Guide to Digimarc for Packaging Extension for Adobe Illustrator

Introduction

Digimarc for Packaging is an extension for Adobe® Illustrator® that enables production designers and premedia professionals to create connected packaging by enhancing packaging artwork with Digimarc Barcode.

Essential Concepts

Digimarc for Packaging enables you to apply Digimarc Barcode to qualified layers of artwork in an Illustrator file. A qualified layer contains artwork that has been embedded and then rasterized at 300 DPI. For example, if a layer links to an external Photoshop image, you must embed and rasterize the layer before enhancing it. If a layer consists of vector artwork such as an area containing a spot color, you only need to rasterize it.

When you enhance a layer, Digimarc Barcode is applied to an automatically-generated duplicate of the original layer, leaving the original layer unchanged, enabling you to experiment with different enhancement techniques and parameters to achieve optimal readability with minimal visibility of Digimarc Barcode.

Related Reading

For more information on enhancing packaging with Digimarc Barcode, see the following guides:

- **Techniques for Enhancing Packaging with Digimarc Barcode** presents techniques for those enhancing packaging.

- **Enhancing Your Brand with Digimarc Barcode** discusses Digimarc Barcode technology and its interactions with printing processes, package design, scanners, smartphone cameras, and more.

System Requirements

Digimarc for Packaging requires:

- macOS 10.12 or later

- Adobe Illustrator CC 2017 or later

Contents

Launch the Extension

Open Digimarc for Packaging by navigating to **Window** > **Digimarc** > **Digimarc for Packaging**.

View Digimarc for Packaging Help

You can view this document within Illustrator by navigating to **Help** > **Digimarc** > **Digimarc for Packaging**.

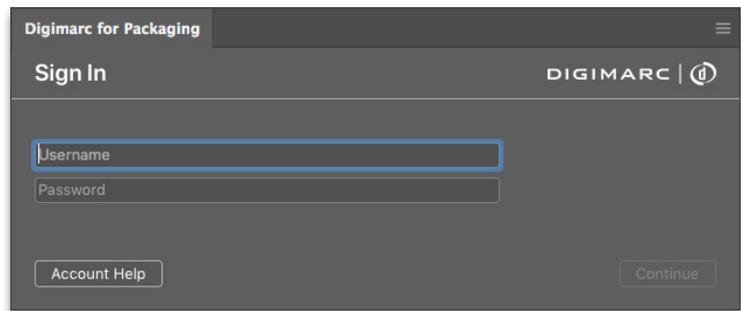## Sign In to Digimarc Barcode Manager

When you launch Digimarc for Packaging for the first time, or if you have previously signed out, you are prompted to Sign In to the Digimarc Barcode Manager.

To sign in, enter a **Username** and **Password** associated with the account that has access to the GTIN-14, UPC-E, or GIAI code to be added to the artwork, and then click **Continue**.

If you have difficulty signing in, click **Account Help** to open the Digimarc Barcode Manager in your web browser. For more information, see the *Guide to Digimarc Barcode Manager*.

Once you sign in, your credentials are stored in the keychain. The next time you open Adobe Illustrator the extension automatically signs in to the Digimarc Barcode Manager using the stored credentials.

If you want to sign out of the Digimarc Barcode Manager, click the Digimarc for Packaging panel menu and select **Sign Out**. This removes stored credentials and requires you to sign in again.
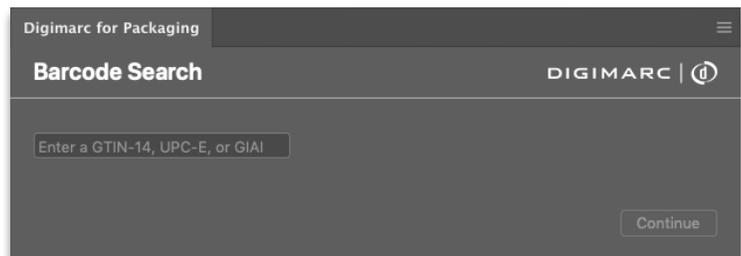
Barcode Search

The Barcode Search is displayed if you are signed in to the Digimarc Barcode Manager and are working with a document that does not already have a Digimarc Barcode associated with it.

Enter a valid GTIN-14, UPC-E, or GIAI, and then click **Search**. The extension searches through all your associated accounts for a matching Digimarc Barcode.

If multiple results are found, you are prompted to select the one you want.
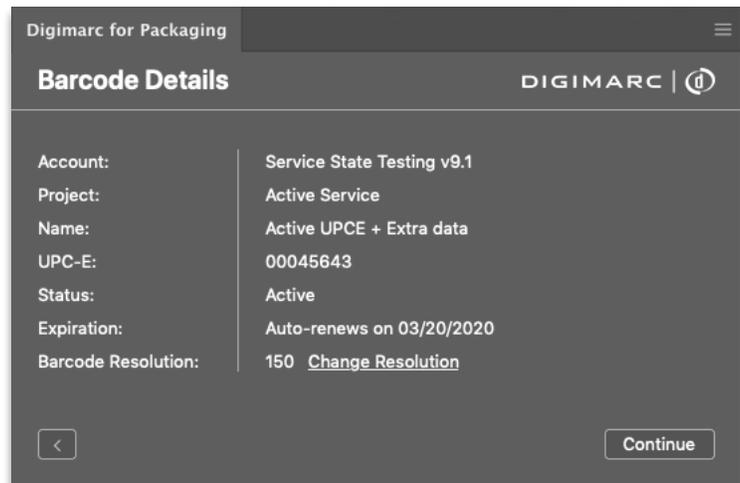
Barcode Details

If a Digimarc Barcode is found, or if the artwork already has a Digimarc Barcode associated with it, the Barcode Details view opens.

Barcode Resolution: The Digimarc Barcode Resolution is measured in watermark elements per inch (WPI) and may be set at 150 WPI (the default) or 75 WPI. Click **Change Resolution** and select either 75 or 150. This resolution will also be preselected the next time you begin enhancing a file.

Review the details, and then click **Continue**.

If a Digimarc Barcode is not found, or if there are any issues, a message displays with more information.
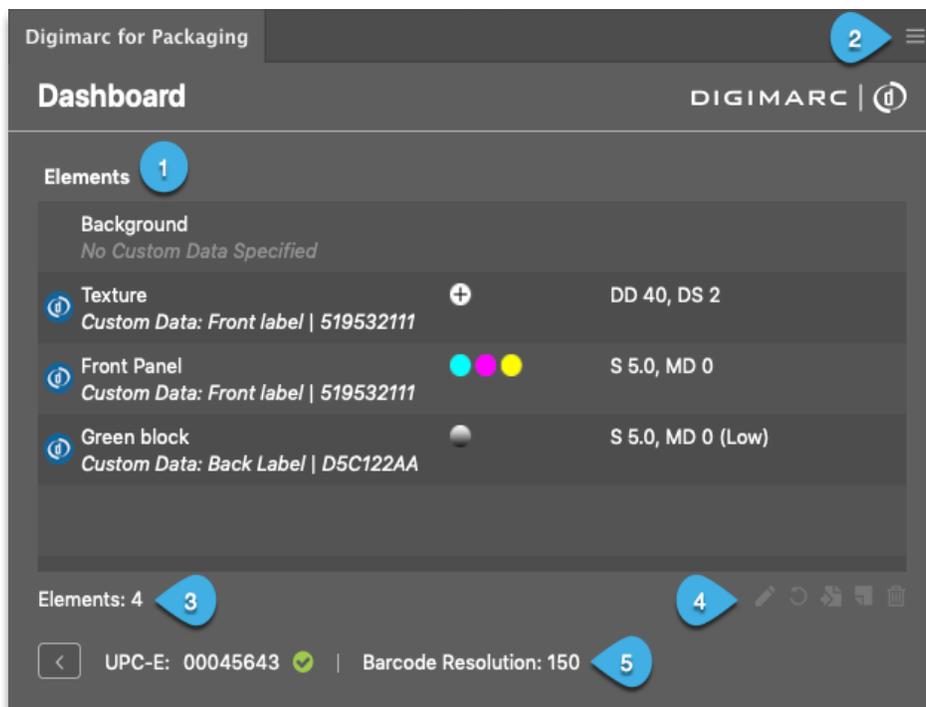
NOTE: Once you continue to the Dashboard, the barcode details and resolution cannot be changed.

The Dashboard

The **Dashboard** is where you manage artwork elements for enhancement.

NOTE: Depending on the barcode type (Packaging, GIAI, or Packaging + Custom Field) your Dashboard and Enhancement Options will look slightly different than shown here.

1 The **Elements** panel lists the selected elements and their status:

- A blue Digimarc icon indicates an enhanced element.

- A gray Digimarc icon indicates a configured, unenhanced element.

- No icon indicates an unconfigured, unenhanced element.

The **Technique** column displays the enhancement technique specified in **Enhancement Options**:

- Process color icons indicate the multi-channel technique applied in the CMY, CMYK, or MYK channels.

- Plus and minus icons indicate positive or negative binary techniques.

- A gray gradient icon indicates the single channel technique.

The **Parameters** column displays the enhancement parameters specified in <u>Enhancement Options</u>:

- **S** indicates the enhancement strength.

- **MD** indicates the minimum dot percentage.

- **(Low)**, **(Med)**, and **(High)** indicate the setting selected for <u>Reduce near Min Dot</u>.

- **Zero Ink** indicates <u>Protect Zero Ink</u> is selected.

- **HL** indicates <u>Reduce in Highlights</u> is selected.

- **DD** indicates the dot density of a binary pattern.

- **DS** indicates the dot size of a binary pattern.

2   The panel menu allows you to sign out of the Digimarc Barcode Manager.

3   The **Elements** field displays the number of elements in the **Dashboard**.

4   Buttons are enabled only when applicable:

Edit Enhancement Options – Opens the **Enhancement Options** window to modify settings of the selected element. You can also open the **Enhancement Options** dialog by double-clicking an element.

Delete Enhanced Layer – Deletes the enhanced layer of the selected element from the **Layers** palette. The selected element's status changes from blue to gray, but retains its enhancement settings.

Go to Element – Selects the layer corresponding to the selected element in the **Layers** palette. If the selected element has been enhanced, the enhanced layer is selected instead.

Add Targeted Element – Adds the currently selected qualified layer in the **Layers** panel to the **Elements** list.

Remove Element from Dashboard – Deletes the selected element from the Dashboard. Enhancement options and enhanced layers are also removed.

5   The **GTIN-14/UPC-E/GIAI** field displays the Digimarc Barcode associated with this document. A green check mark indicates a valid GTIN-14, UPC-E, or GIAI; a red X indicates an invalid or incomplete value. The **Barcode Resolution** field displays the Digimarc Barcode Resolution previously selected in the Barcode Details. Click **Back** to view the Barcode Details.

Enhancement Options

The Enhancement Options window presents a choice of **Enhancement Techniques**: **Multi-Channel**, **Single Channel**, or **Binary**. The available **Enhancement Parameters** change depending on the chosen technique. The multi-channel technique is available only if a process color element is selected. The single channel and binary techniques are always present.

Multi-Channel Enhancement

1   Select the **Multi-Channel** technique, and then select the color channels to enhance: **CMY**, **CMYK**, or **MYK**. Dots in the upper-right corner indicate the selected channels.

2   The **Enhancement Parameters** are:

- **Strength** – Controls the strength of Digimarc Barcode. When enhancing at 150 WPI, the strength slider displays values in half-strength increments from .5 to 10. At 75 WPI, the strength slider displays whole values from 1 to 10.

- **Minimum Dot %** – Specifies the minimum dot as supplied by your printer.

- **Reduce near Min Dot** – Compresses a range of pixels based on a preset curve. Based on the setting compression is applied as pixels approach min dot, creating a blending effect in a specific range using the following formula:

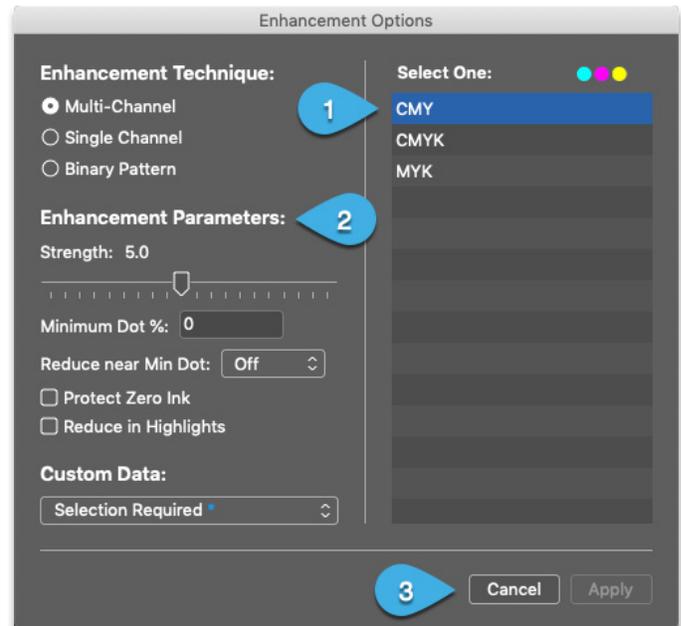   **Off**: No compression

    Low: (Min dot * 2) + 5

    Medium: (Min dot * 2) + 10

    High: (Min dot * 2) + 15

- **Protect Zero Ink** – Controls whether enhancement is applied in areas the color of the substrate.

- **Reduce in Highlights** – Available for CMY enhancement only, this option minimizes enhancement in highlight areas. This reduces the need for art elements to go through an additional step of highlight reduction in Photoshop after enhancement in Illustrator.

- **Custom Data** – Select the Custom Data for the selected element from the drop-down menu. If there is only one custom data entry, it is automatically selected.

NOTE: *The Custom Data drop-down is only visible if the barcode type is Packaging + Custom Field.*

3   Click **Apply** to enhance the selected element; click **Cancel** to exit.
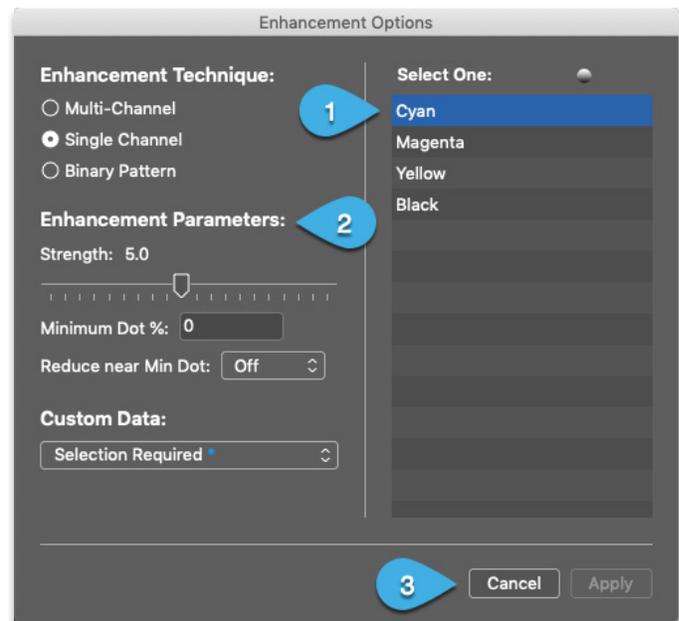
Single Channel Enhancement

1   Select the **Single Channel** technique, and then select the channel to enhance.

2   The **Enhancement Parameters** are:

-   **Strength** – Controls the strength of Digimarc Barcode. When enhancing at 150 WPI, the strength slider displays values in half-strength increments from .5 to 10. At 75 WPI, the strength slider displays whole values from 1 to 10.

-   **Minimum Dot %** – Specifies the minimum dot as supplied by your printer.

-   **Reduce near Min Dot** – Compresses a range of pixels based on a preset curve. Based on the setting compression is applied as pixels approach min dot, creating a blending effect in a specific range using the following formula:

    Off: No compression

    Low: (Min dot * 2) + 5

    Medium: (Min dot * 2) + 10

    High: (Min dot * 2) + 15

-   **Custom Data** – Select the Custom Data for the selected element from the drop-down menu. If there is only one custom data entry, it is automatically selected.

NOTE: *The Custom Data drop-down is only visible if the barcode type is Packaging + Custom Field.*

3   Click **Apply** to enhance the selected element; click **Cancel** to exit.

Binary Pattern Enhancement

1   Select the **Binary Pattern** technique, and then select the channel to enhance.

2   The **Enhancement Parameters** are:

-   **Positive/Negative** – Select either a negative binary pattern (**White dots on black**) or a positive binary pattern (**Black dots on white**).

-   **Dot Density** – Set the density of the dot pattern.

-   **Dot Size** – Set the size of the dot pattern.

-   **Custom Data** – Select the Custom Data for the selected element from the drop-down menu. If there is only one custom data entry, it is automatically selected.

NOTE: *The Custom Data drop-down is only visible if the bar-code type is Packaging + Custom Field.*

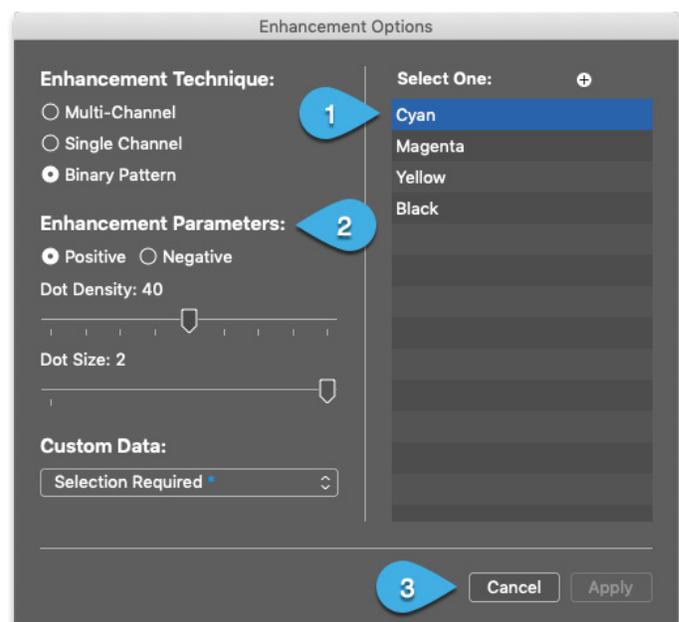3   Click **Apply** to enhance the selected element; click **Cancel** to exit.

Applying Enhancement

When you click **Apply** in the **Enhancement Options** dialog:

- The layer in the **Layers** palette that corresponds to the selected element is duplicated and the new layer has **_DM** appended to its name.

- Digimarc Barcode is applied in the duplicate layer.

- The original layer is unchanged.

If enhancement succeeds:

- The enhanced duplicate layer is retained.

- Any previously enhanced layer associated with the same original artwork is deleted.

- The **Dashboard** is updated with any changes made to the enhancement technique and parameters in the **Enhancement Options** dialog.

If enhancement fails:

- An alert appears informing you of the reason.

- The duplicate layer is deleted.

- Any previously enhanced layer associated with the same original layer is untouched.

- The **Dashboard** is not updated with changes made in the **Enhancement Options** dialog.

Additional Notes

- The elements and settings in the **Dashboard** are retained when the document is closed.

- The list of elements in the **Dashboard** is kept up-to-date regarding changes to the **Layers** palette. For example, if a layer corresponding to an element in the **Dashboard** is deleted from the **Layers** palette, the element is deleted from the **Dashboard**.

Known Limitations

To avoid placing the artwork file in a state that exposes known issues, it is critical that designers finalize the artwork design, layout, and layer structure before using the extension. The following post-enhancement workflows should be avoided:

- PPI adjustments and image scaling. To qualify an element for enhancement, elements must be rasterized at 300ppi and must not be scaled after enhancement.*

- Undo (Cmd + Z)*

- Deleting the original layer or separating it from the enhanced (DM) layer*

- Color correction

- Unembedding enhanced links

- Embedding outside-enhanced links from other applications such as Photoshop

NOTE: *Items marked with * are most relevant to prepress operators.*

Digimarc Color Advisor

Digimarc Color Advisor is an additional tool provided by Digimarc for Packaging to assist production designers and prepress specialists in selecting the best spot colors with which to enhance packaging with Digimarc Barcode or how best to work with a given spot color for readability by barcode scanners. These recommendations do not cover readability on mobile devices.

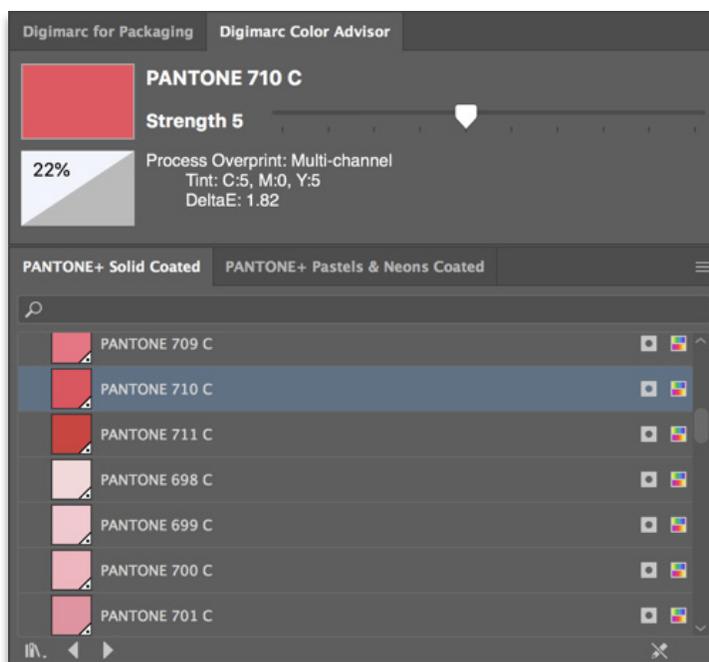Open Digimarc Color Advisor by navigating to **Window** > **Digimarc** > **Digimarc Color Advisor**

When you select a spot color, Digimarc Color Advisor displays the suggested technique for enhancing that color with Digimarc Barcode. The Digimarc Color Advisor contains data for spot colors from the **PANTONE+ Solid Coated** or **PANTONE+ Pastels & Neons Coated** swatch libraries (PANTONE GP1501 Plus Series Formula Guide Coated or PANTONE GG1504 Plus Series Pastels and Neons Coated).

NOTE: Digimarc Color Advisor is currently optimized for enhancing at 75 WPI and results may vary when enhancing at 150 WPI.

Definitions

- **PANTONE® Color Name:** The PANTONE MATCHING SYSTEM® is a tool allowing for the faithful selection, articulation, and reproduction of consistent, accurate color anywhere in the world. The tool organizes color standards through a numbering system and chip format.

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

- **Red Light Contrast**: Given as a percentage, this is the difference in reflectivity between paper white and solid ink of the light (660 nm wavelength) transmitted by barcode scanners. Contrasts between 20% and 80% indicate more easily enhanced colors.

- **Suggested Technique**: This is a suggested starting point for working with a particular tint, based on offset printing on white, coated paper, and assumes a GRACoL2006 profile. You may want to experiment with what works best for your particular color, substrate, and printing environment.

    - **Spot Direct: Screened**: This process varies the percentage of ink applied within areas covered by the spot color.

    - **Process Overprint: Multi-channel**: This process adds low percentages of cyan, magenta, and yellow (CMY) inks over the spot color. The suggested CMY tints are listed as well as the DeltaE.

    - **DeltaE**: DeltaE refers to how noticeable the difference is between the overlay and the original spot color, where a DeltaE of 2.3 is just noticeable and higher DeltaE values are more noticeable.

        NOTE: 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.