



Validate Packaging

User's Guide

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Introducing Digimarc Validate Packaging

The Illuminate™ Platform enables you to create digital watermarks that you can add discretely to product packaging using the Digimarc Watermarking Plug-in for Adobe Illustrator or one of our software development kits.

Digital watermarking is the science of hiding information about an item in the item itself. Images, audio, and documents are among the types of digital assets that are currently digitally watermarked at global scale. The watermarking process hides the information in an asset, and discovering that information is called detection. Often, this hidden information comprises a unique identifier, which communicates content provenance, authenticity, and copyright information about a digital asset in way that is both secure and inextricably linked to the asset itself.

A [digital twin](#) is a digital counterpart of a physical product. It has a digital watermark, QR code, or both. This guide walks you through creating digital twins with digital watermarks.

Digimarc Validate Packaging enables you to create digital twins and digital watermarks for your products. When you use a tool like Digimarc Watermarking Plug-in for Adobe Illustrator to place those watermarks on product packages, employees, merchandisers, and brand inspectors scanning the packages with the [Validate mobile app](#) can authenticate them. To see the results of these scans, see [View Analytics](#).

Validate App User's Guide

See the Validate mobile app user's guide at <http://validatehelp.digimarc.app/>.

Device Requirements

The Illuminate Platform is intended for use on desktop computers and large tablets. Functionality is limited to view-only for devices with screens smaller than 601 x 1280 px.

Document Conventions

Following are the standards and conventions used in this documentation. See the Glossary for definitions of terms used in this guide.

Convention	Description
Numeric format	The fractional part of a numeric value is represented by the period character, such as $\pi \approx 3.14$
Elements in the user interface	Formatting: Text in bold
Titles of tiles 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 (< >)

What's a Digital Twin?

A digital twin is a digital counterpart of a physical product comprising events and attributes from and about the product. You customize the behavior of the digital twin to deliver an experience that benefits your consumers and brands across a wide variety of digital applications. Simply put, digital twins give physical things a digital life.

Each digital twin is associated with a data carrier (a digital watermark) that, when scanned with a Digimarc-enabled scanner, mobile phone, or tablet (by integration of detection technology), can respond in a variety of ways.

Illuminate offers three digital twin types:

- product digital twins
- product variant digital twins
- promotional asset digital twins

When you create a product digital twin in Illuminate, you specify the details about the product such as the brand, product category, identifier (a GTIN or SKU, for example), and any other relevant information (such as size, color, variety, flavor, and so forth).

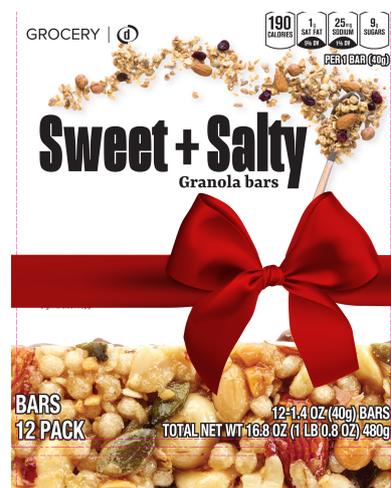
What's a Product Variant?

Some products have versions, called variants, that differ from the parent product or packaging in some small way, such as a minor artwork or marketing declaration change. A product variant carries the same product identifier as the parent product, but it includes a variant ID that makes differentiating it in reports easier. The digital twin carries information about that product variant throughout the Illuminate Platform.

Validate Packaging enables you to create digital twins for product variants. Product variant digital twins inherit some properties from the parent digital twins, such as brand and product category, but they have their own data carriers.



Sample product package



Sample product variant package

What's a Promotional Asset?

You might have assets intended only to promote your products. These promotional assets aren't sold to consumers but rather used in advertisements and store displays. Examples include TV commercials, brochures, posters, email marketing campaigns, digital banner ads, and life-sized cardboard displays.

Promotional assets don't have a GTIN, but they might have another identifier, such as an internal part number. Employees, merchandisers, and brand inspectors won't scan promotional assets with the Validate mobile app, so instructions for creating them are omitted from this guide.

What's a Data Carrier?

Data carriers are covert (digital watermarks) or overt (QR codes) graphical elements that embed or "carry" data. The embedded data can be simple text, such as contact information or a URL, or it can be much more complex, such as the data carried in a Digimarc digital watermark.

Each digital twin is intended to have one or two data carriers. Illuminate creates the data carriers according to the subscription type and the preferences you set while creating the digital twin and embeds the data directly into the data carriers.

Validate Packaging Analytics

As employees, merchandisers, and brand inspectors scan products using the Validate app, Illuminate collects data about the scan activity, such as location, the validation result, and the app user who scanned the package. The *Validate Packaging* view shows these details about the scans.

To reach the *Validate Packaging* view, click **Validate Packaging** in the navigation pane. On the *Validate Packaging* view you can:

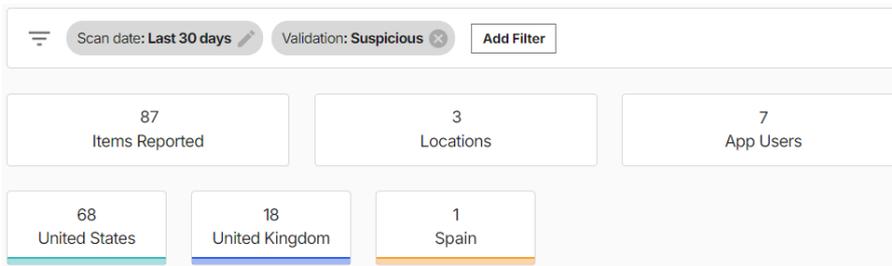
- [Filter](#) the results
- View the [graph](#)

For more information, see [View Analytics](#).

Filtering

A filter narrows the results (data set) to exactly match your criteria. The scan date period covers one or more dates and is always the first filter applied. The Validation filter is set to display only Suspicious scans by default. For more information about filters, see [Filters](#).

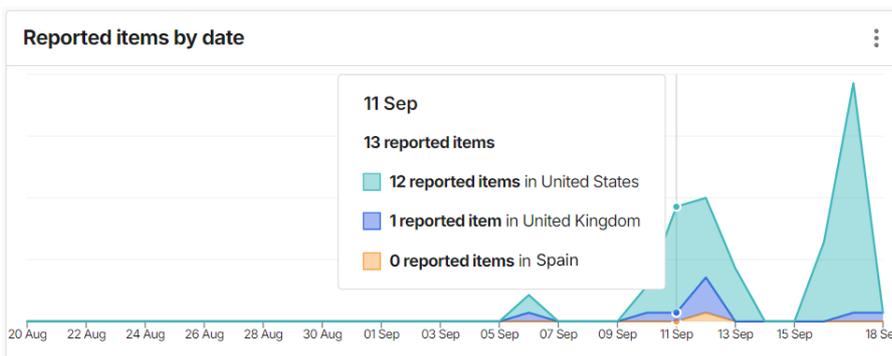
At the top of the *Validate Packaging* view, Validate Packaging displays the number of scans, locations, and active app users included in the current filter.



Graphs

Validate Packaging provides a graph to show the reported items by date in the selected date range. To expand the graph to a pop-up window, click the menu icon (⋮) in the upper right corner.

When you hover the mouse over the graph, Validate Packaging displays the data points at the cursor location.



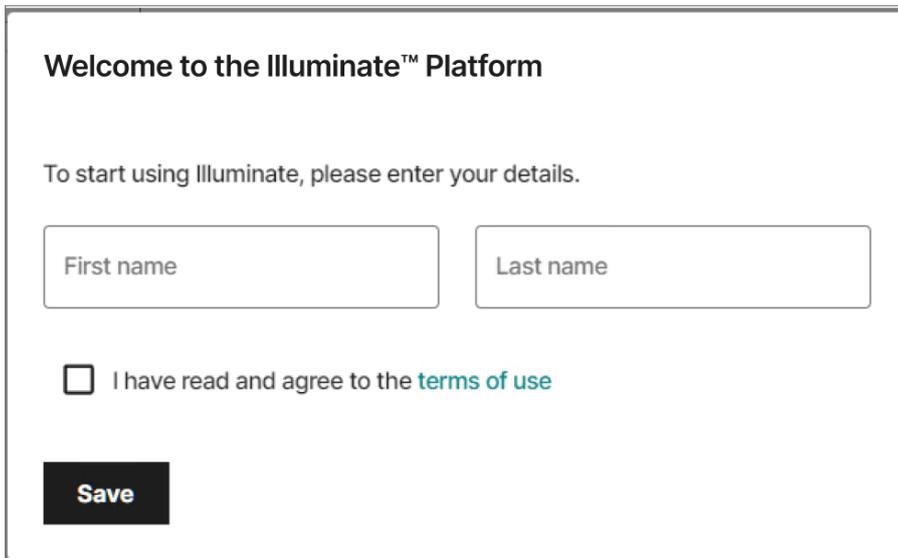
Get Started with Digimarc Validate Packaging

To use Digimarc Validate Packaging, you must be invited by an account administrator.

- 1 If you've received an invitation to join an account on the Illuminate Platform, click **Sign Up** in the email to accept the invitation. If you haven't received the email invitation, contact your account administrator or [Digimarc](#).
- 2 Type a password and re-enter it.
- 3 Click **Back to Illuminate Platform**. You may now log in.

Log In

- 1 Log in to Illuminate using your email address and the password you set. If you're logging in for the first time:
 - 1.1 Illuminate displays the *Welcome* dialog. Enter your **First name** and **Last name**.



Welcome to the Illuminate™ Platform

To start using Illuminate, please enter your details.

First name

Last name

I have read and agree to the [terms of use](#)

Save

- 1.2 Click the link to the **terms of use** and read the terms carefully.
 - 1.3 If you agree to the terms, enable **I have read and agree to the terms of use**.
 - 1.4 Click **Save**.
- 2 If you have access to multiple accounts, Validate Packaging displays the *All Accounts* view. Click the account you want to work with. If you have access to only one account, Validate Packaging displays the *Validate Packaging* view.

Note

The remaining instructions throughout this guide assume you have logged in and selected an account to work with, if needed.

Steps for Using Digital Watermarks in Validate Packaging

The high-level steps for creating and configuring your digital watermarks are:



- 1 [Create one or more digital twins and generate the digital watermark.](#)
- 2 Add the digital twin to your packaging artwork.

Note

As covert graphical elements, digital watermarks aren't downloaded and added to artwork like QR codes are. Instead, you use the Digimarc Watermarking Plug-in for Adobe Illustrator to apply the watermark to the artwork. To download the plug-in, click the Help icon (?) and choose Digimarc Tools. You can get the documentation from within the plug-in.

- 3 Use Digimarc Verify for macOS to ensure the artwork was properly watermarked. To download Verify, click the Help icon (?) and choose Digimarc Tools.
- 4 Print the package and distribute your product.
- 5 [View the analytics.](#)

Manage Digital Twins

This section describes how to create and manage digital twins. For more information about digital twins, see [What's a Digital Twin?](#).

Create a Digital Twin

You create digital twins from the *Digital Twins* view and associate each one with a specific product. The digital twin carries information about that product throughout the Illuminate Platform.

- To add digital twins one by one, use the Validate Packaging user interface. See the links in the table below.
- To create or update them in bulk, see [Import Digital Twins](#).

Illuminate supports the following types of digital twins:

Twin Type	Purpose
Product digital twins	This twin represents the primary product. See Create a Product Digital Twin . To import multiple product twins from a spreadsheet, see Import Digital Twins .
Product variant digital twins	This twin represents a variation of the primary product. See Create a Product Variant Digital Twin . To import multiple product variant twins from a spreadsheet, see Import Digital Twins .
Promotional asset digital twins	This twin represents promotional material for the primary product or its variants and isn't scanned using the Validate app.

Create a Product Digital Twin

You create product digital twins from the *Digital Twins* view and associate each one with a specific product.

To create a digital twin:

- 1 Click **Digital Twins** in the navigation pane. If you have existing digital twins, they're listed.

Digital Twins

- 2 Click **Create digital twin**. The *Create Digital Twin* view opens.
- 3 Select **Yes, create a product or variant digital twin for this <primary identifier>**. The primary identifier was configured at the account level and could be a GTIN, SKU, or another suitable identifier, such as ISBN, a retailer-specific identifier, and so on.
- 4 Enter a unique value for the product identifier.

Note

If the identifier has already been entered for another digital twin, Illuminate opens the *Create Product Variant* view, enabling you to instead create a product variant digital twin. See [Create a Product Variant Digital Twin](#).

If the item has a GTIN that's fewer than 14 characters:

- Illuminate adds one to six leading zeroes to support 8-, 12-, and 13-digit identifiers.
- Illuminate recognizes most barcode types, but if the GTIN has eight characters, the panel expands to display the barcode type options. Select the correct barcode type: EAN or UPC.

Create Digital Twin

Does the item have a GTIN?

Yes, create a product or variant digital twin for this GTIN

GTIN

12345670

This is a valid GTIN-8

Barcode type

UPC (US markets)

EAN (Rest of world markets)

No, create a promotional asset digital twin without a GTIN

5 Click **Next**.

6 In each section, fill in as much information as you need for your digital twins.

Product Details

Name

The name of the product. The name can be up to 64 characters long.

Description

Optional. A brief description of the product. The description can be up to 512 characters long.

Brand

The brand name of the product. Select from the list, or type a brand name and press <Enter> to add it. The brand name can be up to 128 characters long.

Product type

Optional. The type or purpose of the product, such as "hand sanitizer" or "flour." This is the GS1 product functional name used to describe the use of the item or product by the consumer. The product type can be up to 64 characters long.

Category

The [GS1 Global Product Classification \(GPC\)](#) for this product. To view the list of available categories, click **Browse categories**. Select the appropriate category at the GPC *Family* level.

Identifiers

The fields displayed depend on whether the account owner is a GS1 member company.

GS1 Members

GTIN

The product's GTIN. This numeric field is read-only and visible only for GS1 member companies.

Barcode identifier

For GS1 member companies with a GTIN, indicates the barcode type.

{*additional identifier name*}

If the account was configured to allow an additional identifier, Validate Packaging displays the identifier name and the value that was entered, if any. The length of the identifier is configured for each account but must be 1–64 characters long.

Non-GS1 Members

{*primary identifier*}

Validate Packaging displays the name and value of the primary identifier that was configured for your account. The length of the identifier is configured for each account but must be 1–64 characters long. This field is read-only and visible only for non-GS1 member companies.

{*additional identifier name*}

If the account was configured to enable additional identifiers, Validate Packaging displays the identifier name and value, if any. The length of the identifier is configured for each account but must be 1–64 characters long.

Images

Each digital twin can have up to 25 images. See [Add Images](#) for detailed instructions.

Product Attributes

Available from

Specify the first date this product became or will become available.

Available to

Specify the last date this product was or will be available.

Size

The size variant of the product up to 256 characters.

Net content

Specify the net content of the product packaging up to 32 characters.

Countries of sale

Specify the countries in which this product is sold.

Custom Attributes

Custom attributes are optional. They enable you to specify a label and a corresponding value, such as "flavor" and "strawberry."

To create a custom attribute:

- 1 Click **Add attribute**. The section expands to display fields and controls for managing custom attributes.
- 2 Type an **Attribute label** for the custom attribute, such as "color," "flavor," or "edition."

Note

Attribute labels must be unique per digital twin. A twin can have only one custom attribute with the label "flavor," for example.

- 3 Enter the **Value** for the attribute. If the attribute label is "color," for example, the value might be "red" or "green."

- 4 To save the attribute label and value, click **Add**.
- 5 To remove an unwanted attribute, click **Delete <label> attribute**. The attribute is removed.
- 6 To add more custom attributes, repeat these steps.

Data Carrier

You can generate the data carrier now or select the option **Do not generate a data carrier** to do it later.

Generate data carriers from default settings

Validate Packaging creates the data carrier using the default settings configured for the account.

Do not generate data carriers

Validate Packaging doesn't create the . This option is available only while creating a digital twin. For instructions on creating a data carrier later, see [Generate the Data Carrier](#).

- 7 Click **Create**. The *Digital Twin Created* view opens.
- 8 To see the details about the new digital twin, click its link. See [Digital Twin Details View](#) for more information about the screen.

Next Step

After you generate the data carrier, you can use the Digimarc Watermarking Plug-in to apply it to your artwork. To download the plug-in, click the Help icon and choose Digimarc Tools. You can get the documentation from within the plug-in.

Create a Product Variant Digital Twin

Like with creating a product digital twin, you create product variant digital twins from the *Digital Twins* view and associate each one with a specific product. For information about product variants, see [What's a Product Variant?](#)

To create a product variant digital twin:

- 1 Click **Digital Twins** in the navigation pane. If you have existing digital twins, they're displayed.

Digital Twins

- 2 Click **Create digital twin**. The *Create Digital Twin* view opens.
- 3 Select **Yes, create a product or variant digital twin for this <primary identifier>**.
- 4 For the **Product identifier**, enter a value that matches the primary identifier of an existing product digital twin. The *Create Product Variant* view opens.

Note

If you enter an identifier that hasn't yet been used for a digital twin, a product digital twin is created rather than a product variant twin. See [Create a Product Digital Twin](#) for instructions.

5 If the item has a GTIN that's fewer than 14 characters:

- Illuminate adds one to six leading zeroes to support 8-, 12-, and 13-digit identifiers.
- Illuminate recognizes most barcode types, but if the GTIN has eight characters, the panel expands to display the barcode type options. Select the correct barcode type: EAN or UPC.

Create Digital Twin

Does the item have a GTIN?

Yes, create a product or variant digital twin for this GTIN

GTIN

12345670 ✓

This is a valid GTIN-8

Barcode type

UPC (US markets)

EAN (Rest of world markets)

No, create a promotional asset digital twin without a GTIN

Next
Cancel

- If the account was configured to allow an additional identifier, such as a ISBN or online store product ID, you can enter it in the *Identifiers* section.

Identifiers

SKU

12345670

OnlineStore1 (optional)

6 In each section, fill in as much information as you need. See [Digital Twins Overview Tab](#) for more details about the fields on this view.

Variant Details

Variant name

The name of the product variant. Names can be up to 256 characters long and contain letters, numbers, and symbols.

Variant ID

An alphanumeric identifier for the product variant. The variant ID, up to 32 characters long, is an arbitrary value that you can use for your own purposes. The Variant ID is a required field that can help you differentiate them from the product twins in reports.

Variant reason

The reason the variant was created. The values shown in the list are the GS1 variant reasons listed in the Consumer Product Variant in GDSN Implementation Guide, section [3.1.1 Reason Codes & Definitions](#). Choose one of these reasons, even if your product variant has no GTIN.

Effective from

Optional. Enter the first date the variant was or will be available. This date is for analytics purposes only and must be on or before the Effective to date, if provided.

Effective to

Optional. Enter the last date the variant was or will be available. This date is for analytics purposes only and must be on or after the Effective from date, if provided.

Images

Images are optional. Each digital twin can have up to 25 images. For more information, see [Manage Images](#).

Custom Attributes

Custom attributes are optional. They enable you to specify a label and a corresponding value, such as "flavor" and "strawberry." You can view them in Validate Packaging or get them programmatically using the Mobile REST API.

To create a custom attribute:

- 1 Click **Add attribute**. The section expands to display fields and controls for managing custom attributes.
- 2 Type an **Attribute label** for the custom attribute, such as "color," "flavor," or "edition."

Note

Attribute labels must be unique per digital twin. A twin can have only one custom attribute with the label "flavor," for example.

- 3 Enter the **Value** for the attribute. If the attribute label is "color," for example, the value might be "red" or "green."
- 4 To save the attribute label and value, click **Add**.
- 5 To remove an unwanted attribute, click **Delete <label> attribute**. The attribute is removed.
- 6 To add more custom attributes, repeat these steps.

Data Carriers

You can generate the data carrier now or select the option **Do not generate a data carrier** to do it later.

Generate data carriers from default settings

Validate Packaging creates the data carrier using the default settings configured for the account.

Do not generate data carriers

Validate Packaging doesn't create the . This option is available only while creating a digital twin. For instructions on creating a data carrier later, see [Generate the Data Carrier](#).

- 7 Click **Create**. The *Digital Twin Created* view opens.
- 8 To see the details about the new digital twin, click its link. See [Digital Twin Details View](#) for more information about the screen.

Next Step

After you generate the data carrier, you can use the Digimarc Watermarking Plug-in to apply it to your artwork. To download the plug-in, click the Help icon and choose Digimarc Tools. You can get the documentation from within the plug-in.

Create a Promotional Asset Digital Twin

Promotional Asset digital twins are used primarily in Digimarc Engage Premium and Engage. Employees, merchandisers, and brand inspectors won't scan promotional assets with the Validate mobile app.

Import Digital Twins

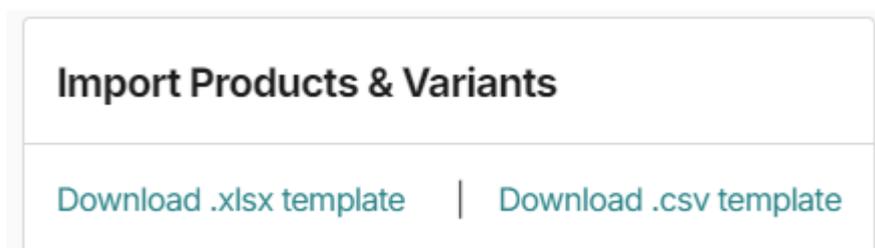
You can use spreadsheet or CSV (comma-separated values) files to quickly import up to 2000 products or product variants to create or update digital twins in a single operation.

Download Templates

Validate Packaging offers templates you can download and fill in with the data for twins you want to create. You can also use the templates to update existing digital twins. For detailed information about the templates and the data you can import, see [Templates for Bulk Import](#).

To download a template:

- 1 Click **Digital Twins** in the navigation pane to open the *Digital Twins* list view.
- 2 Click **Bulk import**. The *Import Digital Twins* view opens.
- 3 Click the download link for the template and format you want:
 - Spreadsheet file (.xlsx template)
 - Comma-separated values file (.csv template)



The template file is downloaded to your default Downloads folder.

- 4 Fill in the template with your product or variant data and save the completed spreadsheet or CSV file to a different location or file name. Don't use spaces in the file name.

Important

Leave the top rows of the template intact when filling in data. Because the template structure differs between the two formats (XLSX and CSV), don't convert one to the other before uploading. The import process requires the completed file to match the template layout.

Import Products, Variants, or Assets

When you import products or product variants, a digital twin is created or updated on the Illuminate Platform for each row in the template. If a Product ID or Variant ID exists in Illuminate, the twin will be updated using the remaining fields in the file. Promotional assets aren't used with Validate Packaging.

Notes

When updating a digital twin, removing optional field data in the file, such as net content or size, removes it from the digital twin's record in Illuminate.

Similarly, if you add custom attribute name/value pairs to a twin that already has the maximum number (12) of custom attributes, the most recent attributes are overwritten.

Multiple rows for a product or variant are ignored. You can't, for example, add multiple images by duplicating a row and changing only the Image URL field. To add more images, use the Validate Packaging user interface or do additional bulk import operations.

To import the completed XLSX or CSV file:

- 1 Click **Digital Twins** in the navigation pane to open the *Digital Twins* list view.
- 2 Click **Bulk import**. The *Import Digital Twins* view opens.
- 3 Click the **Import Products & Variants** tile. The corresponding view opens.
- 4 On the *Import Products & Variants* view, click the hyperlinked text or **Upload** icon () to show the Open dialog, or drag the file and drop it onto the marked area.

Note

Ensure the file name doesn't contain spaces.

- Validate Packaging evaluates the file contents to show how many digital twins will be updated and created and whether the file has any errors. Review the results to ensure the items will be imported as expected. If a new product type or brand will result, a warning is displayed.

Import Products & Variants

Bulk import guidelines

products-and-variants-batch3.csv 3 items | 2 new items | 1 matches

Warnings

Warning type	New value
New product type creation	Snacks

To Create

Name	Brand	GTIN	Product Type	Type
Gummy Sharks	DigiGrocery	00909091122564	Snacks	Product
	DigiGrocery	00909091122564		Variant

To Update

Name	Brand	GTIN	Product Type	Type
Hot Delicious Buckwheat	DigiGrocery	00909091122342	Breakfast cereal	Product

Upload

- If Validate Packaging displays the **Errors in the File** tile, expand it to see the details. Multiple errors for the same row are displayed in the tooltip.

Errors in the File

Row	Errors in row	Error
3	2	Variant references product id that doesn't exist: 00909091122341 + 1 other error

Variant references product id that doesn't exist: 00909091122341; Invalid variant reason: MINOR_ARTWORKCHANGES

- To make changes before continuing, click the **Close** icon (X) next to the file name and click **Discard current upload** in the dialog.

prod | 0 matches

Discard the upload

Are you sure you want to leave the page? You've uploaded the file but have not started the process.

Discard current upload Cancel

- To continue with the import, click **Upload**. Validate Packaging extracts the information and creates or updates the digital twins. The screen changes to show you the results. You can see the created and updated items in the *Digital Twins* list view.

✓ Updated
137 items

✓ Created
690 items

Find and View Digital Twins

As your list of digital twins grows, finding a specific digital twin becomes more challenging. For all digital twins, you can search by name or identifier, or you can use a [filter](#).

- [Find Product Digital Twins](#)
- [Find Product Variants](#)

For information about the digital twin's details, see [Digital Twin Details View](#).

To find a digital twin by name or primary identifier:

- 1 Click **Digital Twins** in the navigation pane. Validate Packaging lists all the product digital twins in the account.
- 2 The **Products** tab is selected by default, listing product twins. Variant twins are listed in their parent product twin's record.
- 3 Type the twin's name or identifier in the search bar. Digital twins of the selected type matching the search string are listed.
- 4 Click the digital twin you want to view. For more information, see:
 - [Digital Twins Overview Tab](#)
 - [Digital Twins Behavior Tab](#)
 - [Digital Twins Data Carriers Tab](#)

Find Product Digital Twins

Besides searching by name or identifier, Validate Packaging provides filters to easily find product digital twins. For more information about using filters, see [Filters](#).

To find product digital twins using a filter:

- 1 Click **Digital Twins** in the navigation pane. The Products tab is selected by default, listing all the product digital twins in the account.
- 2 Click the **Filter** icon ().
- 3 Click **Add Filter** and select the desired filter elements. See [Digital Twin Filters](#) for details.
- 4 Click **Apply**.
- 5 To further refine the results, you can apply additional filters.

Tip

To easily find these products in the future, you can bookmark the URL for the filtered list.

Find Product Variant Digital Twins

A product variant digital twin is automatically linked to its parent product digital twin by their shared primary identifier.

To find product variants:

- 1 Click **Digital Twins** in the navigation pane. The Products tab is selected by default, listing the product digital twins in the account.
- 2 Click the product digital twin whose variant you want to work with. The digital twin's detail view opens, displaying the number of product variants at the top.



- 3 Click the number of product variants. Validate Packaging displays the expanded Related Product Variants list.

Related Product Variants			
Name	GTIN	Last Updated ↓	↗
Cilantro Rice Frozen Dinner - Winter Holiday	00856107006854	12 Jul 24	
Cilantro Rice Frozen Dinner - 2024 Olympics	00856107006854	12 Jul 24	

- 4 Click the variant you want to view.

Edit a Digital Twin

You can edit a digital twin at any time. Changes you make are effective immediately. The process for editing a digital twin is the same for all digital twin types.

To change the details for a digital twin:

- 1 Click **Digital Twins** in the navigation pane.
- 2 Click the digital twin you want to work with. For help finding a digital twin, see [Find and View Digital Twins](#). The digital twin's detail view opens.
- 3 Click **Edit** for the section you want to change. See [Digital Twin Details View](#) for information about the fields in each section.
- 4 Click **Save** after editing each section.
- 5 To create or download a data carrier, click the [Data Carriers](#) tab at the top of the view.

Manage Images

Each digital twin can have up to 25 images associated with it.

- To add images, see [Add Images](#).
- To edit or download images or to select an image as the default, see [Edit Images](#).
- To remove images, see [Remove Images](#).

Add Images

Each digital twin can have up to twenty-five (25) images, with one marked as the default. You can click **Show guidelines** to display the requirements for each image.

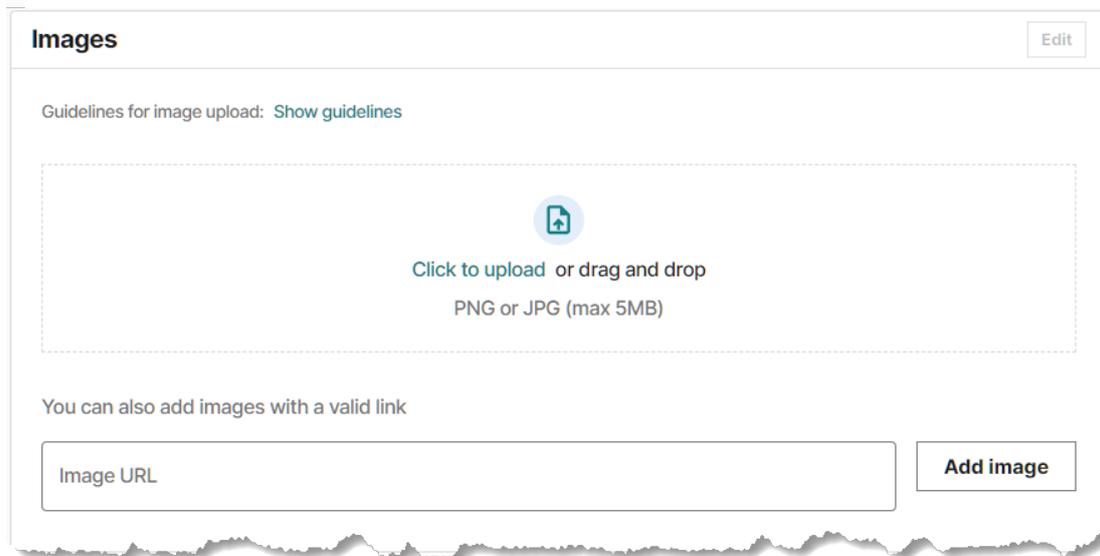
The images you add to a digital twin aren't watermarked. They're intended to help you identify specific products or variants. To watermark images, add the Validate Media subscription to your account.

Before You Begin

If you're adding images to an existing digital twin, see [Find and View Digital Twins](#) for instructions on finding and viewing a twin.

To add images:

- 1 Scroll to the *Images* tile. If you're adding images to an existing digital twin, click **Edit**. The *Images* tile displays the controls for uploading them.



- 2 To see or hide the image requirements, click **Show guidelines** or **Hide guidelines**.
- 3 To upload an image from your computer, click the hyperlinked text or **Upload** icon () , or drag the image and drop it onto the marked area. You can upload multiple images at a time.

Note

Image file names must be unique for each digital twin. If you upload an image with a duplicate file name, Illuminate appends a numeric value to the new file name to differentiate it.

- 4 To use a web-hosted image, paste the URL for the image in the **Image URL** text box and click **Add image**. The image must be on a secure website (accessed using https). Repeat this step for each image URL you want to add.

Note

If the image URL lacks a file name extension, Illuminate displays an error. If you know the file type, download the image, ensure it has the proper file name extension, and upload it from your computer. Show the image guidelines for more information.

- 5 One image is automatically marked as the default image. To set a different image as the default, select its thumbnail and enable the **Default image** toggle (). To change this later, see [Edit Images](#).

- 6 If you want to cancel the upload for an image, click its **Remove** icon (🗑️) before you save.

Tip

You can add and remove images in the same operation. For more information about removing images, see [Remove Images](#).

- 7 For new digital twins, complete the remaining sections as needed and click **Create**.
- 8 For existing digital twins:
 - 8.1 To cancel the entire upload operation, click **Cancel**. None of the images are uploaded.
 - 8.2 To save the images, click **Save**.

The images are uploaded or retrieved and added to the digital twin. A thumbnail is automatically created for each image.

Important

You can navigate away from the page while images upload, but don't close the browser tab or window until the upload process is complete.

Edit Images

You can download, add, and remove images at anytime. If a digital twin has two or more images, one must be set as the default image.

To download an image, click its thumbnail and then click **Download image**.

Before You Begin

See [Find and View Digital Twins](#) for instructions on finding and viewing a twin.

To edit images:

- 1 Click **Edit** in the *Images* tile. The default image and its file name are displayed.
 - To add images, see [Add Images](#).
 - To remove images, see [Remove Images](#).
- 2 To set a different image as the default, select its thumbnail and click **Default image** (🕒) to enable it. The previously designated default image is no longer the default.

**File name**

8b56444b-fe7b-499b-a0cb-d4fd888a1fa8.png

Default image

- 3 To save changes, click **Save**. If you instead click **Cancel**, none of the changes are saved.

Remove Images

You can remove unwanted images from a digital twin, enabling you to replace them if needed.

Before You Begin

See [Find and View Digital Twins](#) for instructions on finding and viewing a twin.

To remove images:

- 1 Click **Digital Twins** in the navigation pane.
- 2 Click the digital twin you want to work with. For help finding a digital twin, see [Find and View Digital Twins](#). The digital twin's detail view opens.
- 3 In the *Images* tile, click **Edit**.
- 4 Click the **Remove** icon () below each unwanted thumbnail image. The file is removed from the screen but hasn't been deleted yet.

Note

For digital twins with multiple images, one must be specified as the default. If you want to delete the default image, first set another image as the default by selecting its thumbnail and clicking **Default image** () to turn it on. For more information, see [Edit Images](#).

- 5 Click **Save**. Illuminate asks you to confirm you want to delete the marked images. If you instead click **Cancel**, the images are restored.
- 6 Click **Delete** on the *Confirm Deletion* dialog. The images selected for removal are permanently deleted. If you instead click **Cancel**, the save operation is canceled, but images aren't restored to the screen.

Tip

You can add and remove images in the same operation. See [Add Images](#) for instructions on adding images.

Generate the Data Carrier

Each digital twin needs a data carrier to provide the graphic element to scan. You can generate the data carrier for a new digital twin when you create it, or you can add it later. The content and location of the options pane varies depending on when you generate the data carrier.

Before You Begin

To generate a data carrier, you must have a digital twin to work with, whether it's new (in progress) or has already been saved.

Data Carriers

Generate data carriers from default settings

Don't generate data carriers

Create Cancel

To generate a digital watermark for a new digital twin:

- 1 In the *Data Carriers* section, click **Generate data carrier from default settings**. The default settings are managed by your Account Admin.
- 2 Click **Create**. Validate Packaging saves the digital twin and generates the data carrier.

To generate a digital watermark for an existing digital twin:

- 1 Click **Digital Twins** in the navigation pane.
- 2 Click the digital twin you want to work with. The digital twin's detail view opens. See [Digital Twin Settings View](#).
- 3 Click the **Data carriers** tab.
- 4 Click **Create data carrier**.
- 5 Enable **Digital watermark**.
- 6 Click **Create**.

Next Step

After you generate the data carrier, you can use the Digimarc Watermarking Plug-in to apply it to your artwork. To download the plug-in, click the Help icon and choose Digimarc Tools. You can get the documentation from within the plug-in.

View Analytics

You can filter the data the Validate mobile app collects to show only the date ranges and validation results you're interested in. For more information, see [Validate Packaging Analytics](#).

To view analytics, click **Validate Packaging** in the navigation pane.

Digital Twins

Validate Packaging

On the *Validate Packaging* view you can:

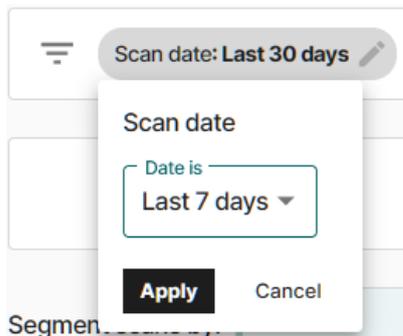
- [Filter the results](#)
- [View the graph](#)
- [View the data](#)

Filter the Results

The filters change the data set—the number of scans and validation results for the selected date range. By default, Validate Packaging displays data for the last 30 days. You can also filter by the Validation result. Suspicious is selected by default. For more information about filtering, see [Filters](#).

To change the scan date range:

- 1 Click the **Scan date** filter to open the *Scan date* dialog.



- 2 From the **Date is** drop-down, select the new date or date range. You can choose:
 - Today
 - Yesterday
 - Last 7 days (inclusive)
 - Last 30 days (inclusive)
 - Between (inclusive) two dates you specify
 - On a specific date
- 3 Click **Apply**.

To filter by scan location:

- 1 Click **Add filter**. The button expands to display the filter options.
- 2 Select **Location**. The *Location* filter dialog opens.
- 3 Choose **is one of** or **is not one of** to set the context for the filter.
- 4 Select or type the country to filter on. As you type, the list of countries narrows to display only those that match.
- 5 You can continue adding countries to the filter by selecting them from the list.
- 6 Click **Apply**.
- 7 To remove the filter, click its **Cancel** icon (⊗).

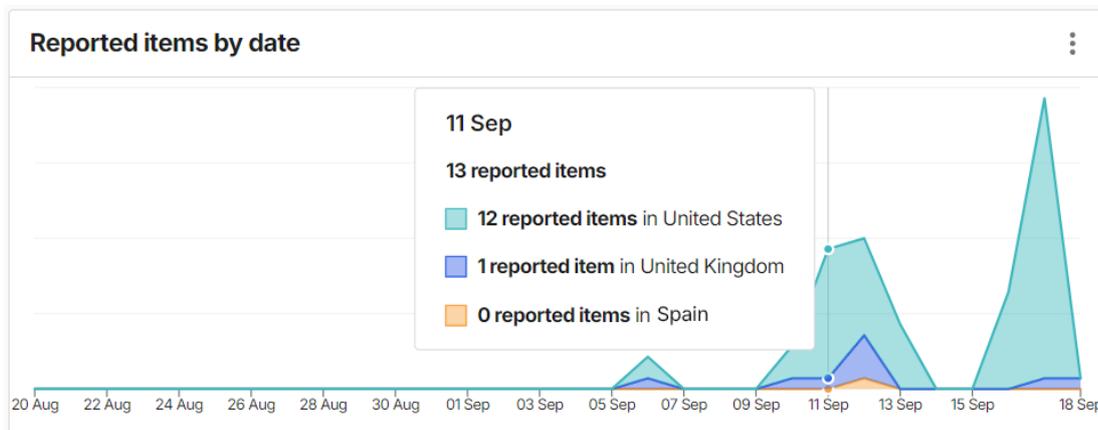
To filter by validation result:

- 1 The Suspicious validation filter is applied by default. To change the validation filter, click it. If none is currently selected, click **Add filter** and select **Validation**.
- 2 Choose **Suspicious** or **Genuine**.
- 3 Click **Apply**.
- 4 To remove the filter, click its **Cancel** icon (⊗).

View the Graph**To see a larger version of the graph:**

- 1 Click the **Menu** icon (⋮) in the graph's top-right corner to open the menu.
- 2 Click **Expand graph**.

To view data points on the graph, hover the mouse over the graph.



View the Data

The data table below the graph shows the result data for each scan sorted by date with the most recent scan first. All scans meeting the applied filter criteria are displayed.

Name	Brand	Validation	Watermark	App User	Location
Item Name	Brand 1	Suspicious	No	Sam Daniels	Region, UK
Item Name	Brand 1	Suspicious	Yes	Sam Daniels	Region, UK
Item Name	Brand 1	Suspicious	No	Sam Daniels	Region, UK
Item Name	Brand 1	Suspicious	No	Sam Daniels	Region, UK



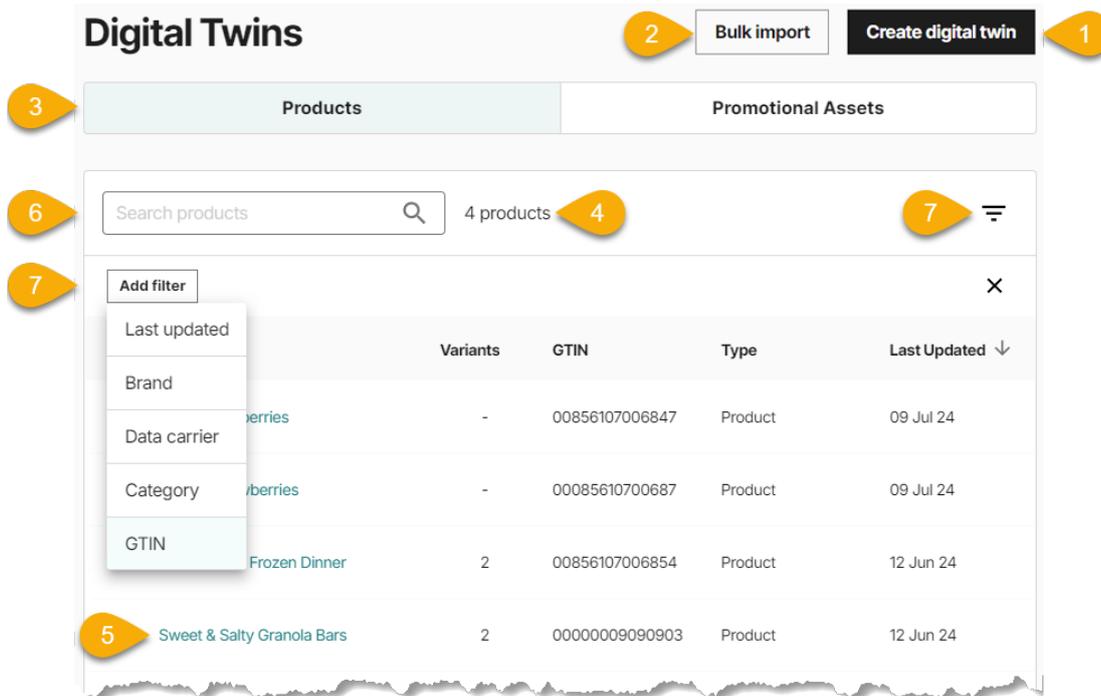
Reference

This appendix describes the views used in Illuminate, including parameters and properties on each screen.

Digital Twins List View

The Digital Twins list view displays all the digital twins in the selected account. At the top are two tabs:

- **Products**—Lists product digital twins. Product variant twins are listed in the Related Product Variants section of a product twin's [detail view](#).
- **Promotional Assets**—Lists promotional asset digital twins. These aren't used in Validate Packaging.



Digital Twins

#	Description
1	Creates a digital twin. See Create a Digital Twin .
2	Imports up to 2000 digital twins from a file. See Import Digital Twins .
3	Filters the list of digital twins by type: product or promotional asset. Validate Packaging doesn't use promotional assets.
4	Displays the number of digital twins.
5	Opens the digital twin in the digital twin's details view .
6	Enables you to search for a digital twin by name or primary identifier. See Find and View Digital Twins .
7	Enables you to further filter the list of digital twins. See Filters .

Digital Twin Details View

Each digital twin contains information about the product, variant, or asset and the data carrier Illuminate has created for it.

You reach the digital twin's details view by clicking a digital twin in the [Digital Twins List View](#). The digital twin details view displays three tabs at the top:

Overview

Displays information related to the digital twin's primary characteristics, such as its name, description, images, and identifiers. This information varies slightly, depending on the twin type. For details, see [Digital Twins Overview Tab](#).

Behavior

Displays the Validate Packaging tile, indicating Validate mobile app users can scan the digital twin's data carrier to authenticate the product.

Data Carriers

Displays the digital watermark that Validate Packaging created for the digital twin. For details, see [Digital Twins Data Carriers Tab](#).

Overview Tab

The *Overview* tab on the digital twin's details view displays information related to the product's primary characteristics. The sections displayed vary depending on the digital twin type:

Product Digital Twin	Product Variant Digital Twin
<ul style="list-style-type: none"> • Product Details • Identifiers • Images • Product Attributes • Custom Attributes • Related Product Variants 	<ul style="list-style-type: none"> • Variant Details • Images • Custom Attributes

For instructions on how to change the values on this screen, see [Edit a Digital Twin](#).

Product Details

The Product Details section enables you to accurately describe the product digital twin.

Product Details Edit

Name
Sweet and Salty Granola Bars

Description
Delicious and healthy granola bars that are a mix of sweet and salty flavors.

Brand
DigiFoods

Product type
-

Category
Prepared/Preserved Foods

Identifiers

Every product in the marketplace has an identifier that distinguishes it from other products. For GS1 member companies, it's a GTIN. For non-GS1 companies, it could be a SKU, ISBN, retailer-specific identification number, or other kind of identifier. The first digital twin created with a particular identifier is a product digital twin. Twins subsequently created with the same identifier are product variant digital twins.

The fields Illuminate displays in the *Identifiers* section depend on whether the company is a GS1 member.

GS1 Members

Only the additional identifier value, if provided, can be changed.

Identifiers	
GTIN	
00987654000122	
Barcode identifier	Digital watermark
UPC-A	-

GTIN

The product's GTIN. This numeric field is read-only and visible only for GS1 member companies.

Barcode identifier

For GS1 member companies with a GTIN, indicates the barcode type.

{additional identifier name}

If the account was configured to allow an additional identifier, Validate Packaging displays the identifier name and the value that was entered, if any. The length of the identifier is configured for each account but must be 1–64 characters long.

Non-GS1 Members

Only the additional identifier value, if provided, can be changed.

Identifiers	
SKU	
1133557799	
Unknown Tag Type	
-	

{primary identifier}

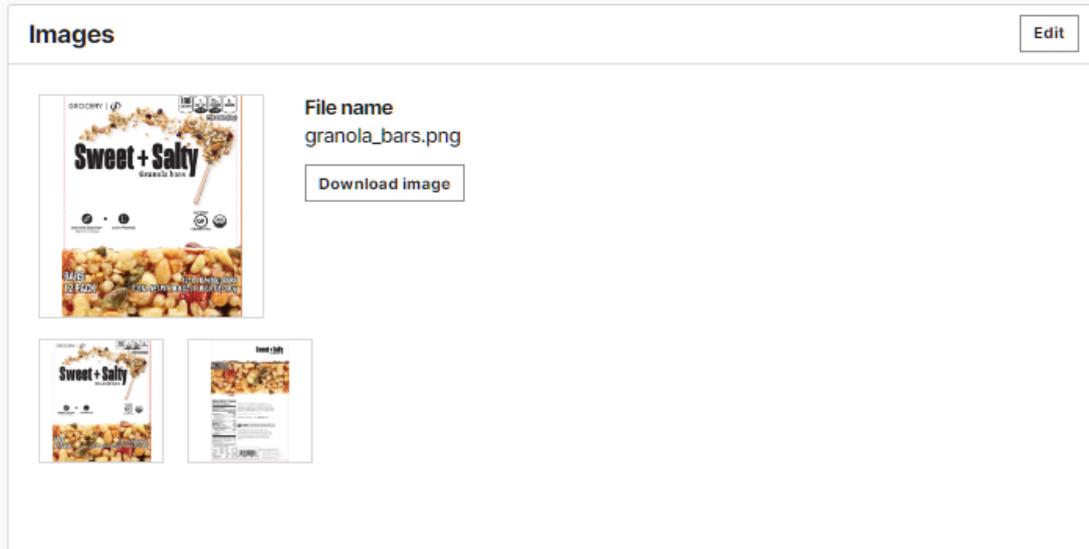
Validate Packaging displays the name and value of the primary identifier that was configured for your account. The length of the identifier is configured for each account but must be 1–64 characters long. This field is read-only and visible only for non-GS1 member companies.

{additional identifier name}

If the account was configured to enable additional identifiers, Validate Packaging displays the identifier name and value, if any. The length of the identifier is configured for each account but must be 1–64 characters long.

Images

You can optionally include up to 25 images for each digital twin. For instructions on how to add, edit, or remove images, see [Add Images](#), [Edit Images](#), or [Remove Images](#).



File name

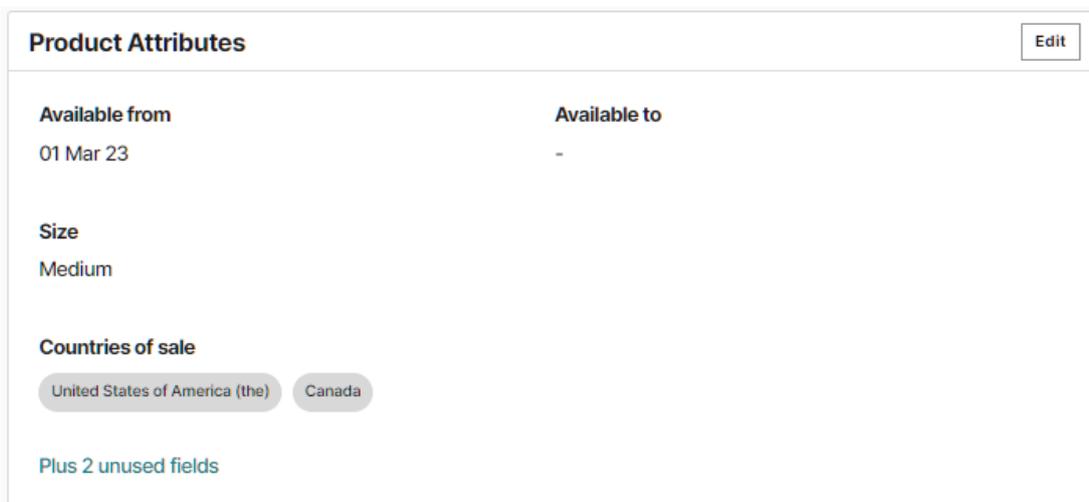
The internal file name for the uploaded image.

Download image

Click to download the selected image. Click a thumbnail for another image to download it.

Product Attributes

These optional fields let you specify the attributes of products or variants.



Available from

Specify the first date this product became or will become available.

Available to

Specify the last date this product was or will be available.

Size

The size variant of the product up to 256 characters.

Net content

Specify the net content of the product packaging up to 32 characters.

Countries of sale

Specify the countries in which this product is sold.

Custom Attributes

Optional custom attributes enable you to add properties and values that pertain to your product. Each attribute you add requires a corresponding value. For instructions on adding, editing, or deleting custom attributes, see [Create a Product Digital Twin](#) or [Create a Product Variant Digital Twin](#).

Custom Attributes	Edit
<p>flavor</p> <p>original</p>	

Attribute label

The name or label for the attribute you want to add, such as color or edition.

Note
 Attribute labels must be unique per digital twin. A twin can have only one custom attribute with label "flavor," for example.

Value

The value for the attribute, such as blue or deluxe.

Related Product Variants

When you create product variant digital twins, Validate Packaging automatically links them to their parent product twin because they share a primary identifier. You can't add related variants manually.

Related Product Variants			
Name	GTIN	Last Updated ↓	↗ ↘
Cilantro Rice Frozen Dinner - Winter Holiday	00856107006854	12 Jul 24	
Cilantro Rice Frozen Dinner - 2024 Olympics	00856107006854	12 Jul 24	

Name

The name of the related product variant twin.

GTIN or {primary identifier}

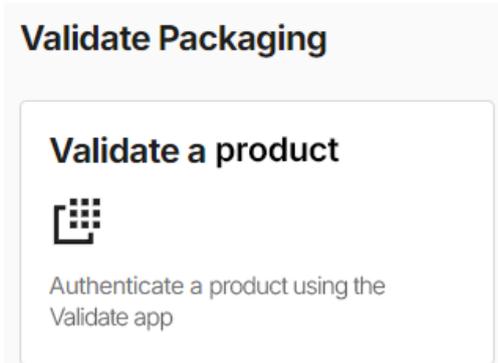
Validate Packaging displays the name and value of the primary identifier that was configured for your account.

Last Updated

The date the digital twin was last updated.

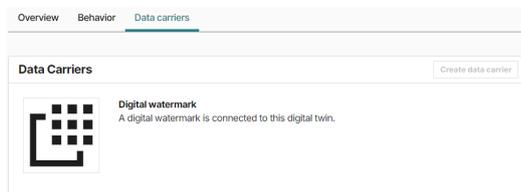
Behavior Tab

The Behavior tab on the *Digital Twins* details view displays the Validate Packaging tile, indicating Validate mobile app users can scan the digital twin's data carrier to authenticate the product.



Data Carriers Tab

The *Data carriers* tab on the digital twin's details view displays the digital watermark that was created for the digital twin. If you haven't created the digital watermark yet, see [Generate the Data Carrier](#).



Data carriers tab with existing digital watermark



Data carriers tab with no data carriers

Filters

Filters enable you to shorten long lists of digital twins or scan analytics by specifying property values to include or exclude.

You'll find filters for

- [digital twins](#)
- [analytics](#)

Most digital twin filters have two components, where the first sets the context for the second.

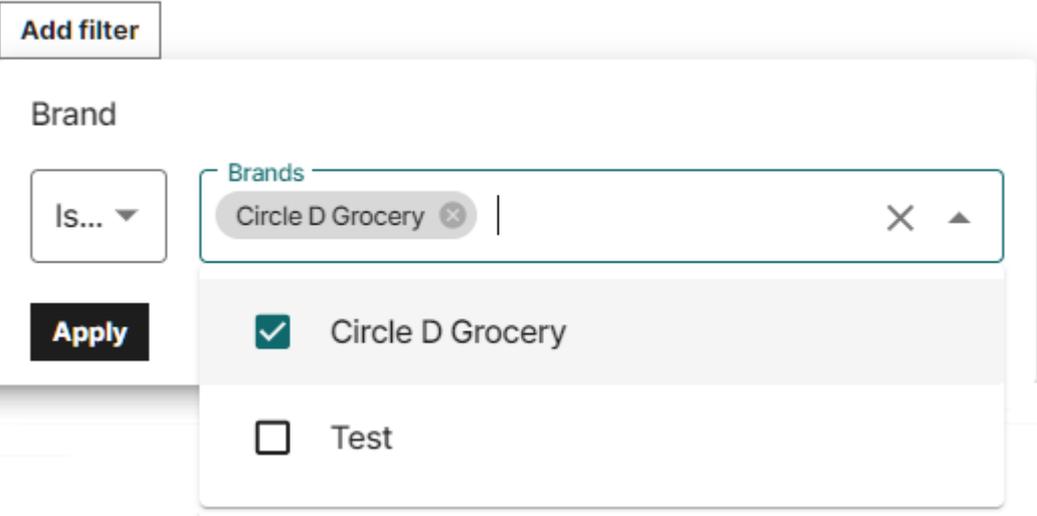
Example
 In the *Last updated* filter, when the **Date is** context is set to **On**, Validate Packaging displays an additional field, enabling you to set the date value.



The screenshot shows a dialog box titled "Last updated". At the top left is an "Add filter" button. Below it, the title "Last updated" is displayed. To the left of a date input field is a dropdown menu labeled "Date is" with "On" selected. The date input field contains the placeholder text "MM/DD/YYYY" and a calendar icon. At the bottom of the dialog are "Apply" and "Cancel" buttons.

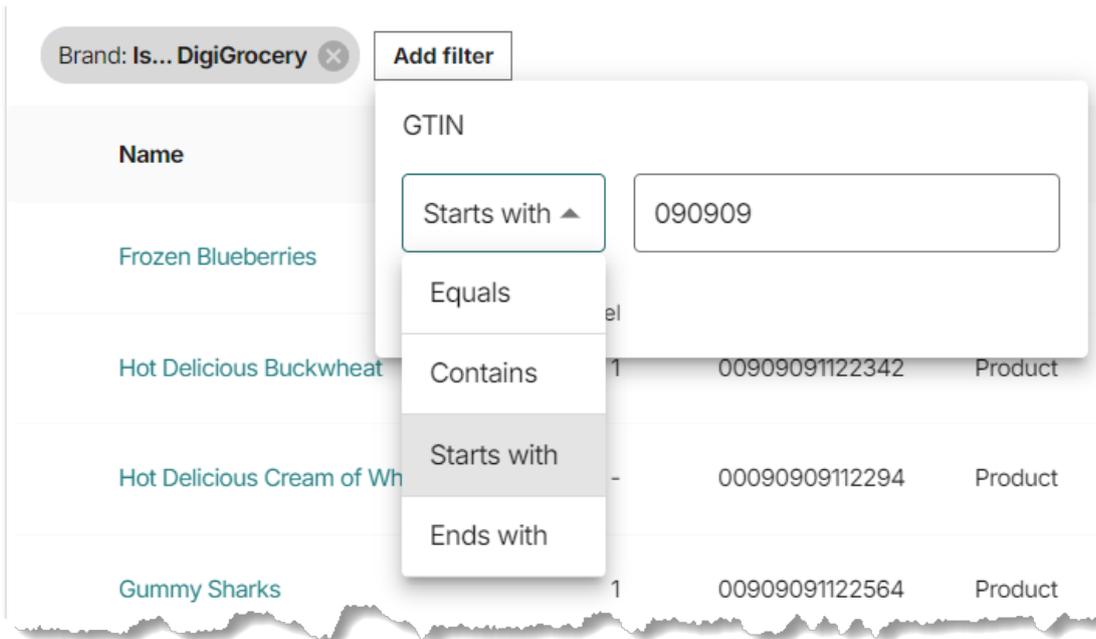
Some filters have only one context, **Is**, which returns the items that match the selected values.

Example
 The *Brand* filter narrows the list of digital twins to one or more brands.



The screenshot shows a dialog box titled "Brand". At the top left is an "Add filter" button. Below it, the title "Brand" is displayed. To the left of a multi-select list is a dropdown menu labeled "Is...". The multi-select list has a header "Brands" and contains two items: "Circle D Grocery" (which is selected and has a close button) and "Test". At the bottom left of the dialog is an "Apply" button.

You can remove a filter by clicking its **Cancel** icon (⊗). You can change an existing filter by clicking it. Doing so enables you to add or remove values or change the context:



Digital Twin Filters

You can apply one or more filters to the digital twin list view to narrow the list of product digital twins.

The filters for product digital twins are:

Last updated

Enables you to filter digital twins by the date they were last changed. Options are **Today**, **Yesterday**, **Last 7 days**, **Last 30 days**, **Between** two dates (inclusive), or **On** a specific date. For the **Between** and **On** options, you must specify the date or dates for the filter.

Example
 The **Between** context with **Date from** set to 2024-01-01 and **Date to** set to 2024-01-31 displays digital twins last updated in January 2024.

Brand

Enables you to filter digital twins by brand. You can begin typing a brand name to narrow the list of brands in the drop-down list.

Data Carrier

Enables you to filter digital twins by their data carrier types. Options are **QR code**, **Digital watermark**, or **Digital watermark and QR code**. The difference between selecting the **Digital watermark and QR code** option and both **QR Code** and **Digital watermark** is that the former shows digital twins that have *both* data carrier types, and the other options display twins that have one or the other.

Note
 Digital watermarks and QR codes are relevant only for applications that use them. For example, the QR code filter shows results only for Engage and Engage Premium users.

Category

Enables you to filter digital twins by [GS1 Global Product Classification \(GPC\)](#). You can begin typing a category name to narrow the list of categories in the drop-down list.

Type

To add a digital twin as a related digital twin for a promotional asset, this option enables you to filter twins by type. Options are:

- **Product**
- **Product variant**

<Product identifier type>

Enables you to filter digital twins by product identifier values. The context options are **Equals**, **Contains**, **Starts with**, or **Ends with**. Enter the identifier value to filter on.

Analytics Filters

You can [apply a filter](#) to the [Validate Packaging view](#) to narrow the list of scans included in the analytics data:

Scan date

The **Scan date** filter is applied for all analytics. This enables you to filter data for digital twins by the date they were scanned. Options are **Today**, **Yesterday**, **Last 7 days**, **Last 30 days** (default), **Between** two dates (inclusive), or **On** a specific date. The default is **Last 30 days**. For the **Between** and **On** context options, you must specify the date or dates for the filter. Dates are inclusive.

Example

The **Between** context with **Date from** set to 2024-01-01 and **Date to** set to 2024-01-31 displays scan data for the entire month of January 2024.

Validation

Enables you to filter scans by validation result. Options are **Suspicious** or **Genuine**. Validate Packaging applies the **Suspicious** validation filter by default.

Location

Enables you to filter analytics data by the location in which the digital twin was scanned. Context options are **Is one of** or **Is not one of**. You then select or type the countries you want to include or exclude.

Templates for Bulk Import

The Bulk Import feature lets you use XLSX or CSV templates to easily import products, product variants, or promotional assets in a single operation and create data carriers for them. For example, you can export product information from a database in your system to one of the supported file formats and create thousands of Illuminate digital twins within minutes. For instructions on importing digital twins, see [Import Digital Twins](#).

Important

Leave the top rows of the template intact when filling in data. Because the template structure differs between the two formats (XLSX and CSV), don't convert one to the other before uploading. The import process requires the completed file to match the template layout.

Product and Variant Twins

Products and variants share some information, but each twin type also has its own set of fields. The table below describes the fields in the template, the digital twin type it pertains to, and whether the field is required or optional. For a more detailed description of the fields, see [Digital Twins Overview Tab](#).

Twin Type	Field Name	Data Type/Format	Required?	Note
Both	Twin type	String/Text	Yes	Use only <i>Product</i> or <i>Variant</i> .
	Brand	String/Text	Yes	If the brand isn't already in Illuminate, it's added automatically.
	Product ID	String/Text	Yes	Use the primary product identifier (such as the GTIN or SKU). If the identifier is a GTIN shorter than 14 digits, pad it with enough zeros at the beginning to make 14 digits, such as 00000012345678 or 00123456789012.
	Image URL	String/Text	No	You can add only one image per twin during a bulk import operation. If the twin has existing images, this image will be the new default.
	Create data carrier?	String/Text	No	Use Y to create the default data carrier with default options. Leave blank to skip data carrier creation.
	Attribute label	String/Text	No	Optional custom attributes enable you to add properties and values that pertain to your product or variant. You can add or edit up to four custom attribute label/value pairs during bulk import.
	Attribute value	String/Text	No*	* Required if the corresponding attribute label is provided.
Product	Name	String/Text	Yes	The product name .
	Category	String/ Numeric	Yes	The GS1 Category is required for all products, even those without a GTIN.
	Description	String/Text	No	The product description .
	Product type	String/Text	No	If the product type isn't already in Illuminate, it's added automatically.
	Available from	String/yyyy-mm-dd	No	If provided, it must use yyyy-mm-dd format and be on or before the Available to date.
	Available to	String/yyyy-mm-dd	No	If provided, it must use yyyy-mm-dd format and be on or after the Available from date.
	Size	String/Text	No	The size of the product.
	Net content	String/Text	No	The net content of the product package.
	Countries of sale	String/Text	No	Use the two-character country code (ISO 3166-1 alpha-2). Separate multiple countries with a comma.
	Secondary identifier	String/Text	No	The additional identifier if enabled on the account. The length of the identifier is configured for each account but must be 1–64 characters long.

Twin Type	Field Name	Data Type/Format	Required?	Note
Variant	Variant ID	String/Text	Yes	The variant ID for the variant.
	Variant description	String/Text	Yes	The description of the variant.
	Variant reason	String/Text	Yes	This must match one of the GS1 variant reason codes. See the GS1 Consumer Product Variants list .
	Effective from	String/yyyy-mm-dd	No	If provided, it must use yyyy-mm-dd format and be on or before the Effective to date.
	Effective to	String/yyyy-mm-dd	No	If provided, it must use yyyy-mm-dd format and be on or after the Effective from date.

Promotional Asset Twins

The table below describes the fields in the promotional assets template and whether the field is required or optional. For a more detailed description of the fields, see [Digital Twins Overview Tab](#).

Field Name	Data Type/Format	Required?	Note
Brand	String/Text	Yes	If the brand isn't already in Illuminate, it's added automatically.
Name	String/Text	Yes	You can't change the name of an asset during bulk import; unique names are always treated as new assets.
Asset type	String/Text	Yes	If the asset type isn't already in Illuminate, it's added automatically.
Asset ID	String/Text	No	If provided, the asset ID must be a unique value for assets in the account.
Related twins	String/Text	No	A comma-separated string of product or variant identifiers this asset is associated with. If the asset is related to a product variant, use the form <code>parentID: variantID</code> , where <i>parentID</i> is the primary identifier (such as the GTIN or SKU) for the parent product. For example, <code>09090909123456: var1234</code>
Start date	String/yyyy-mm-dd	No	If provided, it must use yyyy-mm-dd format and be on or before the End date.
End date	String/yyyy-mm-dd	No	If provided, it must use yyyy-mm-dd format and be on or after the Start date.
Image URL	String/Text	No	You can add only one image per twin during a bulk import operation. If the twin has existing images, this image will be the new default.
Create data carrier?	String/Text	No	Use Y to create the default data carrier with default options. Leave blank to skip data carrier creation.
Attribute label	String/Text	No	Optional custom attributes enable you to add properties and values that pertain to your promotional asset. You can add up to four custom attribute name/value pairs during bulk import.
Value	String/Text	No*	* Required if the corresponding attribute label is provided.

Troubleshooting

If you experience problems while using Illuminate, you can try the solutions here or contact Digimarc support.

The GTIN-14 must have a valid check digit

If you see this message while creating a digital twin, confirm that the GTIN you're entering is correct. See the [Check digit calculator](#) on the GS1 website for more information.

Can't perform some actions on a mobile device

The Illuminate Platform is intended for use on desktop computers and large tablets. Functionality is limited to view-only for devices with screens smaller than 601 x 1280 px.

Digimarc Support

For help using the Illuminate Platform, contact Digimarc Support or create a support request.

- [Digimarc Support Website](#)
- [Send email to Digimarc Support](#)

Create a Support Request

You can request support from within Illuminate. If you're unable to log in, use one of the methods above.

To create a support request:

- 1 Click the Help icon (?) in the upper right corner of any page. A panel opens on the right.
- 2 Click **Create Support Ticket**.
- 3 In the **I need help with** drop-down list, select the subject.
- 4 Type a brief **Summary** of the problem or question.
- 5 Type a more detailed **Description** of the problem or question. Be as thorough and detailed as possible so we can better assist you.
- 6 Click **Submit**. A Digimarc representative will contact you soon.

Glossary

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.

context

Most digital twin and analytics filters have two components, where the first sets the context for the second. Examples include: is one of and is not one of.

data carrier

Data carriers are graphical elements that embed or "carry" data, such as a website URL. QR codes and digital watermarks are examples of data carriers.

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 watermarked 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.

GTIN

Global Trade Item Number used by GS1 members to identify trade items (products).

metadata

Data that provides information about other data.

product variant

A product variant digital twin is a digital twin for a product variant. The variant's digital twin has the same primary identifier as its primary twin but with some difference, such as package size or additional marketing declaration.

snackbar

A small, non-modal dialog that displays feedback about the current operation. It sometimes includes a button or other control, such as a Close (X) icon.

validation

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

variant

A variation of a product, such as a special event edition or holiday flavor.

verification

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