Guide to Digimarc Watermarking Plug-in

for Adobe Illustrator

DIGIMARC

Contents

Introduction

Digimarc Watermarking Plug-in enables production designers and premedia professionals to create connected packaging and promotional materials by applying a Digimarc digital watermark to artwork.

The Watermarking Plug-in lets you easily add watermarks to vector or raster artwork elements that include special channels such as varnish and white ink. You can also use the Watermarking Plug-in to add single- or multi-channel watermarks to CMYK artwork.

When applying watermarks, the Watermarking Plug-in uses a different set of technologies than our other tools do, like the Digimarc for Packaging Adobe Illustrator Extension and the Digmarc Barcode Plug-in for Photoshop. Don't try to use the Watermarking Plug-in to apply watermarks to artwork that has already been watermarked using another plug-in. To apply the watermark to additional elements in an artwork file, use the same tool used originally.

Essential Concepts

Digimarc Watermarking Plug-in enables you to apply a Digimarc digital watermark to artwork elements in an Adobe Illustrator file. All elements must be embedded; the Watermarking Plug-in doesn't support placed, linked, or grouped objects. To watermark multi-channel or single-channel artwork elements, the element must also be rasterized.

The basic workflow is:

1 Create a digital twin using the Digimarc Illuminate Platform.

2 Add a digital watermark to the twin in Illuminate.

3 Add the digital twin to the artwork document. See Apply a Watermark.

4 Apply the watermark to the desired artwork elements and select the watermark options. See Apply Watermark Options.

When you watermark an artwork element, the selected digital watermark is applied as an *effect*, enabling you to experiment with different parameters to achieve optimal readability with minimal watermark visibility. For more information on effects, see the ⧉ Adobe Illustrator documentation.

Before you print the package or promotional material, use Digimarc Verify to confirm the watermark has been properly applied to the artwork. See the *Guide to Digimarc Verify for macOS* for instructions.

> **Best Practice**
> As a general rule, we recommend you supply press-ready files to Digimarc Verify. Verify checks for a watermark in all separations and how they interact with one another. Not including colors or not setting proper transparencies could impact the results. Accurate color correction, trapping, overprints, and so on produce the most accurate coverage maps and Verify data (watermarked channels, application ratings, fidelity points, and so on).

Watermark Ink Priority

Digimarc digital watermarks are more easily detected when they're placed in colors that are visible by the intended scanning device with the light source and sensor type it uses. The Watermarking Plug-in gives you options that are helpful in deciding what ink channels to prioritize for watermarking, based on your intended use case. For example, if your objective is to enable scanning with consumer apps on mobile devices, which use white light and RGB sensors, you would likely choose the YCK ink priority because watermarks in yellow are easily detected in a mobile environment but hard for humans to see. If your goal is to watermark packaging for use with retail point-of-sale scanners, you would probably choose CKY for the watermark ink priority because watermarks are more easily detected in cyan by the monochrome sensors under red light. For more information about the various use cases and the target devices, see "Selecting the Use Case Analysis" in the *Guide to Digimarc Verify for macOS*. For instructions on choosing the ink priority, see Apply Watermark Options.
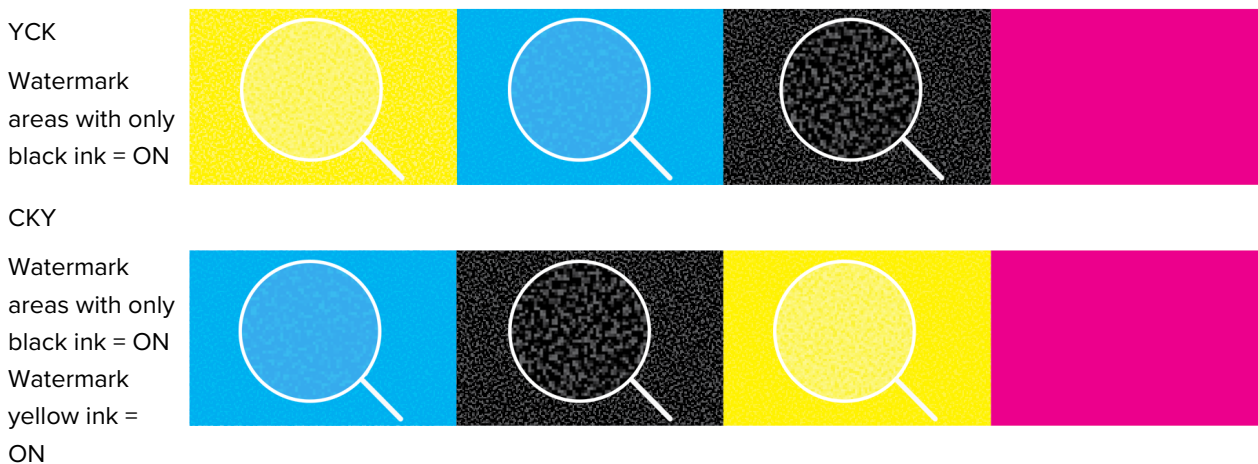
> **Note**
> The images below use the four pure process colors in a single layer for illustrative purposes. Magenta is watermarked with cyan and black in areas where it's mixed with other colors.

Table 1: Multi-channel technique with watermark options OFF

YCK Watermark areas with only black ink = OFF	
CKY Watermark areas with only black ink = OFF Watermark yellow ink = OFF	

The sample images in Table 1 show the result of choosing the different watermark ink priorities with the multi-channel technique and the black and yellow ink options disabled. The YCK image has the watermark in yellow and cyan. The CKY image has the watermark in only cyan.

Table 2: Multi-channel technique with watermark options ON

YCK Watermark areas with only black ink = ON	
CKY Watermark areas with only black ink = ON Watermark yellow ink = ON	

The sample images in Table **2** show the result of choosing the different watermark ink priorities with the multi-channel technique and the black and yellow ink options enabled. Both images have the watermark in cyan, black, and yellow.

In the multi-channel examples shown in Tables 1 and 2, pure magenta is not watermarked. You can apply a watermark to magenta-only elements by adding a cyan, yellow, or black tint. To watermark pure magenta without adding a tint, as shown in Table 3, select the YCK ink priority, the single channel technique, and the magenta channel.

Table 3: Single channel technique

YCK Channel = Magenta				
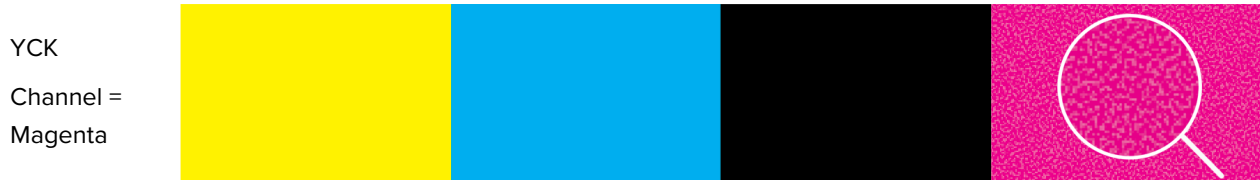
System Requirements

The Watermarking Plug-in requires:

- Multicore Intel processor with 64-bit support or ARM-based Apple silicon processor
- macOS 13 (Ventura) or macOS 14 (Sonoma)
- Adobe Illustrator 2023 or 2024
- 16 GB RAM
- 100 MB hard disk space available for installation
- Internet connection and a Digimarc Illuminate account with at least one subscription that supports digital watermarks

Document Conventions

Following are the standards and conventions used in this documentation. See the Glossary for terms related to digital watermarking.

Convention	Description
Numeric format	The fractional part of a numeric value is represented by the period character, such as pi $=^\sim$ 3.14
Elements in the user interface	Formatting: Text in bold
Titles of panels and dialogs	Formatting: Text in italics
User input (text that a user types)	Formatting: Text in a monospace font
File and directory paths	Formatting: Text in a monospace font
Variables or variable data	Formatting: Text in italics, often within angle brackets (< >)

Install the Plug-in

You download the Digimarc Watermarking Plug-in from the Help panel in Illuminate.

Before You Begin

Ensure you have credentials for logging in to the Digimarc Illuminate Platform.

To download and install the plug-in:

1 Log in to Illuminate.

2 Click the Help icon (❷) in the upper right corner of any screen and click **Digimarc Tools** in the help panel.

3   Click **Digimarc Watermarking Plug-in**. The `.pkg` file is saved to your default `Downloads` folder.

4   Quit Adobe Illustrator.

5   Double-click the downloaded `.pkg` file and step through the installer.

6   To install the Digimarc Watermarking Plug-in, you must accept the terms of the software license agreement. Click **Agree** to continue the installation.

Product Help

To see this guide within Illustrator, click the Help icon (⑦) on any Watermarking Plug-in panel.

Digimarc Support

For help using the Watermarking Plug-in, contact support.

- ↗ Digimarc Support Website
- Send email to Digimarc Support

Sign In to Digimarc Illuminate

The first time you launch the Digimarc Watermarking Plug-in, you're prompted to sign in to the plug-in and to Digimarc Illuminate.

After you sign in:

- If you close Adobe Illustrator, the next time you open Illustrator and choose **Effect** > **Digimarc** > **Watermark**, the extension automatically signs into the Watermarking Plug-in and Illuminate using your stored credentials.
- If you quit Illustrator or sign out of Illuminate, you must sign in again to apply or edit watermarks.

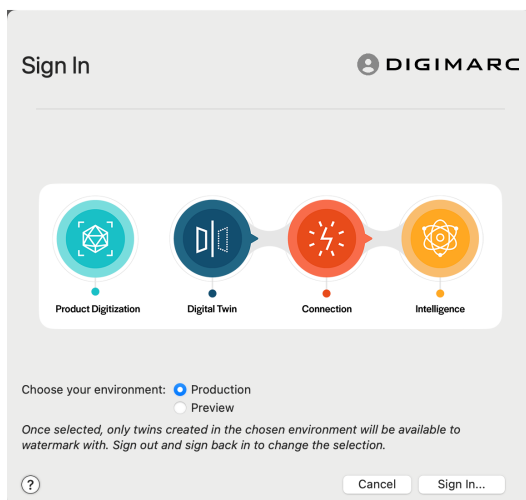To see the current user, right-click the green user icon (🟢) on any Watermarking Plug-in dialog.

> **Note**
> Your Illuminate account must have at least one subscription that supports digital watermarks, such as Illuminate or Validate Packaging.

To sign in:

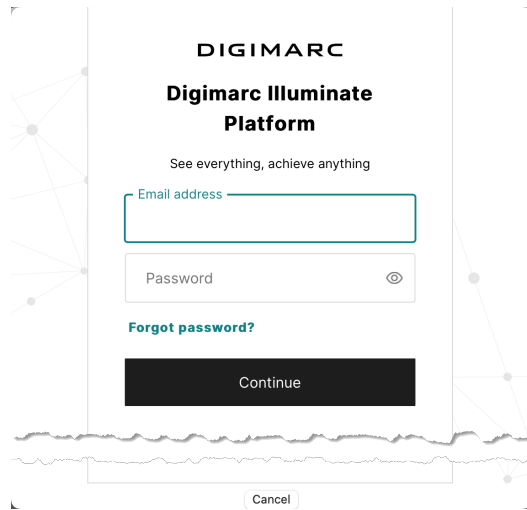1 When you choose **Effect** > **Digimarc** > **Watermark**, the Watermarking Plug-in *Sign In* dialog opens.

2 Select the Digimarc Illuminate environment from which you want to add a Digimarc digital watermark:

- **Production**: These watermarks are intended for production runs of the packaging and artwork. This is the default environment.

- **Preview**: These watermarks are for testing purposes.

> **IMPORTANT**
> Applications that read Digimarc digital watermarks, such as scanners and mobile devices, can read watermarks created only in the production environment. If you go to production with a watermark that was created in the preview environment, those devices won't be able to read it.

3 Click **Sign In**. The Digimarc Illuminate Platform sign-in dialog opens.

4 Enter the **Email address** and **Password** associated with your Illuminate account.

5 Click **Continue**.

6 The first time you sign in to Illuminate, you're asked to authorize the application to access your Illuminate account. To continue, click **Accept**.

To change the environment, sign out and repeat these steps. If you have problems signing in, contact your Illuminate account administrator for help.

Next Step

After you've signed in, you can Apply a Watermark.

Sign Out of Illuminate

After completing your work, you can sign out of Illuminate or stay signed in. If you sign out, your stored credentials are removed and you must sign in again to continue working with digital watermarks.

To sign out:

1 Right-click the green user icon ( ) on any Watermarking Plug-in dialog.

2 Click **Sign Out**. Your stored credentials are removed.

Apply a Watermark

The Digimarc Watermarking Plug-in enables you to apply a Digimarc digital watermark to one or more artwork elements.

Before You Begin

Sign In to Digimarc Illuminate with an account that has at least one subscription that supports digital watermarks, such as Illuminate, Validate Packaging, or Recycle.

If you're watermarking rasterized elements, be sure they're 300–900 DPI.

To apply a watermark:

1 Open the Adobe Illustrator file (`.ai`) that contains the unmarked artwork to be watermarked.

2 Select the artwork element(s) to be watermarked. Each element is watermarked with the same digital twin.

> **Note**
>
> You can apply the watermark to multiple vector artwork elements at a time or a single raster element. If you select a mix of raster and vector elements, the Watermarking Plug-in displays an error (see Troubleshooting). Select the vector and raster elements separately to perform the steps below.

3 Navigate to **Effect** > **Digimarc** > **Watermark**. The *Search* dialog opens, enabling you specify the digital twin to apply.
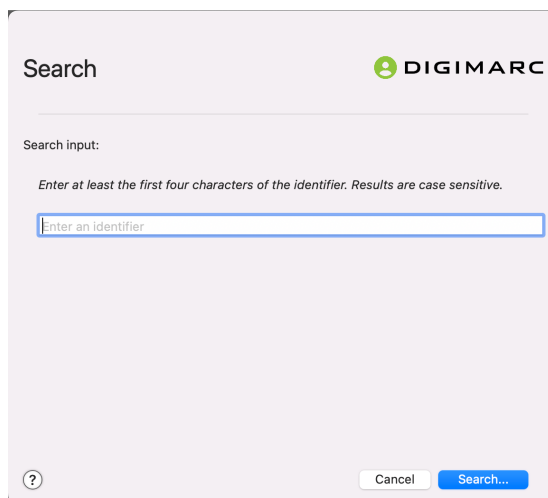
4   Type the GTIN or other identifier into the **Search input** field.

   • Searches don't need to match entirely, but the search text must be an exact substring beginning with the first four characters of the identifier.

   > **Tip**
   > If you're using a GTIN shorter than 14 digits, Illuminate pads the identifier with leading zeros, but you don't need to enter them in the search field. For example, if your UPC-E or EAN-8 is 99991234 and the digital twin's GTIN is 00000099991234, searching for 9999 returns the correct twin. Searching for 1234 does not.

   • The search is case sensitive. Searching for ABCD produces different results than searching for abcd.
   • You can search for a product's primary identifier, variant ID, or promotional asset ID. Variant digital twins can be found only by their unique variant ID.

5   Click **Search**.

   • If one matching twin is found, the *Details* panel opens.
   • If more than one matching twin is found, the *Twin Select* panel opens. Up to 25 twins are displayed. To narrow the results, click ⊕ **Back** and refine the search. Results could span any of the accounts to which you have access.

Twin Select

Digital twins are listed in order by their creation date, with the most recently created twin at the top. The digital twin you select will be applied to all watermarked elements in the file.

1   Select a digital twin from the list.
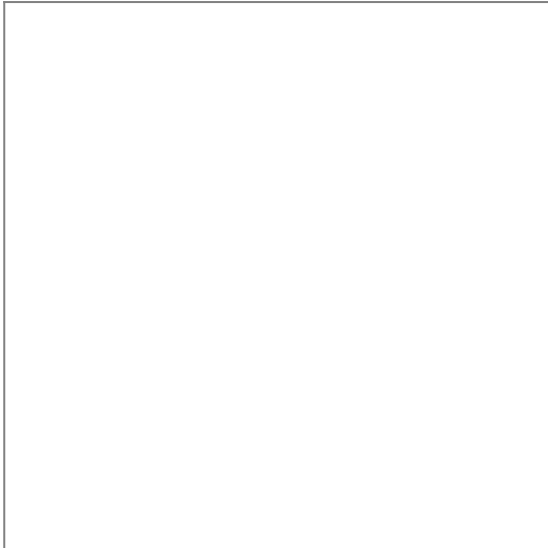
   If you don't see the desired twin, or if any of the details are incorrect:

   1.1   Update the digital watermark information on the Illuminate Platform.
   For instructions on creating and updating twins, refer to the user's guide for your Platform subscription.

   1.2   Return to the plug-in and click ⊕ **Back** to search again.

2   Click **Continue**. The *Details* panel opens.

Details

The Details panel displays the details for the selected digital twin. You choose the watermark resolution before setting the remaining watermarking options.

To set the resolution:

1   Click the option for the desired **Watermark resolution.** The watermark resolution is measured in watermarking elements (waxel) per inch (WPI) and can be set to 150 WPI (the default) or 75 WPI. The chosen resolution is preselected the next time you watermark an element in this file.
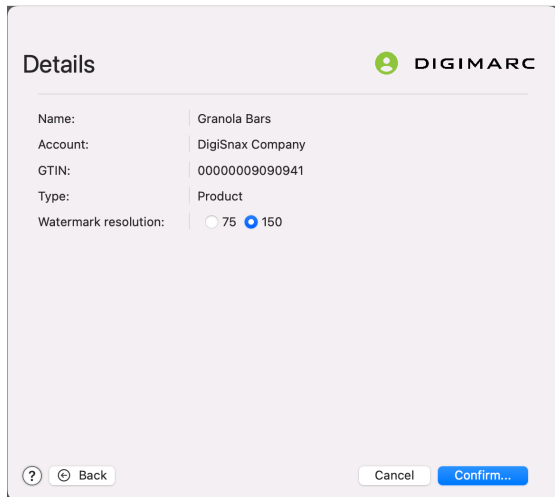
2   Review the details and click **Confirm**.

> **Note**
> After you confirm, the resolution can't be changed, even if you remove the effect and reapply it.

The *Watermark Options* panel opens. See Apply Watermark Options.

Apply Watermark Options

The *Watermark Options* dialog is where you set the pattern type or watermark strength and the corresponding options. The options vary, depending on whether the artwork element is vector or raster. Artwork for a package can contain both vector and raster elements, but the watermarks are applied differently.

Vector Binary Options

These options are specific to the binary pattern watermark and a vector element. If you want a single- or multi-channel watermark, use the Rasterized Options with a rasterized element.
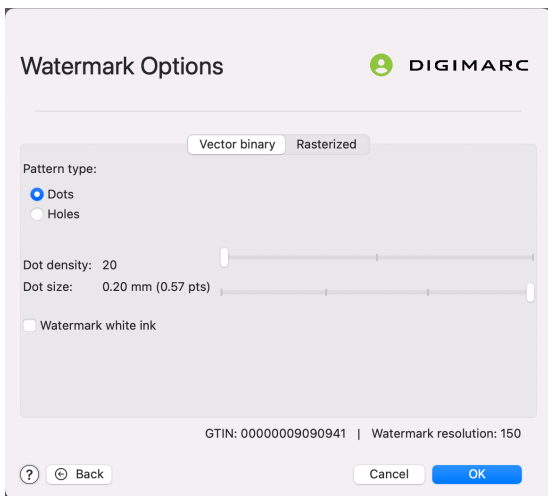
1 Select the desired **Pattern type**. For more information about the pattern types, visit our ↗ Center of Digimarc Education.
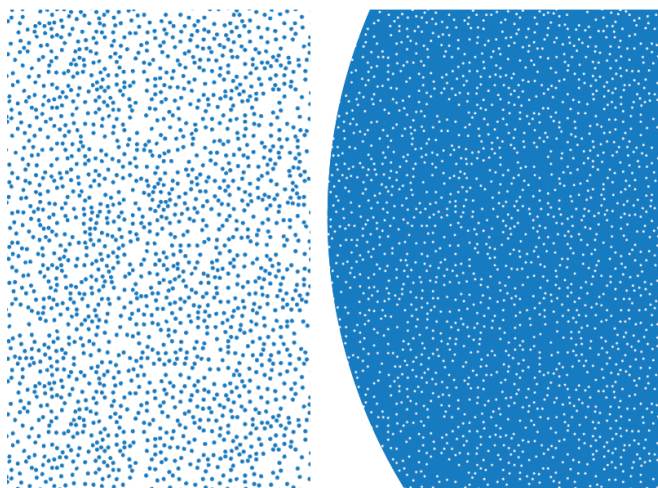
The left image was created using dots. The right image was created using holes.

Dots

Applies the watermark as dots of ink created by removing background from the artwork element(s).

Holes

Applies the watermark by removing dots (making holes) in the artwork element(s).

2 Select the desired **Dot density** or **Hole density**. Density determines how close the dots or holes are together. Choices vary, depending on the WPI setting.

Waxels per inch	Valid values	Default
75 WPI	35, 40, 45	40
150 WPI	20, 25, 30	20

3   Select the desired **Dot size** or **Hole size**. The dot or hole size determines the size of the individual dots or holes. Choices vary, depending on the selected pattern type.

Pattern type	Valid values	Default
Dots	0.05mm–0.20mm	0.20mm
Holes	0.05mm–0.30mm	0.20mm

> **Note**
> For watermarks using 150 WPI, when the hole size is 0.25mm or greater, the maximum hole density is 20.

4   If you're watermarking white ink, enable the **Watermark white ink** option. For information on white ink watermarking, see the ⬀ Center of Digimarc Education.

5   Click **OK**. The Watermarking Plug-in applies the watermark to the selected artwork element(s).

You can apply the watermark with the same options to another vector element by selecting **Effect** > **Apply Watermark** from the menu.

Rasterized Options

These options are specific to the multi-channel or single-channel watermark technique and a rasterized element. If you want a binary pattern watermark, use the Vector Binary Options with a vector element.

> **Note**
> Artwork elements must be rasterized using the **Object** > **Rasterize** menu option. See Troubleshooting.
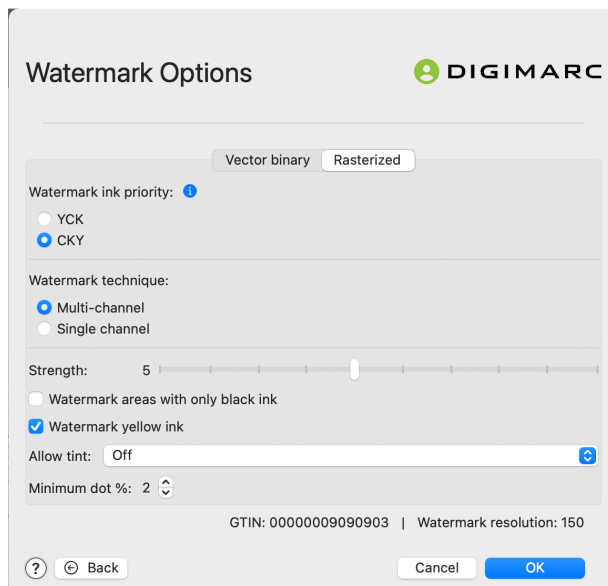
Example of CKY ink priority with multi-channel options
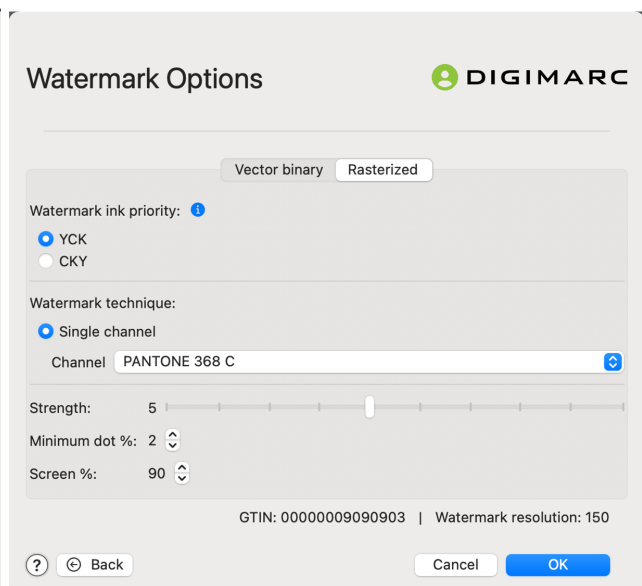
Example of YCK ink priority with single channel options for a spot color

1 Select the **Watermark ink priority**. Ink priority affects how the watermark is applied in each color channel. The available channels are more limited for single-channel watermarks and tints. Options are:

- **YCK**: If yellow is found, it receives the watermark. If it's not, the tool applies the watermarks to cyan. If cyan's not found, the tool applies the watermark to black.
- **CKY**: If cyan is found, it receives the watermark. If it's not, the tool applies the watermark to black. If black's not found, the tool applies the watermark to yellow.

2 For the **Watermark technique**, you can select Multi-channel or Single channel. The other options vary depending on your selection.

- For the Single channel option, select the color **Channel**. If the element uses process colors, the color options depend on the Watermark ink priority setting:

Ink priority	Available color channels
YCK	• Magenta • Yellow • Black
CKY	• Cyan • Black

- For the Multi-channel option:

    2.1 Indicate whether you want to **Watermark areas with only black ink**. When selected, areas with only black pixels above minimum dot, such as drop shadows, will be watermarked.

    2.2 If CKY is selected for the Watermark ink priority, indicate whether you want to **Watermark yellow ink**. This option is selected by default. If unselected, yellow ink is ignored and doesn't receive a watermark. Other colors aren't affected.

    2.3 For the **Allow tint** parameter, choose a color to add as a tint when no other viable ink is available above minimum dot. For the YCK watermark ink priority, the choices are:
    - **Off**: Does not add tint to the element for watermarking
    - **Cyan**: Adds a cyan tint to the element in which to place the watermark
    - **Yellow**: Adds a yellow tint to the element in which to place the watermark
    - **Black**: If **Watermark areas with only black ink** is enabled, this option is available and adds a black tint to elements in which to place the watermark

    For the CKY ink priority, the choices are:
    - **Off**: Does not add tint to the element for watermarking
    - **Cyan**: Adds a cyan tint to the element in which to place the watermark
    - **Black**: If **Watermark areas with only black ink** is enabled, this option is available and adds a black tint to elements in which to place the watermark

3 Select the desired **Strength** in the range 1–10. The strength determines how visible and easily detectable the watermark is. The higher the number, the more visible it is.

4 Select the **Minimum dot %**. The default value is 2. When using the Single channel technique for multi-color images, setting Minimum dot to 0 adds the watermark in the selected color where ink of any color is present, leaving zero ink areas unchanged.

5   If you're using the Single channel technique on a spot color, select the **Screen %**. The default is 90%. Spot colors are reduced from 100% to the specified value of Screen % before watermarking. If the Screen % is higher than the original screened value, the spot color won't be changed.

6   Click **OK**. The Watermarking Plug-in applies the watermark to the selected artwork element.

You can apply the watermark with the same Multi-channel options to another raster element by selecting **Effect** > **Apply Watermark** from the menu. To apply the same single channel options to another artwork element, navigate to **Effect** > **Digimarc** > **Watermark** and repeat these steps; the Effect > Apply Watermark option isn't available for the Single channel technique.

Edit Watermark Options

To edit the options for a watermarked artwork element(s):

1   Select the desired artwork element(s).

2   Click the effect in the *Appearance* panel to open the relevant *Watermark Options* dialog.
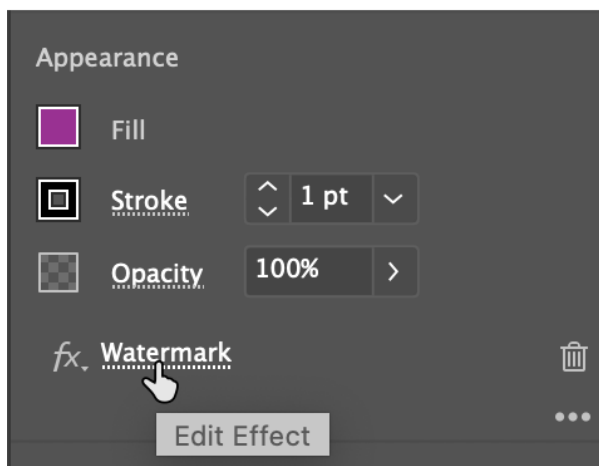
3   Change the desired watermarking options as described in Raster Options or Vector Options.

Next Steps

Use Digimarc Verify to confirm the watermark has been properly applied to the packaging artwork. See the *Guide to Digimarc Verify for macOS* for instructions.

The Watermarking Plug-in Panel

Using the Watermarking Plug-in panel, you can see the artwork elements in the document that have watermarks. To open this dockable panel, go to **Window** > **Digimarc** > **Digimarc Watermarking Panel**.

> **Note**
> The panel's row, headings, and button colors are determined by your system preferences.

By default, the watermarked elements are listed in the order they appear in the Layers panel. Elements that contain no watermark aren't listed.

- To sort the elements by alphabetical order, click the **Name** column. Each time you click the Name column, the sort order reverses.
- To sort the elements by type (raster or vector), click the **Parameters** column. Each time you click the Parameters column, the sort order reverses.
- To refresh the list of watermarked elements and parameters and reset the original sort order, click **Refresh watermarked element list** (↻).
- To select the element in the Layers panel, double-click the element name, or click the element name and then click **Go to element** (⊕).

Parameters

For each element, the Parameters column lists the watermark parameters that were applied. The table below describes each symbol and abbreviation.

Symbol	Description
	Vector element
	Raster element
	Dots pattern type
	Holes pattern type
DD#	Dot density value
DS#	Dot size value
HD#	Hole density value
HS#	Hole size value
White Ink	Watermark white ink is enabled
Y C K	YCK ink priority and multi-channel technique
C K Y	CKY ink priority and multi-channel technique
M	Single channel technique with magenta
	Watermarked spot color
S#	Strength value
WK	Watermark areas with only black ink is enabled
WY	Watermark yellow ink is enabled
AT Y	Allow tint with yellow
MD#	Minimum dot % value
SP#	Screen % value

Known Limitations

When working with the Digimarc Watermarking Plug-in, keep these limitations in mind.

Plug-in Compatibility

The technologies used in the Digimarc for Packaging Adobe Illustrator Extension aren't compatible with those used in the Watermarking Plug-in.

Gradients

For rasterized elements, digital watermarks might require a higher dot density setting to be reliably detected in gradients.

Gradients within vector elements are unsupported.

Workflows to Avoid After Watermarking

To avoid placing the artwork file in a state that exposes known issues, it's critical that designers complete the artwork design, layout, and layer structure before using the Watermarking Plug-in. Avoid the following post-watermarking workflows:

- Color correction

- Unembedding watermarked links

- Embedding outside-watermarked links from other applications, such as Photoshop or the Digimarc for Packaging Adobe Illustrator Extension

Watermarking Panel Colors Are Unexpected

Because the Illustrator user interface settings aren't synced with the macOS system preferences, the color scheme of the rows and headers in the Digimarc Watermarking Panel might appear mismatched. The panel itself follows Illustrator settings, while the rows and headers follow your system preference settings.

Troubleshooting

If you see errors or are having trouble using the Watermarking Plug-in, consult this section for suggested remedies. If you need further assistance, see Product Help.

Unsupported Selection

You will see this error if you:

- select both raster and vector artwork elements to watermark in one operation

    - Select only vector elements or one raster element before applying the watermark. Artwork can contain both vector and raster elements, but the watermarks are applied differently. See Apply Watermark Options.

- try to watermark more than one raster element at a time

- try to watermark a raster element that's less than 300 DPI or greater than 900 DPI

    - Increase or decrease the element's resolution before applying the watermark.

- try to watermark a group

    - Double-click an element within the group to enter isolation mode. You can then apply the watermark to a single element in the group or multi-select vector elements to apply the watermark to them at one time.

    - Alternatively, you can ungroup the elements before applying the watermark.

Watermark Options Cannot Be Applied to Selected Art Type

You will see this error if you use the **Effect** > **Apply Watermark** option

- for a raster element after applying a watermark to a vector element

- for a vector element after applying a watermark to a raster element

Instead, use **Effect** > **Digimarc** > **Watermark** and choose the watermark options for the selected artwork type.

Watermark Conflict

You will see this error if you try to watermark a document with the Watermarking Plug-in that has already been watermarked using another Digimarc tool, such as the Digimarc for Packaging Adobe Illustrator Extension. See Known Limitations. To apply the watermark to additional artwork elements in the document, use the same tool that was initially used.

Watermark Is Missing After Resizing an Element

The Watermarking Plug-in removes the watermark from raster elements that are resized because of the way the DPI is affected. Avoid resizing raster elements after applying the watermark. See Apply a Watermark.

Raster Options Aren't Available for a Rasterized Element

To apply the raster watermarking options, be sure artwork elements were rasterized using the **Object** > **Rasterize** menu option. In Illustrator, the **Effect** > **Rasterize** option is a non-destructive simulation that doesn't actually rasterize the element; it's still a vector element for which the Watermarking Plug-in displays only the vector binary watermarking options.

Element Color Is Removed from Spot Color Elements

If an element containing only a single spot color is watermarked, after closing and reopening the document, removing the watermark effect also removes the element's color. The watermark can be edited, but if it's removed, the element's color is also removed. This is caused by a reported defect in Adobe Illustrator. If you've reopened the document, we recommend you avoid removing a watermark effect from elements that contain only a spot color.

Single Channel Watermark Parameters Can't Be Applied to This Element as Selected

You will see this error if

- you watermark a single-channel element and then try to apply the watermark to a new raster element using **Effect** > **Apply Watermark**. The watermark is not applied to the new element. Instead, use **Effect** > **Digimarc** > **Watermark** and choose the watermark options for the selected artwork type.

- you try to add a second single-channel watermark to a raster element. The existing watermark is removed.

Version History

v2.1

New features

- **CKY ink priority**: Users now have the option to choose between two different ink priorities, YCK and CKY. These choices determine the priority in which ink channels are watermarked. Ink priority choice affects the tint and single channel ink options and affects how spot colors are watermarked.
- **Single-channel watermarking**: Single channel options enable you to watermark just one channel, if desired, as well as spot colors. Channels available for watermarking with this technique are determined by the selected ink priority.
- **Watermarking Plug-in Panel**: The new Watermarking Plug-in Panel displays a document's watermarked elements and their selected parameters in a list view.
- **Preview environment access**: You can now access digital twins created in the Illuminate preview environment. Before signing in, you can choose between production and preview environments.

Updates

- **Minimum size removed**: The minimum size requirement has been removed. Elements of any size can now be watermarked, but rasterized elements must use square DPI (artwork must have the same horizontal and vertical resolution).

v2.0

- Initial release

Glossary

artwork

The elements of design and text that makeup packaging, labels, or other visual media, in which a Digimarc digital watermark is or will be included.

barcode

The generic term for an optically machine-readable pattern that encodes data in a way that is generally not recognizable to human observation. Barcodes include one-dimensional symbols that encode data into a machine-readable pattern of adjacent, varying width, parallel, dark rectangular bars and pale spaces, and 2-Dimensional Symbols that encode data in the X and Y-axes (sometimes referred to as a 2D barcode), for example, in the case of a QR Code, Data Matrix, and Digimarc digital watermarks.

binary pattern

A form of Digimarc Barcode consisting of a sparse pattern of dots.

DeltaE

A measure of how noticeable the difference is between the overlay and the original spot color, where a DeltaE of 2.3 is barely noticeable and higher DeltaE values are more noticeable. DeltaE is shorthand for the standard CIE ΔE^*ab, which is the Euclidean distance between two colors in the perceptually uniform device-independent color space, CIELAB.

Digimarc digital watermark

A novel data carrier that encodes data in media in ways that are generally imperceptible to people, permitting the carrier to be repeated many times over the surface of the Enhanced media. It delivers unprecedented ease of use, reliability, and efficiency in identifying the media due to massive mathematical and graphical redundancy.

digital twin

A digital counterpart of a physical product comprising events and attributes from and about the product. The behavior of the digital twin is customized to deliver an experience that benefits customers and brands across a wide variety of digital applications.

digital watermark

In this guide, digital watermark refers specifically to the Digimarc digital watermark.

dot density

The density of dots per tile in a binary pattern expressed as a percentage of a maximum number of waxels that contain a dot. The maximum number of waxels that can contain a dot marking in a Tile of a binary pattern is 50%. A dot density of 20 means that 10% (20%*50%) of the waxels in a tile contain a dot marking.

dot size

The width of a dot in pixels at the enhancement resolution in binary enhancement. The enhancement resolution is expressed in pixels at a resolution in DPI. If the WPI is 75, and the enhancement resolution is 300 DPI, then there are 4 by 4 pixels per waxel. Dot size 2, for example, is a dot comprised of two by two pixels.

minimum dot

The minimum dot percent that can be held at press. Often abbreviated as "min dot." Min dot is affected by factors such as the printing process, different plating technologies, and the substrates being printed on. For example, a flexographic printer might have a min dot of 2, meaning a 2% dot is the smallest dot they can successfully print at press.

negative binary pattern

A sparse pattern of Digimarc Barcode comprised of light dots or holes in a darker background. A Negative Binary Pattern is not an inversion of the dark dots in a Positive Binary Pattern of the same Digimarc digital watermark.

positive binary pattern

A sparse pattern of Digimarc Barcode consisting of dark dots on a lighter background. This technique places dark dots at the darkest waxels within a tile.

process color

A color comprised of percentages of cyan, magenta, yellow, and black (CMYK) typically printed with halftone printing plates. A type of color model, similar to additive color, which involves "process" colors that are a combination of cyan, magenta, yellow, and black, or CMYK inks. Each process color is comprised of percentages of cyan, magenta, yellow, and black inks. Extended gamut includes additional colors, such as orange, green, and violet. From Pantone: achieving color in printing is referred to as CMYK, four–color process, 4/c process or even just process. To reproduce a color image, a file is separated into four different colors: Cyan (C), Magenta (M), Yellow (Y), and Black (K).

spot color

A color generated by an ink (pure or mixed) that is printed using a single run. This is different from a process color, which is produced by overlaying a series of dots on multiple impressions using different colors.

strength

The suggested technique assumes a default strength of 5. Use the slider to view suggestions for other enhancement strengths. Some colors can be enhanced better at certain strengths.

substrate

The base material to be printed on.

tile

The fundamental unit of Digimarc watermarks, which is repeated in whole or in part across artwork or a label.

unmarked

Artwork that has not yet been enhanced with a digital watermark.

verification

The process of checking that the data carried in Digimarc digital watermark is both accurate and consistent.

watermarking element

A spatial cell in a tile to which a component of a message and synchronization signal can be mapped. Abbreviated as "waxel."

waxel

A spatial cell in a tile to which a component of a message and synchronization signal may be mapped. Waxel is short for "watermarking element."

white ink watermarking

Watermarking white ink is considered an advanced technique that requires specialized training from our Center of Digimarc Education.

WPI

The resolution of a Digimarc digital watermark represented as waxels per inch.