







## CONGRATULATIONS!

We thank you and congratulate you for the acquisition of the PSCONFIGURATOR module for Prestashop e-commerce sites. Now you have powerful configuration software that allows you to manage an infinite number of components and subassemblies for your products.

- ✓ All-in-one module, no extra charge
- ✓ Upgrades and free technical support for one year
- ✓ Lifetime License

 <p><b>High-Tech</b></p> <p>Gamepads, Game Consoles, Smart Speakers, Bluetooth Headsets, Mouse, Keyboards, Phones, Computer Assemblies, Hard Drives, Laptops, etc...</p>	 <p><b>Fashion &amp; Beauty</b></p> <p>Tattoos, Nails, Necklaces, Pendants, Earrings, Rings, Hats, Caps, Jackets, Jackets, Backpacks, Handbags, Lingerie, Shoes, etc...</p>	 <p><b>Decoration</b></p> <p>Sofas, Chairs, Tables, Stools, Paintings, Posters, Frames, Suspensions, Lamps, Pots, etc...</p>	 <p><b>Sport &amp; Leisure</b></p> <p>Guitars, Drums, Converted Vehicles, Bicycles, Motorcycles, Cars, Trucks, Helmets, Skateboards, Rollerblades, Knives, Axes, Pistols, Armor, Figurines, etc...</p>
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**Table 1: Examples of deployable products in PSCONFIGURATOR**

## COMPATIBILITY

Version Prestashop	Versions PHP	Operating systems	Internet browsers
Greater than or equal to 1.7	Greater than or equal to 7.4.33	Microsoft Windows, macOS, iOS, Android	Chrome, Safari, Mozilla Firefox, Edge, Opera, Brave

**Table 2: List of PSCONFIGURATOR module compatibilities**

## CHANGE HISTORY

Publication date	Module Version	Designation
12/10/2024	2.0	Creation of documentation

**Table 3: Evolution of the documentation**

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# Presentation

PSCONFIGURATOR is an advanced all-in-one product configuration module for Prestashop e-commerce sites, which allows you to customize an infinite number of sub-assemblies of the same product. It is developed and designed for product customization professionals wishing to automate and streamline their sales process by optimizing the management of their catalog while freeing themselves from the manual production and iteration of handwritten quotes.

It helps deliver a smarter shopping experience by significantly increasing conversions through real-time interactive personalization and increased production availability. Fully responsive and multi-media, it is also well suited for display on mobile, tablet and PC, guaranteeing smooth navigation and display regardless of the device and browser used.

Based on an optimized layer overlay system, the tool allows the management of an infinite number of combinations without slowing down, providing the customer with an instant overview of the customized product and its final price. Customization options include adding and modifying components, colors, textures, varnishes, texts, personal images, and logos.

Saving and sharing features are also present for a design in several times or to share all your achievements with a friend (wish list).

With a view to operational efficiency, the back-office order pages created with PSCONFIGURATOR include a high-definition image of the customized product, a detailed customization report, the images uploaded by the customer as well as a link to the completed editor.

The PSCONFIGURATOR license is for life for the use and operation of all its features. It is easy to install and takes less than a minute. Creating customizable product layered images requires the use of the clipping and coloring features of a graphic tool such as Gimp (free) or Photoshop. Documentation written in English and French is provided with the license.

# Part 1. Features

## 1 FRONT OFFICE FEATURES (CUSTOMERS)

### 1.1 CONTROL PANEL

FO-J1	✓ Management of vertical component overshoot: automatic block cutting	Automatic
FO-J2	✓ Management of horizontal group overflows: automatic display of left and right navigation buttons	Automatic
FO-J3	✓ Management of vertical overshoot of options: automatic display of a navigation elevator	Automatic

### 1.2 PRODUCT VISUALIZATION

FO-V1	✓ Dynamic view switching without slowing down	
FO-V2	✓ Canvas zoom up to 300%	
FO-V3	✓ Instantly update both views for the same option	Automatic
FO-V4	✓ Flickering of the selected component	Administrable
FO-V5	✓ Automatic maximum coverage of the canvas in the viewport	Automatic
FO-V6	✓ Interactive shuffle mode with play, pause and next design buttons	Administrable

### 1.3 CUSTOMER REASSURANCE

FO-R1	✓ Clean, intuitive professional design fully adapted for mobile and tablet	Automatic
FO-R2	✓ Instant price update including VAT	Automatic
FO-R3	✓ Replaced the displayed price with "Price from" on product pages and category pages for customizable blank products	Administrable
FO-R4	✓ Replaced the price displayed with "Template Price" on product pages and category pages for customizable preconfigured products	Administrable
FO-R5	✓ Optimizing Publisher Load Time	Automatic
FO-R6	✓ Optimized render image loading: Built-in caching system for each option	Automatic
FO-R7	✓ Display of a block of information about the general customization process	Administrable
FO-R8	✓ Display of an information block on all necessary groups	Administrable
FO-R9	✓ Indicators on components that are already customized from the component list	Automatic
FO-R10	✓ Detailed personalization report in the shopping cart and in the checkout funnel	Automatic
FO-R11	✓ Integration of the personalized product rendering image in the shopping cart and in the order tunnel	Page 41
FO-R12	✓ Return to product design for modification accessible from the cart	Automatic
FO-R13	✓ Warning about low-quality uploaded images	Administrable
FO-R14	✓ Warning about image upload errors	Automatic
FO-R15	✓ Warning about out-of-stock components and options when loading a saved editor	Automatic
FO-R16	✓ Display of a "customizable" flag on customizable products on category pages	Administrable

## 1.4 EDITOR MENU

FO-M1	✓ Safeguarding of progress	Administrable
FO-M2	✓ Sharing progress	Administrable
FO-M3	✓ HD download of the render image	Administrable
FO-M4	✓ Shareable Wishlist	Administrable
FO-M5	✓ Design reset	
FO-M6	✓ Back to the product sheet	

## 1.5 TEXT EDITING

FO-T1	✓ Multi-line text handling	Automatic
FO-T2	✓ Choosing fonts	Administrable
FO-T3	✓ Choice of colors	Administrable
FO-T4	✓ Size selection	Administrable
FO-T5	✓ Choice of alignment	Administrable

## 1.6 EDITING UPLOADED IMAGES

FO-U1	✓ Dynamic image editing integrated into the canvas	Automatic
FO-U2	✓ Movement with real-time out-of-area image reflection	Automatic
FO-U3	✓ Automatic image sizing on import for full coverage of the upload area	Automatic
FO-U4	✓ Automatic product zoom when importing images that protrude from the viewing window	Automatic
FO-U5	✓ Flipping	
FO-U6	✓ Rotation	
FO-U7	✓ Change of zone	
FO-U8	✓ Duplication	
FO-U9	✓ Colorimetry	
FO-U10	✓ Luminosity	
FO-U11	✓ Saturation	
FO-U12	✓ Margin Display	Administrable
FO-U13	✓ Unlimited uploads per zone	

## 1.7 DIRECT LINKS TO PUBLISHERS

FO-D1	✓ Direct opening of an editor possible by codified link from any area of the site	Page 41
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## 2 BACK-OFFICE FEATURES (ADMINISTRATORS)

### 2.1 ORDERS PAGE

BO-Z1	✓ Detailed Customization Report	Automatic
BO-Z2	✓ Downloadable custom product rendering image in high definition	Automatic
BO-Z3	✓ Completed link to the configurator	Automatic
BO-Z4	✓ Downloadable uploaded images in their original resolutions	Automatic

### 2.2 CONFIGURATOR ADMINISTRATION

BO-E1	✓ Product association by keywords	Page 20
BO-E2	✓ Unlimited creation of configurators, components, groups and all three types of options	Pages 20, 23, 25, 27, 28 and 32
BO-E3	✓ Managing component subassemblies	Page 24
BO-E4	✓ Flickering of the selected component	Page 25
BO-E5	✓ Managing layer masks for each component	Page 25
BO-E6	✓ Easy ordering of elements by dragging and dropping	Page 18
BO-E7	✓ Customizing component and option icons	Pages 24 and 27
BO-E8	✓ Multiple or non-multiple group option selection	Page Erreur ! Signet non défini.
BO-E9	✓ Selection of cross-group options that can be combined or not	Page Erreur ! Signet non défini.
BO-E10	✓ "New" option flag	Page 27
BO-E11	✓ Multilingual management on all elements	Page 42
BO-E12	✓ Support for jpg, png and webp image formats	Pages 20, 23, 25, 27, 28 and 32
BO-E13	✓ Number of Single or Double Product Views	Page 20
BO-E14	✓ Free arrangement of views in the canvas	Page 22
BO-E15	✓ Price encryption	Automatic Page Information 16

### 2.3 ADMINISTERING PRECONFIGURED PRODUCTS

BO-P1	✓ Unlimited combination of customized products with a pre-configured configurator	Page 34
BO-P2	✓ Admin bar in the editor limited and reserved for logged-in employees	Page 34
BO-P3	✓ Download the render produced in its maximum resolution	Page 34
BO-P4	✓ Replaced the price displayed with "Template Price" on product pages and category pages for customizable preconfigured products	Page 39

## 2.4 ADMINISTERING TEXT FIELDS

BO-T1	✓ Defining text fields in position, size, and orientation	Page 33
BO-T2	✓ Adding new fonts and managing inventory	Page 36
BO-T3	✓ Selecting the list of fonts to display	Page 33
BO-T4	✓ Choosing the default selected font	Page 33
BO-T5	✓ Adding new colors and managing inventory	Page 36
BO-T6	✓ Selecting the List of Colors to Display	Page 33
BO-T7	✓ Choosing the Default Selected Color	Page 33
BO-T8	✓ Selecting the Default Alignment	Page 32
BO-T9	✓ Default size selection	Page 32
BO-T10	✓ Price excl. VAT per character	Pages 16 and 32

## 2.5 UPLOAD AREA ADMINISTRATION

BO-U1	✓ Definition of upload zones in position and size	Page 28
BO-U2	✓ Handling component overflows by layer mask	Page 28
BO-U3	✓ Opacity	Page 28
BO-U4	✓ Price excl. VAT per upload zone	Pages 16 and 28

## 2.6 REINSURANCE ADMINISTRATION

BO-R1	✓ Replaced the displayed price with "Price from" on product pages and category pages for customizable blank products	Page 39
BO-R3	✓ Display of a block of information about the general customization process	Page 22
BO-R4	✓ Display of an information block on all necessary groups	Page 27
BO-R5	✓ Controlling the resolution of uploaded images	Page 31
BO-R6	✓ Display of a "customizable" flag on customizable products on category pages	Page 27

## 2.7 STYLE ADMINISTRATION

BO-S1	✓ Built-in color picker	Page 40
BO-S2	✓ Customizable publisher logo	Page 40
BO-S3	✓ Button customization	Page 40
BO-S4	✓ Customizing the editor's footer header	Page 40
BO-S5	✓ Customize the editor background (solid color, linear gradient, circular gradient, or embed an image)	Page 40

## Part 2. Deployment steps

### 1 GOING LIVE

Deploying your custom products to production requires going through three main phases, which are outlined below. The digitization phase of your products can be carried out by you or by our team on request.

 <p><b>1. Installing the module</b></p> <p>Install our module on any Prestashop website as it is compatible with all Prestashop themes.</p> <p>→ Cf. Page 13</p>	 <p><b>2. Product digitalization</b></p> <p>Take photos of your product, build/scan your product layers, or contact us to do it for you.</p> <p>→ Cf. Page 14</p>	 <p><b>3. Uploading layers</b></p> <p>Upload the layers to our intuitive admin panel and publish your configurations.</p> <p>→ Cf. Page 16</p>
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**Table 4: Steps to release the PSCONFIGURATOR module**

### 2 TO GO FURTHER

Advanced features have been added to the module to perfect the integration of your personalized products and the customer experience within your Prestashop store.

<p><b>5. Linking of pre-configured products (optional)</b></p> <p>If necessary, create in Prestashop your related products towards the desired preconfiguration.</p> <p>→ Cf. Page 34</p>	<p><b>4. Connecting Your Theme (Optional)</b></p> <p>Replace the main product image with the canvas rendering image in the cart page, order page, and order confirmation page.</p> <p>→ Cf. Page 41</p>	<p><b>6. Embedding Links to the Editor (Optional)</b></p> <p>Encourage your customers to personalize your products with links to your publishers from any area of your website.</p> <p>→ Cf. Page 41</p>
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**Table 5: Branching from PSCONFIGURATOR to the entire store**

# Part 3. Installing the module

## 1 AUTOMATIC INSTALLATION

1. Click on the "Install a module" button from the "Module Manager" tab from the admin panel of your Prestashop store
2. Drag the pconfigurator.zip archive into the installation window

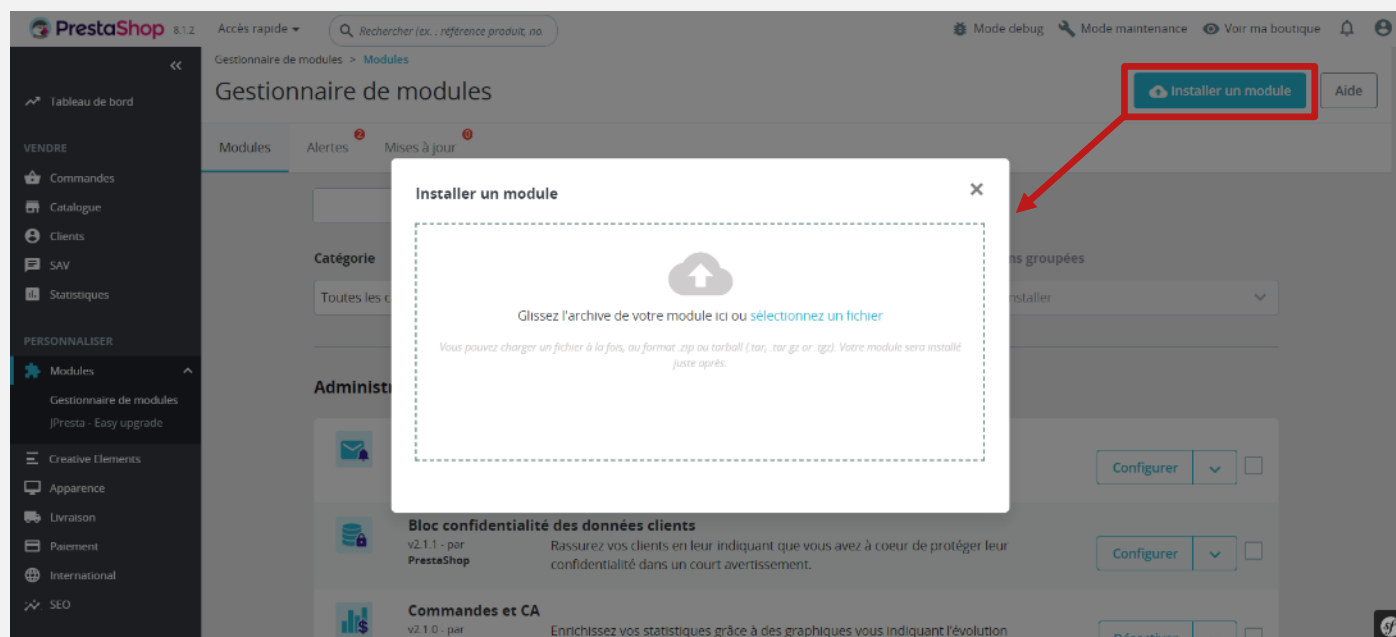


Figure 1: Automatic installation of PSCONFIGURATOR

## 2 MANUAL INSTALLATION

1. Unzip the pconfigurator.zip archive to the root of the "modules" folder of your Prestashop site.
2. From the back office, search for the module via the keyword "psc" and then click on the "install" button.

## 3 MODULE CONFIGURATION

1. Go to the Module Manager from the admin panel of your Prestashop store and search for the module by typing the keyword "psc" in the search field.
2. Click on the "Configure" button.

# Part 4. Product Digitalization

## 1 NOTION OF DIGITALIZATION

The digitalization of the product is an essential step in the creation of a configurator. It consists of transforming the photos of your product into several cropped images on a transparent background called layers, which will allow the software to offer the customer an instant rendering of the personalized product by superimposing them.

This requires the use of the clipping and coloring functions of a graphics tool such as Gimp (free) or Photoshop. If you wish, you can request a quote from our team to carry out the digitization step for you.

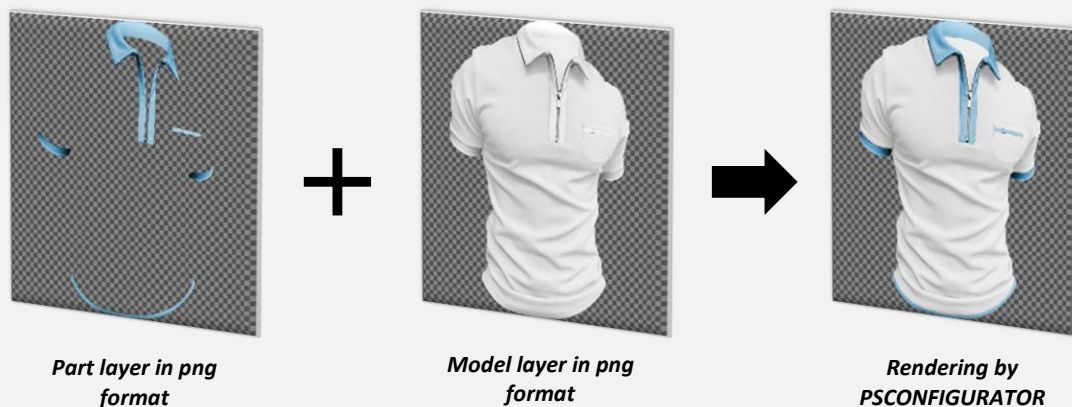


Figure 2: Example of the principle of layers

Three types of layers can be used by the module: model layers, component layers, and layer masks.

## 2 MODEL LAYERS

Template layers show your full clipped product. The first template layers to create are the ones that will be displayed when the editor opens. They are usually the basic product free of any customization.

If the product contains text or images to be printed, make sure that these areas are presented facing the screen. For a quality presentation on all media, we recommend that the smallest side of your image has a size of 1750 pixels. It is recommended to favor square images so that the views are evenly distributed in the canvas.



Figure 3: Product Template Layers to Customize

### 3 COMPONENT LAYERS

Component layers or subsets of components have the customizable clipped elements as the name suggests. Cuts are usually made from a template layer, but can also come from an element to be added that is not part of the initial template.

### 4 LAYER MASKS

Layer masks allow the module to automatically delimit the elements to be displayed. They are used to delimit the areas for printing text or images but also to reduce by more than 80% the number of layers of parts to be created (Cf. Appendix X1 page 43 for the details of the calculation).

A layer mask is white and transparent. White elements correspond to the shapes to be displayed, while transparent elements correspond to the shapes to be hidden. The following image shows an example of a part layer compiled using a mask layer and a model layer.

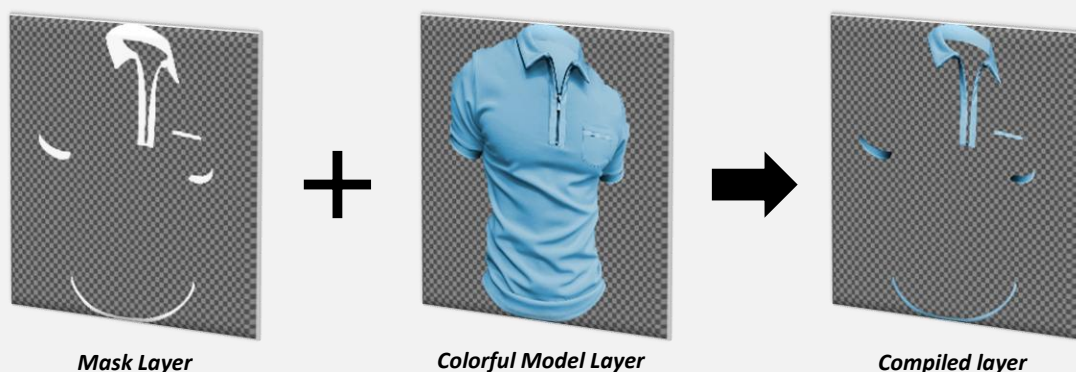


Figure 4: Compiling Layers with Mask

# Part 5. Software Administration

## 1 THE DESIGN STUDIO

### 1.1 GENERAL

The PSCONFIGURATOR module is specially developed for an optimized instant display on any device. No action is required on the administration side to benefit from this feature. For the purposes of this documentation, the terms "design studio" and "publisher" both represent the product's end-user graphic design window, as shown in the following figure.

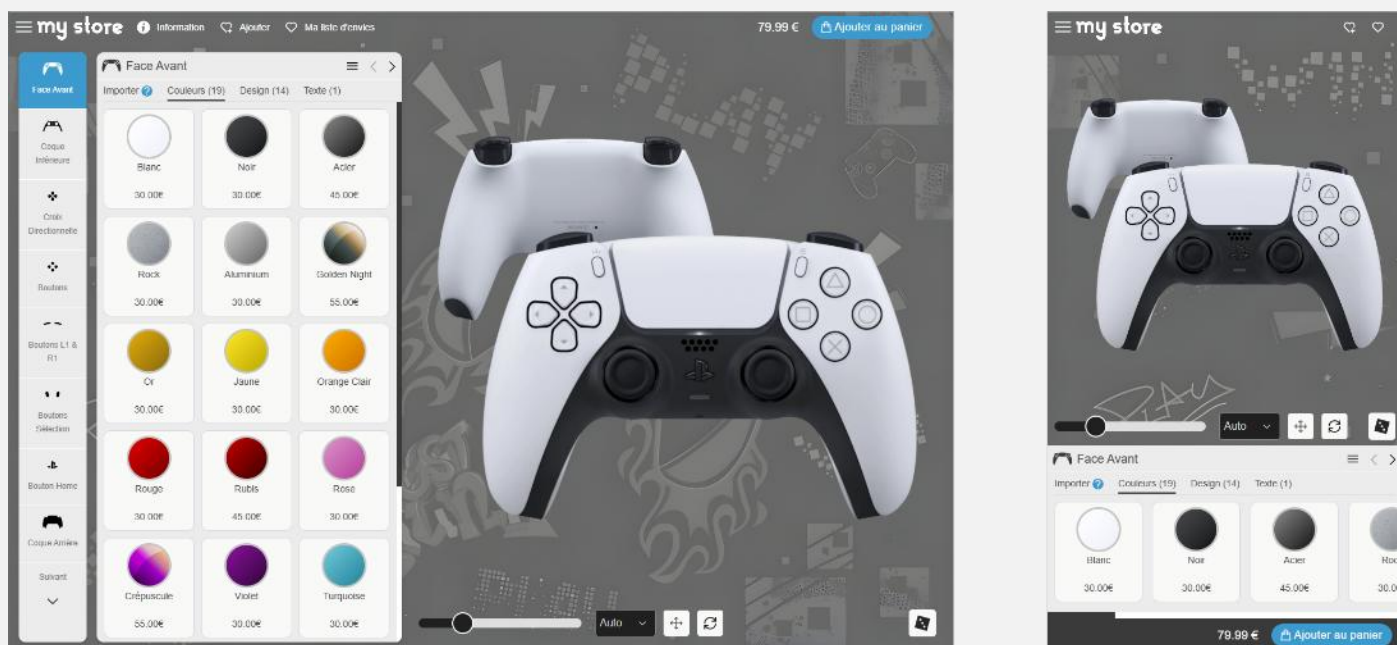


Figure 5: Configured PSCONFIGURATOR Design Studio - PC and Mobile

### 1.2 UPDATING AND SECURING PRICES

The final price associated with the "Add to cart" button is automatically and instantly updated as soon as the user changes the product configuration from the control panel. Note that all prices are presented inclusive of all taxes, and that the prices recorded from the administration forms must be filled in excluding tax. Taxes for the product associated with the configurator are automatically applied.

All the publisher's prices are encrypted, which means that malicious modification of the amounts from the browsers' developer tools will have no impact on the price of the product added to the cart.

## 2 EDITOR AREAS

To fully understand the language used in the rest of this documentation, the following image shows the vocabulary of the different customizable parts of the editor.











	Components and/or Sub-assemblies		Main Product View
	Option Package		Additional Product View
	Options		Editor's header
	Canvas		Publisher footer

Figure 6: Description of the areas of the PSCONFIGURATOR editor

## 3 ADMIN PANEL

ID	Title	Icon	Foreground view	Type	View 1 mask layer	View 2 mask layer	View 1 highlight layer	View 2 highlight layer	Position	Status
1	Front shell		1	Component		✗		✗	+ 1	✓
2	Left handle		1	Subcomponent		✗		✗	+ 2	✗
3	Right handle		1	Subcomponent		✗		✗	+ 3	✗
4	Touchpad		1	Subcomponent		✗		✗	+ 4	✗
5	Bottom shell		1	Component					+ 5	✓
6	Dpad		1	Component		✗		✗	+ 6	✓
7	Buttons		1	Component		✗		✗	+ 7	✓

Figure 7: PSCONFIGURATOR Module Admin Panel

The PSCONFIGURATOR module's admin panel is accessible from the back-office of your Prestashop store. Type "psc" in the search field of the module manager to get quick access to it.

There are five main sections in the Admin Interface menu: Configurators, Preconfigured Products, Inventory, Features, and Styles, the contents of which are detailed in the rest of this documentation.

<p><b>1. Configurators section</b></p> <p>Define your configurators, their parts and sub-assemblies, option groups, and options.</p>	<p><b>2. Pre-configured Products Section</b></p> <p>Define the pre-configured products in connection with one of your configurators.</p>	<p><b>3. Fonts Section</b></p> <p>Manage all the fonts and text colors to be distributed in your configurators.</p>	<p><b>4 &amp; 5. Features &amp; Styles Sections</b></p> <p>Manage editor styles, features, and contextual options.</p>
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Table 6: PSCONFIGURATOR Admin Panel Main Menu

## 4 THE CONFIGURATORS SECTION

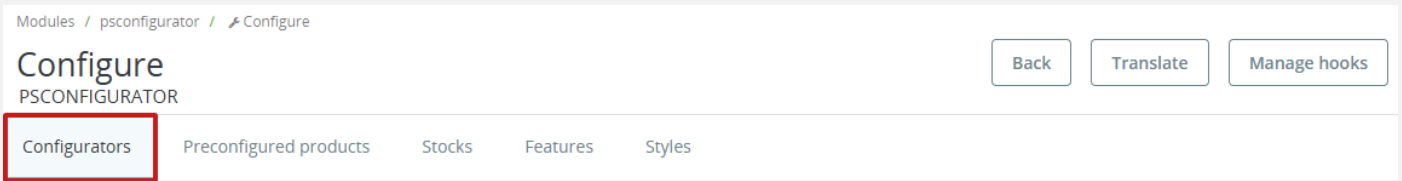


Figure 8: Configurators section of the PSCONFIGURATOR menu

### 4.1 ELEMENT HIERARCHY

The Configurators tab is presented as lists of hierarchical elements. The layers of your customizable product will be uploaded to the editing forms of each list.



Figure 9: Configurators tab administration hierarchy

A breadcrumb trail is present at the head of each table, allowing you to know at any time the level you are in. Scrolling down this hierarchy is done using the "View" button in the last column of each table. Upward navigation is executed via the "Back" button in the lower left part of the table, as shown in the following figure.

Configurators > Components & Subassemblies > Option groups > Options Add Element

**Type and Named Breadcrumbs**

PS5 controller > List of components 16

ID	Title	Icon	Foreground view	Type	View 1 mask layer	View 2 mask layer	View 1 highlight layer	View 2 highlight layer	Position	Status	Next List
1	Front shell		1	Component		×		×	+ 1	✓	<span style="border: 1px solid red; padding: 2px;">View</span>
2	Left handle		1	Subcomponent		×		×	+ 2	✗	View
15	Instant buttons		1	Component					+ 15	✗	View
16	Vibrations		2	Component	×	×	×		+ 16	✓	View

Back to configurators list **Previous List** **Add Element** Add new component or subassembly

Figure 10: Uplink and downlink navigation of the Configurators tab

## 4.2 EDITING A CONFIGURATOR

### 4.2.1 Form Overview

For information, the title of your configurator will be used for organizational purposes only and will not be displayed in the design studio.

[Configurators](#) > [Components & Subassemblies](#) > [Option groups](#) > [Options](#)

⚙️ Add configurator

\* Title ?  en ▼  
Prohibited characters: <->=#{}

\* Select a product ?  Q **Product selection  
Keyword search motor**  
 5 - Création **Design** Manette PS5  
 6 - Création **Design** Manette XBOX  
 7 - Création **Design** Manette PS4  
 8 - Création **Design** Manette SWITCH

\* Image view 1 ?  Choose a file **Base model  
layers to upload**  
Allowed formats: .png, .jpg, .gif, .webp.  
 Min recommended image dimension: 1750 x 1750 pixels.  
 Max file size: 8M.

Allow view 2  Enabled

\* Image view 2 ?  Choose a file  
Allowed formats: .png, .jpg, .gif, .webp.  
 The dimension must be the same as the image 1.  
 Max file size: 8M.

\* View 1 position ?          
Position LTWH (Left, Top, Width, Height) of the view in canvas.

\* View 2 position ?          
Position LTWH (Left, Top, Width, Height) of the view in canvas.

Information content ?  en ▼  
 Paragraph ▼  
Suggestion: copy in the code source the content of the file "information.txt" located in "modules/psconfigurator/samples".

Status  Offline

Figure 11: Configurator editing form

### 4.2.2 Master Product Selection

The selection of the product on which the configurator will be grafted is done only by keyword(s). Once the keyword(s) have been entered, only products that are free of any customization parameters are available for selection.

### 4.2.3 Importing Model Layers

The layer(s) of the base model of your product are to be uploaded in the following lines. Be sure to follow the selection guidelines under the selection fields before importing them.

----- **Attention** -----

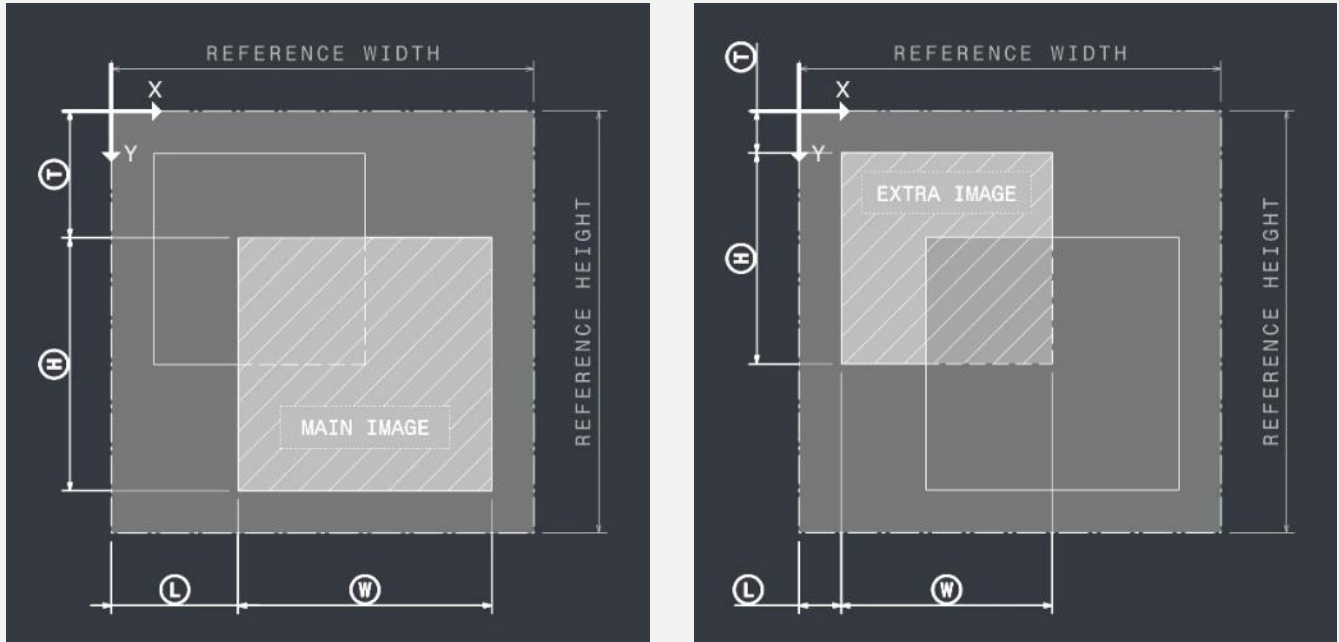
Absolutely all layers to be integrated for the same configurator must have the same dimension as the model layer in view 1. If you decide to change the dimension of this layer along the way, all the others will need to be adapted.

So that your product is displayed in good quality on all media with an optimized loading time, we recommend that your layers have a minimum dimension of 1750 x 1750 pixels and be imported in webp format with exceptional compression quality.

-----

#### 4.2.4 Position of the views

If your product has only one view, you do not have to worry about that part. If your product has two of them, you will need to position each of them in the canvas. The following figure shows the distances to be entered in the form (Left, Top, Width, Height).



<b>MAIN IMAGE</b>	Main image: Imported model layer for view 1
<b>EXTRA IMAGE</b>	Secondary image: Imported model layer for view 2
<b>REFERENCE WIDTH</b>	Native width of the imported model layer for view 1
<b>REFERENCE HEIGHT</b>	Native height of the imported model layer for view 2
<b>L (LEFT)</b>	Distance in pixels between the left edge of the canvas and the left edge of the resized view
<b>T (TOP)</b>	Distance in pixels between the top edge of the canvas and the top edge of the resized view
<b>W (WIDTH)</b>	Width in pixels of the resized view in the canvas
<b>H (HEIGHT)</b>	Height in pixels of the resized view in the canvas

Figure 12: Schema for positioning views in the canvas

#### 4.2.5 General information

In case this field is filled in, an information button will be automatically added to the design studio menu. It will present the user with all the information you deem necessary regarding the customization of the product. For example, you can include a description of your manufacturing processes, the origin of your parts, frequently asked questions/answers, contact information for your workshop, etc.

## 4.3 EDITING A COMPONENT

### 4.3.1 Form Overview

This form allows you to fill in the title of the component, upload its icon, select its type (component or subcomponent), associate a layer mask for each view, and select the view to be placed in the foreground when selecting the component in the editor. The full form is shown in the following figure.

Configurators > [Components & Subassemblies](#) > Option groups > Options

PS5 controller > Add component

\* Title  en ▾  
Prohibited characters: <>=#{}

\* Icon  Choose a file **Part icon to upload**  
.png, .jpg, .webp  
 Max file size: 8M.  
 Recommended size: 170 x 170 pixels

\* Component type ?  ▾  
 Component  
 Subcomponent

View 1 mask layer ?  Enabled

\* Upload your image  Choose a file **Mask layer to upload**  
.png only.  
 File size: 1750 x 1750 pixels.

View 2 mask layer ?  Disabled

View 1 highlight layer ?  Enabled

\* Upload your image  Choose a file **Highlighted layer to upload**  
.png only.  
 File size: 1750 x 1750 pixels.

View 2 highlight layer ?  Disabled

\* Foreground view ?  ▾  
 View 1  
 View 2

Status  Offline

[Back to the list of components](#) Save

Figure 13: Component Edit Form

### 4.3.2 Importing your component icon

The size of this image in the configurator is 170 x 170 pixels. Avoid embedding larger images so as not to unnecessarily lengthen the loading time of the configurator. We recommend creating images with the same style for all your components for consistency.

### 4.3.3 Component Type

This option is useful when you want to offer a choice between customizing an assembled component and customizing its subcomponents independently. The subcomponents are displayed in the design studio in the manner shown in the following figure.

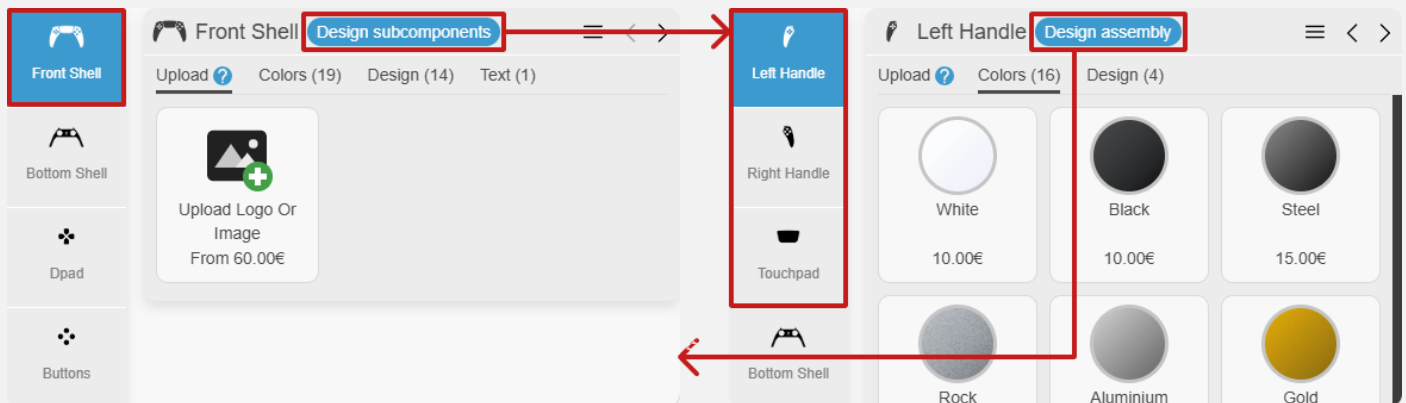












Figure 14: Enabling sub-components in the design studio

The assembled component does not need to be parameterized. In the list of components, the one before the subcomponents will automatically be the assembled component. Arrange the components as desired by dragging and dropping from the position column.

Configurators > Components & Subassemblies > Option groups > Options

PS5 controller > List of components **16**

ID	Title	Icon	Foreground view	Level	Position	Status	
1	Front shell		1	Component	+ 1	✓	 View
2	Left handle		1	Subcomponent	+ 2	✓	 View
3	Right handle		1	Subcomponent	+ 3	✓	 View
4	Touchpad		1	Subcomponent	+ 4	✓	 View
5	Bottom shell		1	Component	+ 5	✓	 View

The table shows a hierarchy where 'Front shell' is the 'Parent' (Component) and 'Left handle', 'Right handle', and 'Touchpad' are its 'Child' (Subcomponent) items. The 'Position' column shows the order of these children (2, 3, 4). Red boxes and lines in the original image highlight the 'Level' and 'Position' columns for the parent and children, and a red bracket groups the children under the 'Parent' label.

Figure 15: Overview of an assembly's subcomponents in the component list

#### 4.3.4 Importing Layer Masks

As a reminder, the size of the image to be imported must be equal to the size of the base model layer that was imported earlier. To be fully functional, the image must have the png extension. This image allows you to define the areas to be hidden on the layers in the list of options (Cf. Part 5.4.1: Element hierarchy). A layer mask is white and transparent. White elements correspond to the shapes to be displayed, while transparent elements correspond to the shapes to be hidden.

#### 4.3.5 Importing Highlight Layers

This option allows selected components in the studio to flash for a moment in the canvas to indicate to the user which element is being customized. These layers are usually based on the mask layers, but this time they will be the desired highlight color.

#### 4.3.6 Foreground view

This option is only available if the parent configurator contains two views. In the Design Studio, the chosen view will automatically be brought to the foreground when the component is selected.

### 4.4 EDITING AN OPTION GROUP

#### 4.4.1 Form Overview

This form allows you to fill in the title of the group, its type (textural, image upload or text field), the activation of multiple and cumulative features as well as the description of the group.

Configurators > Components & Subassemblies > [Option groups](#) > Options

PS5 controller > Front shell > Add option group

\* Title  en ▼  
Prohibited characters: <>=#[]

\* Type ?  ▼  
 Textural  
 Upload zone  
 Text area  
The type of option group determines the configuration of the options it contains.

Multiple options ?  Disabled

Cumulative option group ?  Disabled

Description  en ▼  
Create a helper button which displays this content next to the option group button. Ensure that the prestashop purifier library is disabled if you want to write advanced html code (Store settings / General settings / Use HTMLPurifier Library).

Status  Offline

[Back to the list of option groups](#) [Save](#)

Figure 16: Option Group Edit Form

#### 4.4.2 Options types

This field allows you to define the type of option to be presented under this group. The classification into three types covers all the possible options, as detailed in the following table.

<b>TEXTURAL</b>	New subassemblies or components, textures, colors, or varnishes
<b>UPLOAD ZONE</b>	Image upload areas
<b>TEXT AREA</b>	Text fields

Table 7: Distribution of options by type

#### 4.4.3 Multiples options

This feature allows the user to select multiple options in the same group.

#### 4.4.4 Cumulative option group

If this feature is active, the option(s) in the selected group can be combined with those in the other option groups.

#### 4.4.5 Group Description

Filling in this field allows the automatic addition of a "?" icon next to the group title to open an information window. If you want to add advanced html code, make sure that the "Use HTMLPurifier Library" option is disabled from the following path: Store Settings / General Settings.

### 4.5 EDITING A TEXT OPTION

A textural option requires the import of component layer(s) (new subassemblies or components, textures, colors, varnishes, etc.). You will be asked to specify the title of the option, its price, the icon to present in the options window, the layers to display in the canvas as well as their opacity.

It is also possible to display a "New" flag on the studio option to attract the user's attention.

Configurators > Components & Subassemblies > Option groups > [Textural options](#)

⚙️ PS5 controller > Front shell > Colors > Add textural option

\* Title  en ▾  
*Prohibited characters: <,>=#{}.*

Price   
*Price VAT excluded. If the product associated with the configurator uses VAT, the price will automatically recalculated.*

\* Icon  Choose a file  
*.png, .jpg, .webp  
 Max file size: 8M.  
 Recommended size: 170 x 170 pixels.*

\* Layer of view 1  Choose a file  
*.png, .jpg, .webp  
 Max file size: 8M.  
 File size: 1750 x 1750 pixels.*

\* Layer of view 2  Choose a file  
*.png, .jpg, .webp  
 Max file size: 8M.  
 File size: 1750 x 1750 pixels.*

\* Opacity   
*From 0 to 1.*

Flag new  Disabled

Status  Offline

Figure 17: Edit form for a textural type option

## 4.6 EDITING AN UPLOAD AREA

The upload area edit form allows you to define an area of your product where the user can upload their own images, photos, or logos, so that you can print them on the component.

Configurators > Components & Subassemblies > Option groups > [Upload zones](#)

PS5 controller > Front shell > Upload > Add upload zone

\* Title  en ▼  
*Prohibited characters: <>=#{}*

Zone price   
*Price VAT excluded. If the product associated with the configurator uses VAT, the price will automatically recalculated.*

Zone icon  Choose a file  
*.png, .jpg, .webp  
 Max file size: 8M.  
 Size displayed in the design studio: 66 x 66 pixels.  
 Image only used if there are several upload areas in the same option group.*

Mask layer  Choose a file  
*.png only.  
 File size: 1750 x 1750 pixels.*

\* Opacity   
*From 0 to 1.*

\* View  ▼  
*On which view is the upload zone?*

\* Zone position  px  px  px  px  
*Position LTWH (Left, Top, Width, Height) of the zone in the native view.*

Allow margins  Disabled

Allow resolution control  Disabled

Status  Offline

[Back to upload zones list](#) [Save](#)

Figure 18: Upload Area Edit Form

You will be asked to specify the title of the printable area, the price of the print, the icon of the area (necessary when several areas are proposed for the same component), the layer mask allowing the automatic clipping of the imported images, the opacity of the imported images, the view in which the area will be present, the size of the area, its position in the view, the print margins if necessary and the resolution to be controlled.

If more than one zone is defined, a selection window will appear as soon as the user wishes to import an image, prompting them to select the zone in which it should be placed.

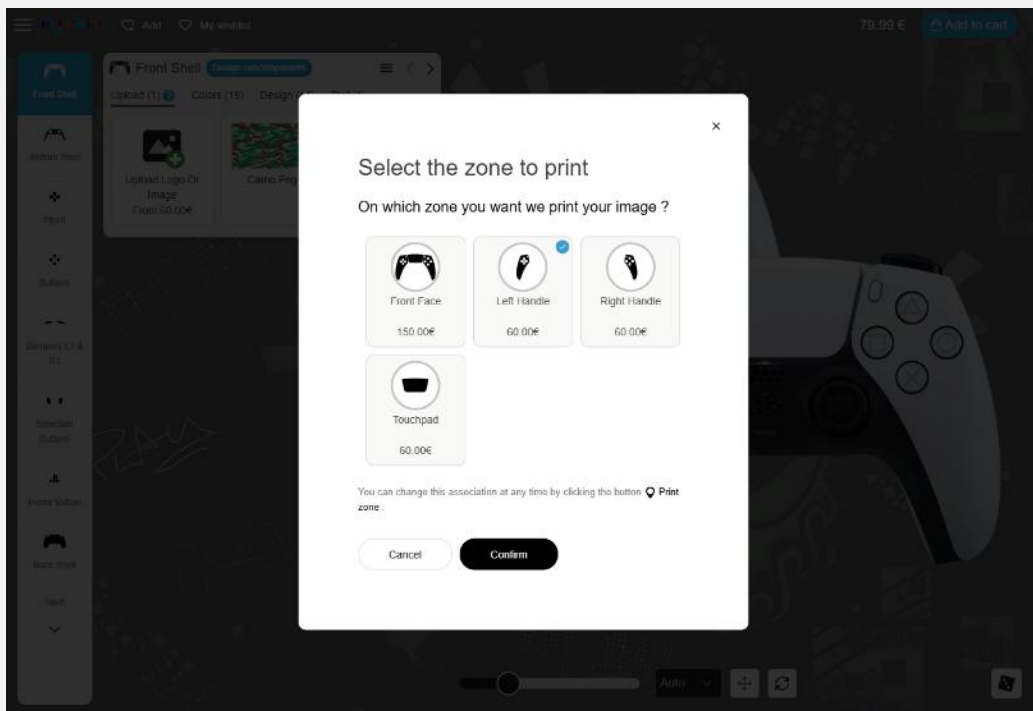


Figure 19: Upload Zone Selection Window

## 4.6.1 Definition of margins

Configurators > Components & Subassemblies > Option groups > [Upload zones](#)

⚙️ PS5 controller > Front shell > Upload > Add upload zone

Allow margins  Enabled

\* Margin definition  px  px  px  px

Position LTWH of the zone in the native view. Reference : upper left view's corner.

[Back to upload zones list](#) [Save](#)

**Figure 20: Upload Area Margin Definition Form**

The form for setting margins is displayed when the option is enabled. Margins are necessary when the printing process you are using can cause the pattern to shift its position from its support. In this case, it will be necessary for the printing area to be extended to the desired side(s). This feature therefore makes it possible to present the user with a safe zone that his images will have to cover.



**Figure 21: Comparison of an upload area with or without margins**

### 4.6.2 Resolution control

**Figure 22: User Uploaded Image Quality Control Definition Form**

The resolution control definition form appears when the option is enabled. This feature helps alert the user in case the sharpness and quality of the image they import is insufficient for quality printing.



**Figure 23: Alert message for a resolution below the set point**

The actual overall dimensions of the area are to be specified in inches. If you are working in the metric unit, the inch/cm conversion equation is specified below.

$$1 \text{ pouce} = 2.54 \text{ cm}$$

**Equation 1: Conversion of one inch to centimeters**

Finally, the resolution at which the warning message will be displayed must also be specified. Resolution defines the sharpness and quality of an image; it is expressed in the number of pixels per inch. The following table shows the standard resolution scale used in photo printing.

120	150	200	240	300
Insufficient	Acceptable	Good	Very good	Optimal

**Table 8: Resolution Scale**

## 4.7 EDITING A TEXT FIELD

The text field edit form allows you to define an area of your product in which the user can enter the text he wants, within the limit of the defined area.

You will be asked in which view the text box is to be integrated, to name the area, to import an icon corresponding to this area, to choose a price per character, to list the typographies and colors to be offered, to define the appearance of the initial text, to size the area, to position it and to enter its degree of inclination.

Configurators > Components & Subassemblies > Option groups > [Text areas](#)

⚙️ PS5 controller > Front shell > Text > Add text area

\* Title  en ▼  
Prohibited characters: <>=#{}

Character price  ?  
Price VAT excluded given per character.

\* Text area icon  ?   
.png, .jpg, .webp  
 Max file size: 8M

\* View  ▼  
On which view is the text area?

\* Initial size   
From 14 to 72.  
 Initial value: 16.

\* Align  ▼

\* Text area position          
Position LTWH (Left, Top, Width, Height) of the zone in the native view.

\* Text area angle   ?  
Initial value: 0. The direction of rotation is clockwise.  
 Unit: degree.

Status  Offline

Figure 24: Text field editing form / first part

### 4.7.1 Colors and fonts to offer

Configurators > Components & Subassemblies > Option groups > [Text areas](#)

⚙️ PS5 controller > Front shell > Text > Add text area

\* Fonts list  [Check all](#) | [Uncheck all](#)  
*Choose the fonts you want to purpose.*

\* Initial font    
*Make sure the initial font is part of your font list.*

\* Colors list  [Check all](#) | [Uncheck all](#)  
*Choose the colors you want to purpose.*

\* Initial color    
*Make sure the initial color is part of your color list.*

**Figure 25: Text field editing form / second part**

The lists of selectable fonts and colors can be managed from the "Fonts" section of the PSCONFIGURATOR general menu. Nine fonts and twenty-eight colors are pre-installed in the module. To add new ones that will be automatically available in all your configurators, refer to Part 5.6 of this document: page 36.

When the association is successful, the main image of the product will be displayed in the 'Product' column of the key list. On the product page side, the 'Customize' button pointing to the pre-configured editor will be offered below the product description.

### 4.7.2 Position of the text field

The position of text fields is defined by its pixel coordinates and skew angle in the frame of reference that is the configurator base layer. The diagram below details the values to be entered.

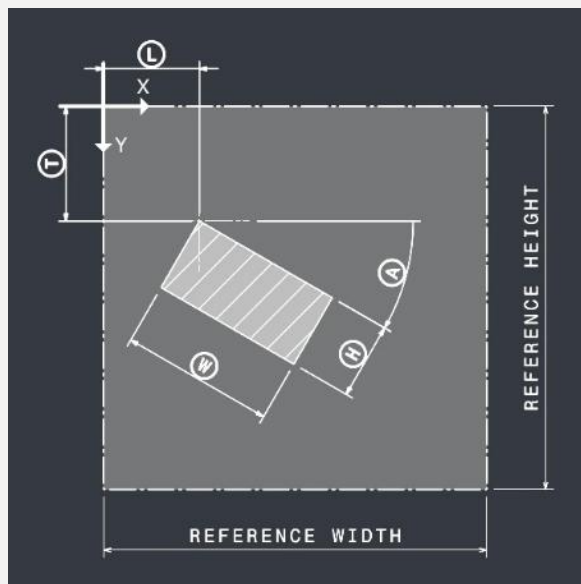


Figure 26: Positioning a text box in the native view

## 5 THE PRE-CONFIGURED PRODUCTS SECTION

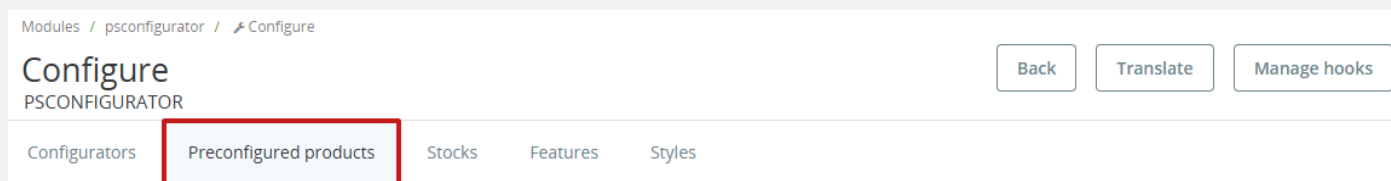


Figure 27: Pre-configured products section of the PSCONFIGURATOR menu

This section allows you to link any of your Prestashop products to a pre-configured studio. This is especially useful for showcasing flagship configurations as a product.

Three steps are necessary to make the whole thing operational: creation of the product in the Prestashop administration interface, creation of a configuration key from the studio and association of the key to the product. First, activate the studio's administration bar from the first window of the section, as shown in the following figure.

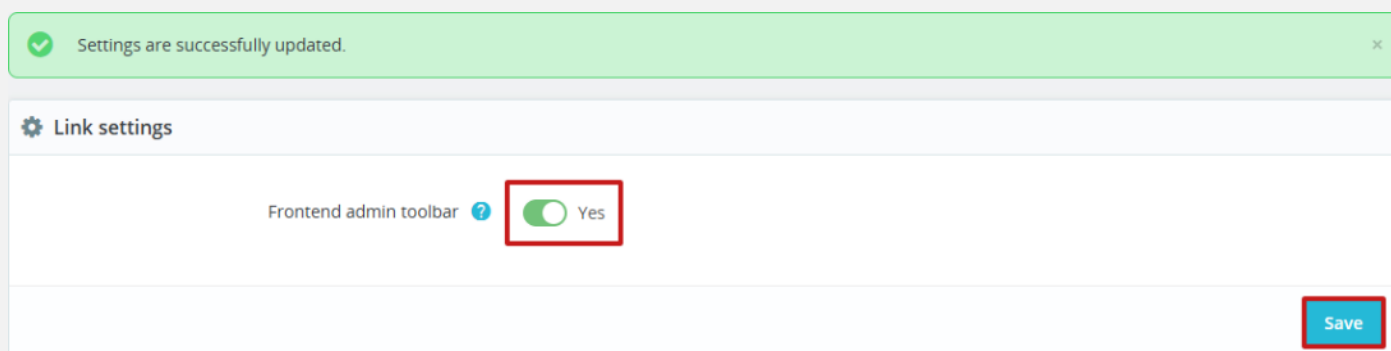


Figure 28: Activating the Studio Admin Bar

The admin toolbar will automatically be displayed at the bottom of the design studio's main menu. For security reasons, this toolbar is only available on the workstation of the employee who has an administrative session in use.

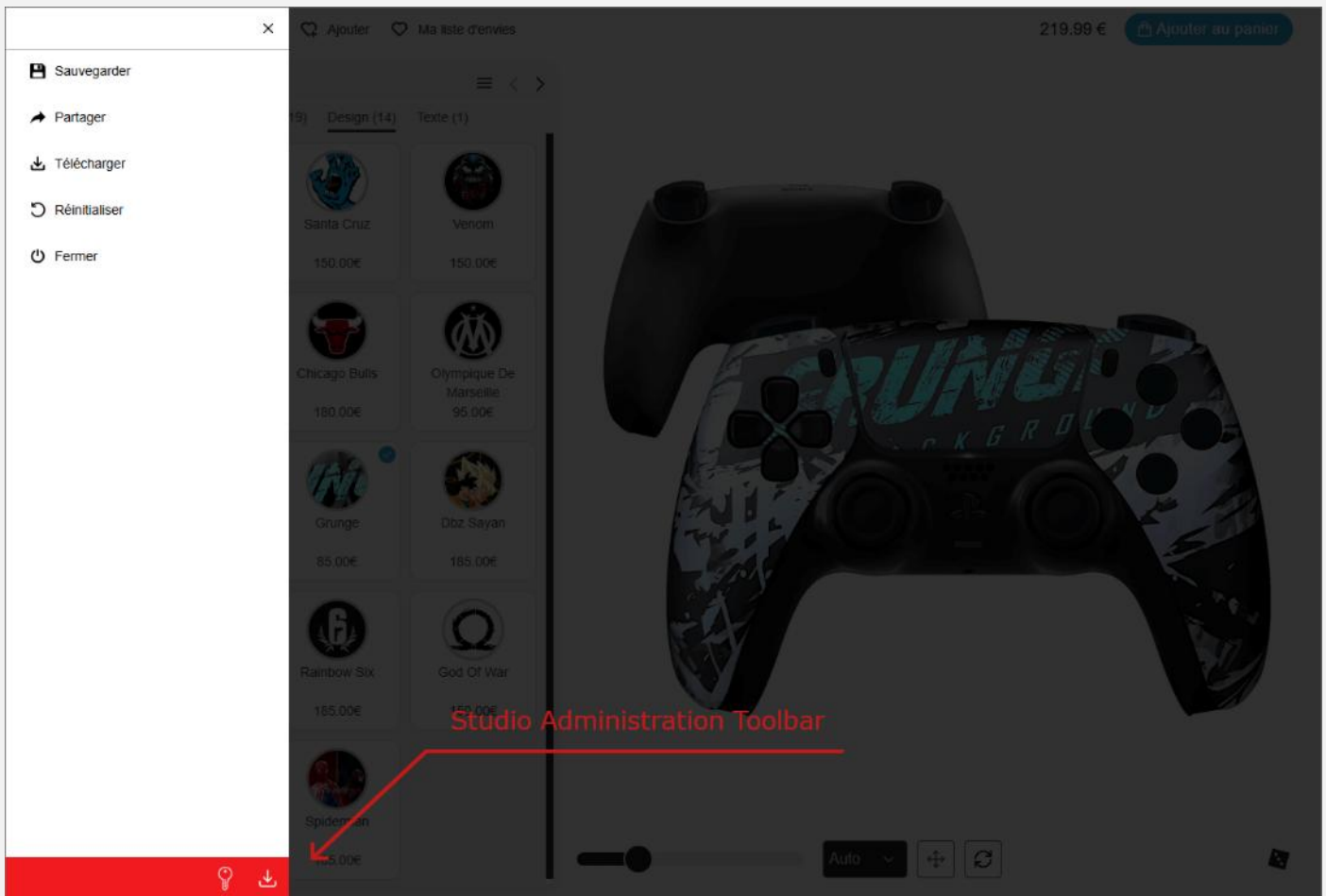


Figure 29: Studio Admin Toolbar

The creation of the product in the Prestashop administration interface is done like any other product, no specific parameters are to be specified. The product presentation image can be downloaded in its maximum resolution from the button on the studio's admin toolbar.

From the studio, customize your product as you want to present it and then press the key button to get the configuration key. The latter will then be instantly displayed above the toolbar.

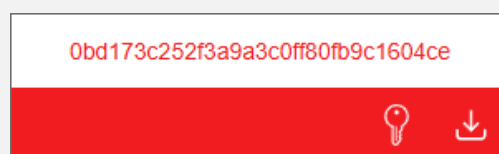


Figure 30: Custom Product Configuration Key

Once the key is created, refresh the admin panel section so that the key list will automatically update, then edit the relevant line to associate it with the desired Prestashop product.

Link ID	Configurator ID	Preview	Key	Product	Status
1	1		0bd173c252f3a9a3c0ff80fb9c1604ce		

Figure 31: Updated Key List

When the association is successful, the main image of the product will be displayed in the 'Product' column of the key list. On the product page, the "Customize" button pointing to the pre-configured editor will be offered below the product description.

## 6 THE INVENTORY SECTION

Figure 32: Section Stocks du menu PSCONFIGURATOR

To manage the fonts and text colors available in each of your configurators, click on the "Stocks" section of the main menu. The items shown in the following figure are present when the module is installed. However, you can freely delete existing items and add custom items.

ID	Title	Preview	File	Position	Status
1	fighter		Great Fighter Regular.ttf	+ 1	✓
2	genius		Tu Carmin Thin Regular.OTF	+ 2	✓
3	luxury		La Macchina Regular.ttf	+ 3	✓
4	machina		Ethnocentric R2 Regular.ttf	+ 4	✓
5	riders		Hayles Regular.ttf	+ 5	✓
6	shockwave		Shockwave.OTF	+ 6	✓
7	thunder		Call Of Duty Duty.OTF	+ 7	✓
8	sports		Akemon Black.ttf	+ 8	✓
9	superhero		Spider Man Regular.ttf	+ 9	✓

Figure 33: Multi-configurator mailing list for text fonts

Font color 28

ID	Color	Title	Hex code	Position	Status	
1		white	#ffffff	+ 1	✓	Edit
2		pale gray	#f0f0f0	+ 2	✓	Edit
3		dark gray	#404040	+ 3	✓	Edit
4		black	#000000	+ 4	✓	Edit
5		light blue	#add8e6	+ 5	✓	Edit
6		sky blue	#87ceeb	+ 6	✓	Edit
7		intense sky blue	#1e90ff	+ 7	✓	Edit
8		steel blue	#4682b4	+ 8	✓	Edit
9		pale green	#90ee90	+ 9	✓	Edit
10		light green	#90ee90	+ 10	✓	Edit
11		lime green	#32cd32	+ 11	✓	Edit
12		dark green	#008000	+ 12	✓	Edit
13		pale yellow	#ffff00	+ 13	✓	Edit
14		yellow	#ffff00	+ 14	✓	Edit
15		golden yellow	#ffd700	+ 15	✓	Edit
16		khaki	#f0e68c	+ 16	✓	Edit
17		pale orange	#ffcc99	+ 17	✓	Edit
18		light orange	#ffa500	+ 18	✓	Edit
19		dark orange	#ff8c00	+ 19	✓	Edit
20		orange	#ffa500	+ 20	✓	Edit
21		pink	#ffb6c1	+ 21	✓	Edit
22		magenta	#ff00ff	+ 22	✓	Edit
23		red	#ff0000	+ 23	✓	Edit
24		chestnut	#d2691e	+ 24	✓	Edit
25		pale purple	#dda0dd	+ 25	✓	Edit
26		light purple	#9370db	+ 26	✓	Edit
27		purple	#800080	+ 27	✓	Edit
28		dark purple	#4b0082	+ 28	✓	Edit

Display 30 / 28 results

Add new color

Figure 34: Multi-configurator mailing list of text colors

## 7 THE FEATURES SECTION

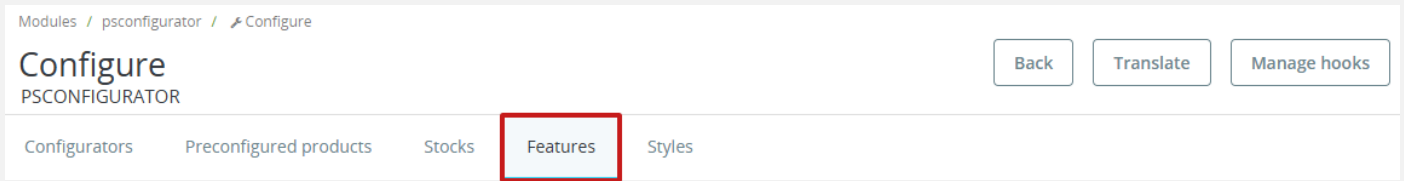


Figure 35: PSCONFIGURATOR Menu Features Section

### 7.1 EDITOR FEATURES

This part of the PSCONFIGURATOR administration allows you to select the features to deploy in the editor, such as shuffle, configuration backup and sharing, wish list, and uploading a canvas image in the resolution you set.

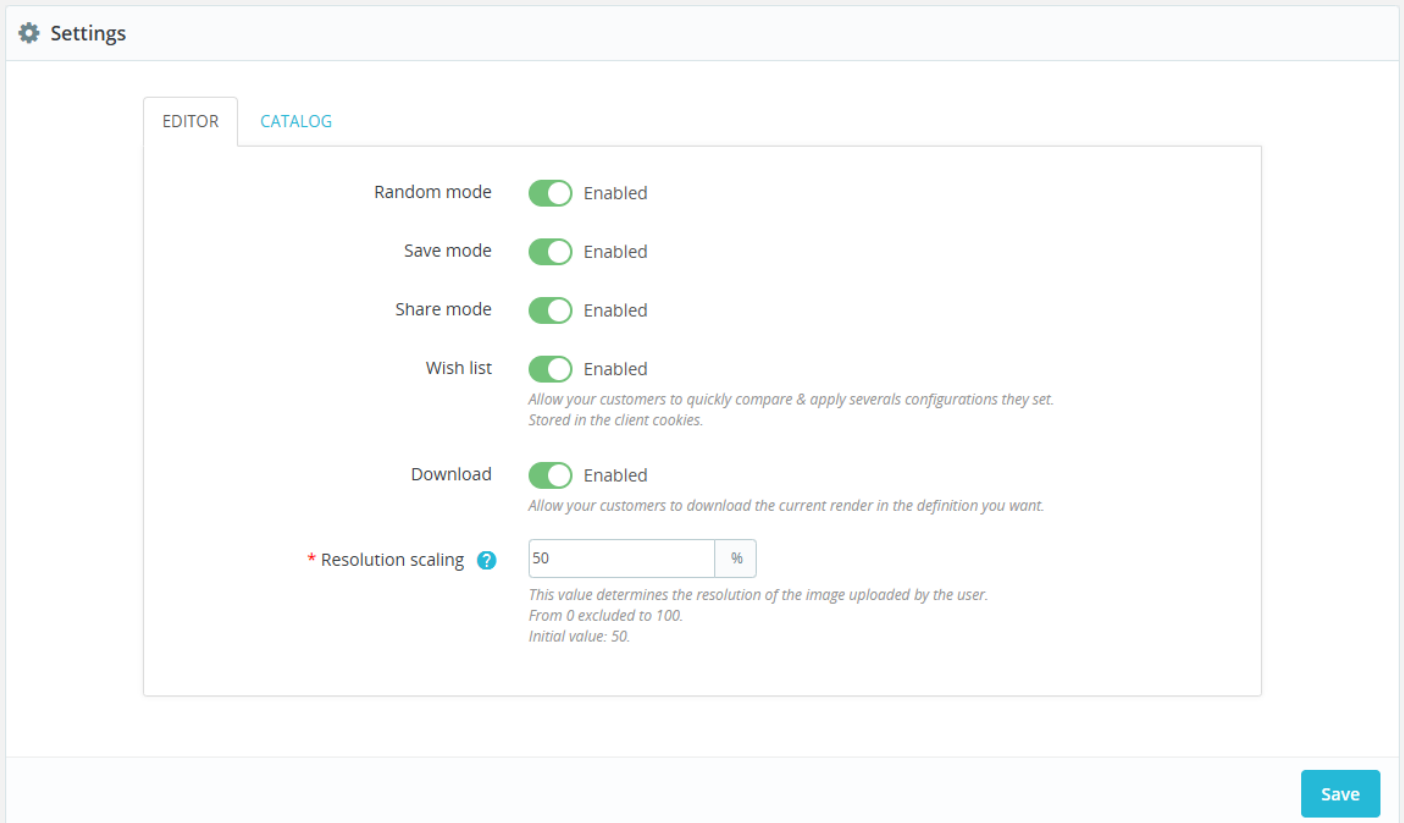
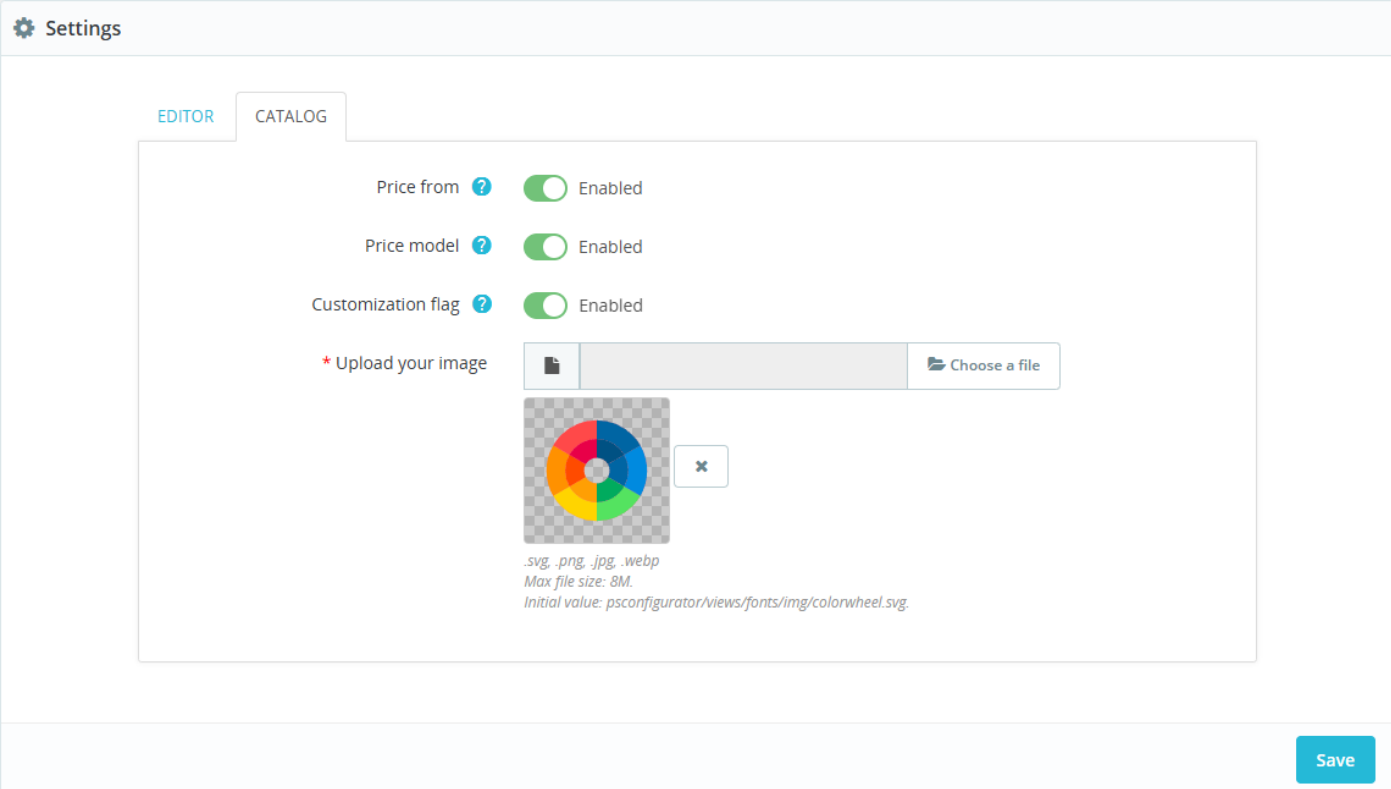


Figure 36: Editor Features Form

## 7.2 CATALOG FEATURES



Settings


EDITOR CATALOG

Price from ?  Enabled

Price model ?  Enabled

Customization flag ?  Enabled

\* Upload your image  Choose a file



.svg, .png, .jpg, .webp  
Max file size: 8M.  
Initial value: psconfigurator/views/fonts/img/colorwheel.svg

Save

Figure 37: Catalog Features Form

The "Price from" option will add this suffix to all prices of products containing a configurator in the product pages and product category pages.

The "Displayed Model Price" option will add this suffix to all prices of products that contain a link to a pre-configured configurator on product pages and product category pages.

The "Product Icon" option allows you to display a specific icon on customizable products in the product category pages.

## 8 THE STYLES SECTION

In this section, you will find all the editor's style options. From this page, you can import a publisher-specific logo, customize the main buttons, header, and studio footer.

Modules / psconfigurator / Configure

### Configure

PSCONFIGURATOR

Configurators Preconfigured products Stocks Features **Styles**

#### Settings

- \* Logo 
  - Shop logo
  - Custom logo
- \* Custom logo  Choose a file
 

.png, .jpg, .webp  
Max file size: 8M.  
Height displayed into the design studio: 36px. No width restriction.
- \* Button background 

Initial value: #3c9ace.
- \* Button hover 

Initial value: #1a89c7.
- \* Button font 

Initial value: #ffffff.
- Header background 

Initial value: empty.
- \* Footer background 

Only displayed on mobiles & tablets.  
Initial value: #f8f8f8.
- \* Header font 

Initial value: #262626.
- \* Studio background type 
  - Color
  - Linear gradient
  - Radial gradient
  - Image
- \* Start color
- \* End color
- \* Gradient angle on desktop  deg
 

Initial value: 90. The gradient begins at the left of the screen.  
Unit: degree.
- \* Gradient angle on mobile  deg
 

Initial value: 0. The gradient begins at the bottom of the screen.  
Unit: degree.

Save

Figure 38: Editor Style Form

# Part 6. Supplements

## 1 CONNECTING YOUR THEME

You have the option to replace the main product image with the canvas rendering image in the cart page, order page, and order confirmation page. Here is the path of the three files to be updated: prestashop/themes/votre\_thème/templates/checkout/\_partials/

1. cart-detailed-product-line.tpl,
2. cart-summary-product-line.tpl
3. order-confirmation-table.tpl

In each of these files, simply replace the content between `{if $product.default_image}` and `{else}` with the line below, and then save.

```
{include file='modules/psconfigurator/views/templates/front/productimage.tpl' scope=root}
```

The impacted area of the file should therefore look like this:

```
{if $product.default_image}
    {include file='modules/psconfigurator/views/templates/front/productimage.tpl' scope=root}
{else}
```

To visualize the effects of these changes, delete your browser's cached data before refreshing your Prestashop store page (Ctrl + Shift + Delete from the Chrome browser). Also, clear the admin panel cache (Configure / Advanced Settings / Performance / Clear Cache).

## 2 RUNNING AN EDITOR AUTOMATICALLY

Add the following extension: **?start=1** to the URL of a customizable product so that the design studio launch is automatically executed. You can include a button to the link of a configurator anywhere in your website (main menu, CMS pages, carousels etc...).

Example: <https://myshop.com/products/myproduct.html?start=1>

### 3 TRANSLATIONS

All custom text elements in the PSCONFIGURATOR module can be translated from the forms in the module administration. Like the native features of Prestashop, each field is accompanied by a button to select the desired language. The languages offered will be those that have been created from the "languages" space of the back office of your Prestashop store from the following path: International / Localization / Languages.

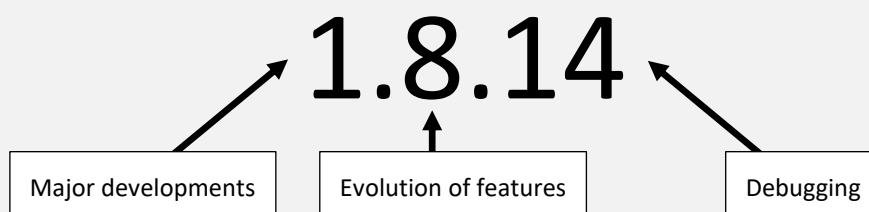
For all other elements, they can be translated from the "Translations" space of the Prestashop back office available from the following path: International / Translations. Select the PSCONFIGURATOR module and the desired language in the "Edit Translations" tab, then click on the "Edit" button to access the full translations.

The screenshot shows a form titled "Modify translations" with three dropdown menus and a "Modify" button. The first dropdown is labeled "Type of translation" and is set to "Installed modules translations". The second dropdown is labeled "Select your module" and is set to "PSCONFIGURATOR". The third dropdown is labeled "Select your language" and is set to "Language". A blue button with a pencil icon and the text "Modify" is located at the bottom right of the form.

Figure 39: PSCONFIGURATOR Module Selection Form for Translations

### 4 EVOLUTIONS OF THE SOFTWARE

The iteration of each number of the software version has a dedicated meaning. The first concerns major changes, where the very structure of the software is impacted. The second is dedicated to the evolution of the module's functionalities. The third and final issue concerns the minor evolutions devoted to software debugging.



Each time one of the first two issues is updated, new documentation will be available from the <https://psconfigurator.com> website. The list of changes is presented in the change history on page 2 of each documentation.

# Annexes

## APPENDIX 1. NUMBER OF PRODUCT COMBINATIONS

### X1.1 CALCULATING THE NUMBER OF COMBINATIONS

Let n be the total number of elements (here, the number of options) and k the number of elements chosen (here, the number of parts). The number of combinations is given by the formula:

$$P_{k,n} = \frac{n!}{k!(n - k)!}$$

Equation 2: Calculating the number of possible combinations for a configurator

Tip: In order not to have to write the details of this formula, you can use the "COMBIN" function in Excel. To give you an idea of the number of possible combinations for your customizable products, an abacus is presented below.

TOTAL COMBINAISONS																			
Nb. Options / Pièce →	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Nb. Pièces ↓	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	6	15	28	45	66	91	120	153	190	231	276	325	378	435	496	561	630	703	780
3	20	84	220	455	816	1330	2024	2925	4060	5456	7140	9139	11480	14190	17296	20825	24804	29260	34220
4	70	495	1820	4845	10626	20475	35960	58905	91390	135751	194580	270725	367290	487635	635376	814385	1028790	1282975	1581580
5	252	3003	15504	53130	142506	324632	658008	1221759	2118760	3478761	5461512	8259888	12103014	17259390	24040016	32801517	43949268	57940519	75287520
6	924	18564	134596	593775	1947792	5245786	12271512	25827165	50063860	90858768	1,56E+08	2,57E+08	4,06E+08	6,23E+08	9,27E+08	1,35E+09	1,91E+09	2,67E+09	3,65E+09
7	3432	116280	1184040	6724520	26978328	85900584	2,32E+08	5,53E+08	1,2E+09	2,4E+09	4,53E+09	8,09E+09	1,38E+10	2,28E+10	3,62E+10	5,6E+10	8,44E+10	1,24E+11	1,8E+11
8	12870	735471	10518300	76904685	3,77E+08	1,42E+09	4,43E+09	1,2E+10	2,9E+10	6,43E+10	1,33E+11	2,58E+11	4,75E+11	8,4E+11	1,43E+12	2,35E+12	3,76E+12	5,86E+12	8,92E+12
9	48620	4686825	94143280	8,86E+08	5,32E+09	2,37E+10	8,51E+10	2,61E+11	7,06E+11	1,73E+12	3,91E+12	8,26E+12	1,65E+13	3,13E+13	5,68E+13	9,96E+13	1,69E+14	2,78E+14	4,46E+14
10	184756	30045015	8,48E+08	1,03E+10	7,54E+10	3,97E+11	1,65E+12	5,72E+12	1,73E+13	4,69E+13	1,16E+14	2,66E+14	5,74E+14	1,17E+15	2,27E+15	4,24E+15	7,63E+15	1,33E+16	2,25E+16
11	705432	1,94E+08	7,67E+09	1,2E+11	1,07E+12	6,68E+12	3,2E+13	1,26E+14	4,26E+14	1,28E+15	3,46E+15	8,63E+15	2,01E+16	4,4E+16	9,14E+16	1,82E+17	3,46E+17	6,37E+17	1,14E+18
12	2704156	1,25E+09	6,97E+10	1,4E+12	1,54E+13	1,13E+14	6,25E+14	2,79E+15	1,05E+16	3,49E+16	1,04E+17	2,81E+17	7,06E+17	1,66E+18	3,69E+18	7,8E+18	1,58E+19	3,07E+19	5,77E+19
13	10400600	8,12E+09	6,35E+11	1,64E+13	2,2E+14	1,92E+15	1,22E+16	6,19E+16	2,62E+17	9,57E+17	3,11E+18	9,18E+18	2,49E+19	6,29E+19	1,49E+20	3,36E+20	7,21E+20	1,48E+21	2,94E+21
14	40116600	5,29E+10	5,8E+12	1,93E+14	3,17E+15	3,26E+16	2,4E+17	1,38E+18	6,51E+18	2,63E+19	9,38E+19	3,01E+20	8,81E+20	2,39E+21	6,07E+21	1,45E+22	3,31E+22	7,19E+22	1,5E+23
15	1,55E+08	3,45E+11	5,32E+13	2,28E+15	4,58E+16	5,57E+17	4,73E+18	3,08E+19	1,62E+20	7,26E+20	2,83E+21	9,87E+21	3,12E+22	9,1E+22	2,47E+23	6,3E+23	1,52E+24	3,49E+24	7,69E+24
16	6,01E+08	2,25E+12	4,89E+14	2,7E+16	6,62E+17	9,52E+18	9,33E+19	6,88E+20	4,06E+21	2,01E+22	8,57E+22	3,25E+23	1,11E+24	3,47E+24	1,01E+25	2,74E+25	7E+25	1,7E+26	3,95E+26
17	2,33E+09	1,48E+13	4,5E+15	3,19E+17	9,6E+18	1,63E+20	1,85E+21	1,54E+22	1,02E+23	5,55E+23	2,6E+24	1,07E+25	3,95E+25	1,33E+26	4,12E+26	1,19E+27	3,23E+27	8,3E+27	2,03E+28
18	9,08E+09	9,69E+13	4,14E+16	3,79E+18	1,39E+20	2,8E+21	3,65E+22	3,46E+23	2,55E+24	1,54E+25	7,9E+25	3,53E+26	1,41E+27	5,09E+27	1,69E+28	5,19E+28	1,49E+29	4,06E+29	1,05E+30
19	3,53E+10	6,37E+14	3,82E+17	4,5E+19	2,02E+21	4,81E+22	7,25E+23	7,78E+24	6,41E+25	4,28E+26	2,4E+27	1,17E+28	5,03E+28	1,95E+29	6,92E+29	2,27E+30	6,92E+30	1,99E+31	5,4E+31
20	1,38E+11	4,19E+15	3,54E+18	5,36E+20	2,95E+22	8,27E+23	1,44E+25	1,75E+26	1,61E+27	1,19E+28	7,32E+28	3,87E+29	1,8E+30	7,5E+30	2,84E+31	9,91E+31	3,21E+32	9,74E+32	2,79E+33

Puissances de 10	Notations en français	Nom numéraux français	Préfixes SI	Symboles SI
E30	1 000 000 000 000 000 000 000 000 000 000 000	Quintillion	Quetta	Q
E27	1 000 000 000 000 000 000 000 000 000 000	Quadrillion	Ronna	R
E24	1 000 000 000 000 000 000 000 000 000	Quadrillion	Yotta	Y
E21	1 000 000 000 000 000 000 000 000	Trillion	Zetta	Z
E18	1 000 000 000 000 000 000 000	Trillion	Exa	E
E15	1 000 000 000 000 000 000	Billiard	Péta	P
E12	1 000 000 000 000 000	Billion	Téra	T
E9	1 000 000 000	Milliard	Giga	G
E6	1 000 000	Million	Méga	M

**Reading the abacus:**

A product of 9 pieces or each of them contains 6 options (54 total options) generates a total of 5.32 billion possible combinations.

A product of 20 pieces or each of them contains 15 options (300 total options) generates a total of 7.5 quintillion possible combinations.

Figure 40: Abacus of the number of combinations of the product

## X1.2 EXAMPLE OF COMBINATIONS ON A SIMPLE PRODUCT

Let us imagine a polo shirt with two customizable pieces: a "body" piece and a piece composed of a subset of "borders". Each of these pieces can be offered in 3 colors: red, yellow, and blue.

The customizable product therefore has 6 total options (3 colors per piece) which implies 15 combinations for this product. In Excel,  $\text{COMBIN}(6; 2) = 15$ .



Figure 41: Representation of all possible combinations

## APPENDIX 2. OPTIMIZING PART LAYERS

The masking tool built into PSCONFIGURATOR allows you to significantly reduce the number of part layers that need to be modeled. The following tables show a comparison of the number of layers to create with or without masks, based on the number of parts and the number of options per part of your product.

TOTAL CALQUES DE PIECES / SANS MASQUE																			
Nb. Options Communes Nb. Pièces ↓	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260
14	28	42	56	70	84	98	112	126	140	154	168	182	196	210	224	238	252	266	280
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320
17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340
18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324	342	360
19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	361	380
20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400

TOTAL CALQUES DE PIECES / AVEC MASQUE																			
Nb. Options Communes Nb. Pièces ↓	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
7	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
9	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
10	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
17	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
18	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
19	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
20	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Table 9: Comparison of the number of layers with or without masks

A two-piece product with 6 total options (3 per room) will require the creation of 6 room layers without a mask, compared to 5 with a mask. That is a saving of 16%. A product with 20 pieces and 400 total options (20 per part) will require the creation of 400 room layers without a mask, compared to 40 with a mask. That is a saving of 90%.

# PSC

## CONFIGURATOR

CUSTOMIZED PRODUCTS  
FOR PRESTASHOP