



8Lab Solutions - Project "Soldino"

# User manual

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## Description

User manual made by *8Labs Solutions* for the project *Soldino*.

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## Changelog

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## 1 Introduction

This document is the user manual of *Soldino*, a project by *8Lab Solutions* based on the Ethereum infrastructure.

### 1.1 What is *Soldino*

*Soldino* is a platform that allows users to buy goods and services, allows business to manage the VATs related to those products and allows the Government to mint and distribute Cubits<sub>G</sub>, reimburse businesses of their VAT credit and manage users registered on the platform. More precisely:

- citizens can:
  - buy goods and services;
- business can:
  - sell goods and services;
  - buy goods and services;
  - manage VAT;
- Government can:
  - mint Cubits<sub>G</sub>;
  - distribute Cubits<sub>G</sub>;
  - activate disabled users;
  - deactivate active users;
  - reimburse businesses of their VAT credit;

*Soldino* is powered by the Ethereum<sub>G</sub> network, allowing a high degree of security due to the distributed nature of the network.

### 1.2 Glossary

At the end of this document there is an appendix A where you can find the definitions of words that may be ambiguous or new to the users of *Soldino*. These words are marked with a subscript *G* (e.g. example<sub>G</sub>).

### 1.3 Requirements

To be able to use *Soldino* you need to have the desktop version one of the following browsers:

- Google Chrome version 71 or newer;
- Mozilla Firefox version 64 or newer.

You also must have the MetaMask<sub>G</sub> plug-in in your browser. More information will follow.

## 2 MetaMask

### 2.1 What is MetaMask

MetaMask<sub>G</sub> is a browser extension that manages your Ethereum<sub>G</sub> digital wallet<sub>G</sub> and allows you to send and receive Ethers<sub>G</sub> (Cubits<sub>G</sub> or CCs<sub>G</sub> in *Soldino*).

Note that MetaMask<sub>G</sub> has to be installed in your browser as long as you want to use the platform: removing it from your browser will render you unable to use *Soldino*.

### 2.2 Installation

After entering *Soldino*'s homepage check if you have MetaMask<sub>G</sub> installed. You can check this by looking for its icon on the top right of your browser

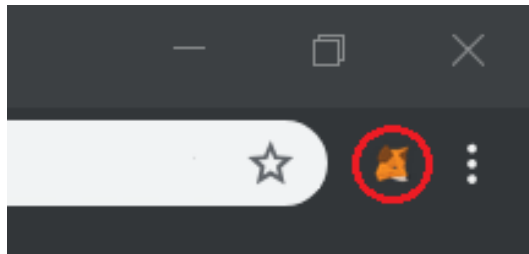


Figure 2.2.1: MetaMask's icon

If you have it proceed with the configuration of your account. Otherwise, watch the video introduction, click the link under the video and follow the instructions to download it.

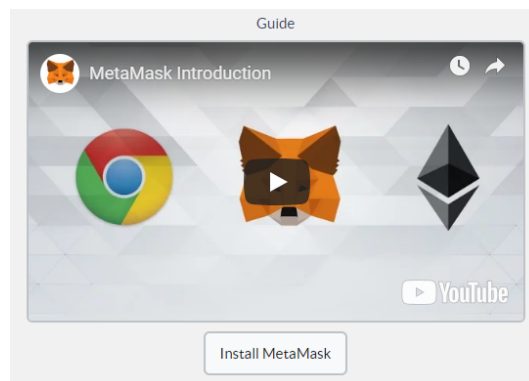


Figure 2.2.2: Introduction to MetaMask

After the installation process is complete you will see MetaMask<sub>G</sub>'s icon on the top right of your browser. A new window will then open where you will have to configure your account.

The download page can also be found at <https://metamask.io/>.

## 2.3 Configuration

Click on MetaMask's icon on the top right of your browser, and set up your Ethereum<sub>G</sub> digital wallet<sub>G</sub> by following the instructions. You can either create a new account or import an existing one using the 12 words seed phrase that was previously given to you.

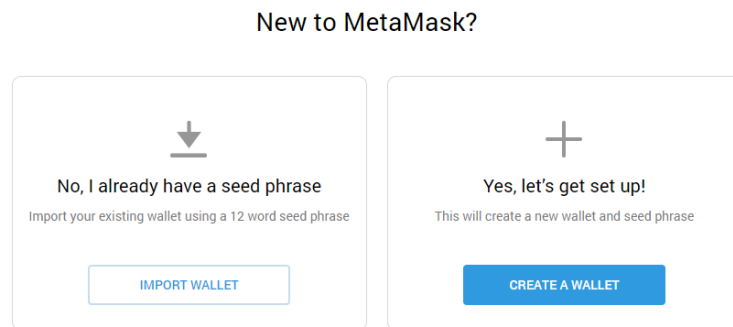


Figure 2.3.1: MetaMask setup

After setting up your account you will be able to join and use *Soldino*.

## 2.4 Transactions

Every time you make a transaction MetaMask<sub>G</sub> will open a pop-up window that shows you its total cost. From this window you will be able to accept it or decline it.



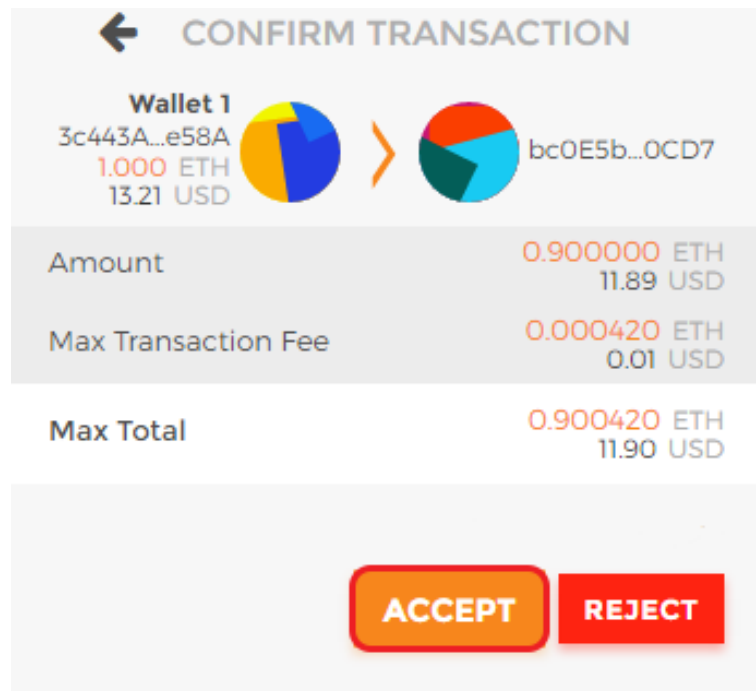


Figure 2.4.1: Example of a MetaMask transaction

Every change made on the Ethereum<sub>G</sub> Network has a cost. This is called gas and is measured in GWEI, a billionth of an Ether<sub>G</sub>. When you make a transaction you can choose whether it should have a high or low priority, higher priority will consume more gas than a lower one but will be mined quicker. We do not recommend changing the priority for transactions made in *Soldino*.

## 3 Citizens

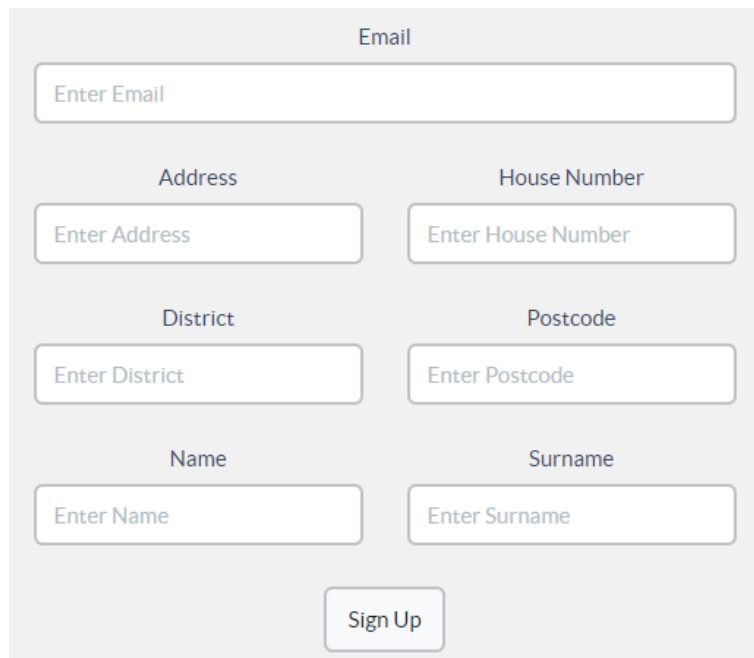
### 3.1 Registration

If you want to create a personal account for *Soldino* visit the homepage, make sure you are logged in your MetaMask<sub>G</sub> account then make sure that the slider is set on "Citizen".



Figure 3.1.1: Select "Citizen" from the slider

Then, insert your data in the form.

A registration form for citizens. It contains several input fields arranged in a grid. At the top is a single wide field for 'Email'. Below it are two columns: 'Address' and 'House Number'. The next row has 'District' and 'Postcode'. The final row has 'Name' and 'Surname'. At the bottom center is a 'Sign Up' button. Each input field has a light grey border and a placeholder text 'Enter [field name]'.

Email	
Enter Email	
Address	House Number
Enter Address	Enter House Number
District	Postcode
Enter District	Enter Postcode
Name	Surname
Enter Name	Enter Surname
Sign Up	

Figure 3.1.2: Citizen signup form

After you have completed all the fields with your informations press the "Sign up" button. If an entry is not valid (e.g. the email address does not contain a valid domain) the system will let you know and you have to correct that field to continue. If all informations are correct a pop-up window will open asking you to allow *Soldino* to access your information.

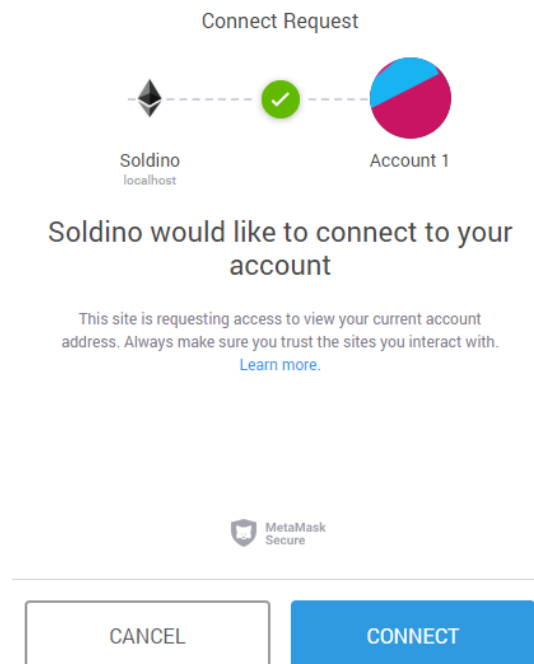


Figure 3.1.3: Connecting MetaMask to *Soldino*

Press "Connect" and you will be redirected to a page congratulating you for your registration on the platform.

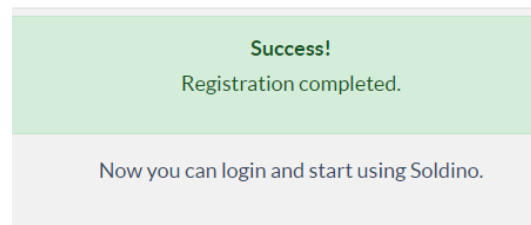


Figure 3.1.4: Registration is completed message

### 3.1.1 Citizen is already registered

If your univocal key is already registered in the platform you will see an error page telling you that you cannot create a new account.

## 3.2 Login

If you already have a personal account press the "login" button on the top right of the homepage, you will automatically log in your account (there is no need for a username or password, all is done via MetaMask).

To be able to log in you have to be logged in your MetaMask<sub>G</sub> account.

### 3.2.1 Account is disabled

If your account was disabled by the Government you will see an error message and, if provided, the reason why that happened.

## 3.3 Logout

To log out of *Soldino* you just have to log out of MetaMask<sub>G</sub>. To do this you have to press MetaMask's icon on the top right of the browser, press your account's icon and then press "Log out" on the top right.

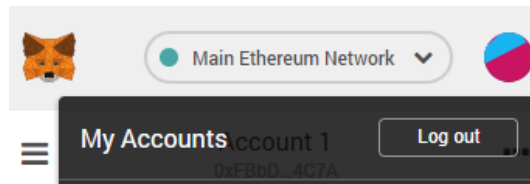


Figure 3.3.1: Logging out

## 3.4 Buying

Note that all prices shown in the platform are in Cubits<sub>G</sub> ( $CC_G$ ), *Soldino*'s own special token. Also, note that 1 Cubit = 1 Euro.

### 3.4.1 Searching

You can search for products by name using the search bar that can be found at the top of the page. After you start typing you will see all results that match your search. If no matching products are found you will a message showing you that.

### 3.4.2 Cart

You can add products in your cart, after selecting the quantity you need, by pressing the "Add to cart" button under it.

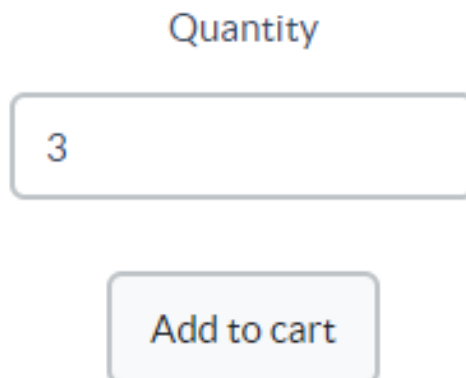


Figure 3.4.1: Adding a product to your cart

The number on the cart shows you how many unique products are in it. You can access your cart by pressing the shopping cart icon on the bar at the top of the page.

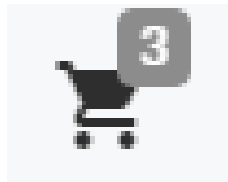


Figure 3.4.2: Icon to access your cart

Here you will see the total for your order and you will find every item you have previously selected with their quantity. If you need to modify the quantity press the "+" or "-" buttons.

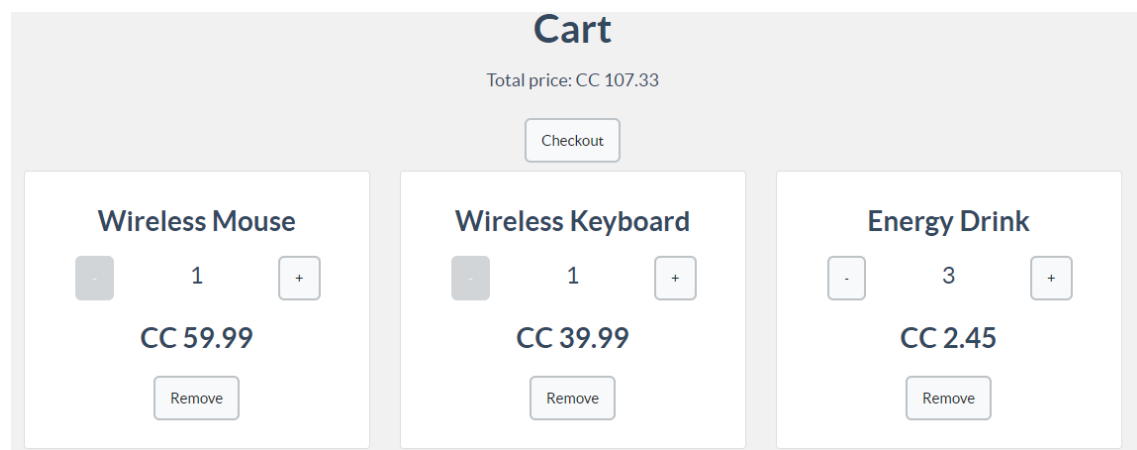
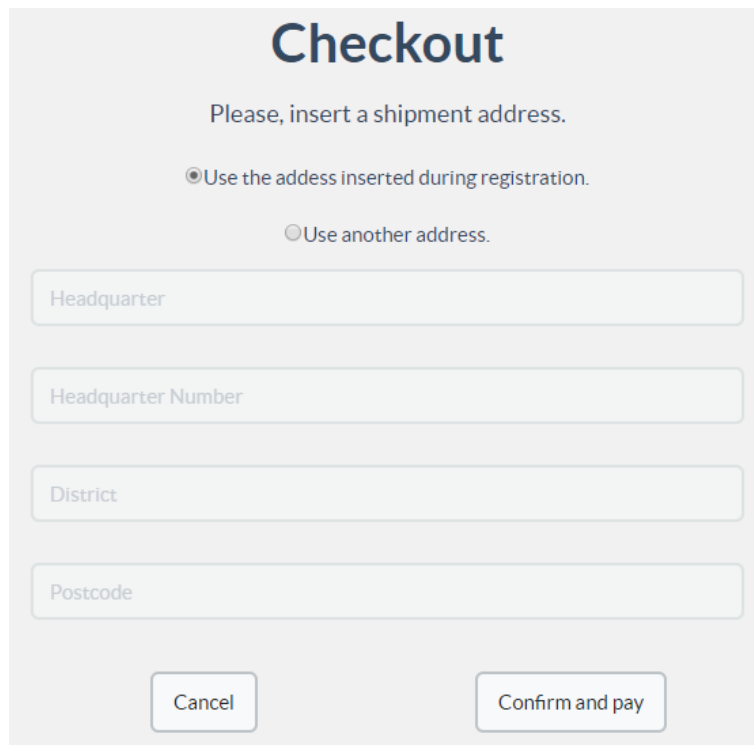


Figure 3.4.3: Example of a cart's content

When you want to proceed with the order press the "Checkout" button, you will be redirected to the checkout page.

### 3.4.3 Checkout

In the checkout page you will be able to choose where your products will be delivered to by using the radio buttons: you can either select the address you gave during registration or enter a new one.



**Checkout**

Please, insert a shipment address.

☒ Use the address inserted during registration.

☐ Use another address.

Headquarter

Headquarter Number

District

Postcode

Cancel Confirm and pay

Figure 3.4.4: Example of a checkout page

Press the "Confirm and pay" button to proceed. In a new pop up window MetaMask<sub>G</sub> will ask you to confirm the transaction. The price shown here will be a little higher because it includes the gas fee.

Press "Cancel" if you do not want to continue, you will then return to your cart.

#### 3.4.4 Past orders

You can visit the page containing all past orders by pressing the "Orders" button in the bar at the top of the page. Here you will find a chronological list of every purchase that you made with *Soldino*. Each order tells when it was made, who was the seller, what were the items bought, where it was shipped to and how much you paid.

Order # 9	2019/03/29	Via S. Donato 33, Bologna, 40127
Seller	VAT Number	
Biagetti Arredamenti	01384571004	
Products	Quantity	Unit price
Blue Chair	3	CC 9.99
Red Chair	3	CC 9.99
VAT Price: CC 4.3956	Net Price: CC 15.5844	<b>Total Price: CC 59.94</b>

Order # 8	2019/04/01	Via Alberto Cavalletto 10, Padova, 35122
Seller	VAT Number	
Vanuzzo Interni & Design	91388421067	
Products	Quantity	Unit price
White Table	1	CC 9.99
VAT Price: CC 2.1978	Net Price: CC 7.7922	<b>Total Price: CC 9.99</b>

Figure 3.4.5: Example of past orders

## 4 Businesses

### 4.1 Registration

If you want to create a business account for *Soldino* visit the homepage, make sure you are logged in your MetaMask<sub>G</sub> account then make sure that the slider is set on "Business".



Figure 4.1.1: Select "Business" from the slider

Then, insert your business' data in the form.

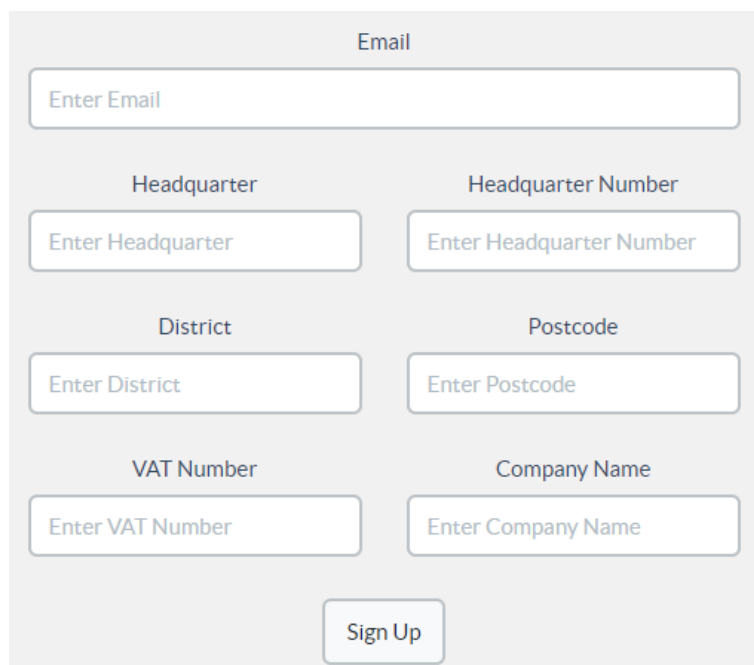
A business signup form with a light gray background. It contains several input fields with placeholder text. At the top is a single-line input field labeled 'Email' with the placeholder 'Enter Email'. Below this are two columns of input fields. The left column has three fields: 'Headquarter' (placeholder 'Enter Headquarter'), 'District' (placeholder 'Enter District'), and 'VAT Number' (placeholder 'Enter VAT Number'). The right column has three fields: 'Headquarter Number' (placeholder 'Enter Headquarter Number'), 'Postcode' (placeholder 'Enter Postcode'), and 'Company Name' (placeholder 'Enter Company Name'). At the bottom center is a 'Sign Up' button.

Figure 4.1.2: Business signup form

After you have completed all the fields with your informations press the "Sign up" button. If an entry is not valid (e.g. the email address does not contain a valid domain) the system will let you know and you have to correct that field to continue. If all informations are correct a pop-up window will open asking you to allow *Soldino* to access your information.



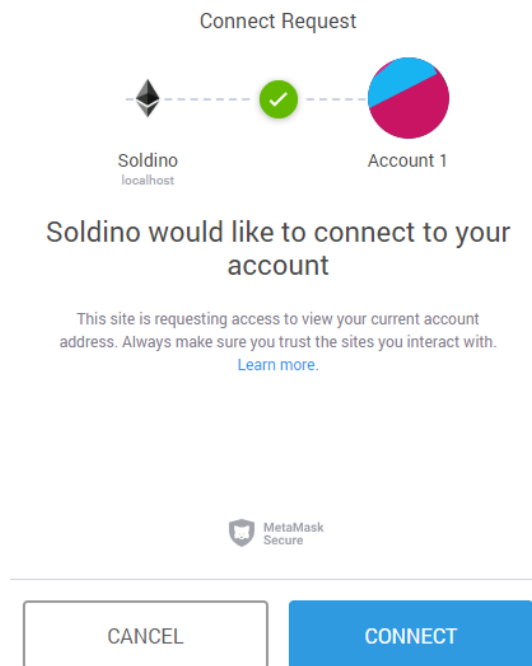


Figure 4.1.3: Connecting MetaMask to *Soldino*

Press "Connect" and you will be redirected to a page congratulating you for your registration on the platform. for your registration on the platform.

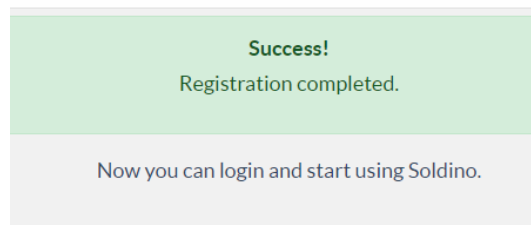


Figure 4.1.4: Registration is completed message

#### 4.1.1 Business is already registered

If your univocal key is already registered in the platform you will see an error page telling you that you cannot create a new account.

## 4.2 Login

If you already have a business account press the "login" button on the top right of the homepage, you will automatically log in your account (there is no need for a username or password, all is done via MetaMask).

To be able to log in you have to be logged in your MetaMask<sub>G</sub> account.

#### 4.2.1 Account is disabled

If your account was disabled by the Government you will see an error message and, if provided, the reason why that happened.

### 4.3 Logout

To log out of *Soldino* you just have to log out of MetaMask<sub>G</sub>. To do this you have to press MetaMask's icon on the top right of the browser, press your account's icon and then press "Log out" on the top right.

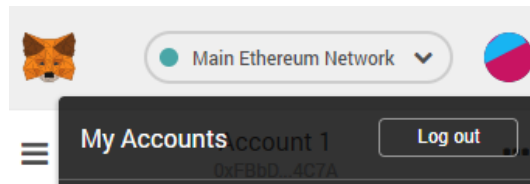


Figure 4.3.1: Logging out

### 4.4 Buying

Note that all prices shown in the platform are in Cubits<sub>G</sub> (CC<sub>G</sub>), *Soldino*'s own special token. Also, note that 1 Cubit = 1 Euro.

#### 4.4.1 Searching

You can search for products by name using the search bar that can be found at the top of the page. After you start typing you will see all results that match your search. If no matching products are found you will a message showing you that.

#### 4.4.2 Cart

You can add products in your cart, after selecting the quantity you need, by pressing the "Add to cart" button under it.

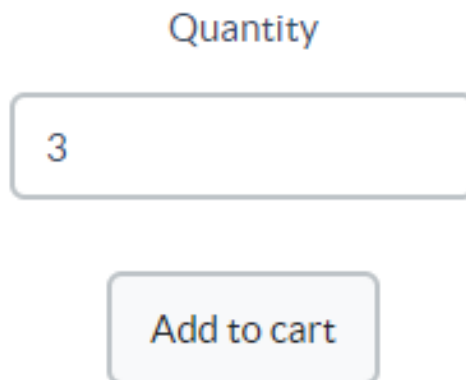


Figure 4.4.1: Adding a product to your cart

The number on the cart shows you how many unique products are in it. You can access your cart by pressing the shopping cart icon on the bar at the top of the page.



Figure 4.4.2: Icon to access your cart

Here you will see the total for your order and you will find every item you have previously selected with their quantity. If you need to modify the quantity press the "+" or "-" buttons.

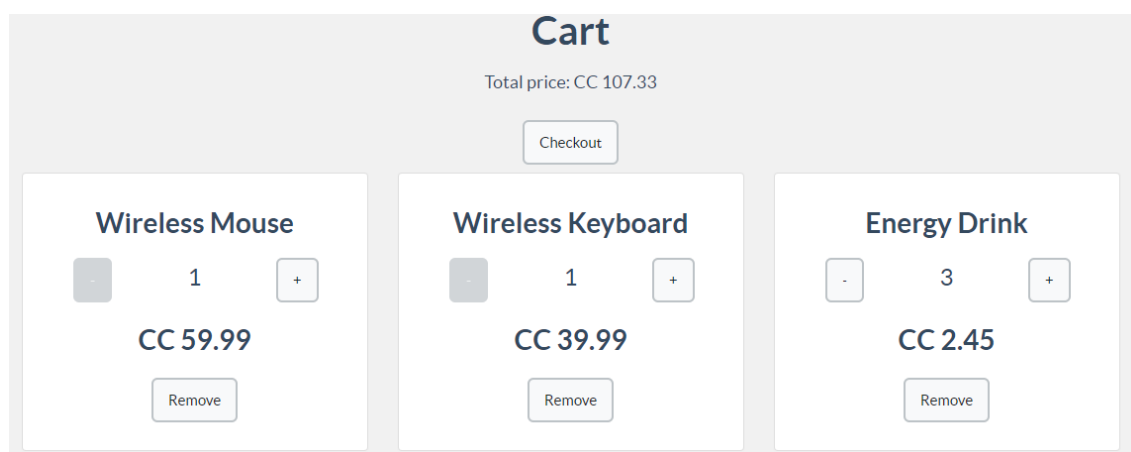
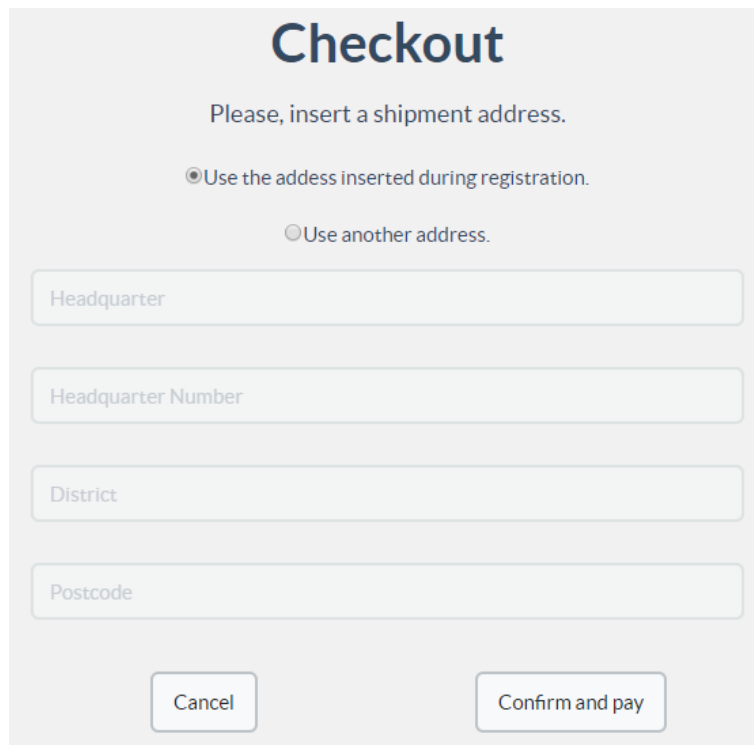


Figure 4.4.3: Example of a cart's content

When you want to proceed with the order press the "Checkout" button, you will be redirected to the checkout page.

#### 4.4.3 Checkout

In the checkout page you will be able to choose where your products will be delivered to by using the radio buttons: you can either select the address you gave during registration or enter a new one.



**Checkout**

Please, insert a shipment address.

☒ Use the address inserted during registration.

☐ Use another address.

Headquarter

Headquarter Number

District

Postcode

Cancel Confirm and pay

Figure 4.4.4: Example of a checkout page

Press the "Confirm and pay" button to proceed. In a new pop up window MetaMask<sub>G</sub> will ask you to confirm the transaction. The price shown here will be a little higher because it includes the gas fee.

Press "Cancel" if you do not want to continue, you will then return to your cart.

#### 4.4.4 Past orders

You can visit the page containing all past orders by pressing the "Orders" button in the bar at the top of the page. Here you will find a chronological list of every purchase that you made with *Soldino*. Each order tells when it was made, who was the seller, what were the items bought, where it was shipped to and how much you paid.

Order # 9	2019/03/29	Via S. Donato 33, Bologna, 40127
Seller Biagetti Arredamenti		VAT Number 01384571004
Products	Quantity	Unit price
Blue Chair	3	CC 9.99
Red Chair	3	CC 9.99
VAT Price: CC 4.3956	Net Price: CC 15.5844	<b>Total Price: CC 59.94</b>

Order # 8	2019/04/01	Via Alberto Cavalletto 10, Padova, 35122
Seller Vanuzzo Interni & Design		VAT Number 91388421067
Products	Quantity	Unit price
White Table	1	CC 9.99
VAT Price: CC 2.1978	Net Price: CC 7.7922	<b>Total Price: CC 9.99</b>

Figure 4.4.5: Example of past orders

## 4.5 Selling

If you want to manage the products you are selling on *Soldino* or add a new one you have to press the "Products Manager" on the bar at the top of the page. Here you will find every product you are currently selling.

### ProductsManager

Add a product

#### VGA to HDMI converter

Pocket size adapter

CC 7.7922

CC 2.1978 ~ 22%

Edit

Remove

#### Thunderbolt to HDMI converter

For iMac and MacBook

CC 7.7922

CC 2.1978 ~ 22%

Edit

Remove

#### USB type C to USB 3 cable

1 meter long cable

CC 7.7922

CC 2.1978 ~ 22%

Edit

Remove

#### Ethernet cable

15 meters long ethernet cable

CC 7.7922

CC 2.1978 ~ 22%

Edit

Remove

Figure 4.5.1: Products Manager page

#### 4.5.1 Selling a new product

If you want to sell a new product you have to press "Add a product", you will be redirected to a page where you will have to insert all the informations regarding your new product.

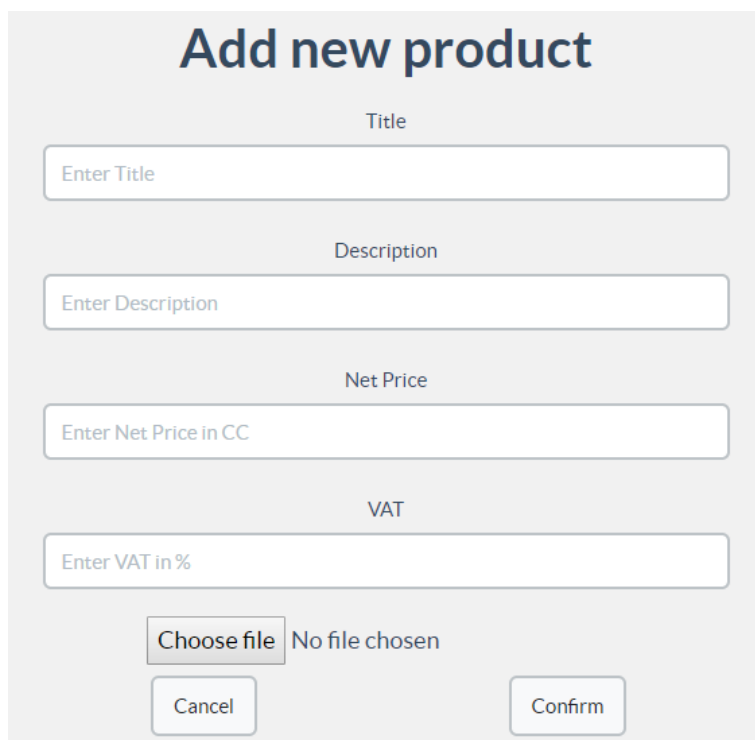
The screenshot shows a web form titled "Add new product" in a large, bold, dark blue font. Below the title, there are four input fields, each with a label above it: "Title" (with placeholder "Enter Title"), "Description" (with placeholder "Enter Description"), "Net Price" (with placeholder "Enter Net Price in CC"), and "VAT" (with placeholder "Enter VAT in %"). Below these fields is a file upload section with a "Choose file" button, the text "No file chosen", and two buttons at the bottom: "Cancel" and "Confirm".

Figure 4.5.2: Adding a new product

After you completed every field and you selected a photo press "Confirm" and it will be added to the products users can buy.

Press "Cancel" if you do not wish to continue.

#### 4.5.2 Modifying a product

If you want to change the informations of a product you are already selling press the "Edit" button under them, you will be redirected to a page where you will be able to change the product's informations.

The screenshot shows a web form titled "Edit product" with a light gray background. It contains four input fields: "Title" with the text "VGA to HDMI converter", "Description" with "Pocket size adapter", "Net Price" with "7.7922", and "VAT" with "22". Below these fields is a file upload section with a "Choose file" button, the text "No file chosen", a "Cancel" button, and a "Confirm" button.

Figure 4.5.3: Editing the informations of a product

After you are done with the changes press "Confirm" to apply them.  
If you do not wish to apply the changes press "Cancel".

#### 4.5.3 Removing a product

If you want to remove a product you are selling from the platform press the "Remove" button under it.

Note that removing a product will not delete orders made prior to the removal.

## 4.6 VAT management

If you are a business *Soldino* will manage VAT for the products you buy and sell on the platform automatically. You can access the page containing all invoices by pressing the "Transaction Manager" button on the bar at the top of the page.

VAT status for the selected quarter: -321.23 CC					Instant Payment	Deferred Payment
Number	Type	Date	Total Price	Total VAT	Download PDF	
Invoice #12345	Purchase	2018/05/01	CC 10	CC 2.2	More details	
Invoice #67890	Purchase	2018/05/01	CC 10	CC 2.2	More details	

Figure 4.6.1: Example of past invoices

Here you will also see the status of the trimester.

A red value at the end of a trimester means that you will have to pay that amount to the Government.

VAT status for the selected quarter: -321.23 CC

Figure 4.6.2: Example of a negative VAT status

While a green one means that you will soon be reimbursed for that amount.

VAT status for the selected quarter: +173.87 CC

Figure 4.6.3: Example of a positive VAT status

#### 4.6.1 Invoices

You can see more information about an invoice by pressing the "More details" button. This will open a pop-up window containing all the details.



## Invoice #9845

×

Date:	2019/05/01
Order date:	2019/05/01
Order number:	4164
Products:	
Product:	Cookies
Total Price:	CC 10
Net Price:	CC 7.8
VAT %:	22
Description:	Fresh made chocolate chip cookies
Quantity:	CC 2
Total VAT: CC	2.2
Total Price: CC	10
Seller:	Tony S.P.A. 01384571004
Buyer:	Enrico Verdi
Shipment:	Via Antonio Grassi 13, Padova, 12345

Figure 4.6.4: Example of an invoice

You can also download a PDF file containing all the invoices of this trimester by pressing "Download PDF".

### 4.6.2 Paying VAT

At the end of a trimester, if you are in debt with the government, next to how much you have to pay you will see two buttons.

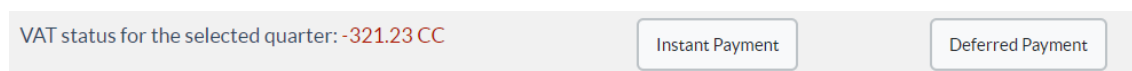


Figure 4.6.5: Paying off a negative Vat status

#### 4.6.2.1 Instant payment

If you choose to instantly pay off what you owe press "Instant payment". MetaMask<sub>G</sub> then will open a new window asking you allow the transaction, accept to continue.

#### 4.6.2.2 Deferred payment

Otherwise, you can choose deferred payment<sub>G</sub> by pressing "Deferred payment"

### 4.6.3 Checking past trimesters' VAT

You can see invoices of past trimesters by using the drop-down menu at the top of the page.

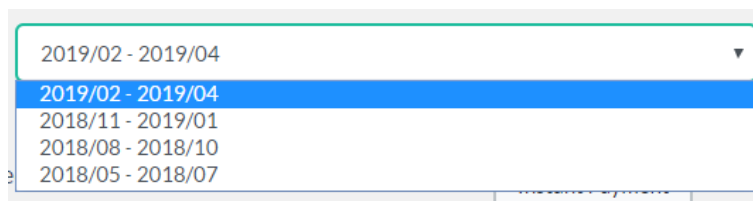


Figure 4.6.6: Past trimesters

From this page you will also be able to see specific details of an invoice or download them all as PDF as explained before.

## 5 Government

### 5.1 Registration

The government cannot register a new account like citizens and businesses because only one account is allowed. This account is provided by the developer of *Soldino*.

### 5.2 Login

If you want to log on the Government account press the "login" button on the top right of the homepage, you will automatically log in your account (there is no need for a username or password, all is done via MetaMask).

To be able to log in make sure you are logged in the correct MetaMask<sub>G</sub> account.

### 5.3 Logout

To log out of *Soldino* you just have to log out of MetaMask<sub>G</sub>. To do this you have to press MetaMask's icon on the top right of the browser, press your account's icon and then press "Log out" on the top right.

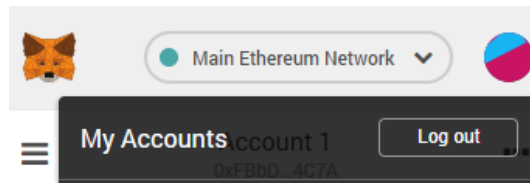


Figure 5.3.1: Logging out

### 5.4 Cubit

#### 5.4.1 Minting

The Government can mint Cubits<sub>G</sub>. This can be done by visiting

#### 5.4.2 Distributing

The Government can distribute Cubits<sub>G</sub> previously minted amongst the users of the platform. This can be done by visiting

### 5.5 Managing users

The Government can activate disabled accounts or deactivate active accounts. This can be done by visiting the page containing all users registered on the platform.

#### 5.5.1 Activating users

After you have found the account you want to enable press the button "Enable". After being enabled an account will again be able to make purchases on *Soldino*.

### 5.5.2 Deactivating users

After you have found the account you want to disable press the "Disable" button. After pressing it a window will open where you can write a message explaining why the account was disabled that will be shown when that user will try an log in. Disabling an account means that it will not be able to make purchases on *Soldino* until it is enabled.

## 5.6 Reimbursing businesses

The Government can reimburse business of their VAT credit. This can be done by visiting

## 6 Issues

We, members of *8Lab solutions*, did our best to build *Soldino* bug-free and did extensive tests to squish all of them, but we cannot be sure that they are all gone.

If you encounter a bug we would appreciate if reported it to us at our email address ([8labsolution@gmail.com](mailto:8labsolution@gmail.com)) or in the dedicated page at the project's repository (<https://github.com/8LabSolutions/Soldino/issues>).

When reporting an issue please include:

- what type of user encountered it (citizen, business or Government);
- a detailed sequence of steps that must be done to reproduce the error;
- if the error included Metamask<sub>G</sub> and what type of error it shows;
- your browser's console log output.

## A Glossary

### C

#### **Cubit**

It is the custom Ethereum currency of *Soldino*, it has the value of 1€. All prices shown are in Cubits. The Government can mint and distribute Cubits to the platform's users.

### CC

Short version of Cubit, see Cubit above.

### D

#### **Deferred payment**

Businesses can choose not to pay their due taxes immediately and pay at a later time.

#### **Digital wallet**

Digital wallets are where virtual currency is stored.

### E

#### **Ether**

Ether is the currency of Ethereum.

#### **Ethereum**

Ethereum is an open software platform based on blockchain technology that enables developers to build and deploy decentralized applications.

### M

#### **MetaMask**

It is a Plug-in available for Chrome, Firefox, Opera and Brave that allows you to interact with the Ethereum network without hosting a node and create multiple digital wallets<sub>G</sub>. It is required to use in *Soldino*.

### P

#### **Product**

Products include goods and services.

## V

### VAT

VAT or value-added tax is a type of tax that is assessed incrementally, based on the increase in value of a product or service. The VAT percentage is chosen by the product's seller.