns the account from your company, please contact us to help get you started.

Activate Your Profile

After establishing your account, you will receive an email welcoming you to the Digimarc Discover Online Services Portal. In order to finish registering for the OSP, you will need to verify that you have received the email by clicking on the link provided. After selecting “Click here” in the email, you will be taken to the Activate Your Profile page.

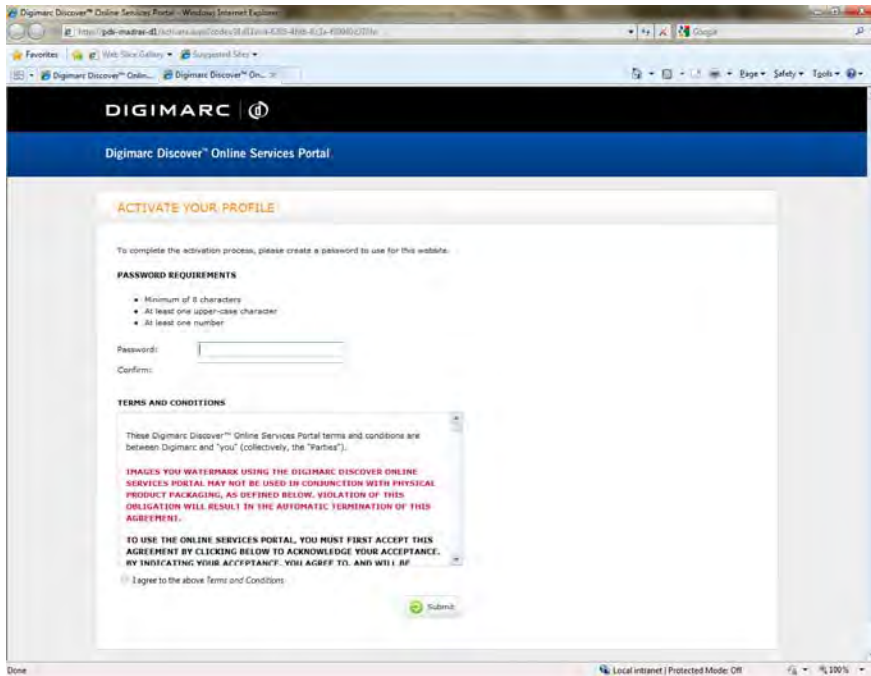


Figure 05.

Here you will need to set up a password and agree to the terms and conditions to complete the registration process. Passwords must be a minimum of eight characters long and include at least one uppercase character and at least one number. Please review the Terms & Conditions listed on the page and check the box “I Agree to the above *Terms & Conditions*” and then click “Submit.” You will receive the following confirmation screen after activating your profile:

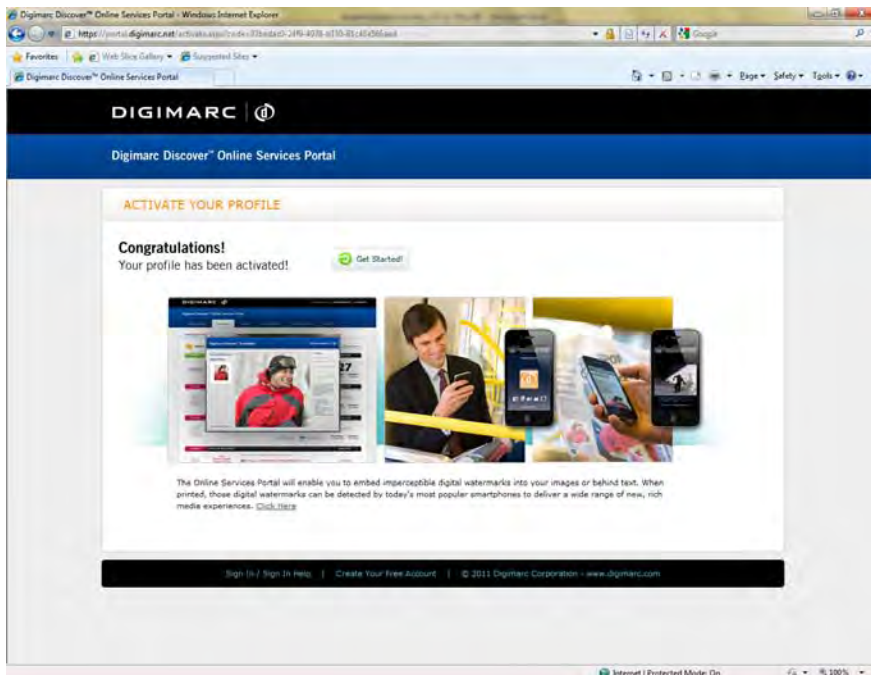


Figure 06.

Activate your profile by clicking the “Get Started!” button on the Activate Your Profile page.

Getting Started

After activating your profile you will be taken to the Getting Started page:



Figure 07.

At the top of the page are five different tabs to help navigate the OSP:

1. Getting Started
2. Workspace
3. Reports
4. Account Settings
5. Help & Resources

These tabs are always present in the OSP and can be selected at anytime.

In the body of the Getting Started page there are five key areas to help get you familiar with the OSP.

1. **Overview Video**
Watch this video to get a high level overview of the Digimarc Discover Online Services Portal and what it can enable.
2. **Start with a Project Folder**
Learn about what a Project Folder is within the OSP and get started by clicking on “Create Project Folder.” (See Figure 08) More information on the Workspace tab is provided in the section [Creating Projects in the Digimarc Discover Online Services Portal](#) section.

3. Invite Someone to Join Your Account

You can invite others to join your account by clicking on the “Invite User” button. All you need is their email address. (See Figure 09)

4. See All Resources and Tutorials

Clicking on “See All Resources and Tutorials for the Digimarc Discover Online Services Portal” will take you to the Help & Resources tab. (See Figure 10) Detailed information is located in the [Help & Resources](#) section.

5. Brochure

Clicking on the brochure icon will download a PDF with more information describing the Digimarc Discover Online Services Portal.

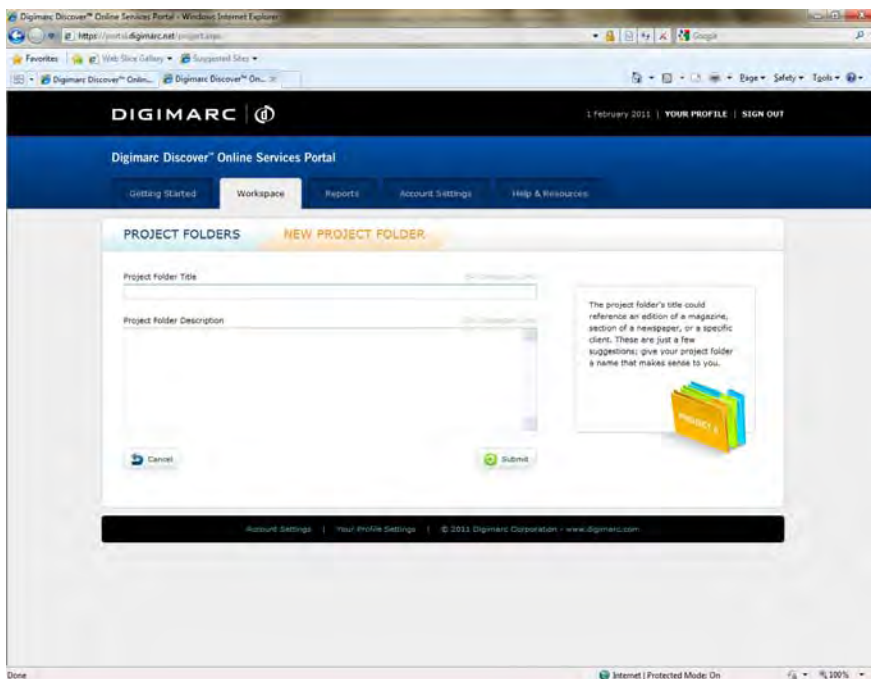


Figure 08.

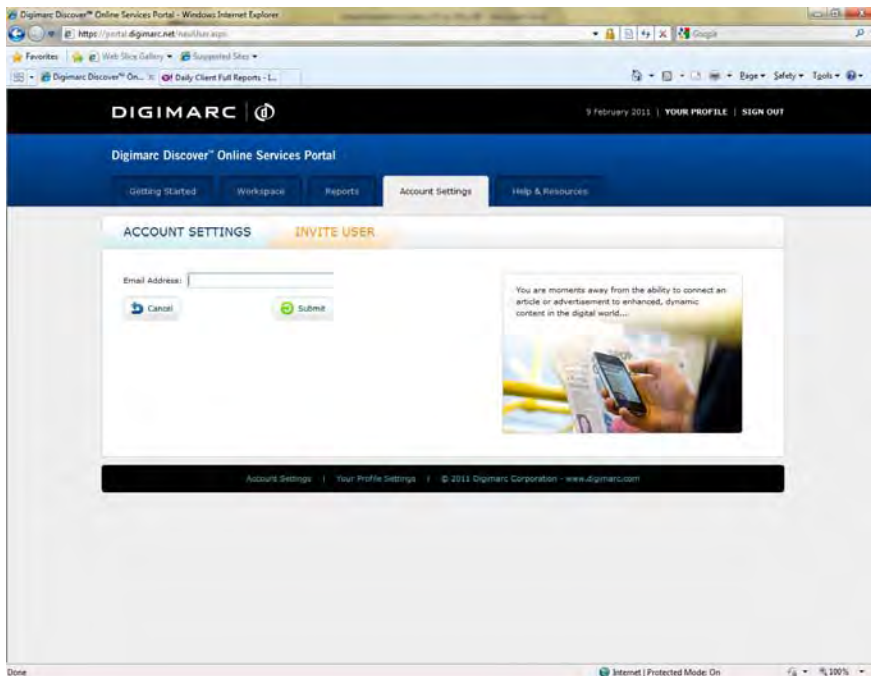


Figure 09.

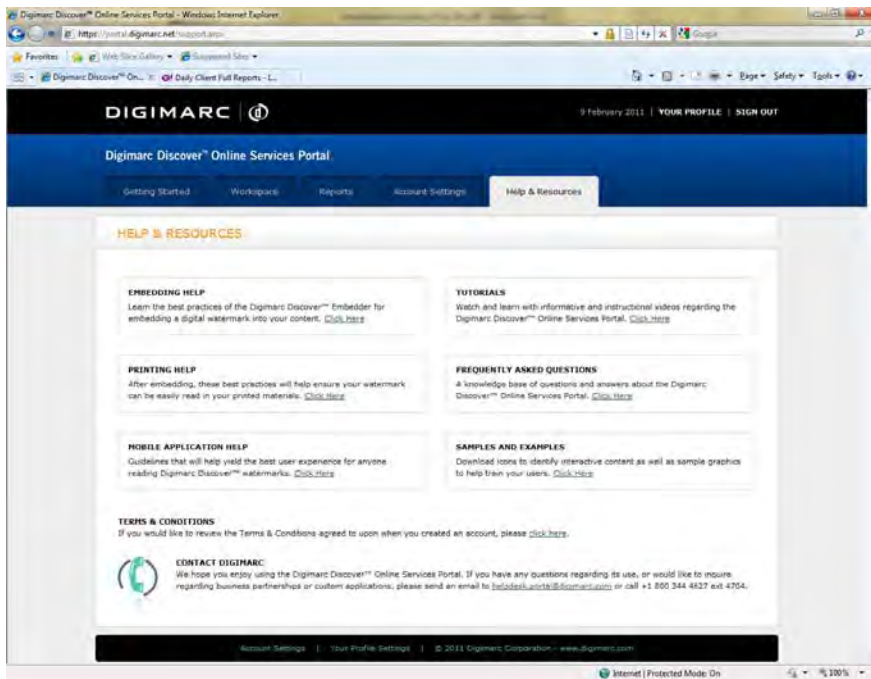


Figure 10.

CREATING PROJECTS IN THE DIGIMARC DISCOVER ONLINE SERVICES PORTAL

What is a Project?

Each project works like a folder and helps you organize your watermarked content. For example, a project could reference an issue of a magazine, a section of a newspaper, or a specific client. These are just a few suggestions; feel free to choose a method of organization that makes sense to you.

Creating a Project

Under the Workspace tab, click on the “New Project Folder” button to begin creating a project.



Figure 11.

You'll notice there are two places to enter information: Project Folder Title and Project Folder Description. (See Figure 08)

Project Folder Title: Naming Projects

We recommend assigning a project title that is easily recognizable for each publication. For example, let's say you're a magazine publisher for *The Beaverton Post* and you want to include digital watermarks in the March 2011 issue. We suggest naming your project something like "The Beaverton Post – March 2011."

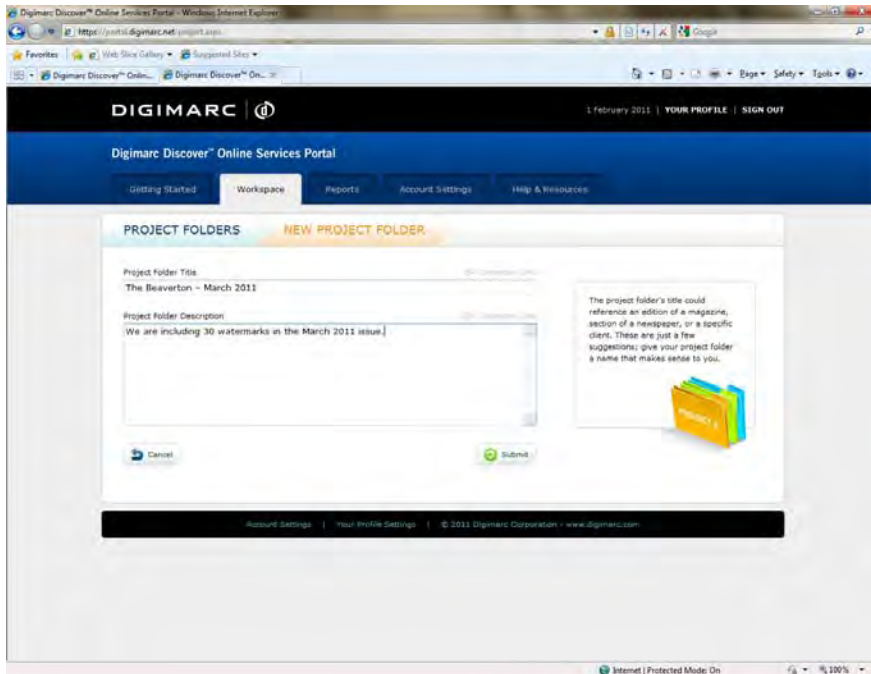


Figure 12.

If you're a newspaper publisher, you would name your project in a similar fashion. Under "Project Folder Description," you have the option of entering additional information on the project. (See Figure 08)

After clicking "Submit," you are taken to the Project Folders page that will list all of your projects. You'll always be able to create additional projects from here by clicking on the "New Project Folder" button in the upper right area of the page.

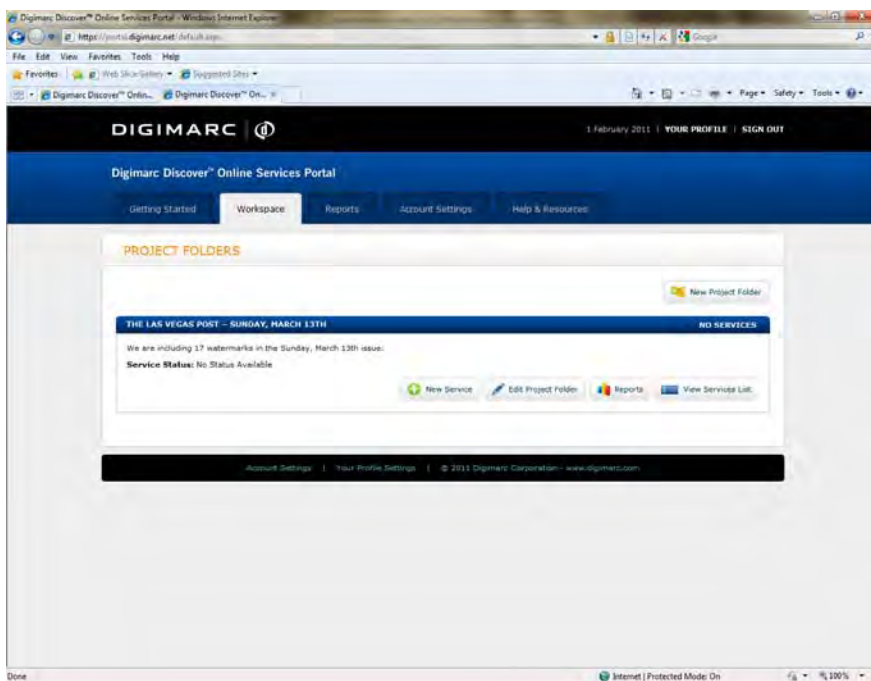


Figure 13.

If this is the first time you're creating a project, you will only see one project listed, but all projects will contain the following four options:

- **New Service**
Creates a new service for that specific project. We'll provide more information on creating a new service in the [Creating Services in the Digimarc Discover Online Services Portal](#) section.
- **Edit Project Folder**
Allows you to edit the title or description of that project.
- **Reports**
Generate activity reports on your projects and services. We'll provide more information on generating and downloading reports in the [Reports](#) section.
- **View Services List**
Shows all of the services that have been created for that project. We'll provide more information on services in the [Creating Services in the Digimarc Discover Online Services Portal](#) section.

CREATING SERVICES IN THE DIGIMARC DISCOVER ONLINE SERVICES PORTAL

What is a Service?

A service is essentially the process of linking a printed image or text block to a payoff of your choosing. For example, linking a printed car advertisement with a video of the car would be considered a service.

There are two key components that make a service:

1. Input all the required information about the service, which is described below in the "Creating a Service" section.
2. The URL that your readers will be directed to when they detect the watermark using their mobile phone.

To clarify, if a magazine uses 75 different digital watermarks in the August issue, they would have 75 different services.

Creating a Service

Click on the "New Service" button to create a new service under the project folder. *(See Figure 13)*

After clicking "New Service," you will be taken to the New Service page which is divided into two sections: General Information and Internal Notes.

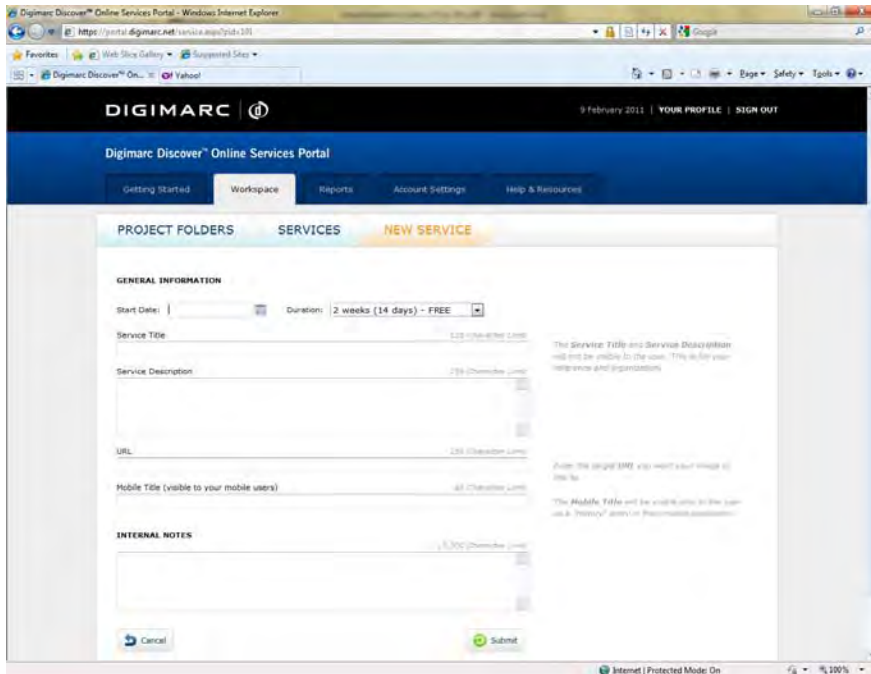


Figure 14.

General Information

The following describes the four different options under “General Information” on the Edit Service page:

- **Start Date**
This is where you indicate the start date for your service. There is a calendar button next to the start date to help you select the correct date. Your service won’t begin until the start date. You can change the start date anytime before your service begins.
- **Duration**
This is a dropdown menu that lets you select how long you want your mobile link to be in service. There are six different durations* to choose from:

- 2 Weeks (14 Days): \$ 4.99
- 1 Month (30 Days): \$ 9.99
- 2 Months (60 Days): \$19.99
- 3 Months (90 Days): \$29.99
- 6 Months (180 Days): \$39.99
- 2 Year (730 Days): \$49.99

** Pricing is subject to change as the number of mobile applications with the Digimarc Discover feature increase. OSP customers will be given 60 days notice before a price increase takes effect.*

- **Service Title**
We recommend assigning a service title that is easily recognizable for each publication. For

example, let's say you're a newspaper publisher for *The Beaverton* and you want to embed a digital watermark in the photo of the local basketball team featured on the front cover of the Sports section. You may want to name your service "Sports – Front Cover – Basketball Team Photo." (See Figure 15)

- **Service Description**

Enter information about the image or payoff that will help describe the service to you or others working on the project. (See Figure 15)

- **URL**

Enter a URL for users to be redirected to when they interact with your watermark content. (See Figure 15)

- **Mobile Title**

Enter a payoff description that users see when viewing their browsing history. If possible, you should use a clear, short description as this will be viewed on mobile phones. For example, using the above scenario you could use "*The Beaverton Post*: Basketball Highlight Video." (See Figure 15)

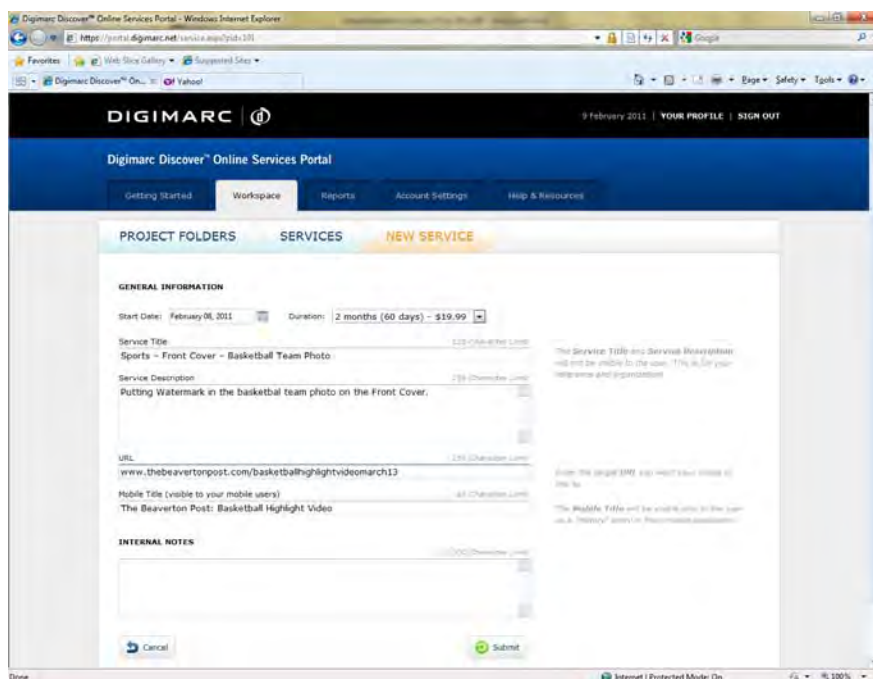


Figure 15.

Internal Notes

This optional section allows you to add additional notes. The notes you enter could be used to help communicate information if you are sharing your account with others. How you use this field is up to you. (See Figure 15)

Click "Submit" after entering all your information to create the service. Remember, you still need to process an image that will link to the URL and purchase it afterward to make it active. After hitting

“Submit,” you will be taken to the Services List page. (See Figure 16)

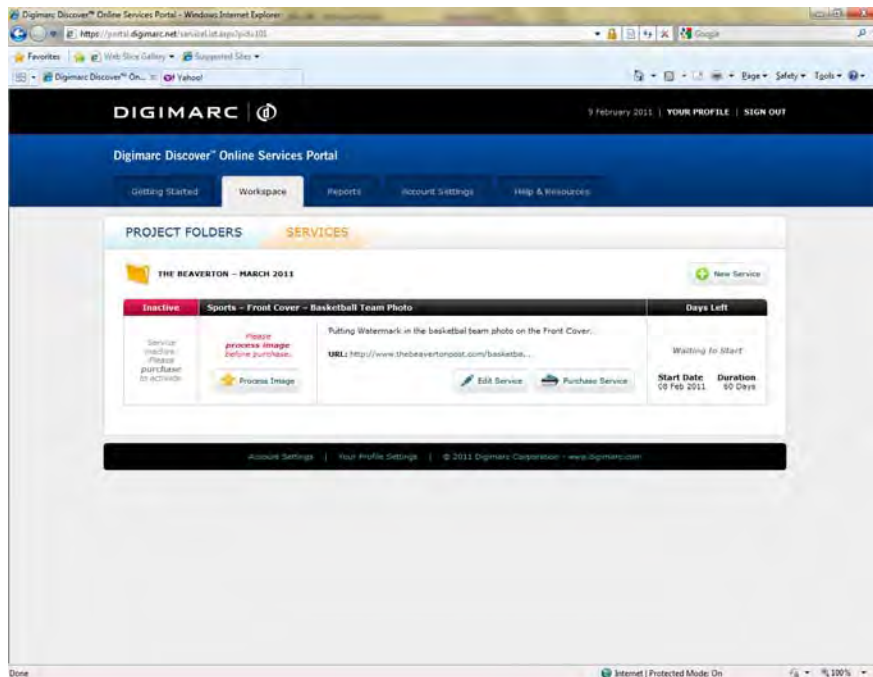


Figure 16.

Services List page

This page lists all of the services within the project folder you selected. The name of the project folder is also displayed in the upper left, right below the “Project Folder” navigation bar. You can see that each service is presented in a box with detailed information. The left side of the box will be red indicating that the service is “Inactive.” (See Figure 16) Once the service is purchased and the start date has been reached, the red “Inactive” box will become “Active” and turn green. (See Figure 17) *Note: Once your service becomes active, you’ll still have the option to deactivate by clicking the “Deactivate” button.* Deactivating a service will not extend your duration period; it is simply a means to take your service offline if required. (See Figure 17) The middle section of each box will show the description and title that you entered for that service, along with the URL for the payoff. On the right of side of Figure 17 under “Days Left” you’ll see the number of days your service is scheduled to remain active. If your service has not yet started or been purchased, “Waiting to Start” will appear instead of a number. (See Figure 16)

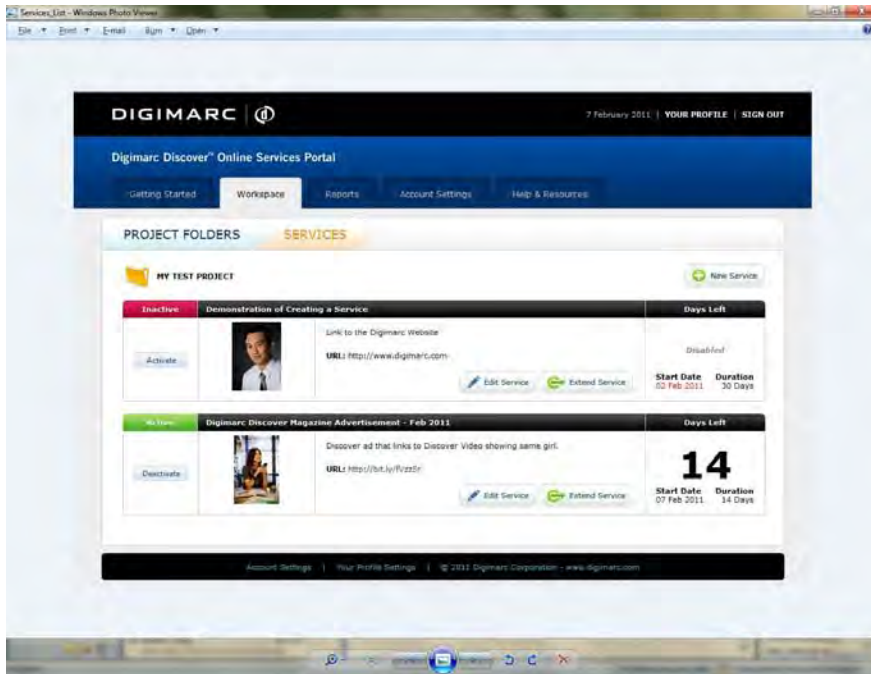


Figure 17.

For each service, you will have the following options as shown in *Figure 16*:

- Process Image**
 Click this to launch the Digimarc Discover Embedder, which allows you to embed digital watermarks into images or create watermarked tints to be placed behind text. We'll provide more information in the How to [Add Digital Watermarks to Images and Create Tints Behind Text](#) section.
- Edit Service**
 Allows you to edit an existing service. For example, you would select "Edit Service" if you wanted to change the payoff URL, modify the description, or change the title.
- Purchase Service**
 Purchase a service or if you have already purchased and the service has not yet expired, click "Extend Service" to add more time to your service. (*See Figure 17*) If your service has expired, you have the option to "Renew" instead of "Extend Service." We'll provide more instructions on how to purchase services in the [Purchase Service](#) section.
- New Service**
 Allows you to create a new service.

HOW TO ADD DIGITAL WATERMARKS TO IMAGES AND CREATE TINTS BEHIND TEXT

What is the Digimarc Discover Embedder?

The Digimarc Discover Embedder allows users to embed imperceptible digital watermarks into images and create digitally watermarked tints for placing behind text. The Digimarc Discover Embedder will launch directly from the Digimarc Discover Online Services Portal, so no additional software is required.

Launch the Digimarc Discover Embedder

Select the “Process Image” button on the Services List page to launch the Digimarc Discover Embedder. (See Figure 16) Java is required to run this application. The embedder will detect if you do not have the necessary Java installation and a pop-up dialog will be displayed with instructions and a link to download the required Java software. (See Figure 18)

You will receive the following warning messages before launching the embedder:

- “The Digimarc Discover Embedder application is now being loaded. Once you’ve finished processing your image, please close this alert to return to your workspace.” (See Figure 19) You cannot use the Digimarc Discover Online Services Portal while using the Digimarc Discover Embedder. You can click “Close” at any time to close the Digimarc Discover Embedder application and return to the Digimarc Discover Online Services Portal. (See Figure 19) When finished processing your image, close this alert to return to your workspace.
- You will receive the following message before launching the embedder: “The Digimarc Discover Embedder has been launched. Please choose “Run” or “Open” when prompted by your web browser.” After you choose “Run” or “Open,” the Digimarc Discover Embedder will launch. (See Figure 20)

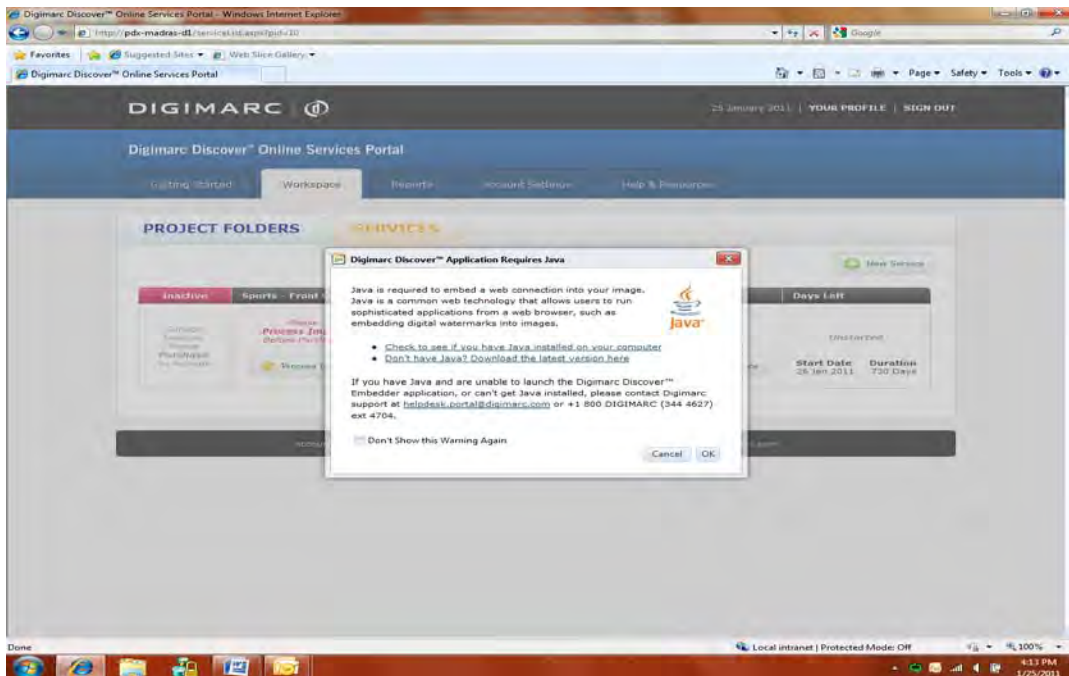


Figure 18.

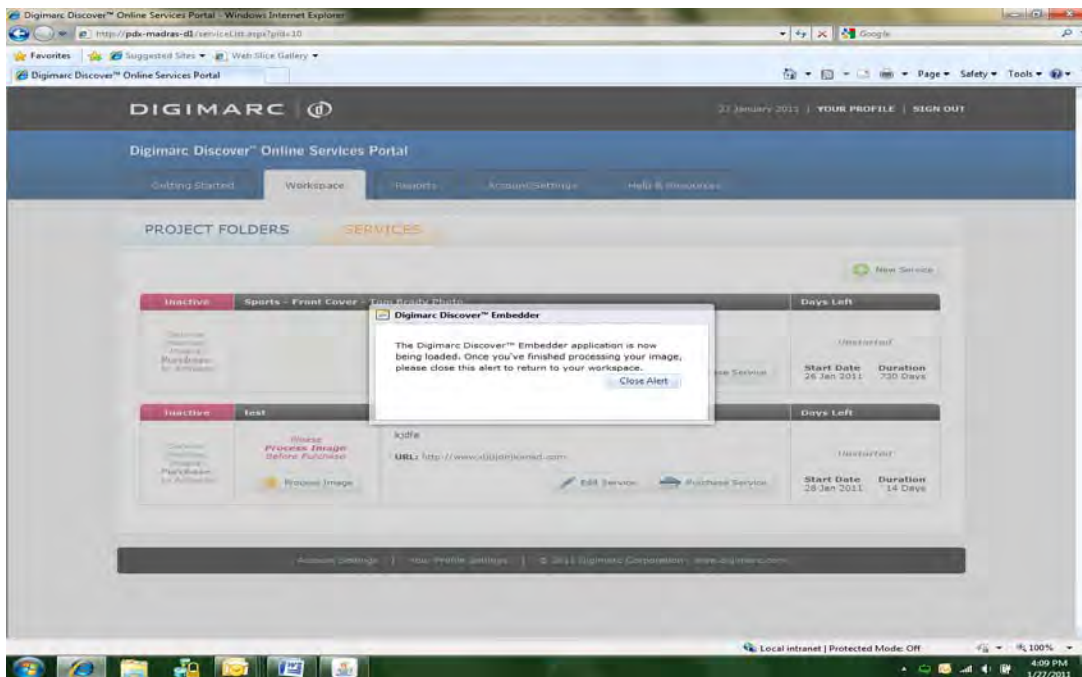


Figure 19.

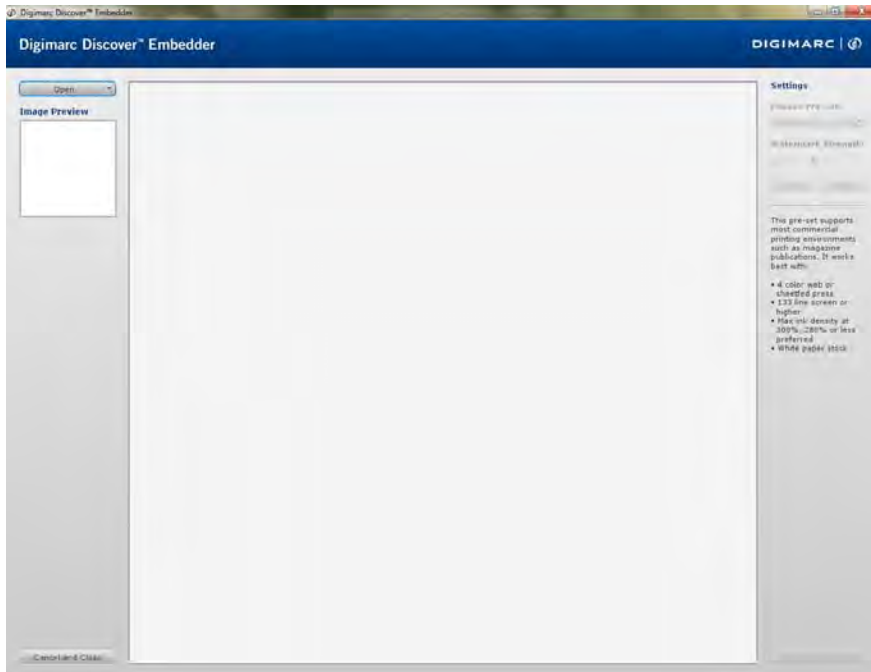


Figure 20.

Select an Image to Watermark

Click “Open” in the upper left corner. (See Figure 20) After clicking “Open,” you’ll have the option to select either “Image” or “Tint.” (See Figure 21) Select “Image” if you want to embed a digital watermark into an image, or select “tint” to generate a watermarked tint to place behind a text block. We will show you how to place a digital watermark in “Text” later this section.

Select “Image” and choose the image that you want to watermark from your files.

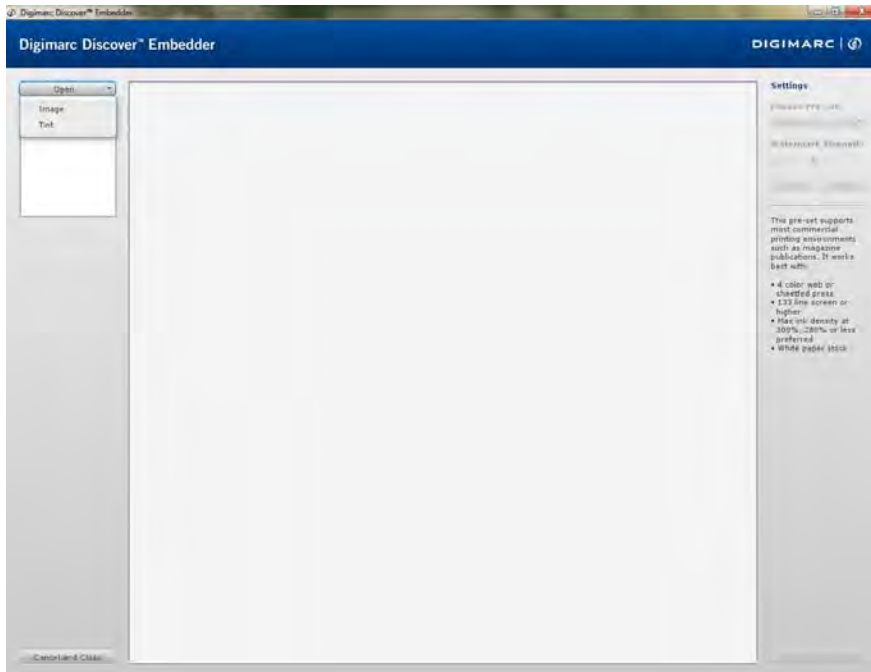


Figure 21.

After selecting your image, it will be loaded and displayed under “Image Preview” and in the main window. (See Figure 22) The Digimarc Discover Embedder also provides information on the image you opened in the “Image Info” section in the lower left-hand side of the embedder window. (See Figure 22) Details include the following:

- **Image Print Size**
The size that your image will print.
- **Resolution**
A measurement of printer resolution. You will receive a better quality print if your image has a higher DPI. In other words, as the DPI increases, so does the print quality of your image.
- **Colorspace**
Defines the range of colors in your image. There are three different color spaces:
 - RGB (Red, Green, Blue)
 - CMYK (Cyan, Magenta, Yellow, and Key Black)
 - Gray Scale
- **Profile**
Profiles provide descriptions of the color attributes of a particular output device or display.

Note:

- You can only watermark an image that is at least 150 DPI and no more than 600 DPI. If you load an image that does not meet this requirement, you’ll be presented with a dialog box to select what will best represent your intended print size. After you make a selection, your image information will be displayed accordingly.

- A warning message will appear if an unsupported image size is detected. (See Figure 23) “The resolution of the current image does not meet the requirements. Please open a new image that is at least 240 X 240 pixels (two inches per side at 120 dpi).”

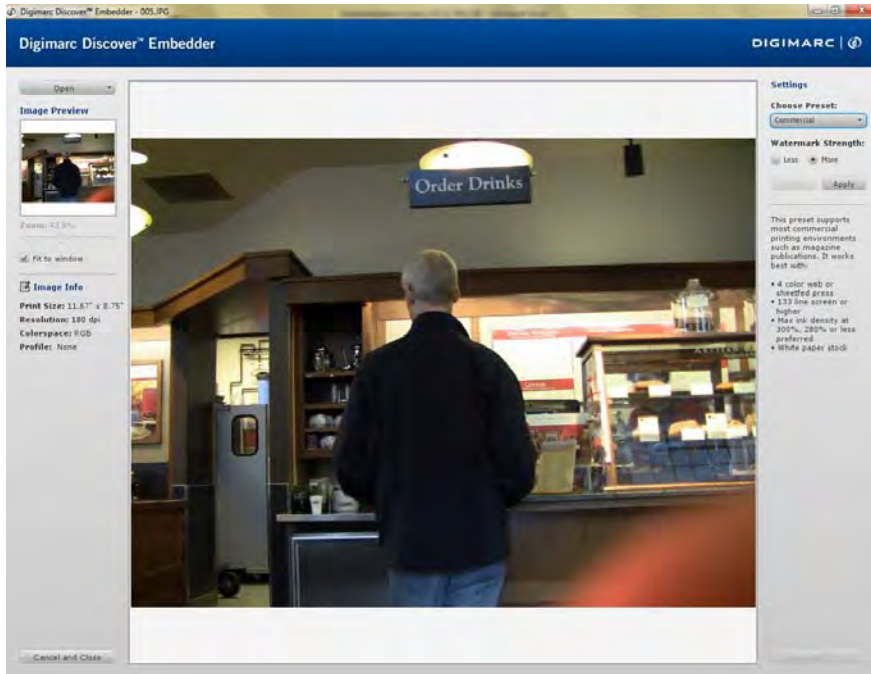


Figure 22.

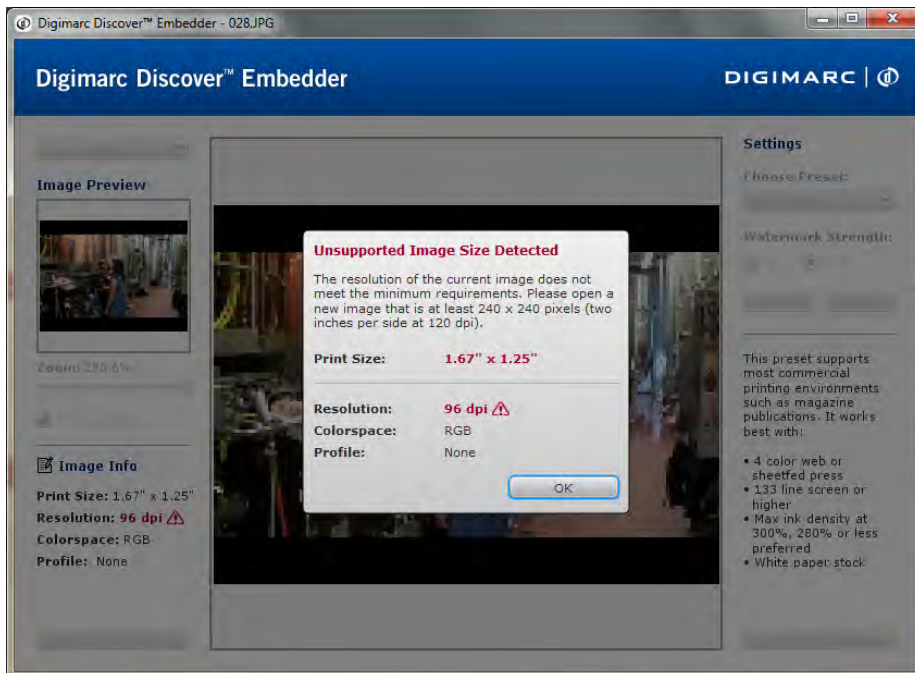


Figure 23.

Altering Your Image

Beneath the “Image Preview” box are “Zoom” and “Fit to window” features. You will notice there is a check box next to “Fit to window.” (See Figure 22) This check box is automatically selected after opening an image. Uncheck the “Fit to window” to activate the “Zoom” function. (See Figure 24) You can change your zoom percentage by adjusting the slider. (See Figure 24)

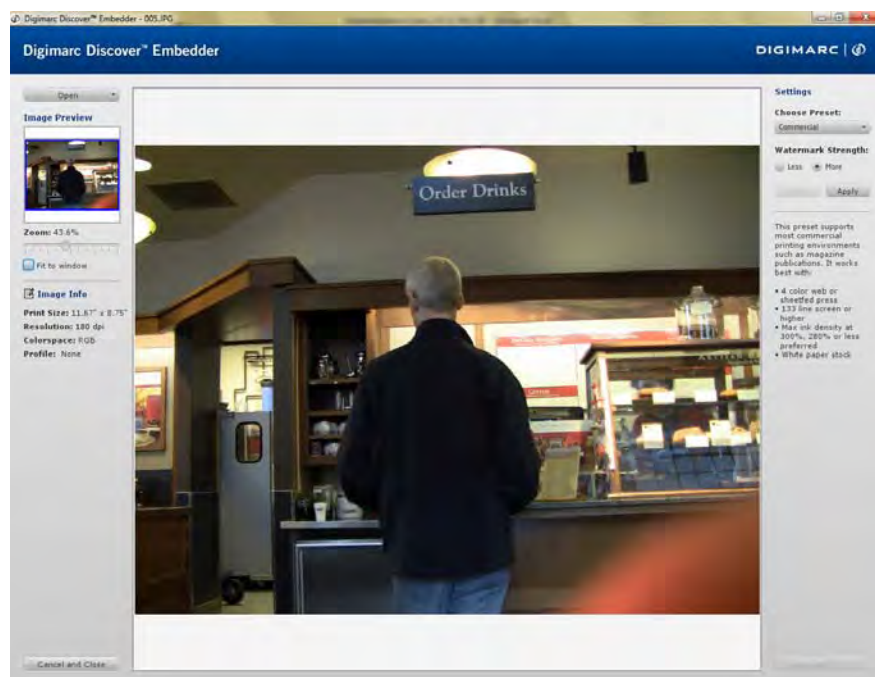


Figure 24.

The blue box within the “Image Preview” is a navigation tool to immediately focus on a specific area within an image. You can move the blue box within the “Image Preview” window by holding down the mouse button. The main image will always display the content that is inside the blue box. At any time, you can check the “Fit to window” box to display your entire image in the main window.

Settings

In the upper right-hand corner of the Digimarc Discover Embedder, beneath “Settings,” is the “Choose Pre-set” menu (See Figure 24), which has two options: “Commercial” or “Newsprint.” If you are placing a digital watermark into a magazine, product brochure or other higher quality printed material using a white paper stock, you should select “Commercial.” Because the printing environment is different for magazines and newspapers, the embedder has two different options. Choosing the correct pre-set optimizes the embedder for that printing environment and improves watermark detection. If you are printing to an inkjet or office printer, we recommend using the “Commercial” setting.

Note: The default Pre-set is chosen within your Account Settings options. You can change this at any time from either the Account Settings page, or from within the embedder application.

The Digimarc Discover Embedder also gives users two “Watermark Strength” options: “Less” or “More.” (See Figure 24) Choosing “More” will make the watermark in your image more robust and provide faster detection on a smartphone. Depending on the image, there are instances where you may want to use the “Less” setting to minimize any impact on the images appearance – for example, images with large areas of white or black.

Apply a Watermark to Your Image

After choosing a pre-set and watermark strength, you are now ready to apply a digital watermark to an image. On the right side of the page, beneath “Watermark Strength,” you’ll see the “Apply” button. (See Figure 24) Click “Apply” to embed the digital watermark. You will see “Embedding watermark” briefly appear in the bottom right-hand corner. (See Figure 25) The blue bar indicates a digital watermark is being applied.

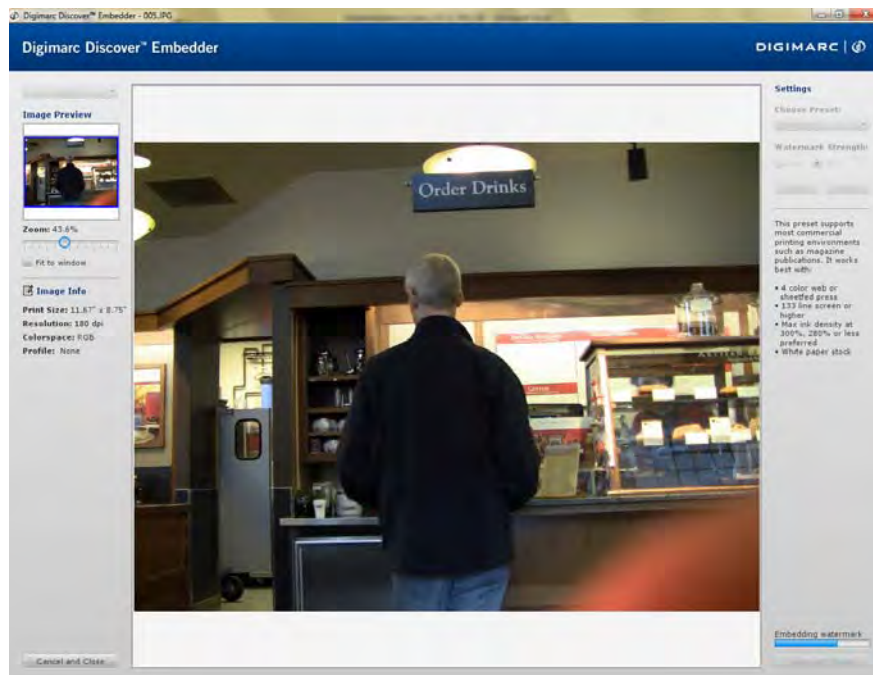


Figure 25.

You have two options after the digital watermark is applied to your image. You can remove the watermark from your image by selecting “Undo” or click “Save and Close” to save your digitally watermarked image and exit the embedder application. (See Figure 26)

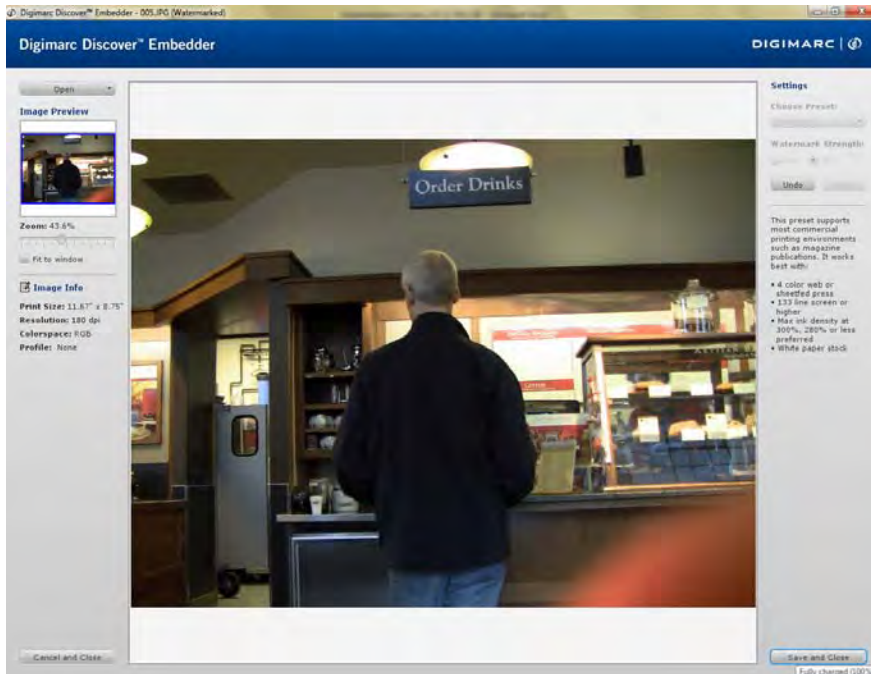


Figure 26.

What is Tint Behind Text? And, Why Would I Use This?

Placing a Tint behind text enables you to deliver enhanced content and interactivity from text articles as well as images. The tint box is slightly visible which ensures readers are not distracted, nor is their ability to read the text hampered in anyway. As a bonus, the tint box quickly communicates which text is interactive.

- **Example A**

If you have a sidebar column in a newspaper, you can create a colored tint to place behind the text that includes a digital watermark. (See Figure 27) To create Figure 27, the user simply creates a colored tint the size of the column in an image editing program: 3" x 3" at 300dpi and made up of 10% cyan 20% magenta and 50% yellow. They save as a Tiff or JPEG file, create a new service, use the "Process Image" feature to watermark the tint using the MORE setting, and place it behind the text.

- **Example B**

Using the Open Tint option allows you to create a Tint to place behind text that is referred to as a sparse watermark. (See Figure 28) Sparse watermarking is a technique that enables you to embed a digital watermark in binary form as a background to text. The net effect is a background speckling that can be nearly imperceptible against foreground text, especially when printed on paper stocks like newsprint.

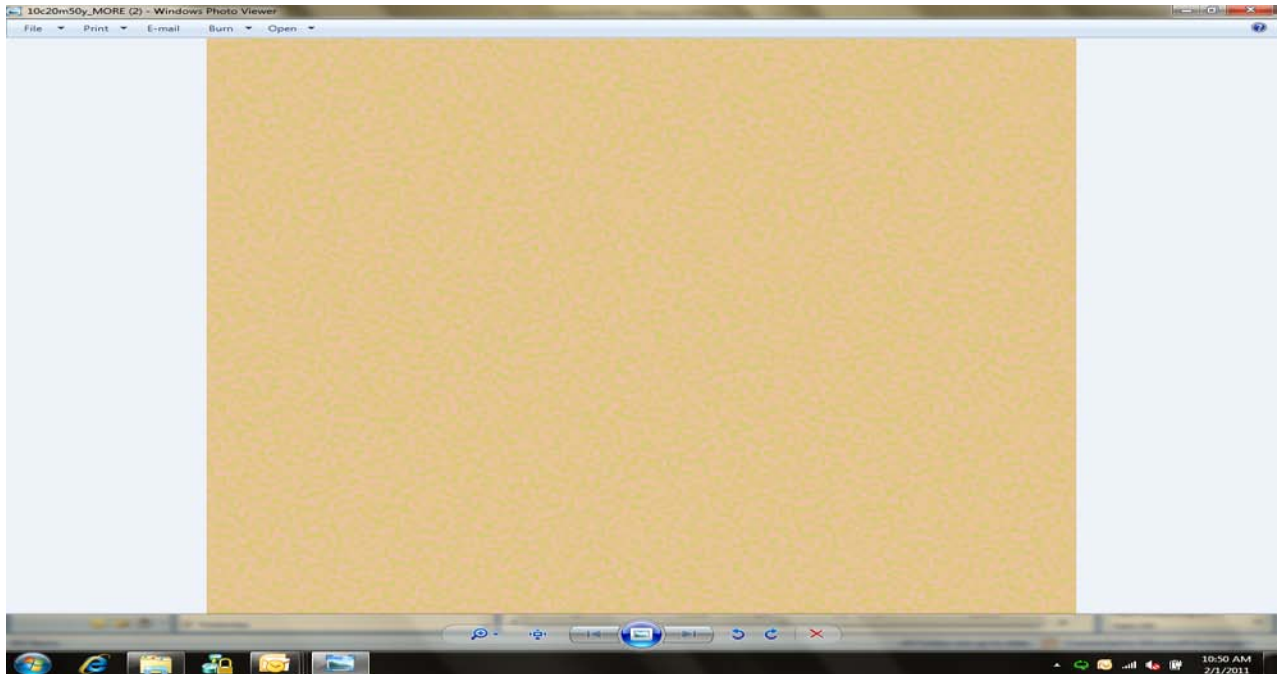


Figure 27: Colored Tint.

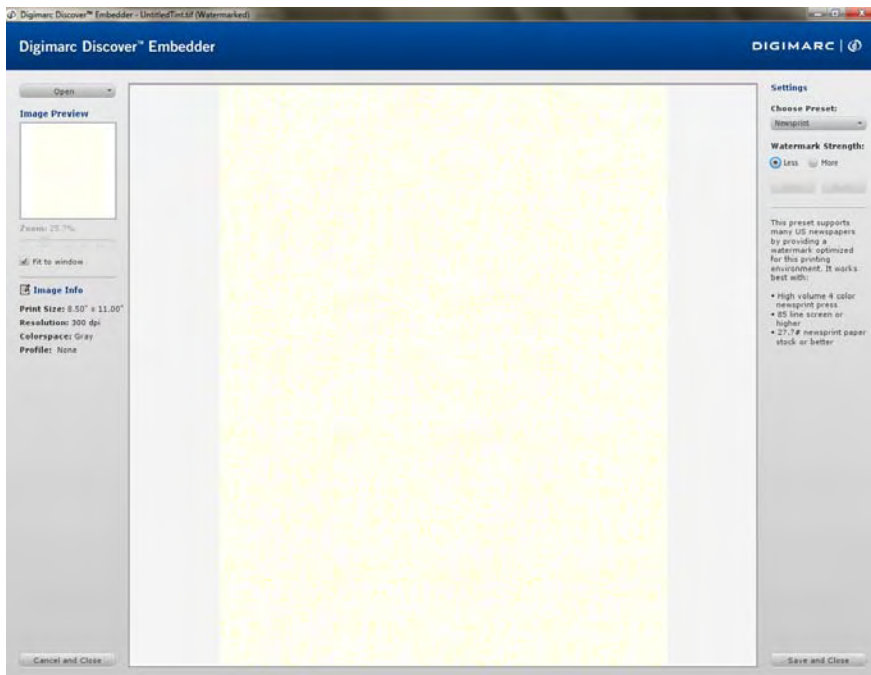


Figure 28: Open Tint (aka Sparse Watermark).

Create a Tint

You can create a tint behind text by selecting “Open” in the upper left corner of *Figure 20*. After clicking “Open,” select either “Image” or “Tint.” (See *Figure 21*) After you select “Tint,” a dialogue box will open. (See *Figure 29*)

This is where you will select and create the dimensions of the tint you want to create. You can choose from the following options:

- **Paper Size**
Letter, Legal, Ledger, Tabloid, and Custom
- **Width**
inches, centimeters (cm), and millimeters (mm)
- **Height**
inches, centimeters (cm), and millimeters (mm)

You will notice that the file size changes as you alter the paper size, width, and height.

Once you click “Create,” you have a background space with an imperceptible digital watermark. You have two options after the digital watermark is applied to your background space. You can remove the watermark from your background by selecting “Undo,” or click “Save and Close” to save the watermarked Tint.

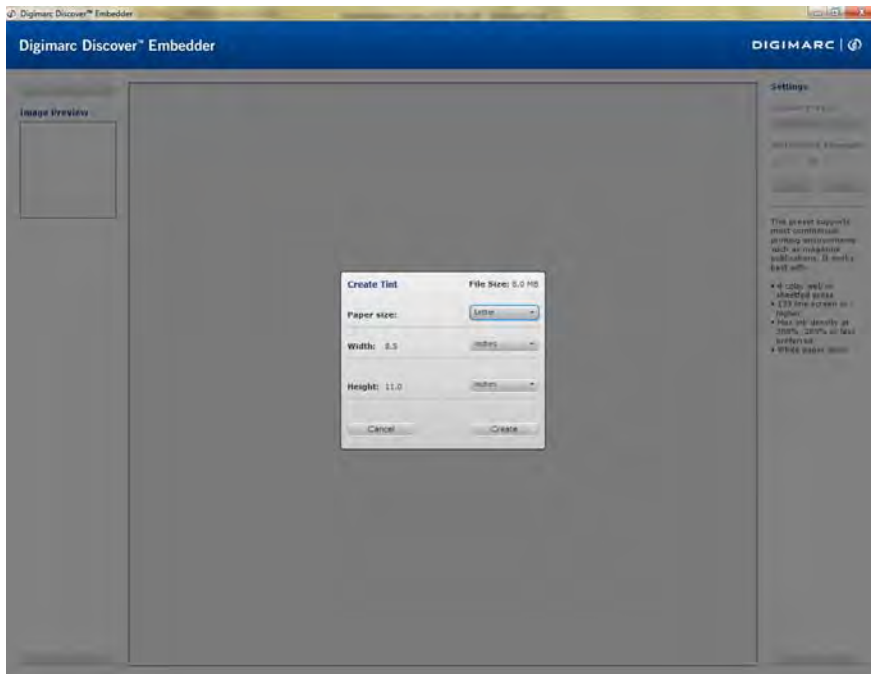


Figure 29.

PURCHASING A SERVICE

You can purchase a service from the Services List page. (See Figure 16) You will be required to Process an Image and enter the payoff URL for that service before purchasing it. If not, you will receive the following warning message. (See Figure 30)

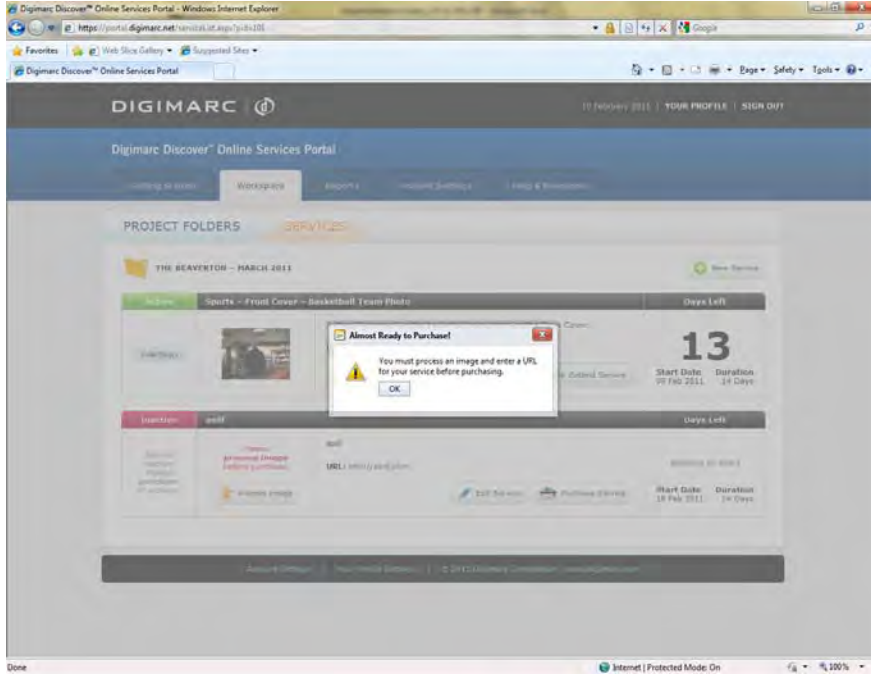


Figure 30.

Click on the “Purchase Service” button on the Services List page. (See Figure 16) After clicking “Purchase Service” you are taken to the following page. (See Figure 31)

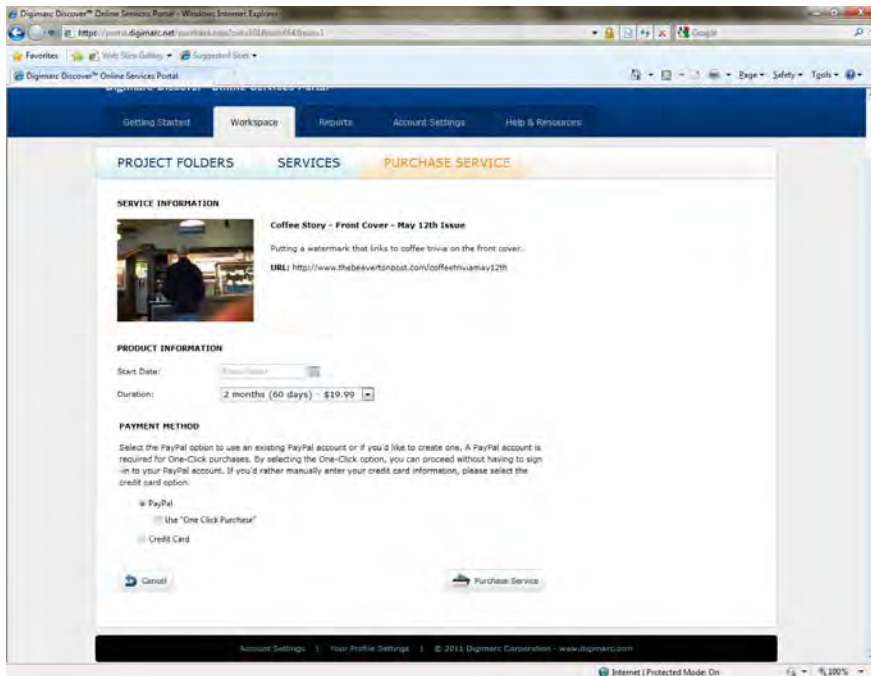


Figure 31.

In *Figure 31* you will see that the page is divided into three sections. The following describes each section:

- Service Information**
 This section provides information on your service. You will see the service name, URL, and a thumbnail of your watermarked image.
- Product Information**
 You can select the start date of your service and choose the service duration, which includes the price for each of the six different durations.
- Payment Method**
 This section allows you to select your method of payment. More information on this section is described in more detail below.

Payment Method

You have two options to make a payment. You can either choose “PayPal” or “Credit Card.” (*See Figure 31*) If you select “Credit Card,” you will manually enter your credit card information to purchase a service. If you select “PayPal,” you will need a PayPal account or you will be given the option to create one. Under “PayPal” is a check box titled “One Click Purchase.” (*See Figure 31*) By selecting this box, your payment information will be saved in the OSP, and you will be able to make purchases without adding your account information into PayPal. Click “Purchase Service” after reviewing your service, product and payment information. You will see the following screen the first time you select “Purchase Service.” (*See Figure 32*)

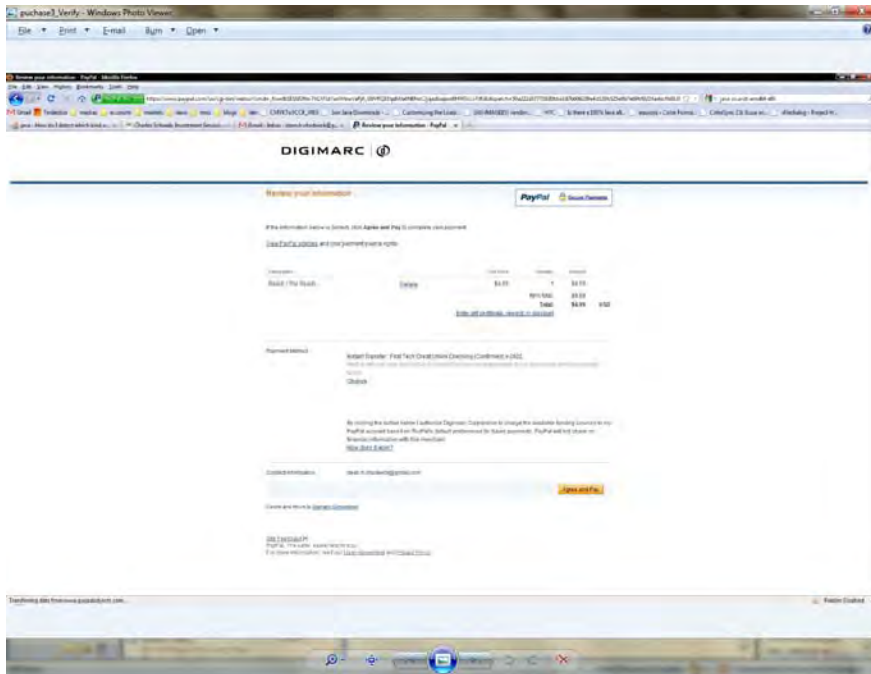


Figure 32.

Receipt Page

After completing your purchase, you will receive a receipt confirming your purchase. (See Figure 33)

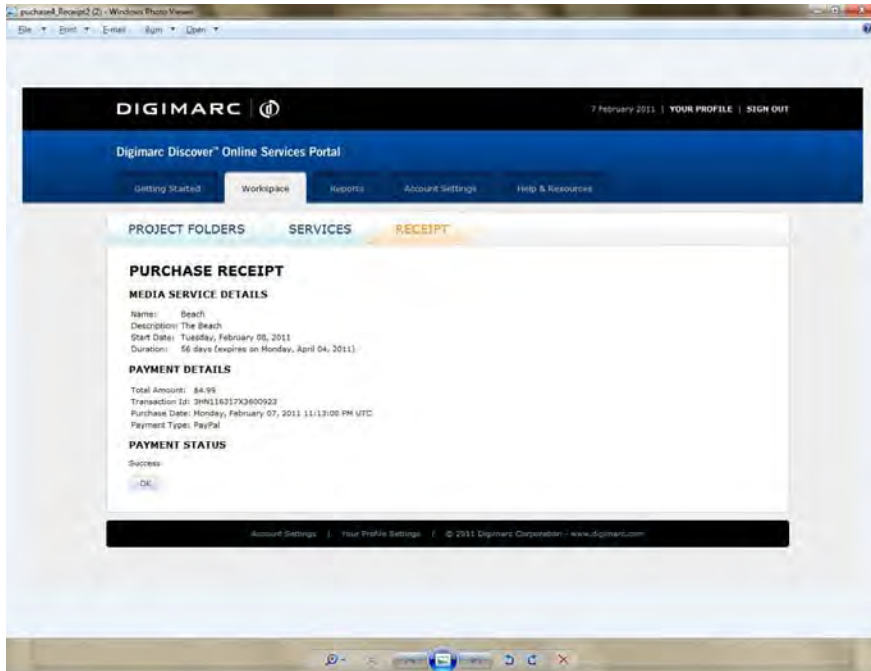


Figure 33.

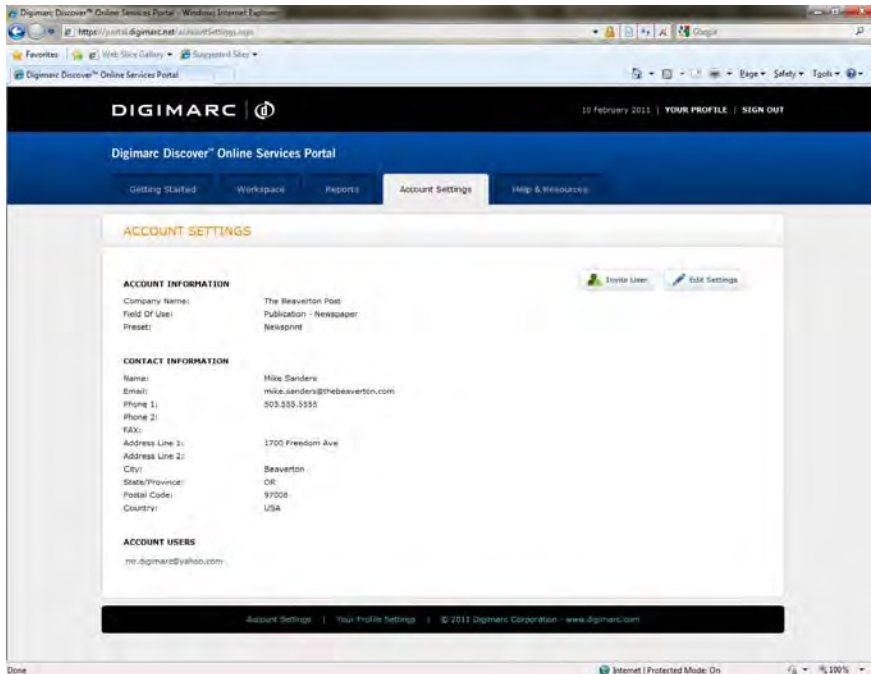


Figure 35.

Clicking the “Edit Settings” button takes you to the following page to enter the contact information for the account. (See Figure 36) After entering your information, click “Submit” to return to the Account Settings page.

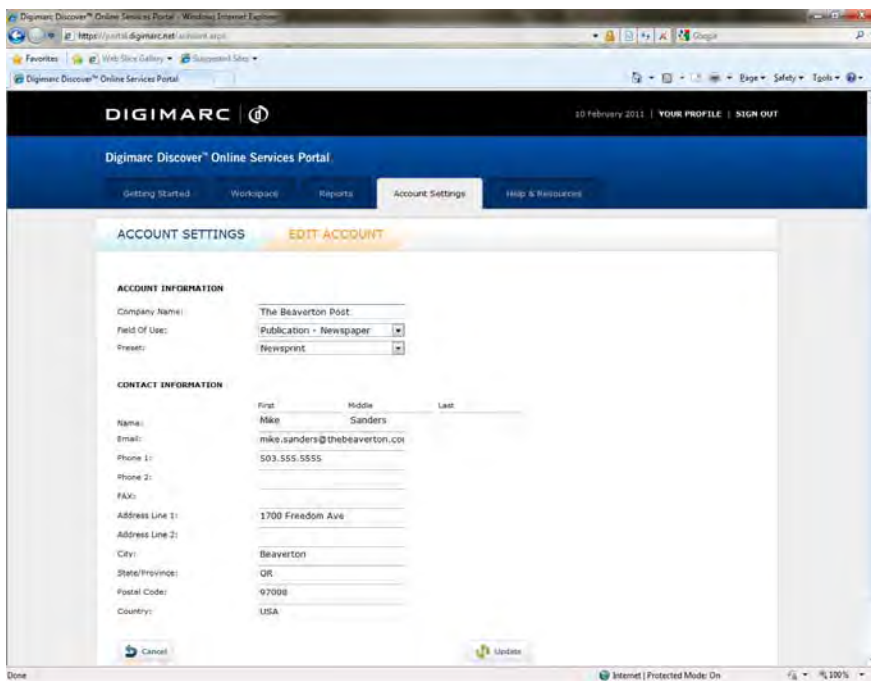


Figure 36.

You have the option to invite others to become members of your account. All members will have the same permissions as the account owner. To do so, click on “Invite User,” which will take you to the following page. (See Figure 37) Enter the email address for the person that you want to join your account and select “Submit.”

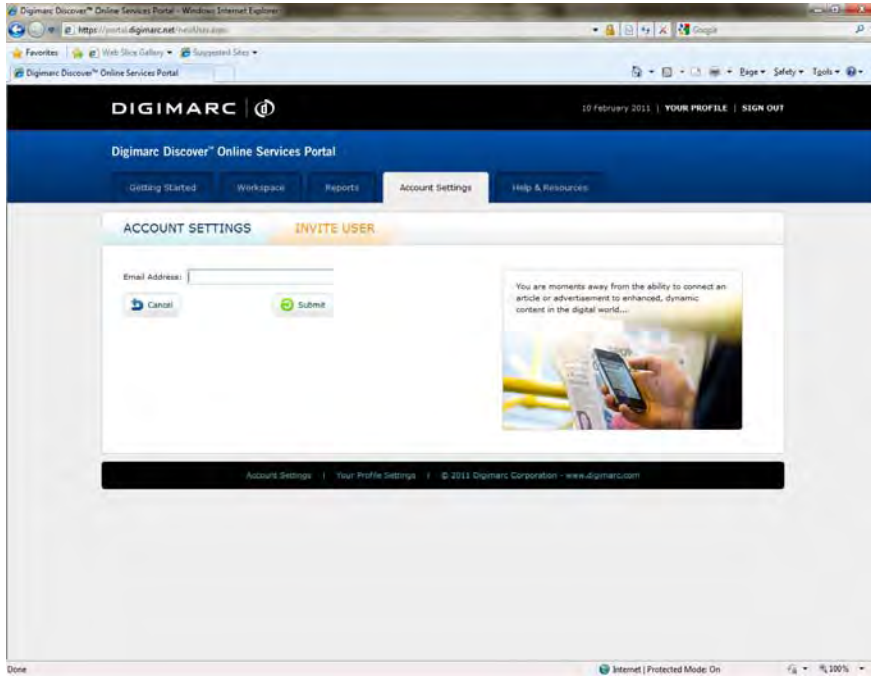


Figure 37.

After inviting a user, you will see the user’s email address appear at the bottom of the Account Settings page. (See Figure 38)

Note: Currently only Digimarc Member Services can remove members from an account.

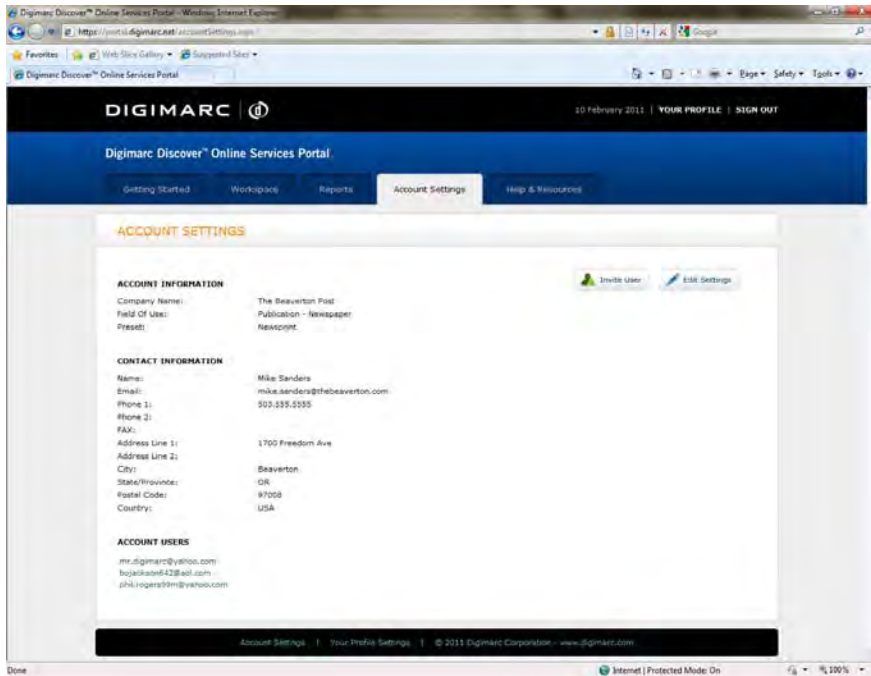


Figure 38.

HELP & RESOURCES

The Help Resources page (See Figure 39) provides links for more information about the website where you can access information on the following topics:

- **Embedding Help**
- **Tutorials**
- **Printing Help**
- **Frequently Asked Questions**
- **Mobile Application Help**
- **Samples And Examples**

You can also review the Terms and Conditions that you agreed to when creating an account.

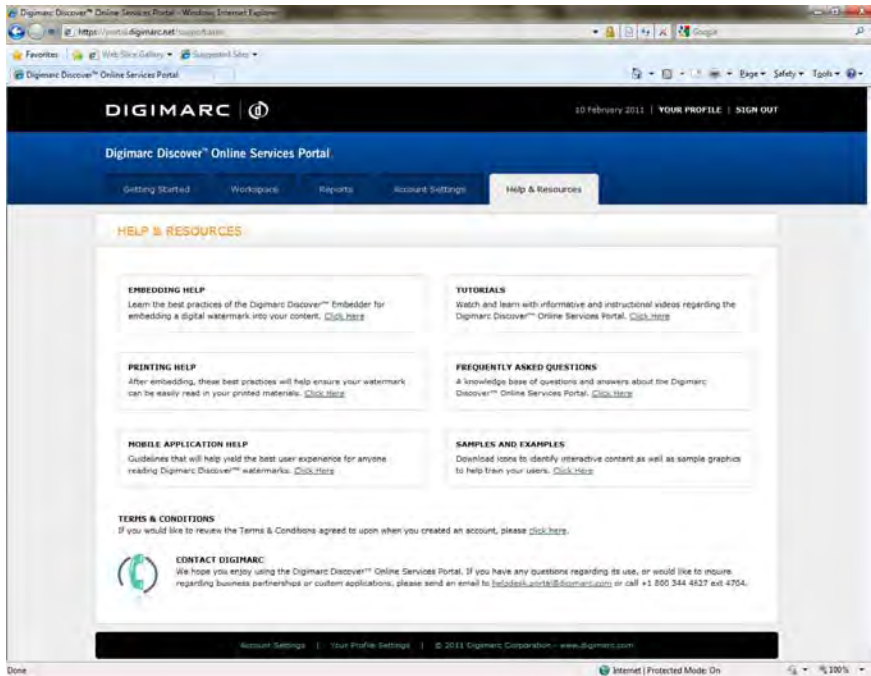


Figure 39.

BASIC WATERMARKING TECHNIQUES

This section discusses watermarking techniques to help you select and print the best images, while balancing detectability and visibility.

Selecting Images

Successful watermarking begins with selecting appropriate images. You should consider the potential to watermark an image as another feature of the image, just like color and composition. This section presents examples that illustrate how to evaluate images for the best results with watermarking.

Technical Requirements

For starters, there are specific technical requirements your images must meet.

TABLE 01: Image Requirements

Characteristic	Requirement
Resolution	Between 72 and 1200 DPI
Colorspace	CMYK (recommended), RGB or grayscale
Bit Depth	8 bits per channel
Size	Minimum of 2" x 2" or 5.1 cm X 5.1 cm Smaller images do not provide enough space to embed an easily detectable watermark.
Ink Density	Optimal maximum of 300% Higher ink densities reduce the room required to add ink to embed a watermark.

Recommended Image Characteristics

Table 02 lists characteristics to consider when selecting images to be watermarked. It is difficult to establish rules in this area, so you should evaluate images in relative rather than absolute terms. For example, given two images equally suitable for editorial or advertising purposes, we recommend selecting the one with higher contrast.

TABLE 02: Image Characteristics

Suitable	Characteristic	Less Suitable
	Comment	
Higher	<p>Contrast</p> <p>High contrast provides more visual variety to “hide” the watermark.</p>	Lower
More Midtones	<p>Tonal Range</p> <p>Areas of high or low ink density provide less room to add or remove ink as needed to embed a watermark.</p>	More highlights and shadows
More Texture	<p>Texture vs. Flat Tints</p> <p>Areas of texture provide more visual variety to “hide” the watermark. Flat tints accentuate the visible effects of a watermark.</p>	More flat tint
More	<p>Yellow</p> <p>Watermark technology embeds more signal in the yellow channel of CMYK images, because the human eye is less sensitive to changes in yellow tones. Hence, more yellow in an image enables increased watermark strength while minimizing visual impact to the image.</p>	Less
Less	<p>White space</p> <p>White space lacks the ink required to embed a watermark.</p>	More
Less	<p>Text and graphics</p> <p>Type and graphics with straight edges and lines can reveal the effects of watermarking.</p>	More
Less	<p>Color Saturation</p> <p>Too much saturation in a single channel reduces the room to add ink as needed to embed a watermark.</p>	More

Examples of Suitable Images

Below are several images (See Figure 40) that are good candidates for watermarking as they possess the ideal characteristics:

- All three images have textures that effectively “absorb” the watermark.
 - In the beach photo, the sand, water on the beach, and the clouds offer adequate texture.
 - The dog, tree, and lawn provide texture in the dog photo.
 - While there is an expanse of red in the photo of the woman, it’s not a flat tint. The bedspread contains plenty of texture for embedding the watermark.
- The colors in all three images are predominately in the midtones, with only some small areas of very light and very dark colors.



FIGURE 40: Examples of Good Watermarking Candidates.

Proofing Your Work

To ensure the best experience with watermarking, you must test your embedded images for both watermark detectability and visibility. Focus your testing on common situations. Once you have established that your watermarks can be detected in typical environments, you might test in more challenging contexts.

Following are some important recommendations:

- **Use proofs that accurately reflect the final printed images.**
The best proof is one provided by your commercial printer. The printer's proofing technology maintains the image's color mode (e.g. CMYK) and is calibrated to produce images that closely match the final color and quality of images from the actual printing press.
- **Identify and test on commonly used mobile devices in your intended market.**
Different mobile devices can vary in how easily the watermark is detected. The stronger the watermark, the greater the range of mobile devices that will be able to quickly read the watermark and provide a great user experience.
- **Test in various lighting situations which you expect your audience will be in when reading your watermarked content.**
Conditions with either low lighting or high glare can impact how quickly and easily the watermarks can be detected. A good general rule is if you have a hard time reading in dim lighting, your phone's camera will too.

Checking Detectability

To test watermark detectability, try to detect a watermark in several areas of the image. You should be able to detect a watermark within seconds.

Checking Visibility

As with detectability, you should evaluate visibility on accurate proofs in realistic lighting conditions. Keep in mind, however, that visibility, unlike detectability, is subjective. A watermark is either detectable or it's not, but a watermark that's visible to you is usually imperceptible to your colleagues. For the highly trained eye, such as graphic designers and artists, a highly robust watermark will be slightly visible; however, our studies have confirmed that to the average consumer, watermarks are invisible with no negative impact on the quality of an image.

Printing Mobile Watermarks

The watermarking of images for detection by mobile devices is designed for commercial printing environments using industry standard process inks. Worth noting:

- "Process inks" refers to 4C (4 Color), a.k.a. CMYK (cyan, magenta, yellow, black tints) printing to product color images.
- "Commercial printing" refers to industry standard 4C printing solutions.
 - Web presses for larger press runs; newspapers, magazine, and other high-speed printing requirements.
 - Sheetfeed digital presses for shorter press runs; brochures, reports, books, packaging, etc.

Our experience has shown that the two processes used for image reproduction described below have the largest effect on how easily a watermark can be read. For the mobile watermark, the image quality of these two printing environments is the primary influence for how strongly you'll need to watermark your images.

- Newspaper quality printing focuses on high-speed, high-volume requirements and low-cost substrates (paper). This limits an image's dynamic range and the available colors used to create the image.
- Other commercial printing environments are able to reproduce images with a wider dynamic range and better quality. This typically results in a more accurate color reproduction than newsprint. We call this environment a liner printing environment.

Testing with Lower Quality Proofs

Sometimes circumstances may require that you use proofs from your own in-house printers instead of proofs from your commercial printer. In that case, you should be aware of some limitations:

- To print a CMYK image on an office printer, the image will typically be converted to RGB and then converted again to match the printer's ink configuration, which could use more than four inks. These successive conversions can make the watermark more visible or less detectable than in the final production images.
- The colors produced by your in-house printer will likely not closely match the colors produced on the commercial press.

These issues don't necessarily mean that you can't use your in-house printer to proof your images. They do mean that you have to account for the differences. Possibilities for this include the following:

- There are raster image processors (RIPS) available for most inkjet printers that support printer profiles and do not require converting the image from CMYK.
- If your in-house printer supports profiles, you can adjust it to match output from the commercial press.

To match the commercial press, you will need either images from your first print run or proofs from your commercial printer. Based on these, you may be able to adjust your in-house printer's profile to match the commercial press results, thus enabling you to proof future work in-house for a more efficient and less expensive workflow.

The [Appendix](#) contains the Digimarc Mobile Embedder User's Guide. Please visit the Appendix for more advanced watermarking techniques.

ADOBE® PHOTOSHOP® EMBEDDER PLUG-IN

In addition to embedding watermarks through the Online Services Portal, customers with business accounts may request to use the Photoshop Embedder plug-in. If you are interested in learning more about this embedding option, please contact Matthew Szerencse at matthew.szerencse@digimarc.com. Instructions on how to use the Photoshop Embedder are in the Digimarc Mobile Embedder User's Guide located in the Appendix. You will also find advanced watermarking techniques in the Digimarc Mobile Embedder User's Guide.

CUSTOM BRANDED MOBILE APPLICATIONS

How to Create Mobile Applications Under Your Brand

Digimarc offers two options for mobile app development:

- **Custom branded versions of the Digimarc Discover apps for iPhone and/or Android.**
Digimarc Discover Value-Added Partners can rebrand these mobile apps for your company, or we can provide the mobile apps to your development team for custom branding.
- **Incorporate the Digimarc Discover feature into your existing mobile app.**
If you already have a mobile app, you can easily add this high-value capability using the Digimarc software development kits (SDKs).

Please contact matthew.szerencse@digimarc.com, if you are interested in having a custom branded app developed.

Current Platforms Supported

Digimarc Discover mobile applications for the following platforms:

- iOS 4.0 and above (Digimarc Discover does not support iPhone 3G)
- Android 2.0 and above

Digimarc has SDKs available for the following platforms:

- iOS 4.0 and above
- Android 1.5 and above
- Symbian S60 3rd and 5th Edition

Digimarc has white label and custom apps available on the following platforms:



- iOS 4.0 and above
- Android 1.5 and above

FAQ

Please visit the Help & Resources page in the Digimarc Discover Online Services Portal – www.digimarc.com/portal – to see responses to Frequently Asked Questions (FAQ).

APPENDIX

Please visit the Help & Resources page in the Digimarc Discover Online Services Portal – www.digimarc.com/portal – to download the Digimarc Mobile Embedder User’s Guide. The Guide is located under Embedding Help.



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ABOUT DIGIMARC CORPORATION

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