ESA HMI Linux based
Control panel user manual
Revision 1.4

USER MANUAL

Connect
Ideas.
Shape
solutions.

Table of contents

Document description

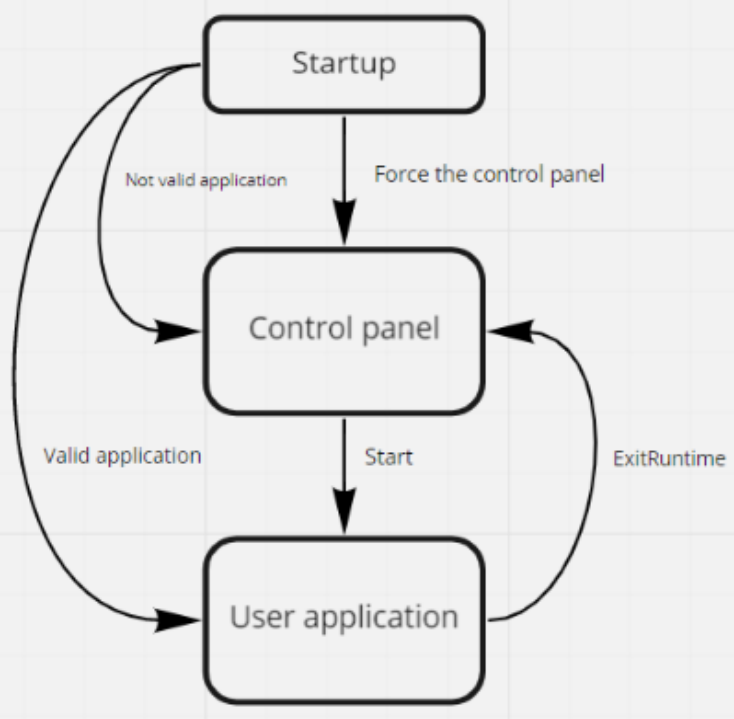
This document will describe the features and functionalities of the ESA HMI Linux based control panel.

The control panel is a service application wich is preloaded in the product ROM and cannot be modified by the user.

It is intended to help the user in setting the basic product parameters and configuration without entering the operating system.

It is a protected environment where the user cannot modify any part of the operating system keeping it safe.

State machine



The main software components are the control panel and the user application.

The control panel is loaded in the factory and cannot be modified.
The user application is developed via the Kreo HMI configuration software and downloaded by the user.

Valid application

The product is switched on and a valid user application is available.
The user application will start and run automatically.

This is the typical condition when the machine is running onsite.

Not valid application

The product is switched on but the user application is not valid.
For example the application download has not been completed and some project components have not been downloaded and registered correctly.

The control panel will be displayed and the user has to restart the download procedure.

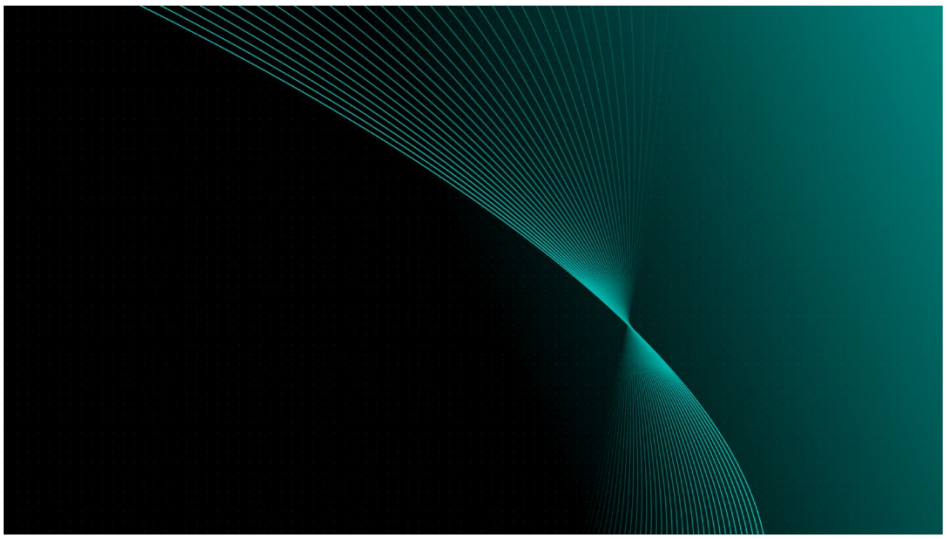
Force the control panel

Sometime it is necessary not to load a valid application and force the control panel.
For example in case some system parameters have to be changed.

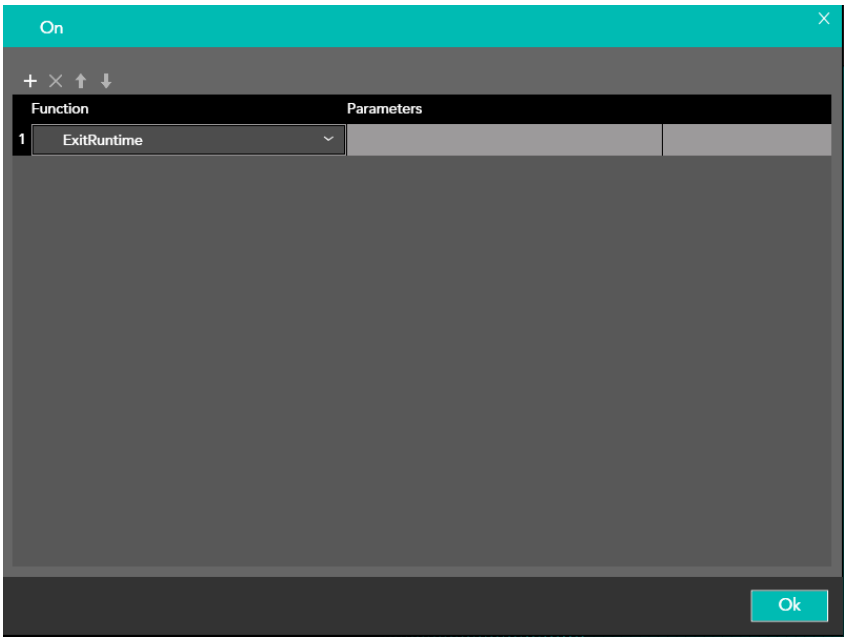
Swipe-Swipe procedure

The user can follow the so called swipe-swipe procedure.

During the product startup once the splash image have been displayed the user have to swipe the touch screen several time (4 or 5 times).
This will force the control panel visualization and will prevent the user application to be loaded.



Exitruntime function

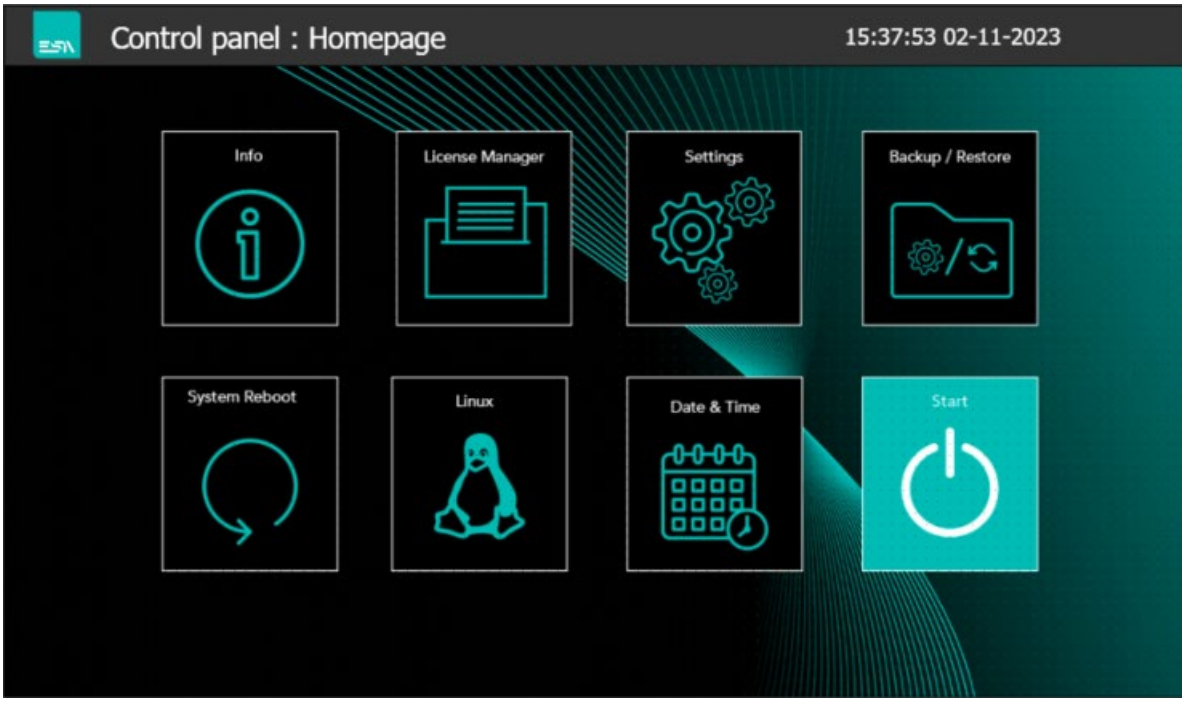


This function will close the customer application and reopen the control panel.
This function has to be added to a project event (for example the Off event of a button).

Control panel

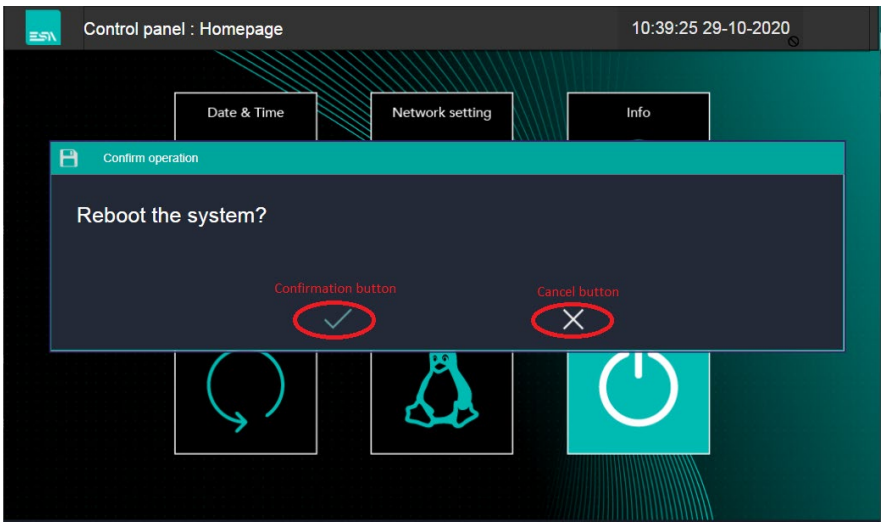
Two different control panel (Landscape mode and portrait mode) are preloaded and the one displayed is based on the orientation of the customer application.

This is the Home page of the Landscape control panel.

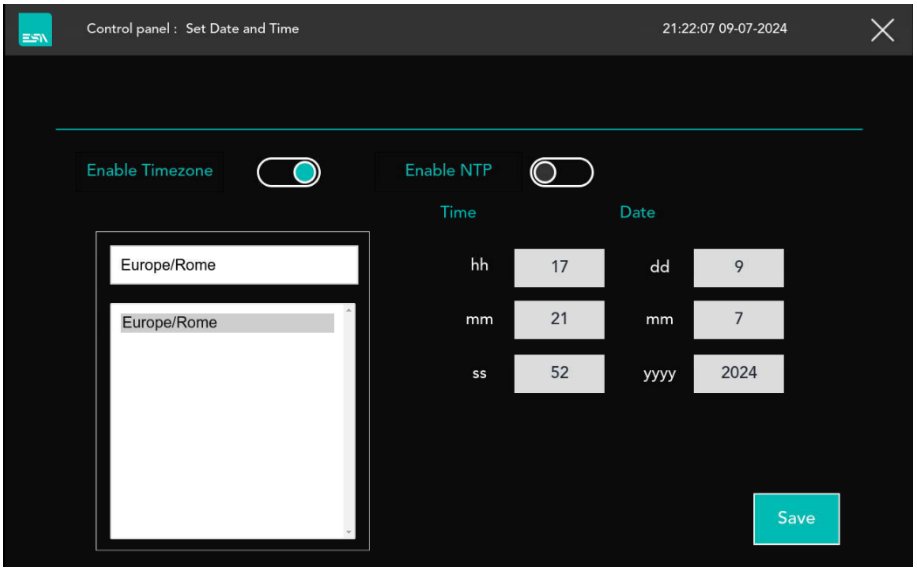


Common commands

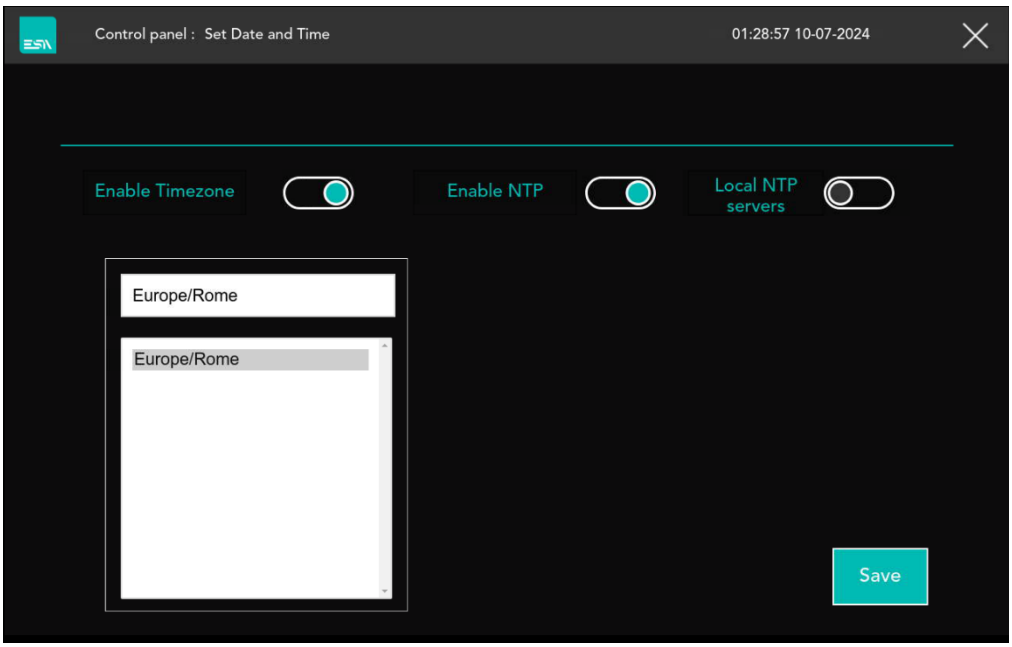
- Confirmation button (this button will confirm the parameters setting)
- Cancel. This button will close the page and will cancel the inserted values



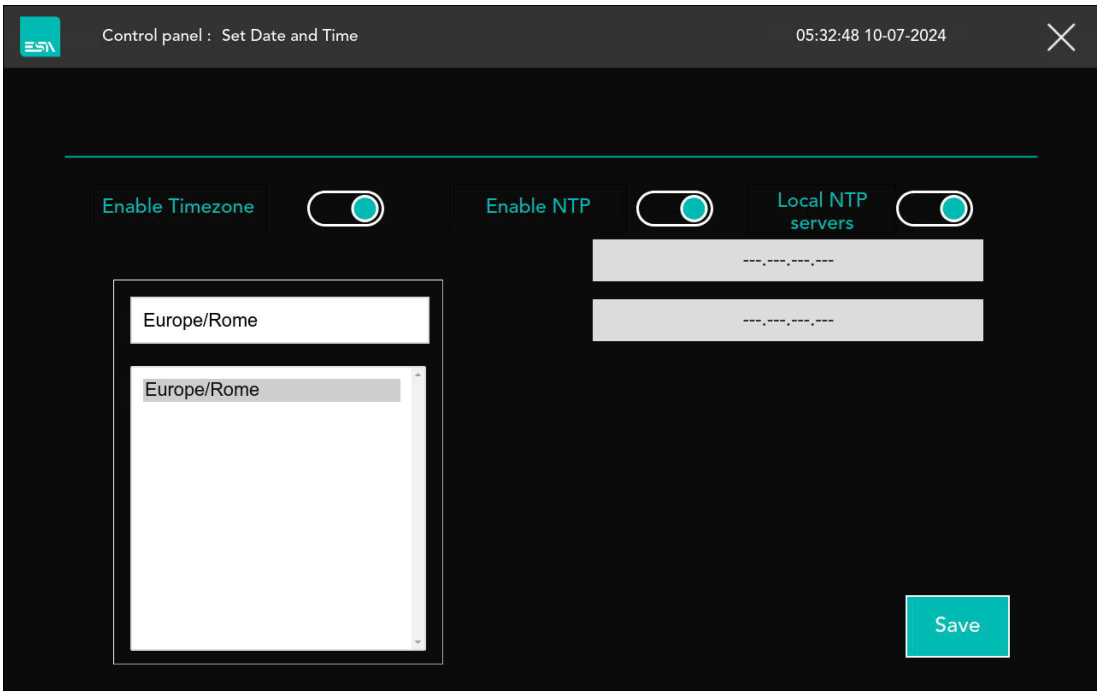
Date & Time



In this page the user can define how the system date/time is managed.
• Enable Timezone.
Enable Time Zone management. The user must select the Timezone based on the geographical location where the machine is installed.
• Enable NTP.
If disabled it means that the system date and time must be entered manually.
If enabled, the system date and time are automatically acquired from the server that manages the synchronization of the date/time of the devices.



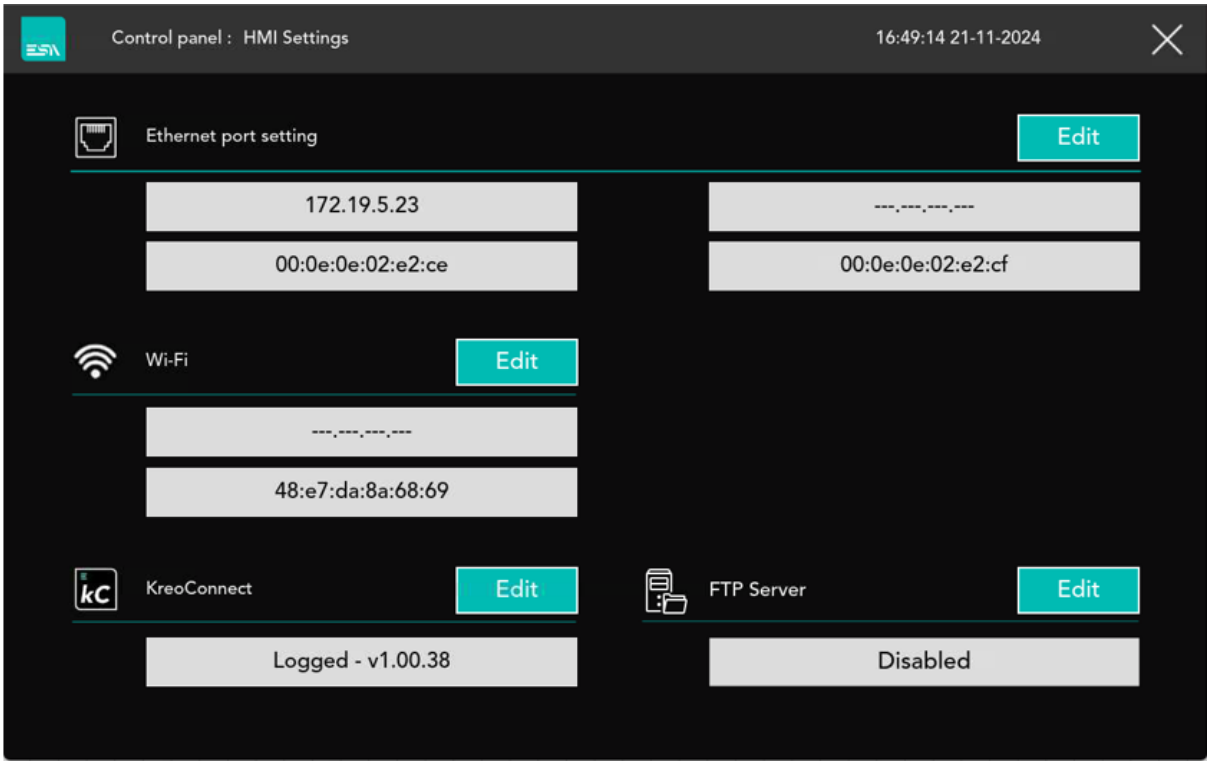
• Local NTP servers
If disabled, it means that the device synchronizes the system date and time with the NTP server available on the Internet.
In this case it is necessary that the device can access the internet.
The default NTP servers that are used via the internet connection are the following:
0.debian.pool.ntp.org
1.debian.pool.ntp.org
2.debian.pool.ntp.org
3.debian.pool.ntp.org



• If Local NTP servers is enabled, the IP address of the NTP server present in the local network must be entered.
It is possible to set up to two NTP server addresses present in the local network.

With the Save button the configuration is saved.

Settings



On this page the user has the possibility to access the configuration parameters of the following functions:

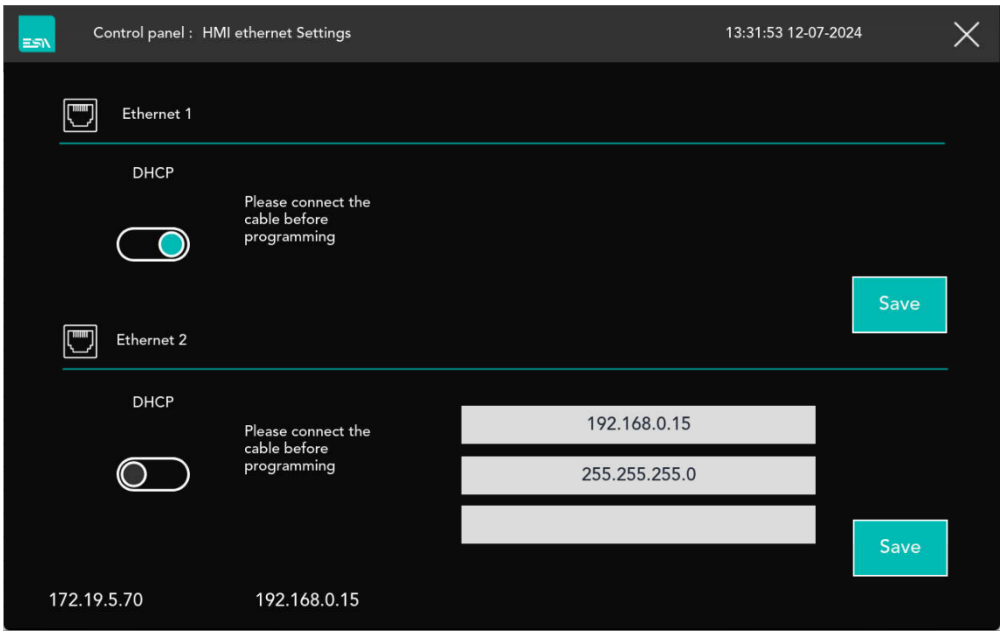
1. Ethernet port settings
On the right side the current IP addresses of the two Ethernet ports will be displayed if they have been programmed and the Ethernet cable is inserted
2. Wi-Fi settings
On the right side you will see the current IP address of the WiFi port if it has been enabled and programmed

The IP and MAC addresses of the ports configured with the cable connected are displayed.

3. Kreo Connect settings
The connection status towards the Kreo Connect server is displayed in the lower part

4. FTP server
The use can exchange files via the Lumia integrated FTP server.
The server status is displayed.

LAN ports setting



The user can program the two Ethernet ports of the HMI board.
The 3 fields displayed are:

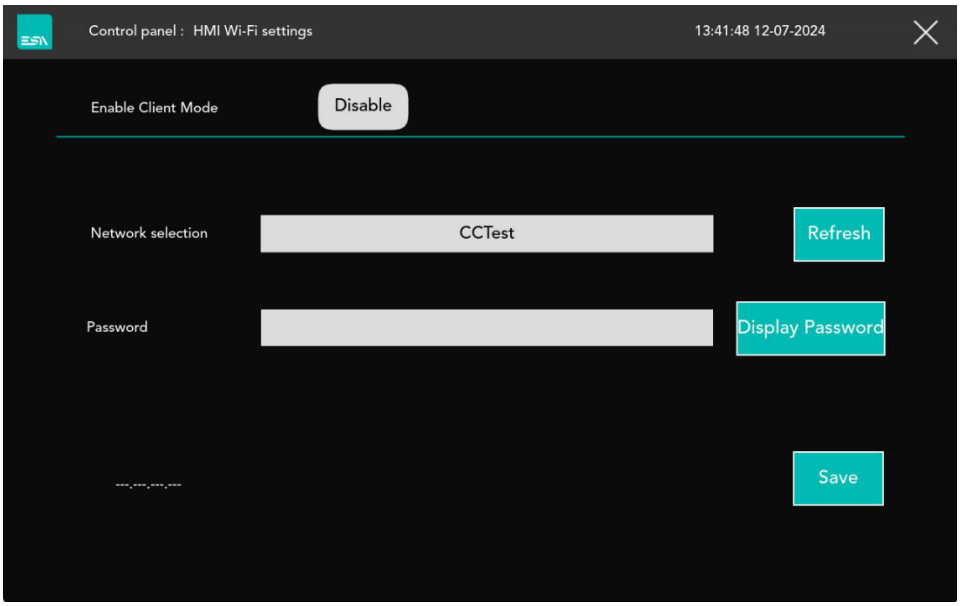
- IP address
- Subnet mask
- Gateway (it is always necessary to program a gateway). In the case of direct connection it is possible to enter the same address both in the IP address and in the gateway.

Both ports can be programmed with a fixed or automatic (DHCP) IP address.
The fields at the bottom of the page will show the current IP addresses of both ports.

⚠

BEFORE PROGRAMING THE DOOR IT IS MANDATORY TO INSERT THE ETHERNET CABLE.
THE FIELDS AT THE BOTTOM OF THE PAGE DISPLAY THE IP ADDRESSES OF THE ETHERNET PORTS WHICH ARE PHYSICALLY CONNECTED TO THE ETHERNET NETWORK.

Wi-Fi setting



The user can enable or disable the wifi connection.

⚠

If the wifi connection is enabled and the product has a gold connector for the external antenna the external antenna must be connected otherwise the wifi interface could be damaged.

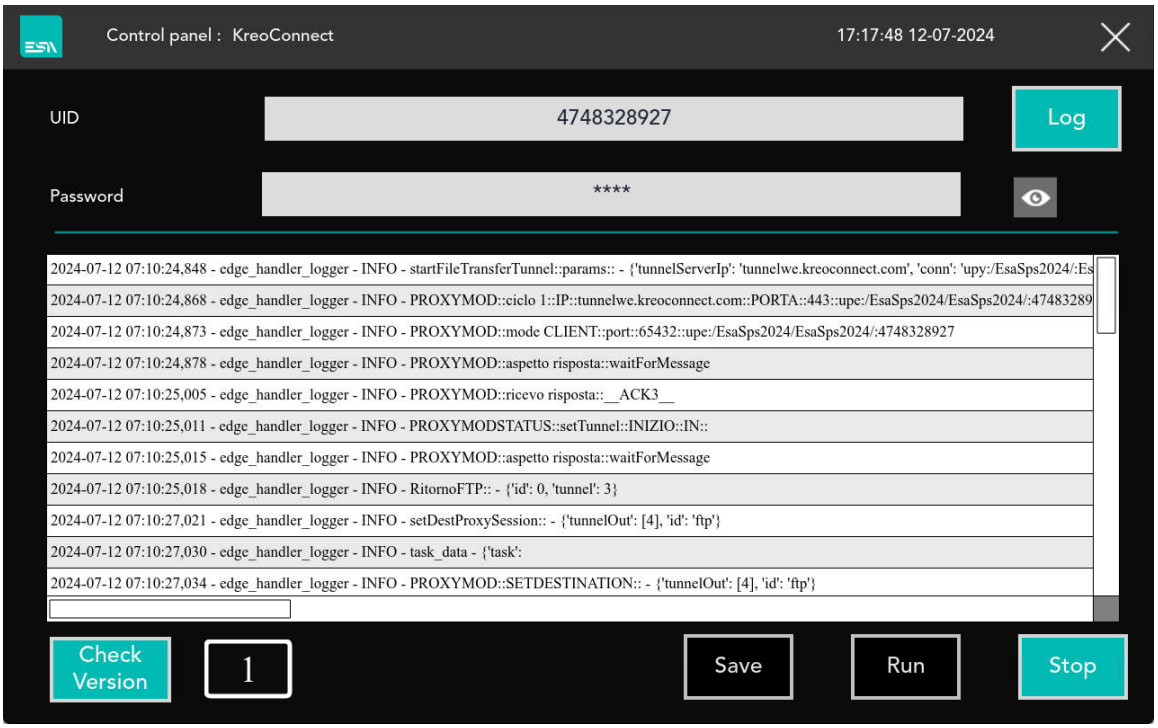
Network selection will display the list of the wifi access points available.
The Refresh button will force a refresh of the list.

Once the user has selected one of the wifi network it is mandatory to insert the access password.

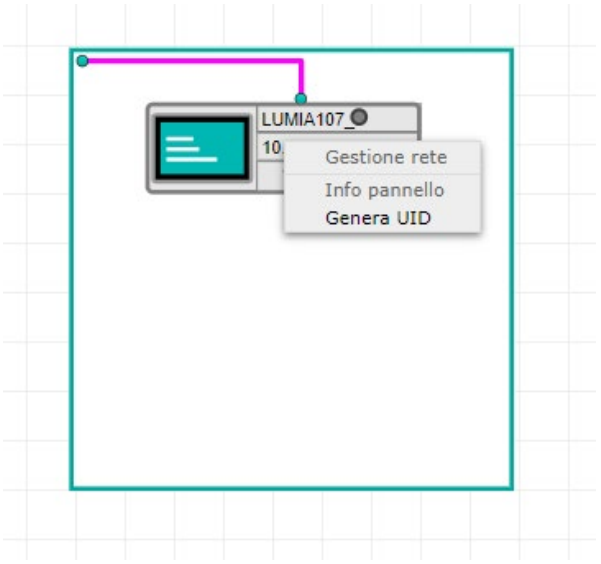
The display password button will display the password value.

The field at the bottom of the page will display the Ip address of the wifi connection.

Kreo Connect programming



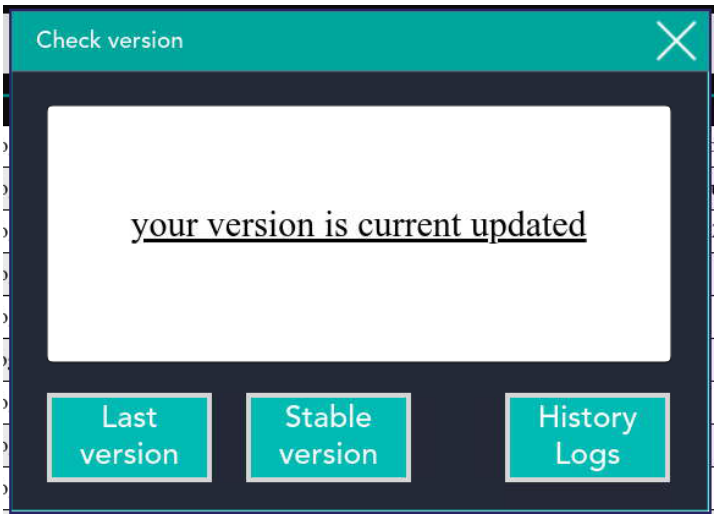
In this page the user must enter the unique product identifier and the access password.
The unique ID (UID) is returned by the server when registering the product in the domain.
Once the edge device has been inserted into the machine network using the right mouse button it is possible to generate the unique ID.



Once confirmation has been given to the generation of the unique ID, the user can view it by opening the Info page.

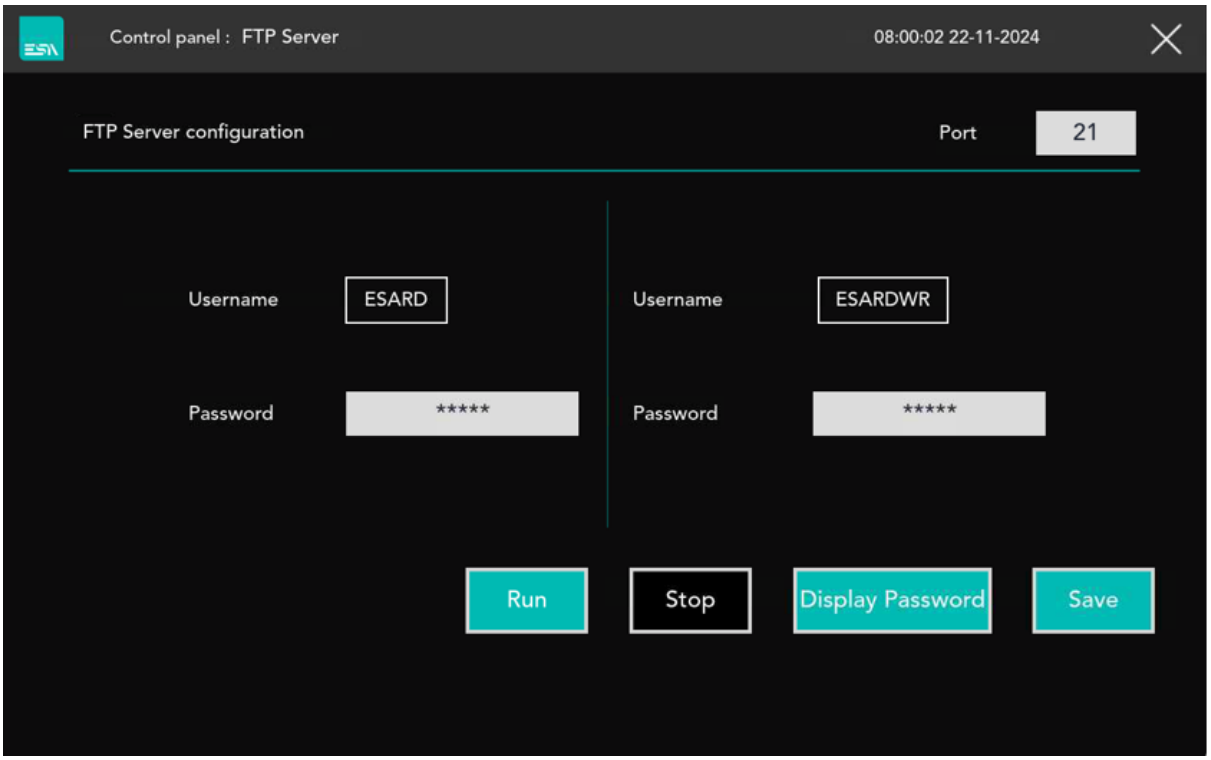
In this pop_up page the password to be reported in the control panel must be entered.

• Log displays the most recent log recording system events on the screen
• Check Version opens a further pop_up window with the following information:



• Status of the installed version.
• Last version: allows you to return to the previous official version so that you can always return to a stable version.
• Stable version: install the latest stable version officially released4
• History Logs: displays the list of the latest log files created. The system automatically saves a log of events every day. The user can reload on screen and view a previous log taken from the archive.
• Save: Saves the set parameterization
• Run: launches the execution of the Kreo Connect connection service
• Stop: stops the execution of the Kreo Connect connection service

FTP Server



The product integrates an FTP server that allows you to publish files to remote FTP clients.
It is necessary to use an FTP client that requires the insertion of Username and Password.

The FTP server provides two different access modes (to which two predefined users are associated):

• ESARD user in read-only mode.
The remote client can download files present on the server but cannot save new files.

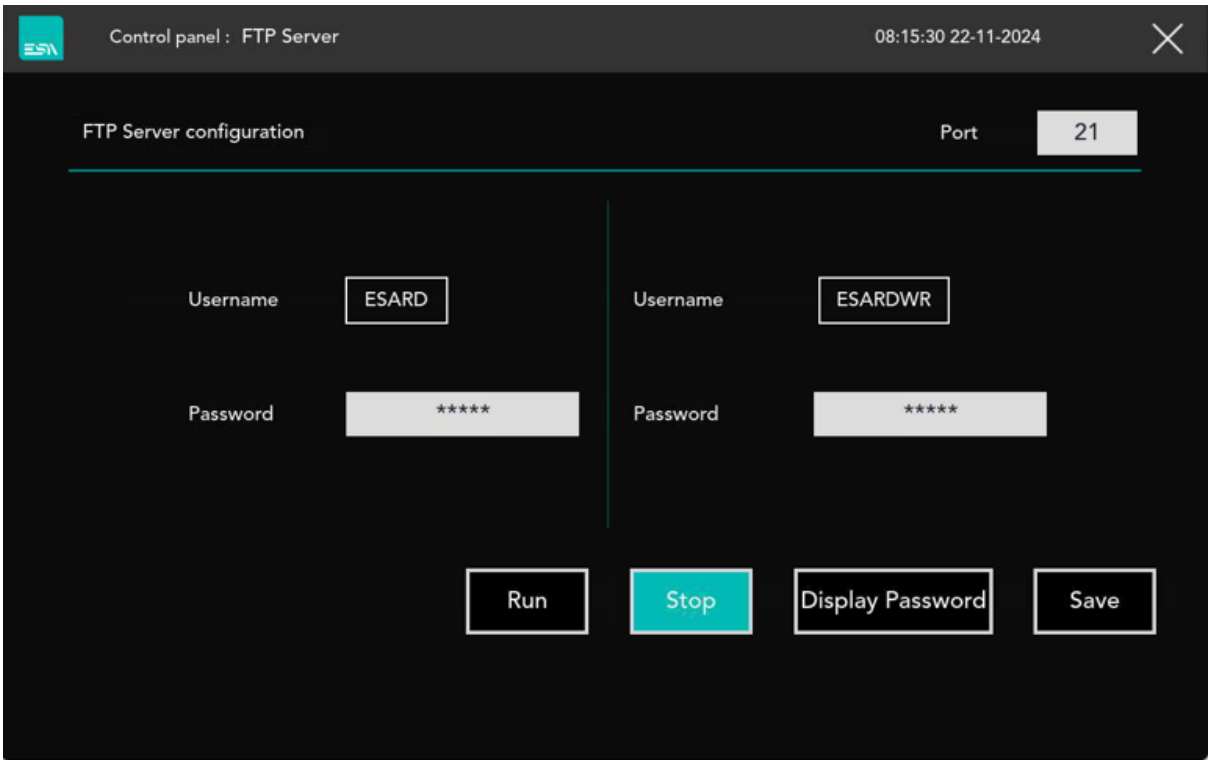
• ESARDWR user in read/write mode.
The remote client can both download files and save them on the FTP server.

The username is predefined and cannot be changed while the password can be defined by the user.

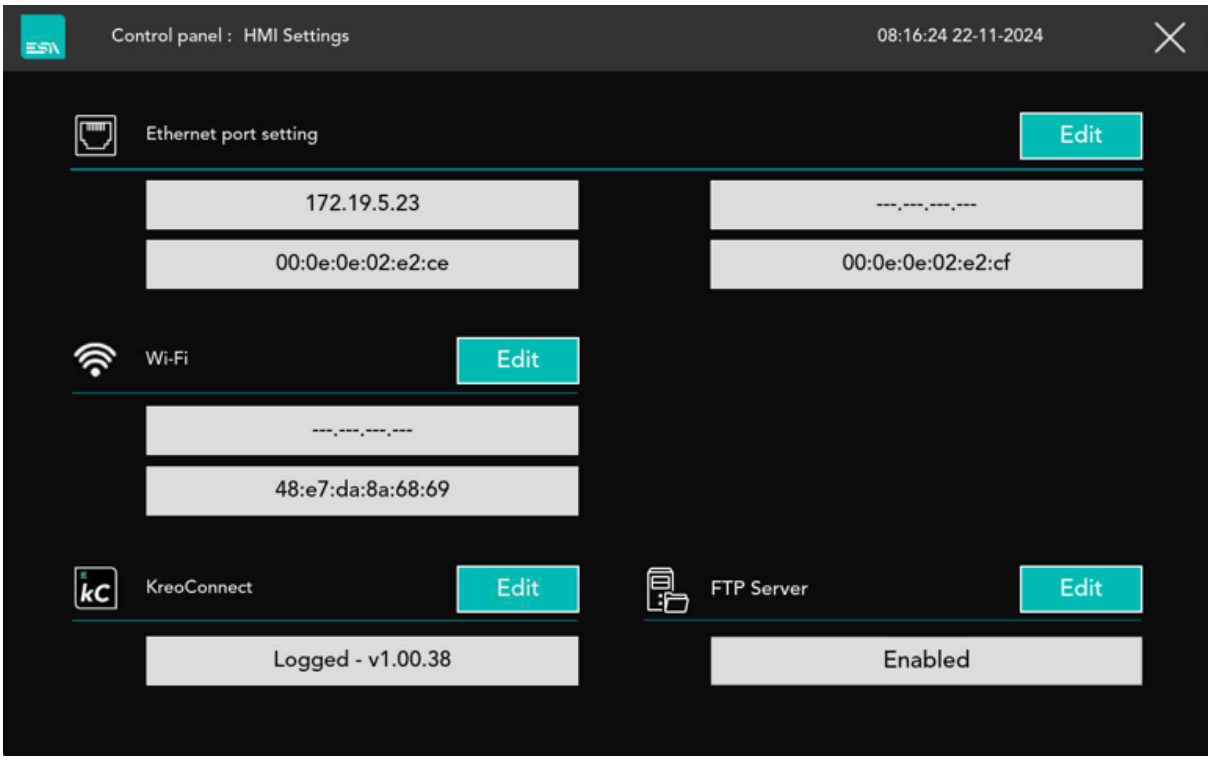
Parameter and command:
• Port: allows you to define the port to use for the FTP service. Port 21 is the default port normally used by the service.

• Run: enables the FTP server service
• Stop: stops the FTP server service
• Display password: displays the passwords of both users
• Save: saves the set parameters

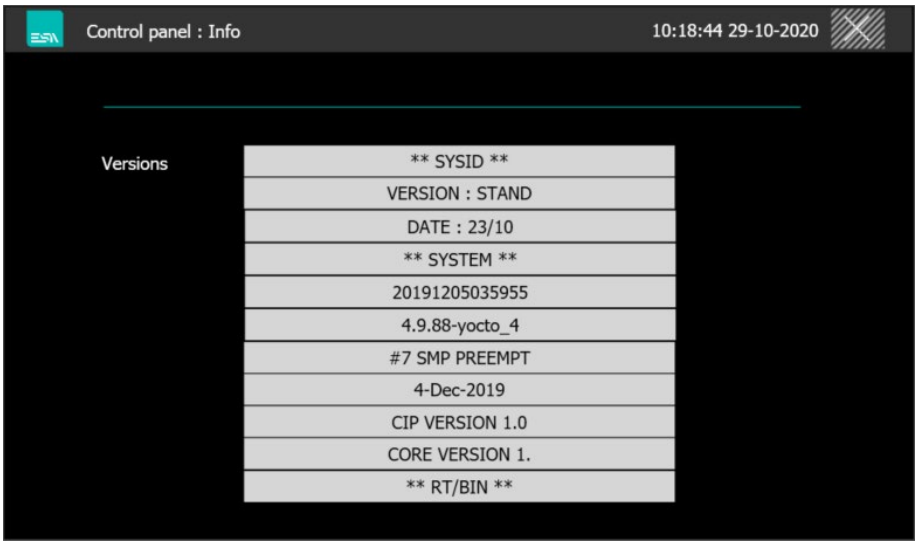
The green buttons are the clickable ones.
For example, if the FTP server is running, the following page appears:



In the main window (Setting) the current status of the FTP server is displayed.

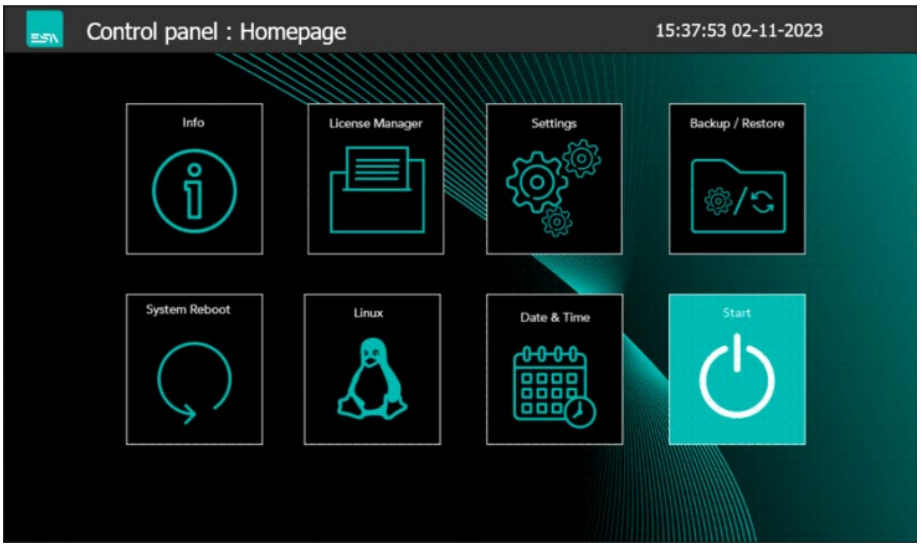


Informations



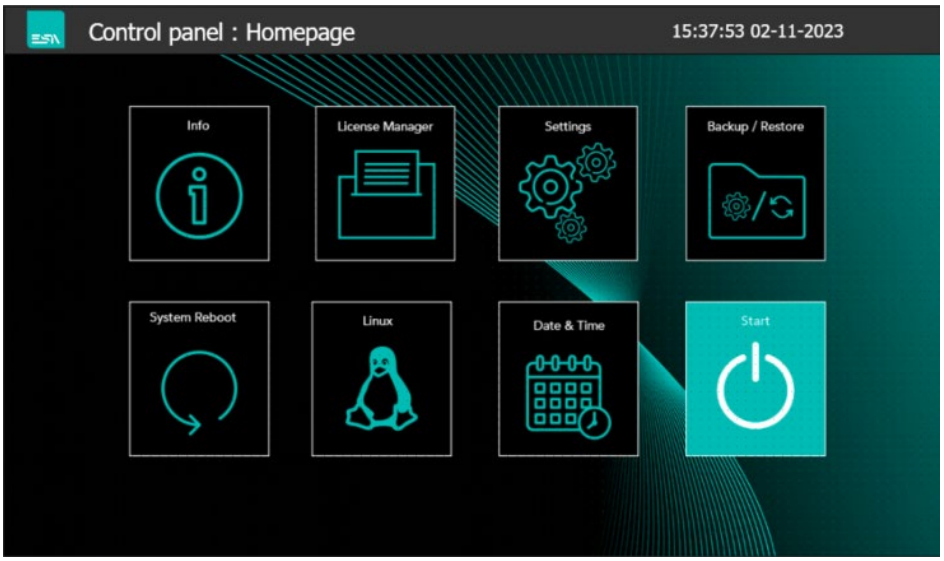
This page will list the release of the operating system and application components.

System reboot



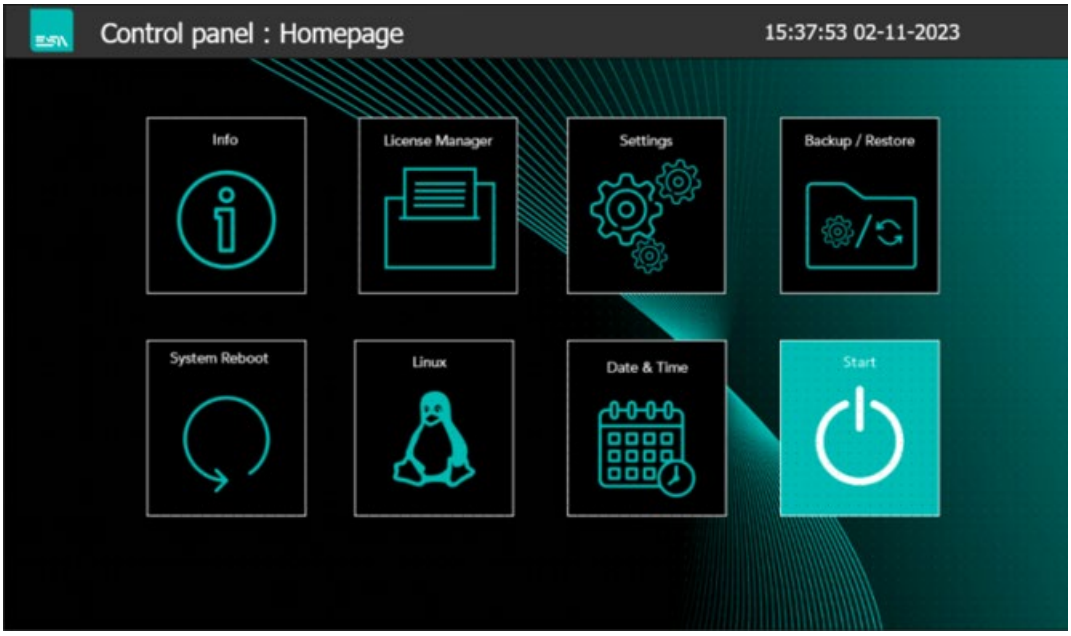
A complete restart is forced.
This command is equivalent to the power supply switch off and on but is useful in case of forcing the commend via a remote connection.

Linux

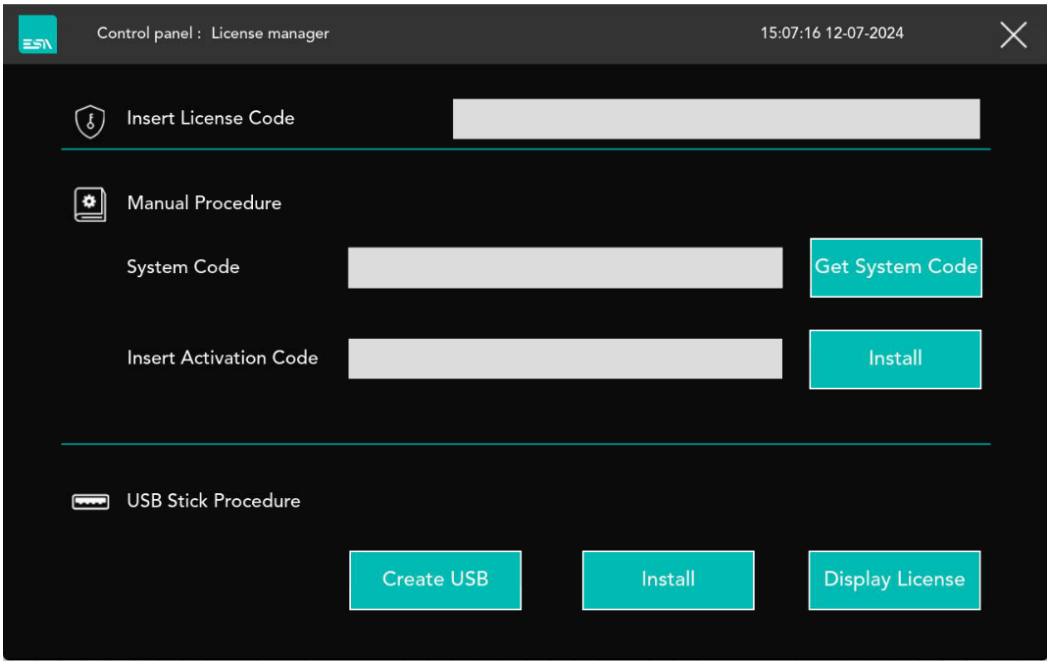


Via this button the user can access the operating system.
This procedure is usually not necessary (all the configuration is done via the control panel) but we keep this “backdoor” in case of specific support or update.

License Manager



The License Manager utility is the application that let the user insert, activate and display the different licenses loaded on the target device.

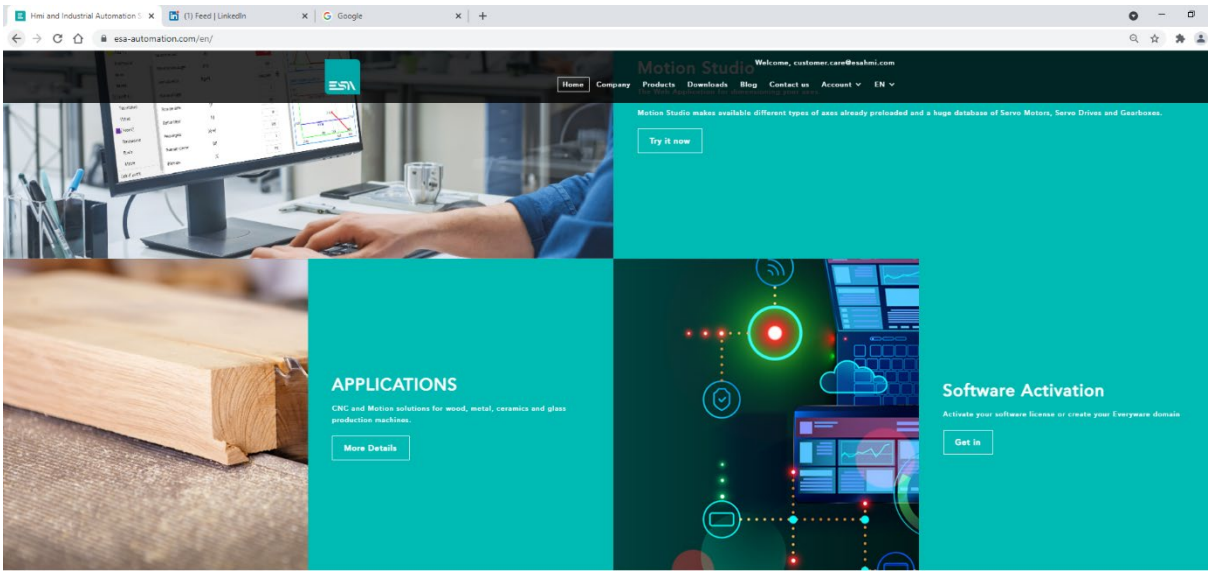


General consideration

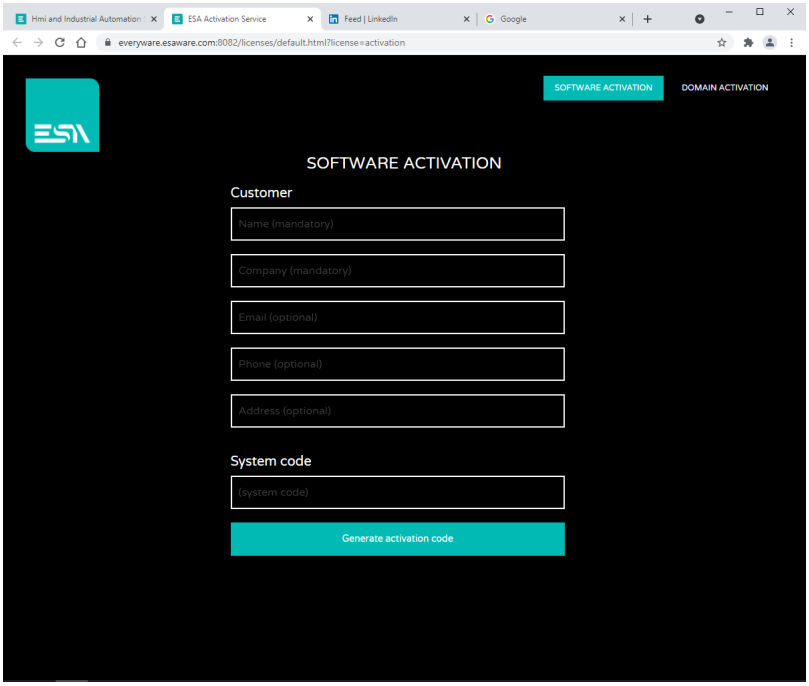
- Several licenses can be installed based on the different functionalities
- The license is specific for the hardware where it has been installed.
- Activation procedure. Is the procedure that creates a link between the license code and the MAC address of one of the ethernet ports. This will create a unique identifier dedicated to a specific hardware device.
- The license registration procedure can be totally manually or with the help of an external application running on the USB stick.

Manual procedure

1. Insert the license code provided by ESA
2. Press the Get System code button. The system code (combining both the license code and the MAC ADDRESS will be displayed)
3. Open the ESA website homepage (www.esa-automation.com) and select Software Activation



4. The registration page below will be displayed



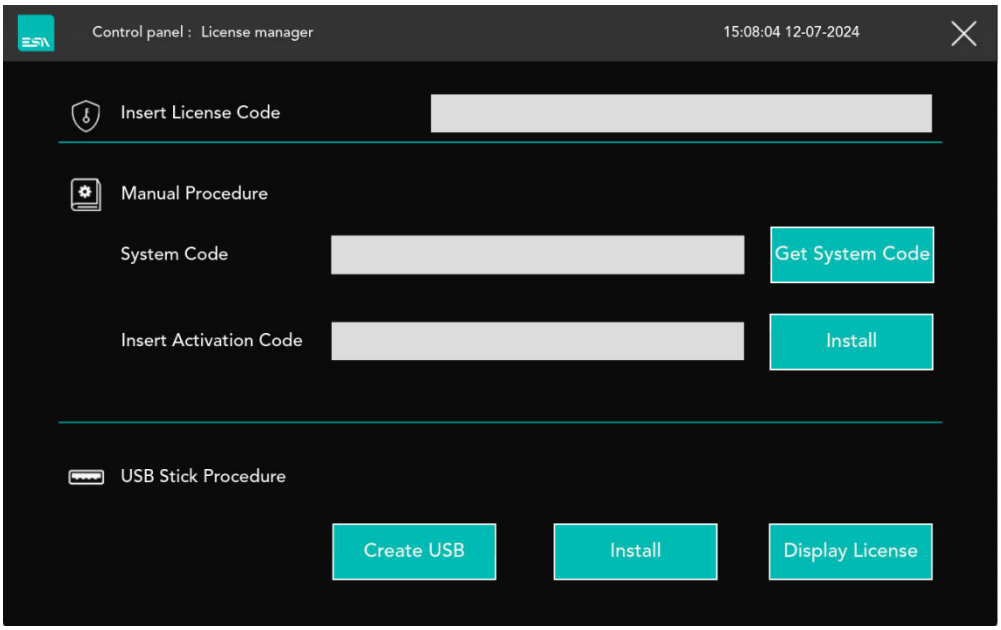
5. Enter Name, Company, email address and pree Genrate Activation code
6. Copy and paste the activation code into the control panel field

7. Press Install
8. The new license is installed and activated.

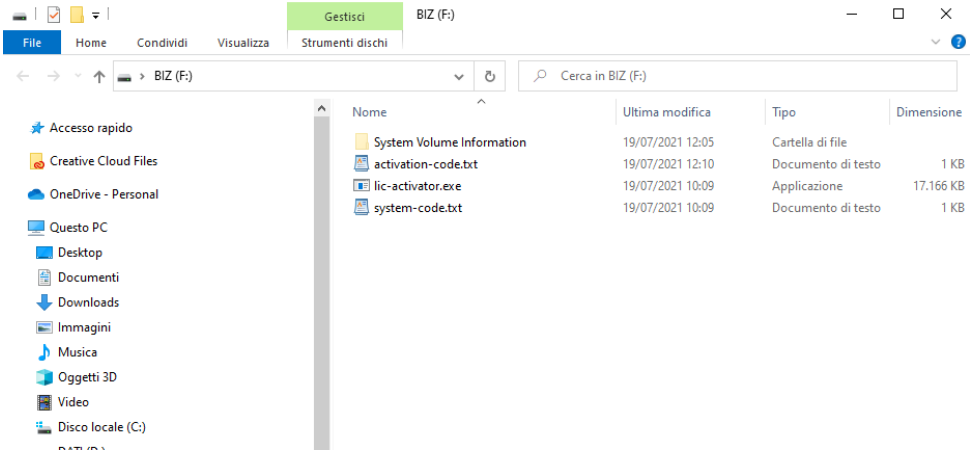
USB stick procedure

This procedure is automatic and does not require any manual editing of the different field.

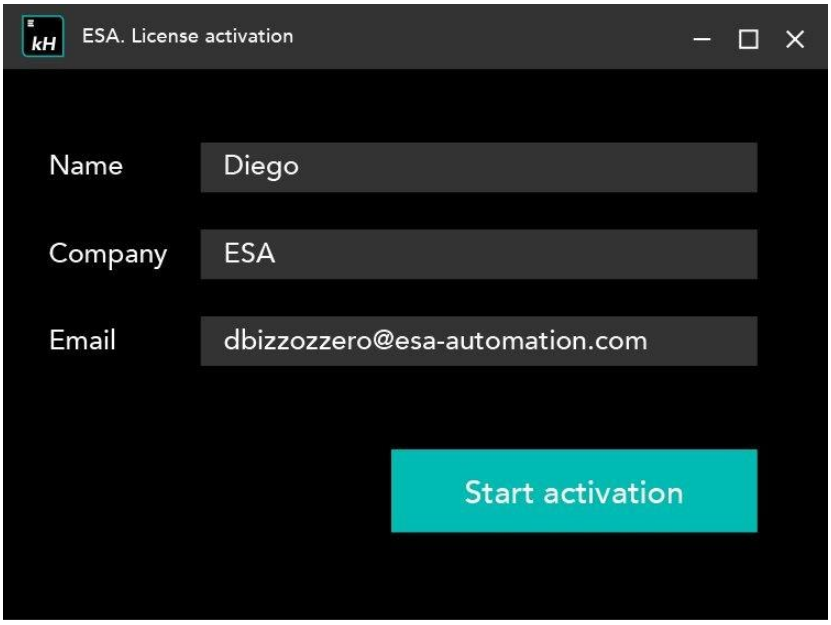
1. Insert the license code on top of the control panel page.



2. Insert a FAT32 USB stick in one of the USB ports of the product
3. Press Create USB
4. Remove the USB stick from the product and insert it in a PC connected to internet
5. Open the USB stick and run the application named lic-activator



6. Press Start activation and look for the confirmation pop_up message

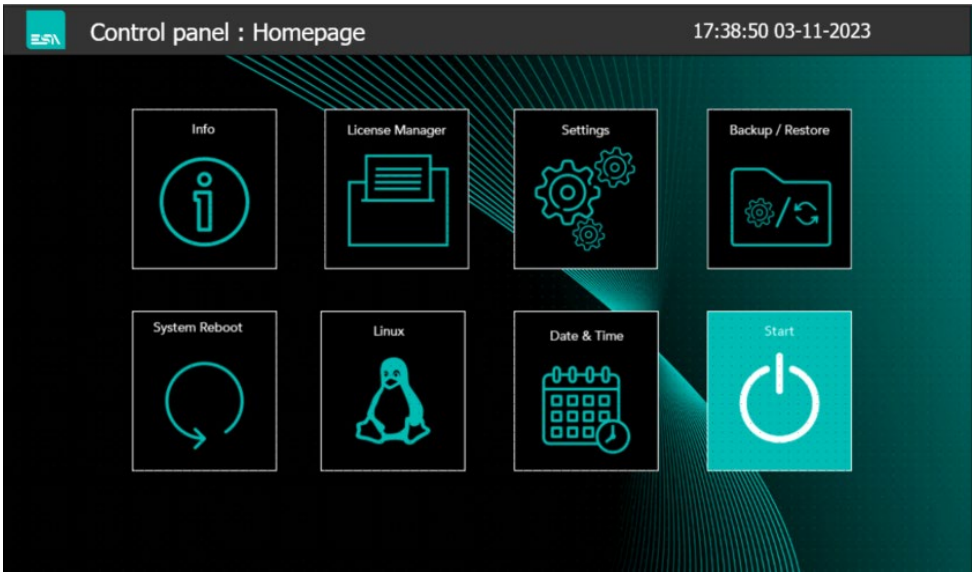


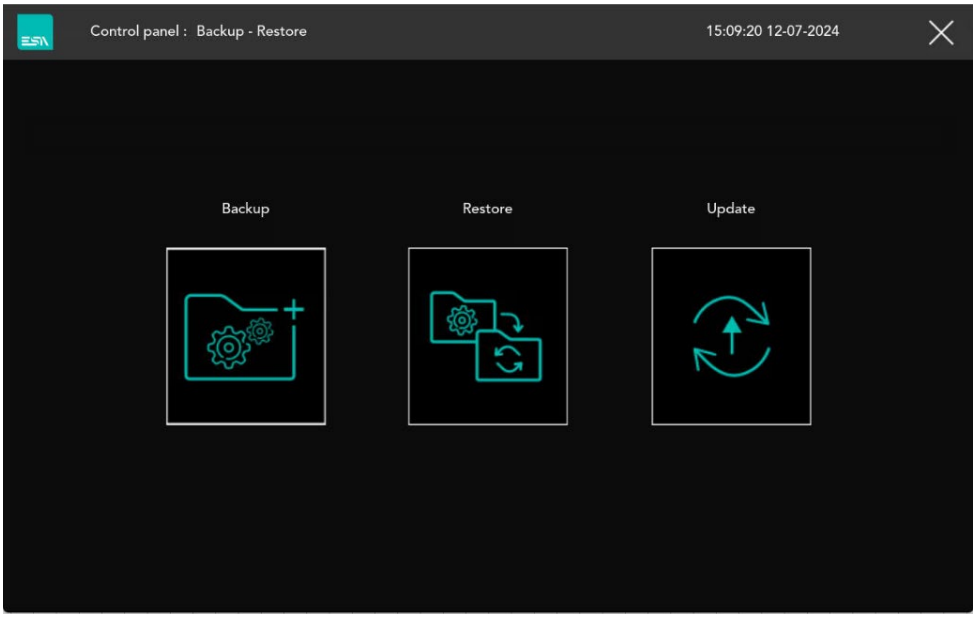
7. Remove the USB stick from the laptop and insert it into the target device
8. Press Install; the license will be installed and activated.

Display License

The display license button will list all the licenses that have been installed and activated.

Backup / Restore



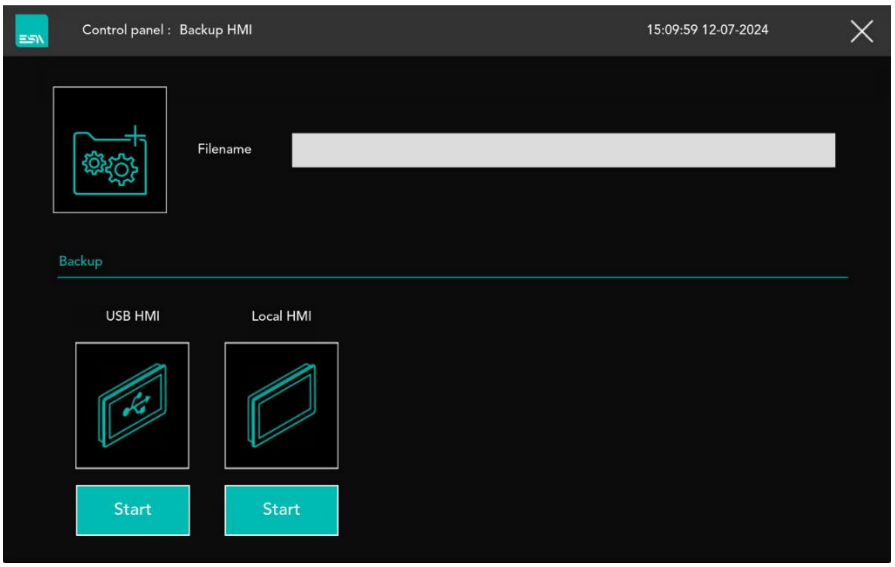


With the Backup/Restore functionality the user can create a complete copy of the HMI via a simple USB stick.
This functionality is very common when the user needs to program a large number of HMIs with the same application and data.

First of all the user needs to insert a FAT32 USB stick into one of the product's USB ports.

Create the backup

The user has to press the Backup button.
The page below is displayed:



The user must enter the file name and select whether the backup file should be saved on a USB stick (in this case it is necessary to insert a FAT32 formatted stick) or in the internal memory of the product.

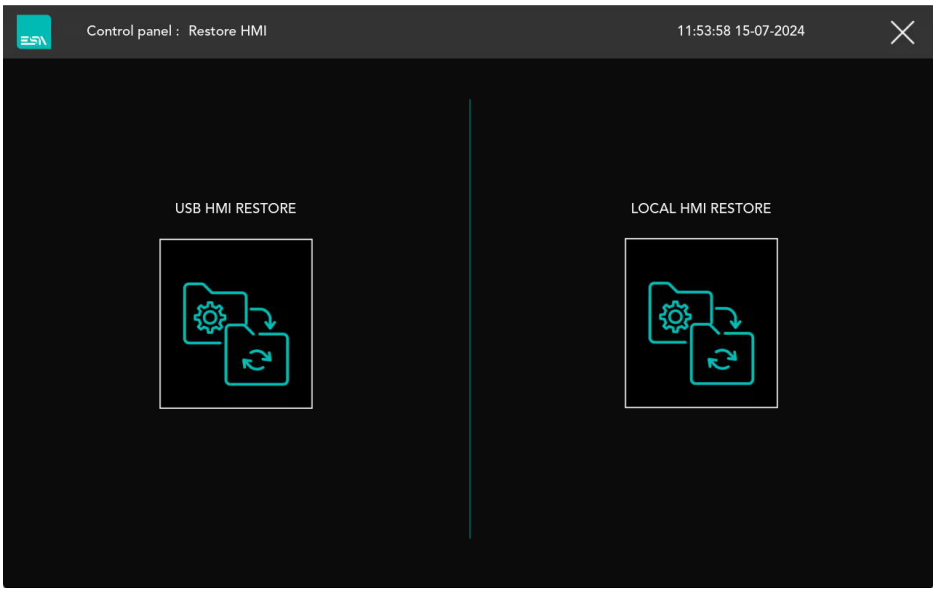
Pressing the corresponding Start button forces the procedure to begin.
At the end of the backup procedure, a pop_up confirmation message will be displayed.

The following data will be copied to the USB stick:

1. Kreo Project
2. Firmware
3. Communication drivers
4. Retention data
5. Recipe archive
6. User database and password

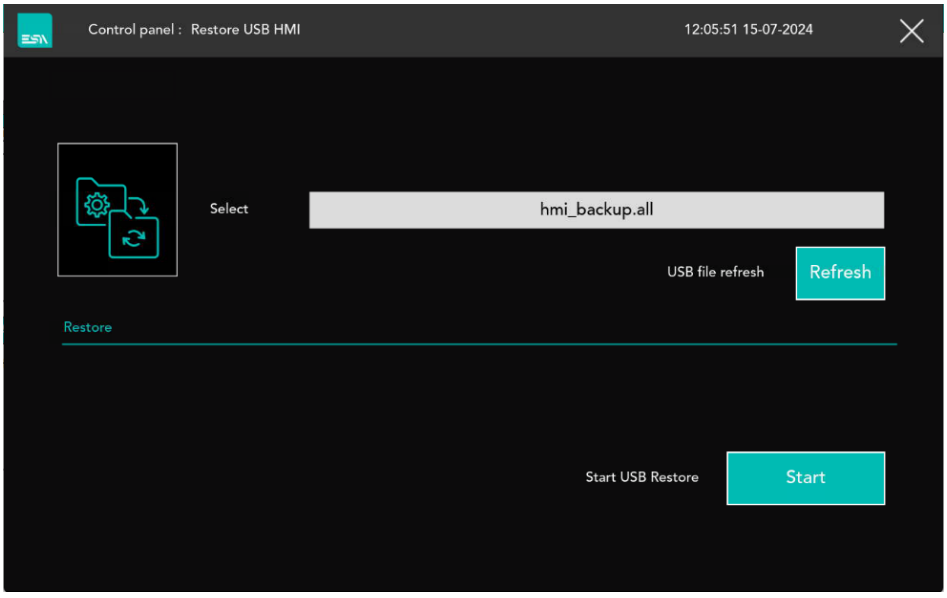
Restore the backupped data

The user has to press the Restore button.
The page below is displayed:



The restore can be carried out either from a USB stick or from a file saved inside the product.
For both modes it is sufficient:

1- Select the file to reload. Each click on the file name will display one of the restore files present on the device.
2- Once you have selected the restore file to reload, simply press Start. A pop_up window notifies you of the completion of the restore procedure.



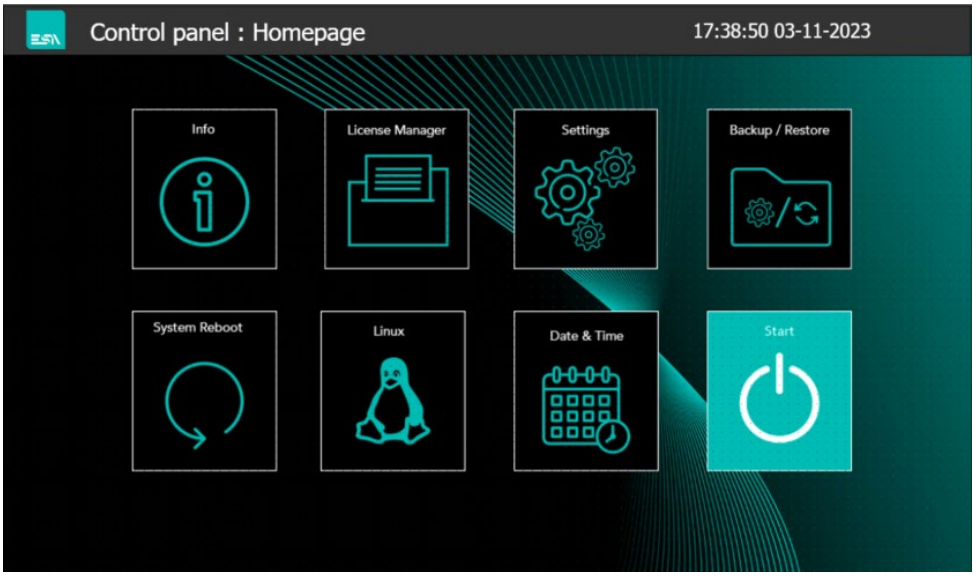
The HMI will be programmed with exactly the same application and retentive data as the source product from which the backup was created.

Update

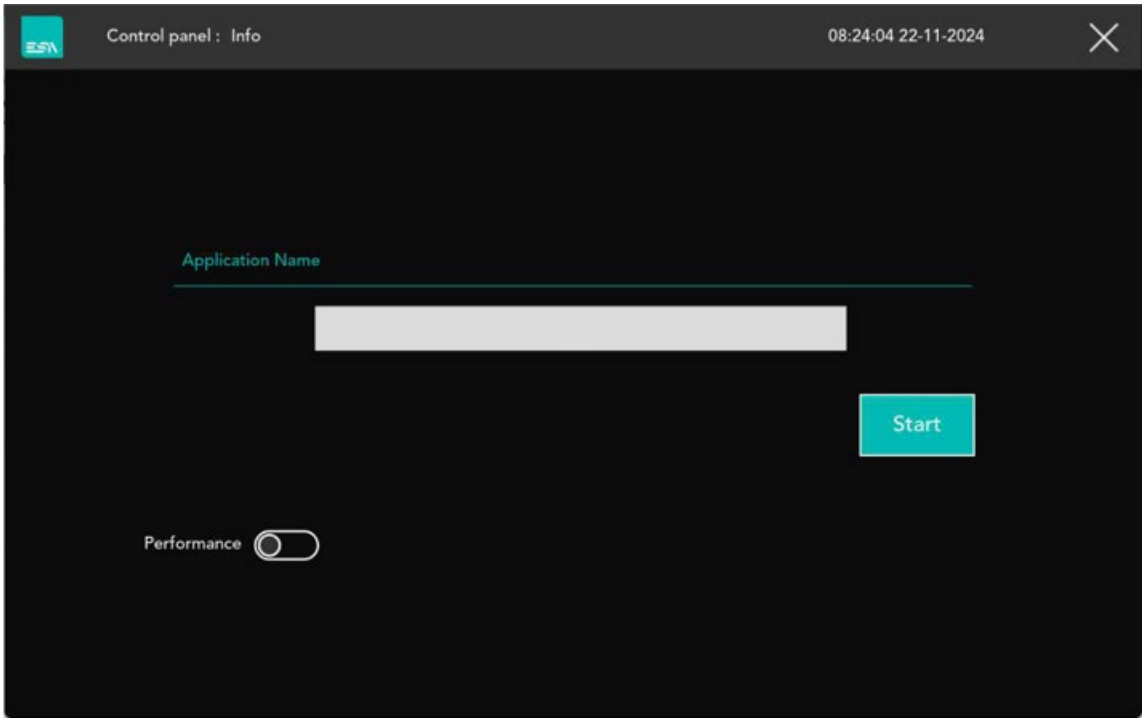
The Update button is a button that launches a service procedure to be used to update the product.

This procedure is password protected and must be guided by the ESA technical support service.

Start



Via this button the user can define wich user application will run.
The name of the application has to be defined in the following pop_up page.



Performance

The performance option allows you to increase the processor's working frequency in order to obtain lower page refresh times.

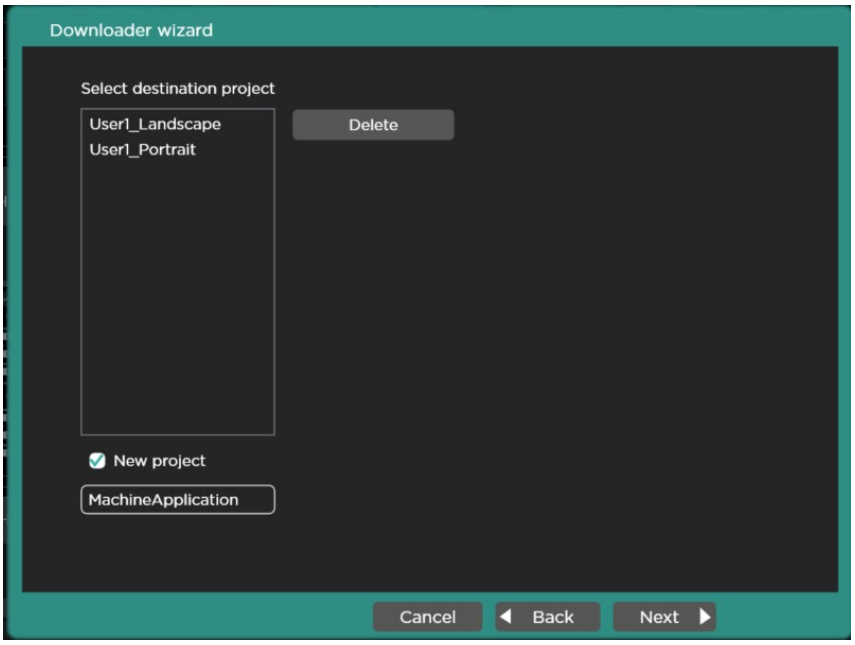
Please note that increasing the processor's frequency implies using the component at its limits.

Multiple application management

The user has the possibility of loading multiple application in the HMI and select wich is the application that has to start.

- The user can load the application of different machine models and directly select on site the application that has to start based on the machine he's going to setup
- The user can load the machine application and a second application for the debugging. In case of problems he can close the machine application and run the debug one.

In the download page of the configuration software it is possible to manage the applications; add a new one, delete an old one and change the application name.



⚠

By default the current active application is the last downloaded.
Via the Start utility of the Control panel it is possible to change the active application.
The active application will remain the last selected till a new project download or a modification via the control panel will be performed.

Connect
ideas.
shape
solutions.