Cradle Programmer app

User Manual

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Contents

Introduction

Designed for OEMs
The Cradle Programmer app is a production-line tool designed for original equipment manufacturers (OEMs). It programs AoFrio SCS controllers with the information needed to identify, configure, and support each piece of equipment throughout its life.

Customisable scale
Cradle Programmer is built to fit into a wide range of manufacturing processes, from simple single-line production to highly automated environments.

High volume capable
The Cradle Programmer app supports high-volume manufacturing by providing a fast, repeatable, and low-error way to configure controllers before equipment leaves the factory.

Your preferences respected
This manual explains how the Cradle Programmer app works and what each feature does. It does not prescribe a single “correct” process. If you require documented production-line instructions tailored to your operation, your AoFrio representative can help create them.

Future focused
AoFrio continues to improve the Cradle Programmer app based on customer feedback. If you have suggestions or feature requests, please raise them with your AoFrio representative. Each request is reviewed by the Product Team and considered for future releases.

A partnership approach
Rather than enforcing a fixed workflow, the Cradle Programmer app provides flexible features that you can adapt to your own production process. Your AoFrio representative will work with you to define how best to use these features on your production line.

How the Docking Cradle works

The Cradle Programmer consists of software and a hardware Docking Cradle or Cable (SCS 800). Together, they program an SCS controller when it is placed into the cradle.

Basic operation

1. Connect the SCS Controller to a computer using a USB Cradle Cable or place in the USB-connected Docking Cradle.
2. Programming starts automatically as soon as the controller is seated or connected.
3. Remove the controller to complete the process and reset the cradle for the next unit.

Note: The Docking Cradle and Cable are inherently safe to use on the production line because it is powered only via USB.

Docking Cradle
Insert the SCS 500/600 and connect the cradle to a computer by USB

Cradle Cable
Connect an SCS 800 directly to a computer by USB

Configuration time

Configuration time depends on which items are programmed during the process.

When programming the following items, configuration typically takes less than 30 seconds per controller:

- Controller parameters
- Manufacturer, owner (bottler), and brand IDs
- Equipment model
- Equipment serial number
- Asset number

If controller firmware is also programmed, configuration time increases to approximately 50–60 seconds per controller. These times allow the Cradle Programmer to support high throughput production lines while maintaining consistent and repeatable configuration.

What information is programmed

The Cradle Programmer writes configuration data directly into the controller including:

- Controller parameters and firmware
- Equipment model and serial number
- Manufacturer, owner (bottler), and brand IDs
- Asset number

Not all items need to be programmed every time. Your manufacturing process will determine which items are set on the production line and which are set later.

Key terms

- **Controller parameters -** Define how the equipment operates, such as temperature control, timing, standby behaviour, and input/output configuration. Parameters can vary by equipment model and owner to meet specific operational requirements.

- **Controller firmware -** Controls the core functionality and available features of the controller. Firmware versions can change to suit.

- **Equipment model -** Identifies the variant and populates related fields supporting factory defaults, service restoration, reporting, and fault detection.

- **Equipment serial number -** Uniquely identifies each piece of equipment to allows accurate tracking through the equipment lifecycle.

- **Manufacturer, owner, and brand IDs -** Associates the controller with the correct manufacturer, owner, and brand. These IDs determine access permissions and define where operational data is stored.

- **Asset number -** The primary identifier used for asset tracking and reporting. All collected data is linked to the asset number. While programming can proceed without an asset number, this is strongly discouraged, as reporting and tracking will not function until it is set.

Before you start

Core requirements
You will need the following hardware:

- AoFrio supplies a **Docking Cradle** for the SCS 500/600 or **Cradle Cable** for SCS 800
- Laptop or PC with available internet connection and USB ports for the Docking Cradle or Cable and a barcode scanner.
- Ask your AoFrio representative for the **Cradle Programmer app** installation file and an activation code for your database. This app has controlled access, so please communicate with your AoFrio representative if additional permissions are needed.
- Depending on your production process, you may also need a **Barcode scanner** which can help you:
    - change the configuration file
    - scan the asset details including equipment serial number, asset number and compressor serial number.
- Check the correct **firmware version** is being used to program the SCS controllers in your production process.

Advanced requirements

- If your research and development team or lab technicians have created a **parameter files via the AoFrio Lab app,** make sure these are available in the Cradle Programmer and uploaded to the AoFrio Cloud (server). Check the parameter file section of this manual for more detail.
- If your manufacturing or production managers have created the **equipment model options using the OEM Dashboard app**, ensure they are available to the required owners. Refer to the parameter file section of this manual for more detail.

Installation & activation

Installation process

1. Obtain the link to download the (*.exe) installation file for the latest Cradle Programmer from your AoFrio representative.
2. Click on the link to start downloading.
3. When the download has completed, navigate to the file on your local PC/laptop. By default, files are saved to the **Downloads** folder. Double click on the file to start installation process and follow all onscreen instructions.

If an older version of Cradle Programmer is currently installed on the local PC/laptop, you will be prompted to replace the old version with the new one during installation process.

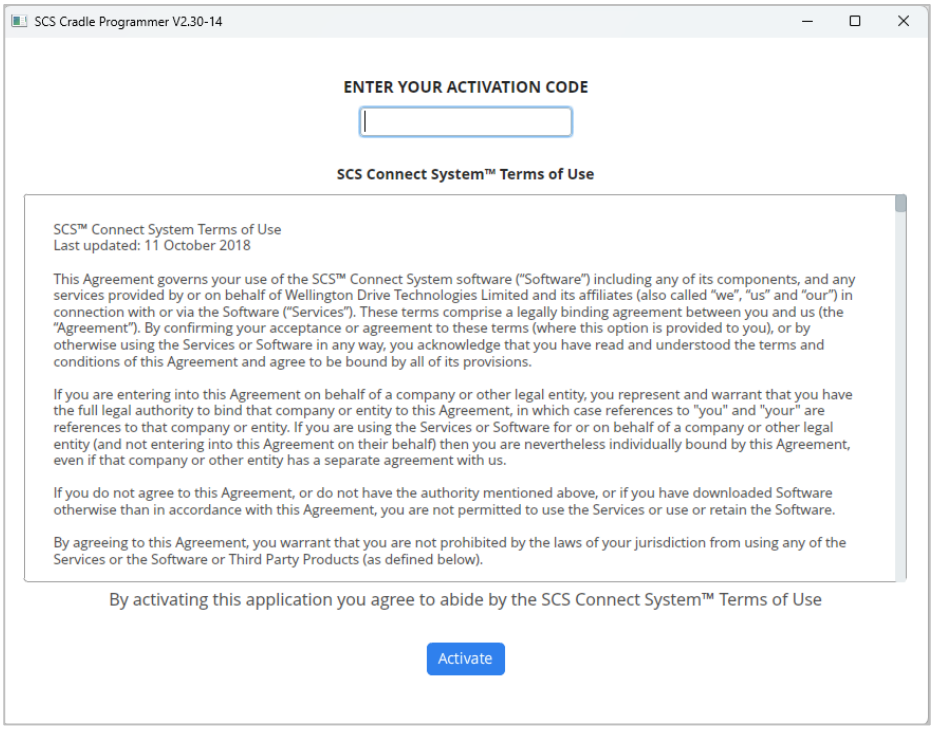
The Cradle Programmer will start automatically, upon successful installation/update.

Activation process

NOTE: You will need a stable internet connection to ensure a successful activation.

When you first start the Cradle Programmer you will be requested to enter your activation code.

1. Contact your organization's user manager to receive an activation code.
2. Once you have the code, open the Cradle Programmer app and enter it in the **ACTIVATION CODE** field.
3. Click **ACTIVATE**.

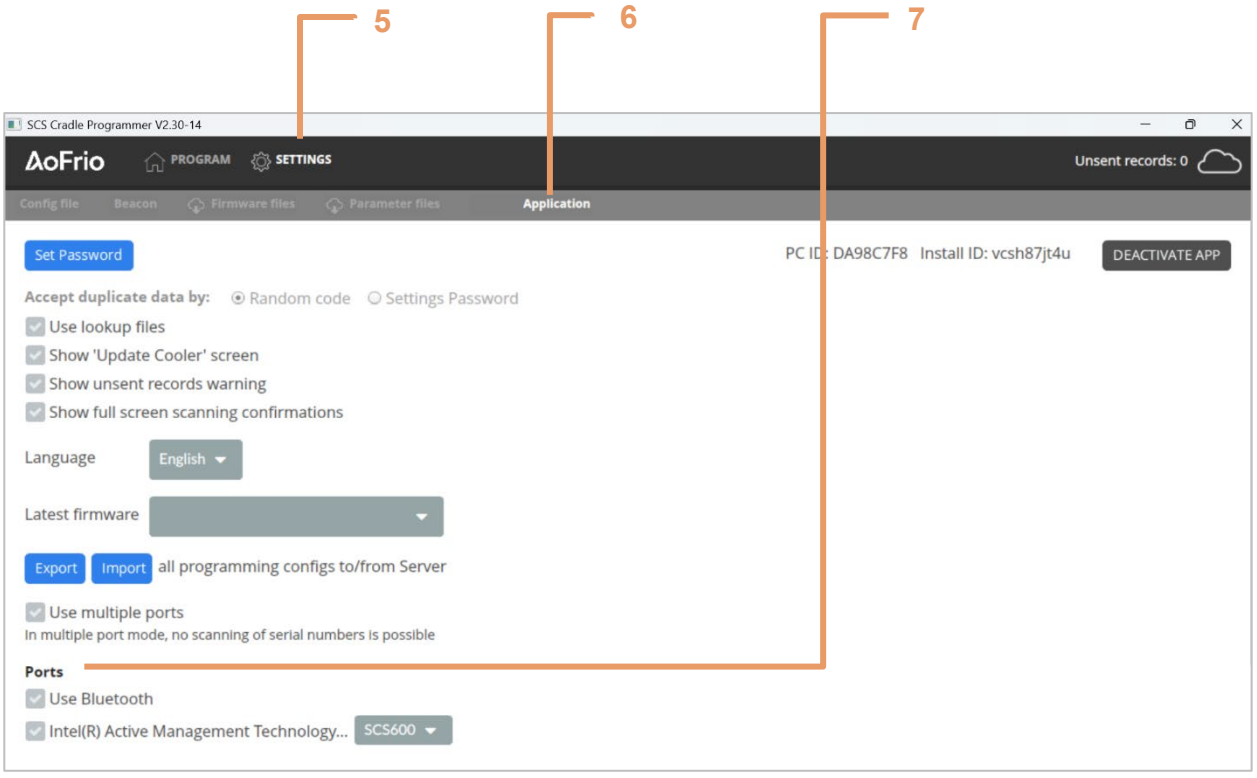


Hardware setup

The first step of the programming process requires initiating connection between the hardware Docking Cradle and the Cradle Programmer application.

1. Turn on the PC or laptop that you will use in the production process.
2. Connect the Docking Cradle to the PC or laptop using the USB cable.
3. Open the Cradle Programmer app (which is already activated).
4. Select the USB port for the connection between the docking cradle and the PC or laptop to establish the connection.
5. Click on the **SETTINGS** tab.
6. Click on **Application** submenu.
7. Under the **Ports** section, select the appropriate USB Serial Port (COM#).

NOTE: If the target USB port is not visible, disconnect the USB cable from the Docking Cradle from your computer and connect it to a different USB port. Then restart the Cradle Programmer app.



Parameter files

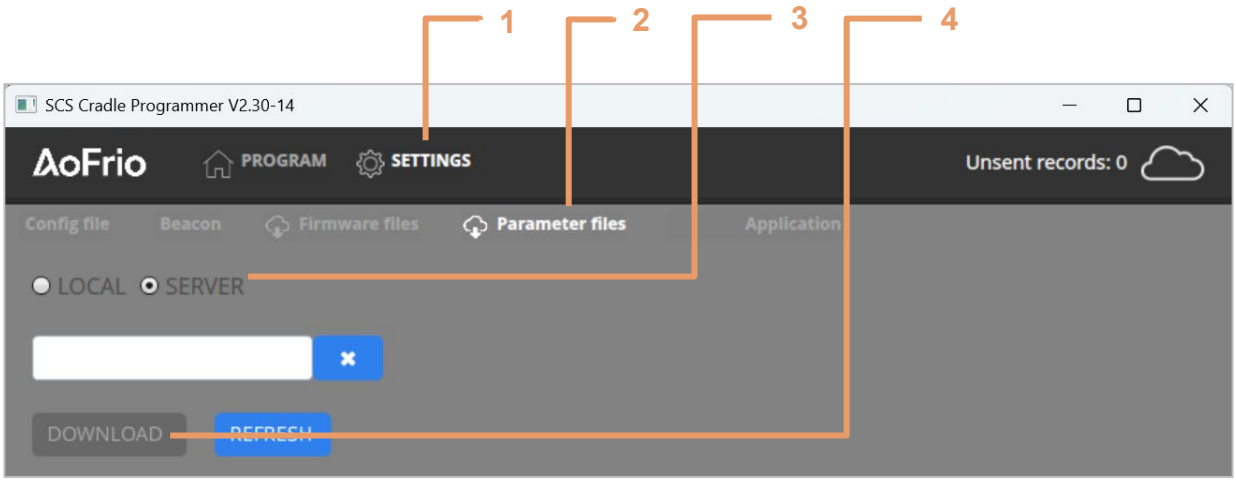
- It is important to import pre-defined parameter files for your production process from the server.
- The parameter file contains all the individual parameters selected for a specific equipment model and owner, and it is created and uploaded to the AoFrio Cloud (server) by your research and development team or lab technicians using the AoFrio Lab application.
- If a parameter file is not visible to you, please contact your AoFrio representative, as the right permissions are required.
- Always ensure the correct parameter file is being used.

To download the required parameter files:

1. Click on the **SETTINGS** tab.
2. Click on the **Parameter files** submenu.
3. Select the **SERVER** option.
4. Select the pre-defined parameter file from the list shown or use the search bar to find it.
5. Click **DOWNLOAD** to save the selected parameter file.

Once the parameter file has downloaded successfully:

- Look for a confirmation message that says “Download Successful”.
- You should also be able to find the downloaded file if you click on **LOCAL** tab.



Firmware files

Before you start

- The Cradle Programmer app lets you update controller firmware during the programming process but should only be done on an as-needed basis.
- We recommend that you only use the latest firmware version when programming a SCS controller with the Cradle Programmer app. This means your equipment will benefit from the most recent improvements, features, and fixes and operate as you expect.
- Ensure the user permissions associated with your role include firmware file download, as set by your organization's user manager. The required firmware version must be released to your database in the AoFrio Cloud (server) prior to the programming process.

To download the required firmware file from the server:

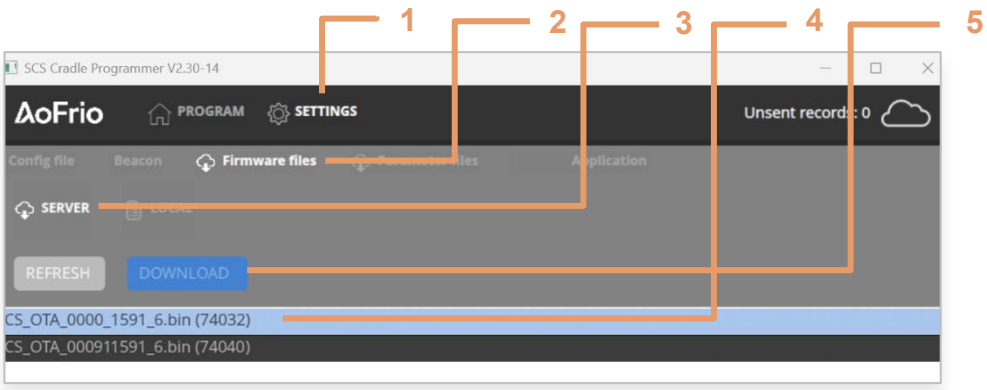
1. Click on the **SETTINGS** tab.
2. Select **Firmware Files** submenu.
3. Select **SERVER** (or **CLOUD STORE**, depending on your software version).
4. Select the required firmware file by clicking on it. This will highlight the file.
5. Click **DOWNLOAD** to save the selected firmware file.

Once the parameter file has downloaded successfully:

- Look for a confirmation message that says, "Download Successful".
- You should also be able to find the downloaded file if you click on **LOCAL** tab.

All firmware files listed under the **LOCAL** tab will be visible in the firmware drop down list selection for the configuration or lookup file which defines which version is used during programming.

NOTE: We recommend you only keep the files you will be using in the LOCAL storage folder to avoid potential for confusion and errors.



Define latest firmware (Optional)

Once you have downloaded a firmware file into the LOCAL folder, you can choose to define this as the "Latest Firmware". This step associates a firmware version whenever the "Latest Firmware" option is selected from the dropdown list during programming. To set this up:

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Click on the **Latest firmware** dropdown, select the appropriate firmware version.

Configuration files

Configuration files

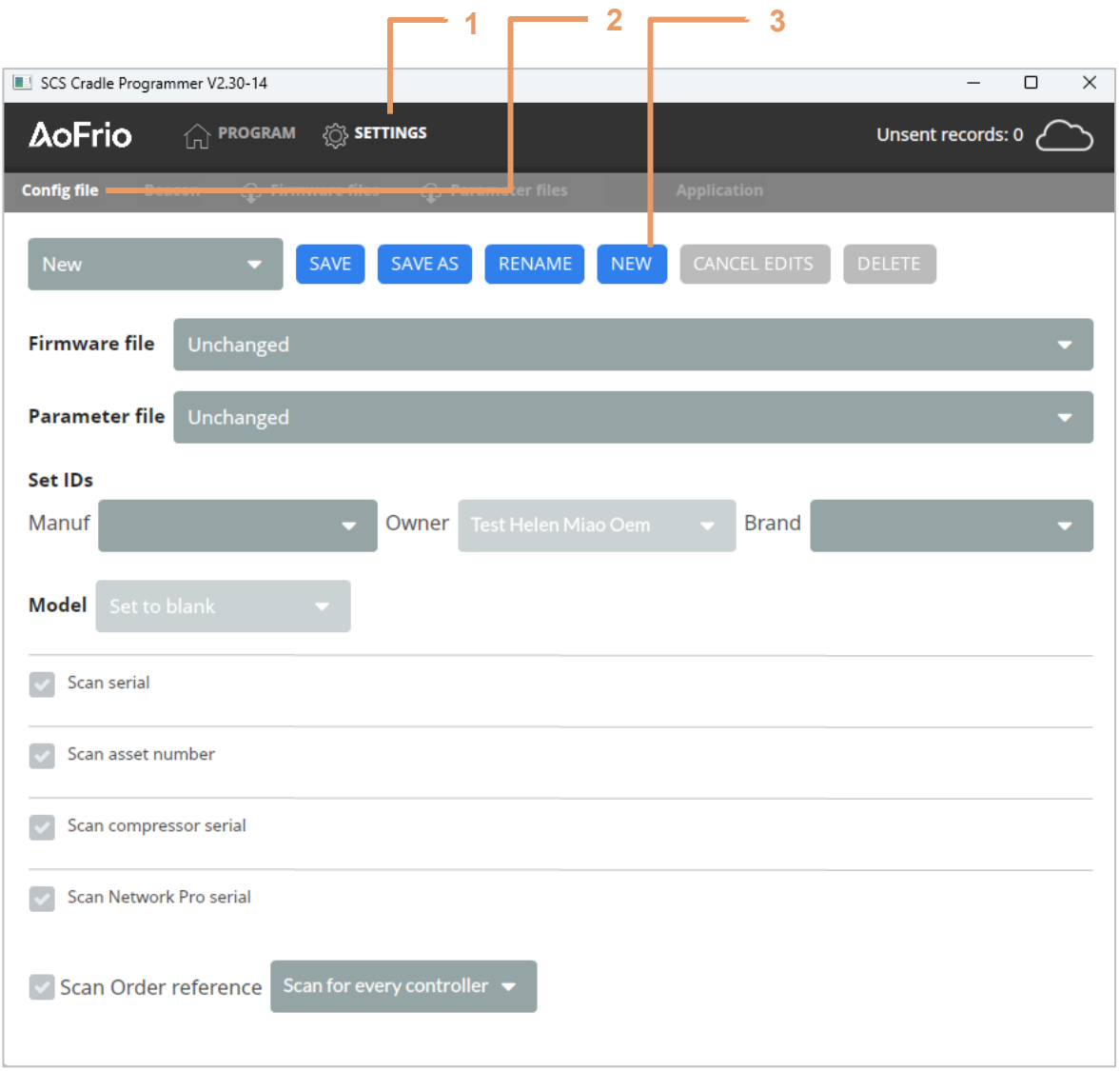
Before you start

- The Cradle Programmer lets you create configuration files for your production process. Configuration files make it easier to make component selections during production and can manage specific equipment models, owners, firmware versions, and more.
- Configuration files should only be created in collaboration with the appropriate manufacturing or production managers within your organization as they can significantly impact equipment production processes.

Step One : Create a configuration file

To begin the configuration process:

1. Click on the **SETTINGS** tab.
2. Select the **Config file** submenu.
3. Select **NEW**.
4. Enter a name for the new configuration file and click **OK** to confirm.



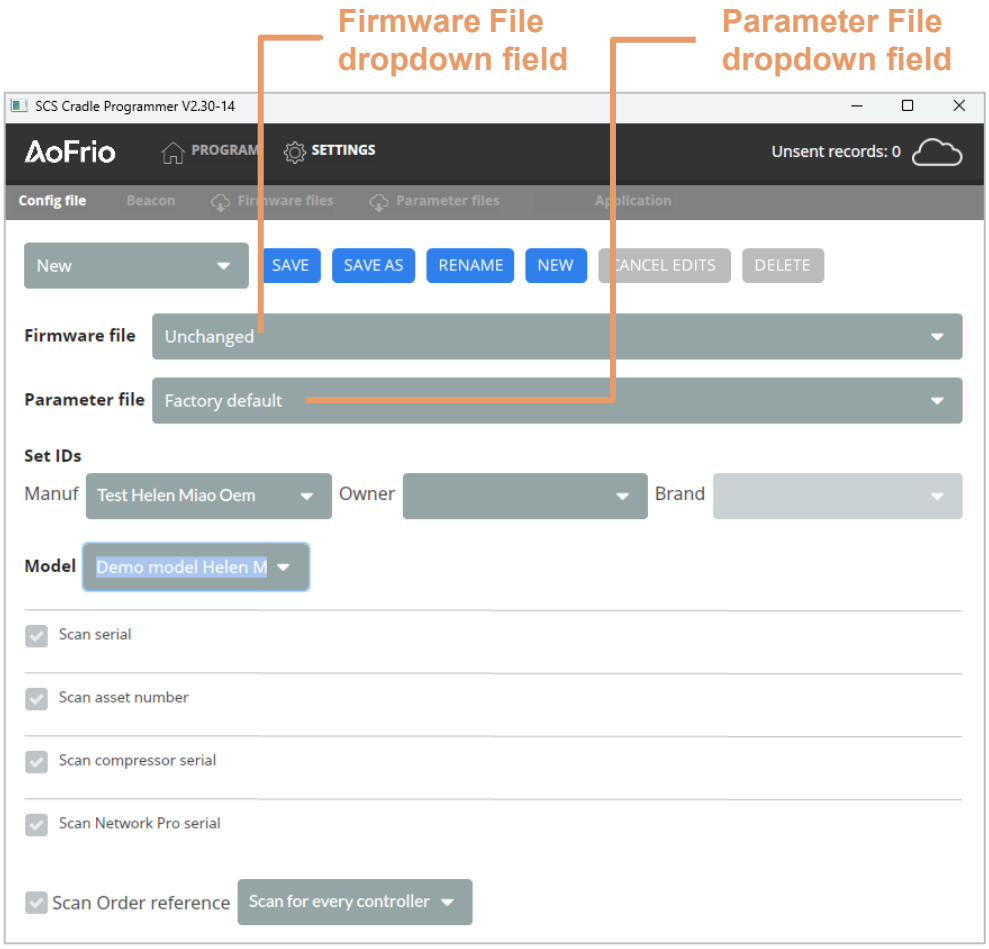
Step Two: Select a firmware file

Either:

- Select a firmware file from the list under the **Firmware File** dropdown field or choose **Latest Firmware** in the same field if you want to include this as part of the configuration file you are creating.

OR

- Set the **Firmware File** dropdown field to **Unchanged** if you want to use the firmware version installed in the SCS controller at the time of programming.



Step Three: Select a parameter file

If you want to select a parameter file in the **Parameter file** dropdown field, follow the instructions on how to download a parameter file in the relevant section of this manual.

If you don't choose a parameter file, the Cradle Programmer app will:

- Use the factory default parameters defined by the firmware version.
- Clear any customized parameters from the controller memory and replace them with the AoFrio defaults.
- Clear all lifetime data collected by the controller (statistics, events, etc.) to ensure there is no dependency on device history.

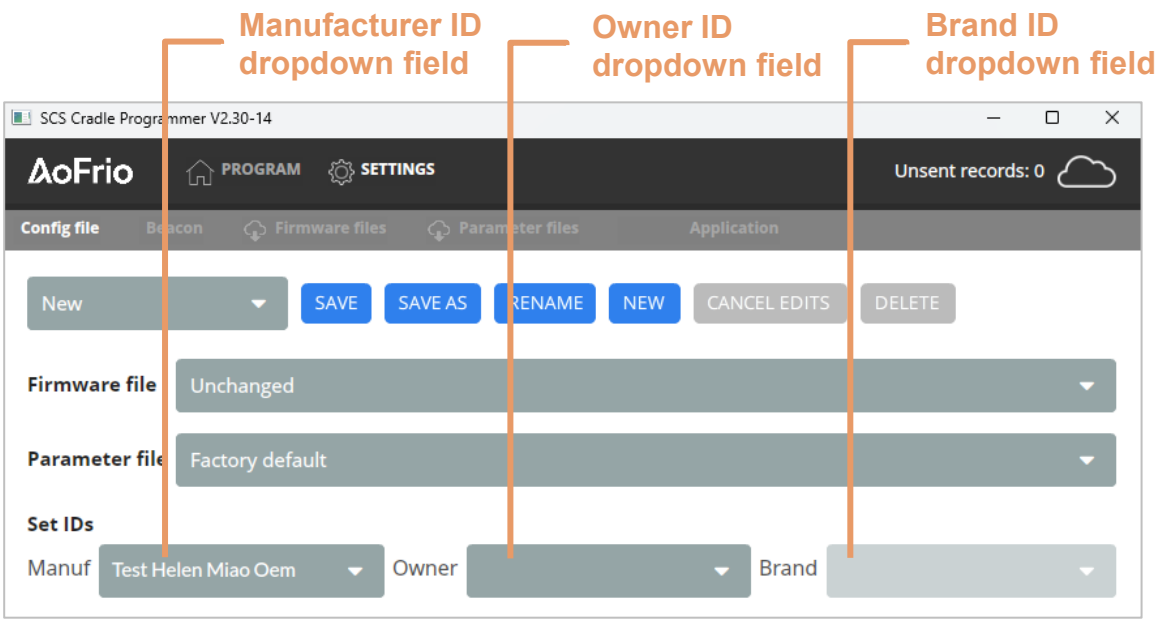
Step Four: Set the IDs

Setting the ID fields selects the manufacturer, owner, and brand to determine the companies allowed to connect to the controller, and defines the database for all data to be uploaded into.

- **Manufacturer** – Add your manufacturer name. This is a required field.
- **Owner** – This is often a beverage or bottler brand name. You can set this field to “undefined” but we recommend that you always choose an owner to reduce later revisions.
- **Brand** – This field can only be set when an owner has been selected and is optional. Every brand is linked to an owner. Brands allow owners to create subdivisions within their own database to control access to data via Field app and Insights app, without impacting their ability to collect Bluetooth data via other applications such as SDKs.

Parameter files may also have have pre-defined IDs in them which can be used when programming the controller. If an ID value has not been set previously within parameter file, or a parameter file has not been selected, then you will be able to select these values under the **Set IDs** dropdown fields.

NOTE: If you wish to proceed without configuring the **Owner** during manufacturing, please speak to your AoFrio representative as this has a number of consequences.

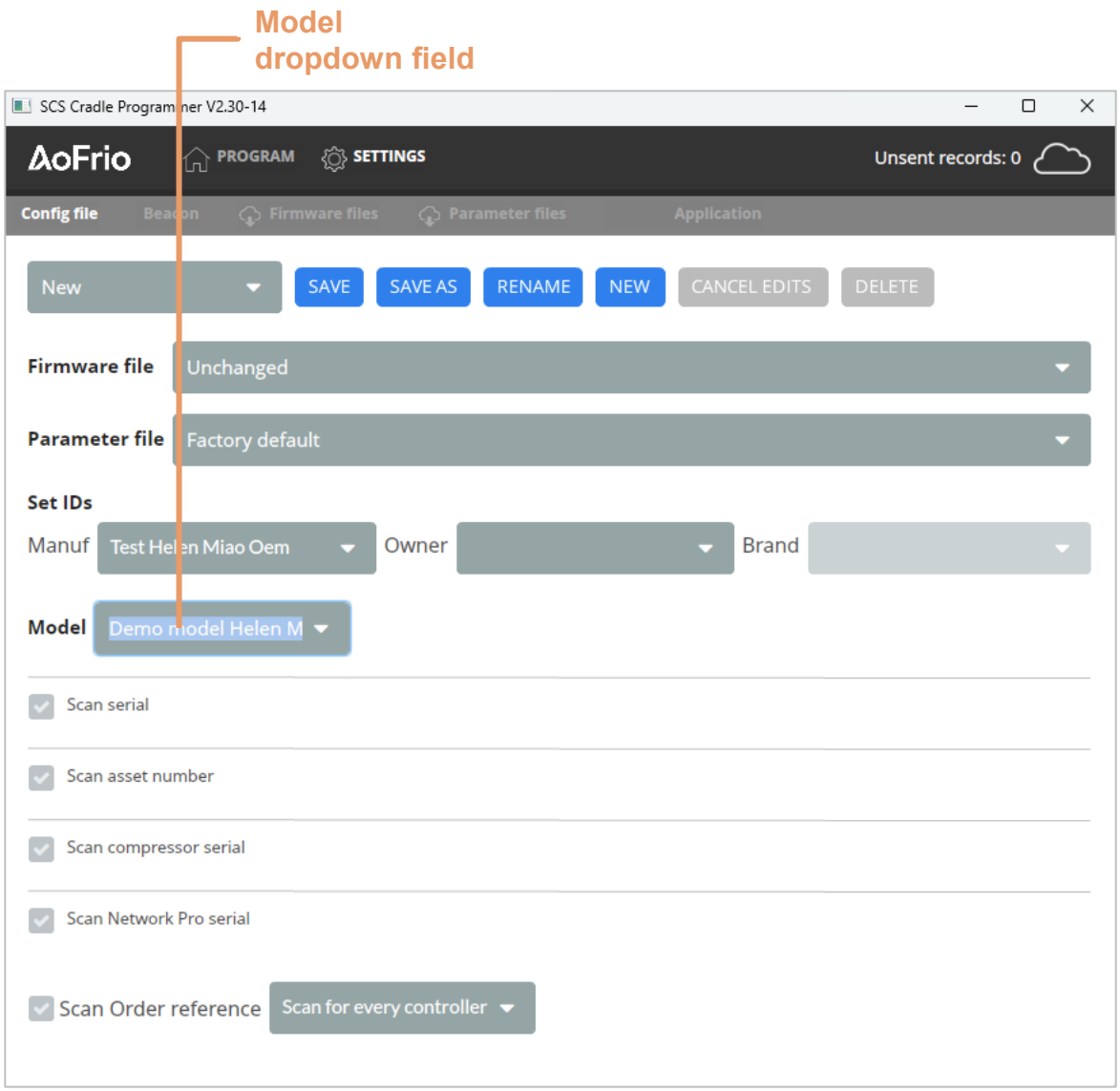


Step Five: Set the Model

Select the equipment model where the controller will be installed from the **Model** dropdown field.

If the appropriate equipment models are unavailable in the dropdown list, please contact the manufacturing or production manager in your organization, as these need to be predefined using the OEM Dashboard application.

Models in parameter files
Some parameter files will already have a pre-defined model listed, which you can use when programming the controller. If a Model value has not been set within the parameter file, or if you don't select parameter file was not selected, the permissible value will be available to select from the dropdown list.



Step Six: Scan the asset details

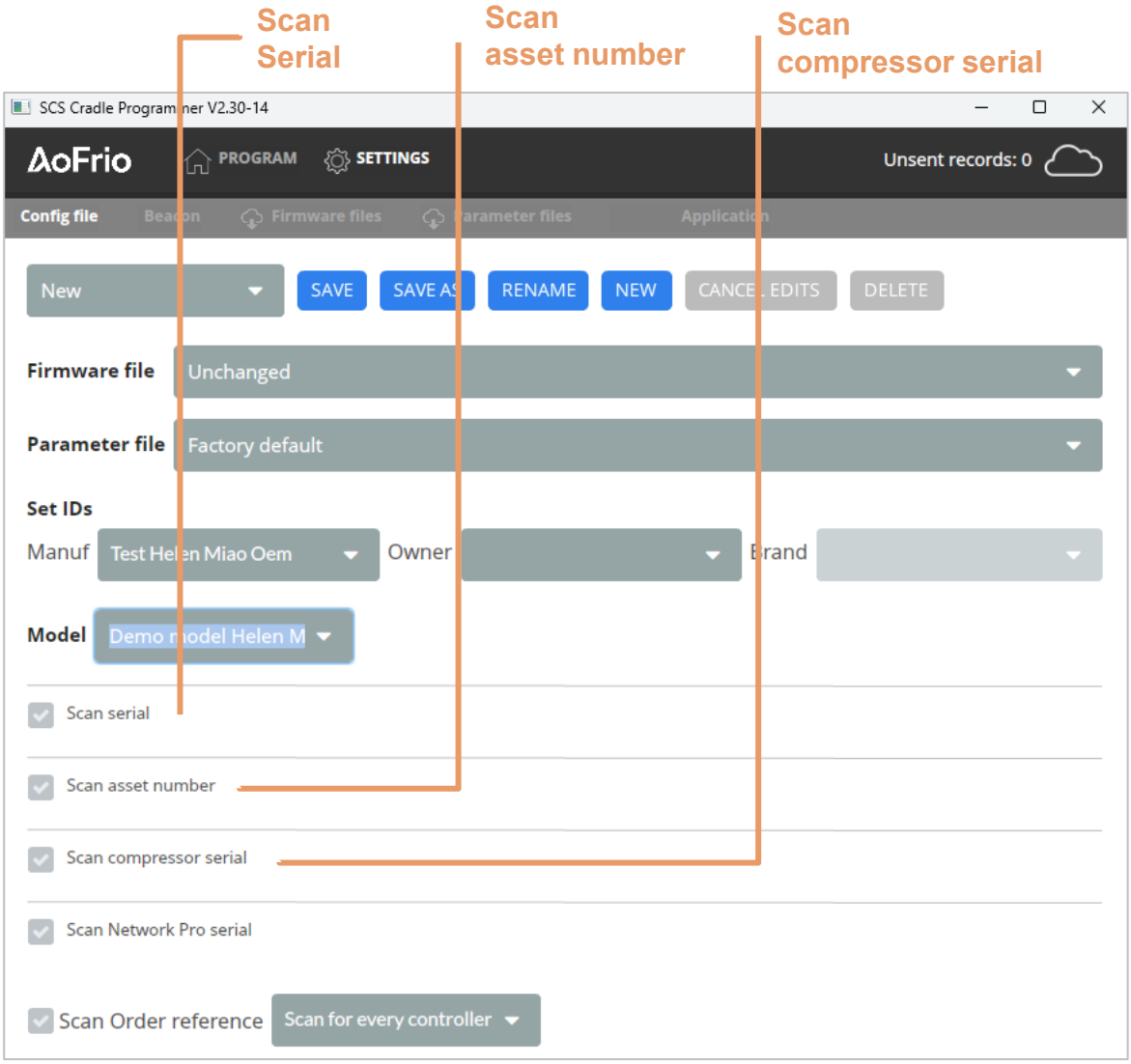
To make equipment manufacturing faster and less error prone, use a hand scanner to program the equipment information.

There are scanning options:

- **Scan serial** – the equipment serial number. (Recommended)
- **Scan asset number** – the unique number used for asset identification by the equipment owner. (Recommended)
- **Scan compressor serial** – the unique number associated with the compressor when compressor matching is required.(Optional)
- **Scan Network Pro serial** – Available in certain setups. (Optional)

To activate any of these options, select the check box next to title and then scan the information from the barcode to programme these details into the controller. All scanned information is also stored in the AoFrio Cloud (server) where a unique equipment record is created for data to be collected.

NOTE: You can see more detail for each of these options in the pages that follow.

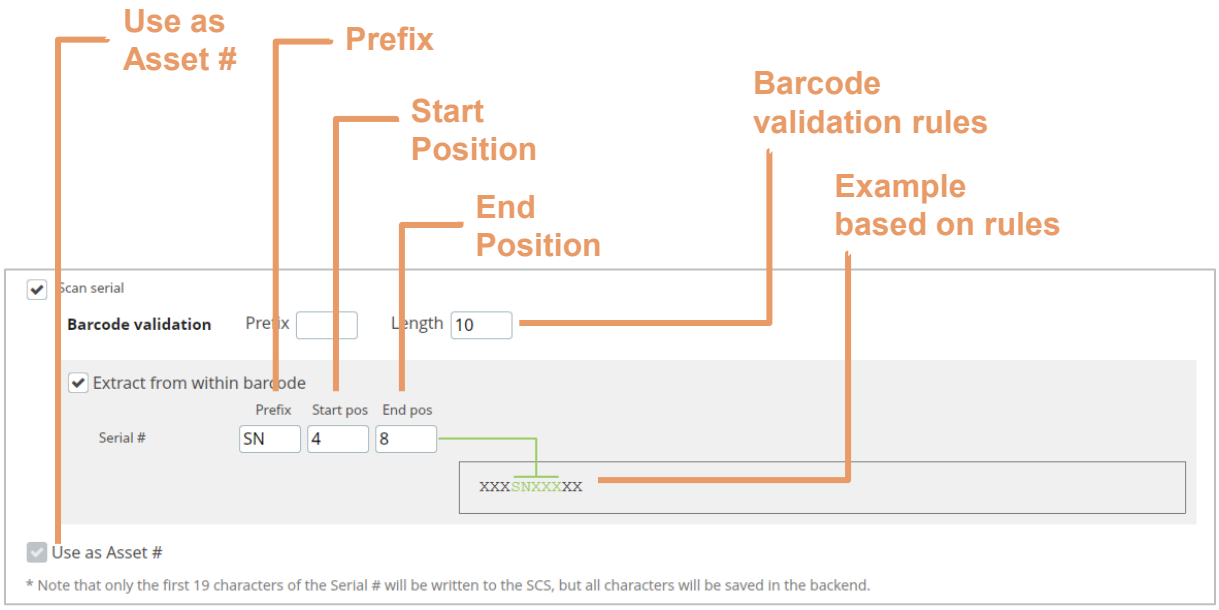


Scan serial

We highly recommend that you always select the **Scan serial** option. This means each time you programme a new controller the asset owner (sometimes also called 'bottler') will be able to use the same number to identify the equipment unit in all AoFrio reporting applications.

If you do not know the **Asset number**, we highly recommend that you select the **Use as Asset #** option within the **Scan serial** feature.

Set the barcode validation rules (optional)
In addition to scanning the serial number, you can also set the prefix and/or length parameters of this number within the Cradle Programmer app by adding **Barcode validation** information in the text fields. This ensures the scanner operator is prompted to scan the correct barcode information and reduces the potential for incorrect data to be programmed into the controller.



Extract from within barcode
If you select the tick box for **Extract from within barcode** you will enable the scanner to identify the asset number within a more complex barcode. It does this by selecting:

- Prefix (optional)
- Start position
- End position

NOTE: Both start position and end position must be specified for this feature to function.

*Worked Example: The barcode is 10 digits long: ABC**SN12345**DE. It contains the asset number **SN12345**. To successfully extract this value upon barcode scan, please configure:*
- *Prefix (if applicable) – SN*
- *Start position – 4 for the 4th digit of the barcode*
- *End position – 8 for the 8th digit of the barcode*

Use as Asset #
If you select **Use as Asset #** the equipment serial number will be used to configure both the serial number field and asset number field in the controller. This also means the **Scan asset** number tick box will be grayed out and unavailable.

NOTE: If the equipment serial number is longer than 19 characters, only the first 19 digits will be programmed to the controller, but the full number will still be saved in the AoFrio Cloud.

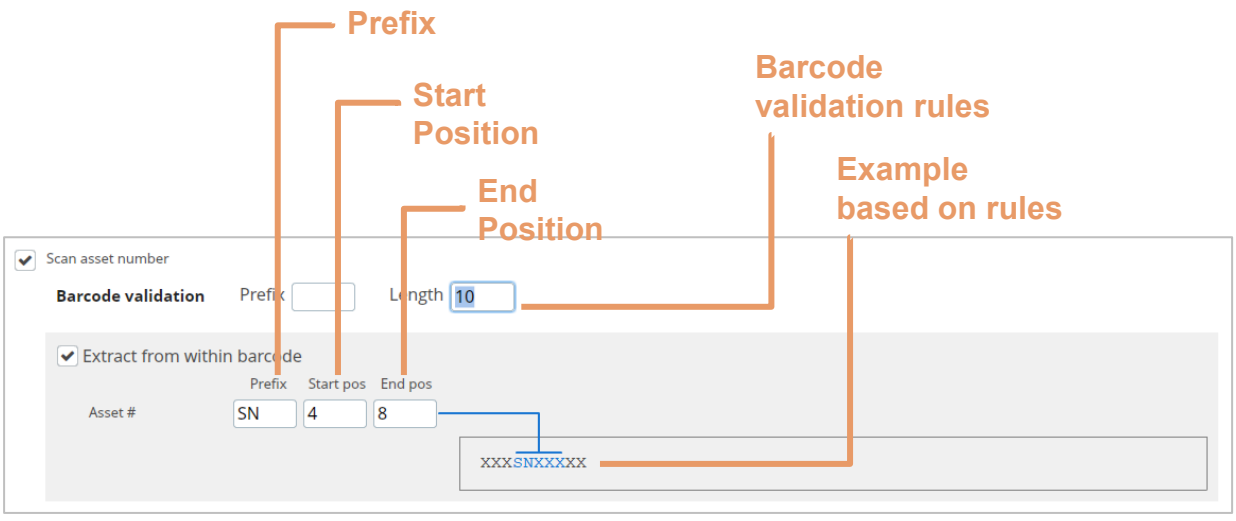
Scan asset number

We highly recommend that you always select the **Scan asset number** option. This means each time you programme a new controller the asset owner (sometimes also called 'bottler') will be able to use the same number to identify the equipment unit in all AoFrio reporting applications.

If you do not know the **Asset number**, we highly recommend that you select the **Use as Asset #** option within the **Scan serial** feature.

NOTE: If it is necessary to proceed without configuring the **Asset Number** field during the manufacturing stage, please speak to your AoFrio representative. There are several consequences and processes that must be discussed.

Set the barcode validation rules (optional)
In addition to scanning the serial number, you can also set the prefix and/or length parameters of this number within the Cradle Programmer app by adding **Barcode validation** information in the text fields. This ensures the scanner operator is prompted to scan the correct barcode information and reduces the potential for incorrect data to be programmed into the controller.



Extract from within barcode
If you select the tick box for **Extract from within barcode** you will enable the scanner to identify the asset number within a more complex barcode. It does this by selecting:

- Prefix (optional)
- Start position
- End position

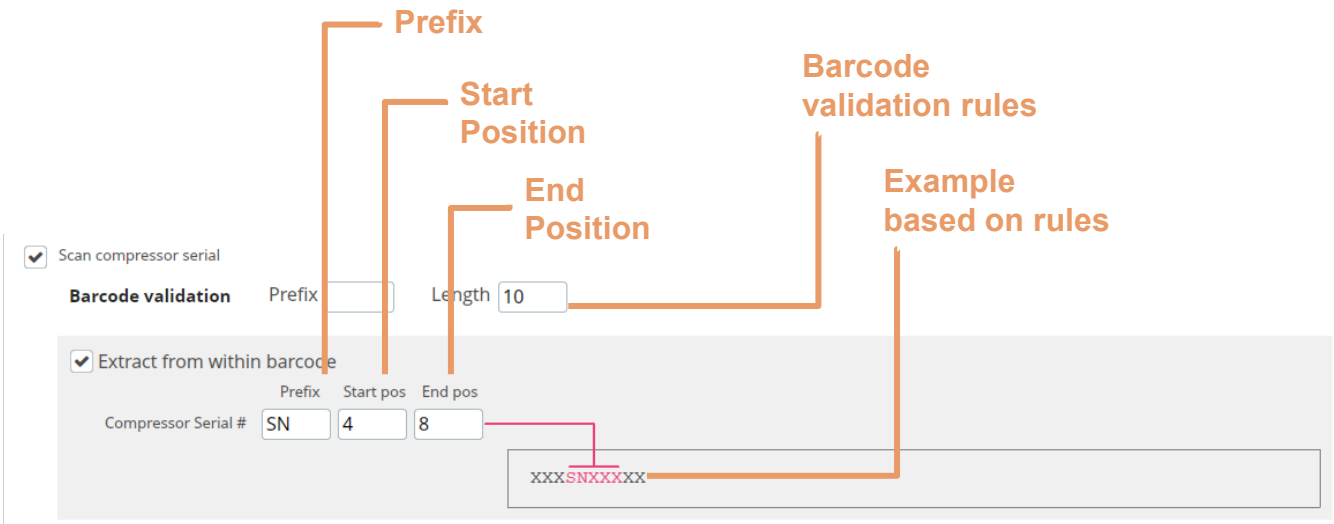
NOTE: Both start position and end position must be specified for this feature to function.

*Worked Example: The barcode is 10 digits long: ABC**SN12345**DE. It contains the asset number **SN12345**. To successfully extract this value upon barcode scan, please configure:*
- *Prefix (if applicable) – SN*
- *Start position – 4 for the 4th digit of the barcode*
- *End position – 8 for the 8th digit of the barcode*

Scan compressor serial

If you select the **Scan compressor serial** number option, each time you programme a new controller the asset owner (sometimes also called 'bottler') will be able to use the same number to identify the compressor in all AoFrio reporting applications.

Set the barcode validation rules (optional)
In addition to scanning the compressor serial number, you can also set the prefix and/or length parameters of this number within the Cradle Programmer app by adding **Barcode validation** information in the text fields. This ensures the scanner operator is prompted to scan the correct barcode information and reduces the potential for incorrect data to be programmed into the controller.



Extract from within barcode
If you select the tick box for **Extract from within barcode** you will enable the scanner to identify the compressor serial number within a more complex barcode. It does this by selecting:

- Prefix (optional)
- Start position
- End position

NOTE: Both start position and end position must be specified for this feature to function.

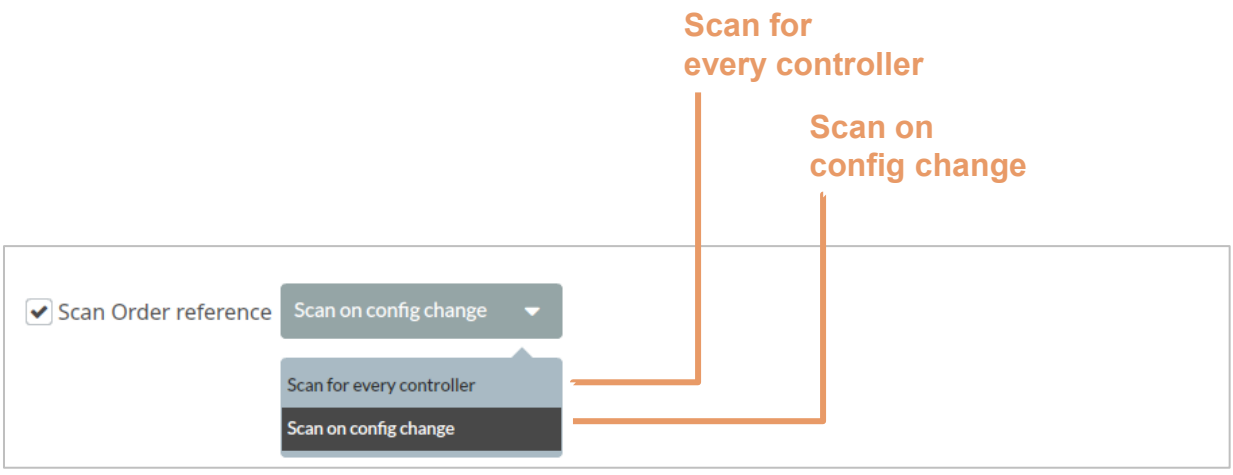
*Worked Example: The barcode is 10 digits long: ABC**SN12345**DE. It contains the compressor serial number **SN12345**. To successfully extract this value upon barcode scan, please configure:*
- *Prefix (if applicable) – SN*
- *Start position – 4 for the 4th digit of the barcode*
- *End position – 8 for the 8th digit of the barcode*

Step Seven: Scan order reference (Optional)

Depending on your production process, you may need to select the **Scan Order reference** option to ensure the information you are uploading with from the scanned barcode is correctly associated with the equipment.

1. Select the **Scan Order reference** checkbox.
2. Select one of the options:

- **Scan for every controller** – This means you will need to scan the barcode every new controller placed into the Docking Cradle.
- **Scan on config change** – This means you will need to scan the barcode on new controllers any time the configuration file changes.



Programming

Programming

Once you have set up the parameter, firmware and configuration files you are ready to program: the controller.

Create a scannable configuration barcode (Optional)

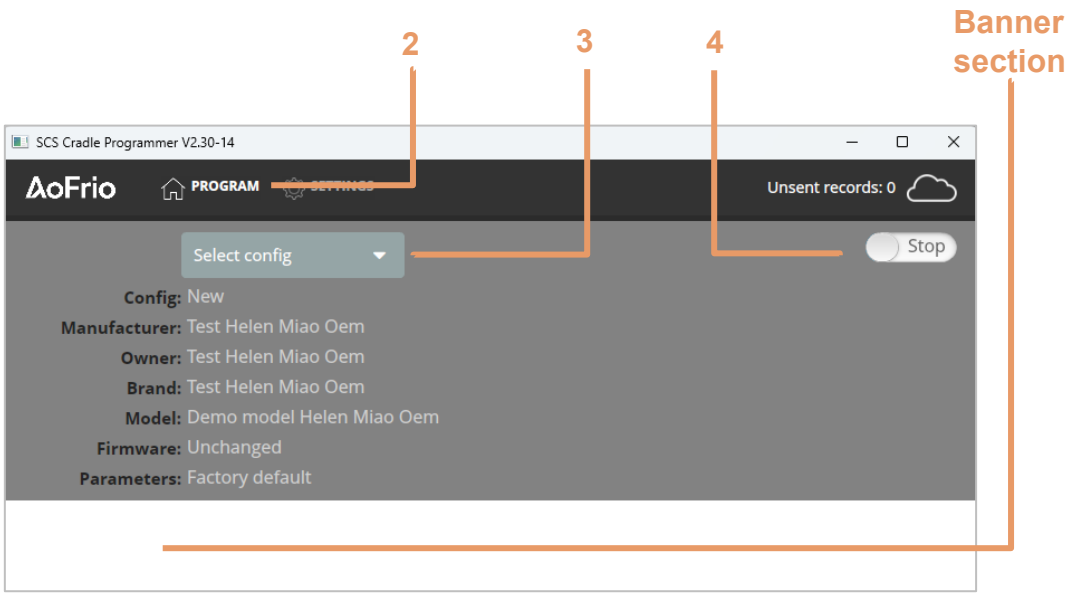
- If you would like to use a configuration barcode during the programming process, visit a barcode-generating website, type in the desired configuration name and the site should generate a barcode that you can print and make available to your programming team.
- Scanning any barcode with the configuration file name you want to use will switch programming configurations accordingly.
- NOTE: The barcode scanning feature for configuration files only works if there is no controller in the Docking Cradle.

The programming process

1. Set your barcode scanner to keyboard entry with the 'carriage return' function enabled.
2. Click on the **PROGRAM** tab.
3. Select the appropriate configuration file from the **Select Config** drop-down menu OR you can scan a barcode containing the configuration file name.
4. Click the **Stop** option in the top right of the screen to change it to **Run**. This disables access to other tabs and you should see the message “Waiting for SCS” in the ‘white’ banner section.
5. Place a controller into the Docking Cradle or connect it to the to the Cradle cable (SCS 800).
   - NOTE: If a SCS controller is NOT detected in the Docking Cradle during programming, the Cradle Programmer app will return to this step.
6. Follow all the on-screen requests for inputs in the ‘mint’ or ‘turquoise’ banner section. These instructions depend on the configuration file setup.

Programming automatically starts when all required details are entered. The banner color will change to ‘yellow' during configuration with a message 'Programming’. When programming is complete, the banner color changes to ‘green' with a custom message about completion e.g. "Programming complete (20.7s) Main:1591 HS:O“.

7. Remove the controller from the Docking Cradle or disconnect it from the Cradle Cable. The Cradle Programmer app will return to the “Waiting for SCS” state.



Programming while offline

A continuous and uninterrupted internet connection during programming ensures the Cradle Programmer app can:

- Access the latest firmware, parameter and configuration versions
- Upload all information about programmed controllers to the AoFrio Cloud.

However, if internet connection is lost during programming, the process will not be interrupted. The Cradle Programmer app is designed to continue operation by using locally saved copies of the firmware, parameter, and configuration files, and will save the programming records until a successful internet connection is re-established.

NOTE: We strongly recommend that you regularly connect your PC or laptop to the internet so that any unsent records stored during offline programming can be uploaded to the AoFrio server. Each record will normally take 2-3 seconds to sync.

To check the internet connection and file upload status in the app:

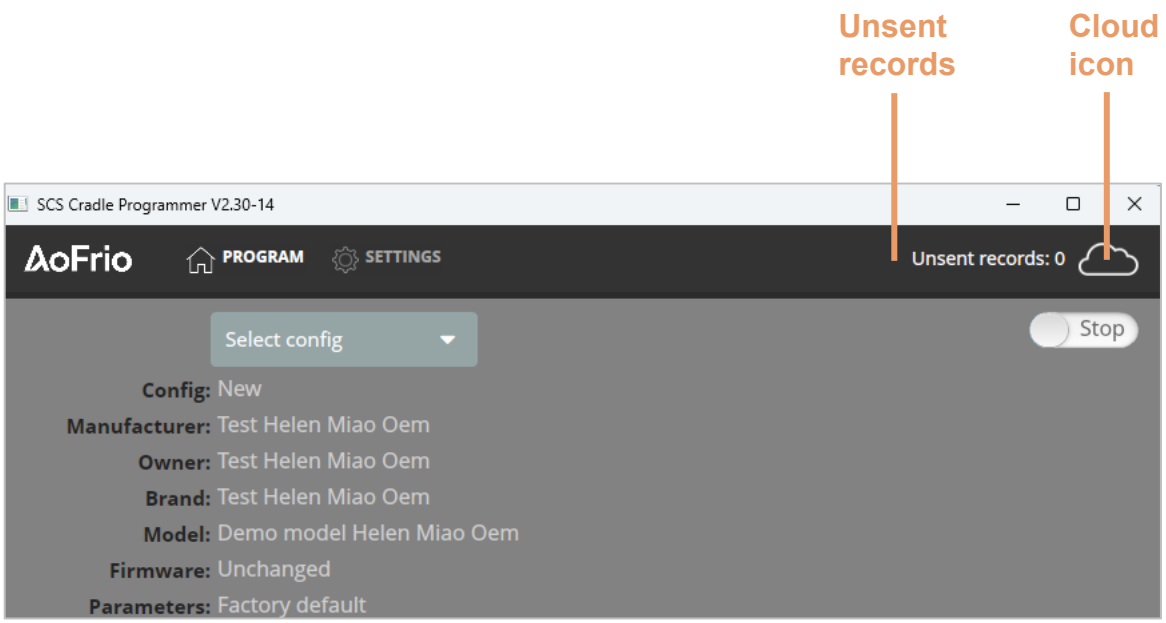
1. Check the 'cloud' icon in the top right of the screen to confirm the internet connection status.

- 'X' inside the cloud icon - the Cradle Programmer is offline.
- The cloud icon is empty – the Cradle Programmer app is online and connected to the internet.

2. Check the **Unsent records** field in the top right of the screen to see if there are any files stored on the local PC, waiting for connection to the internet.

Unsent records reminder (Optional)
You can choose to set up a reminder if 100+ records have not been uploaded to the server.

To enable this reminder:
1. Click on the **SETTINGS** tab.
2. Open the **Application** submenu.
3. Select the **Show unsent records warning** checkbox.
4. Enter the number shown in the onscreen field to confirm you wish to receive this reminder.



Passwords & Warnings

Set & clear password

Set password
For production environments, the Cradle Programmer app allows the use of a supervisor's password to limit the operator's access within the application. When the password is set, an unauthorized user can only access the programming process portions of the software.

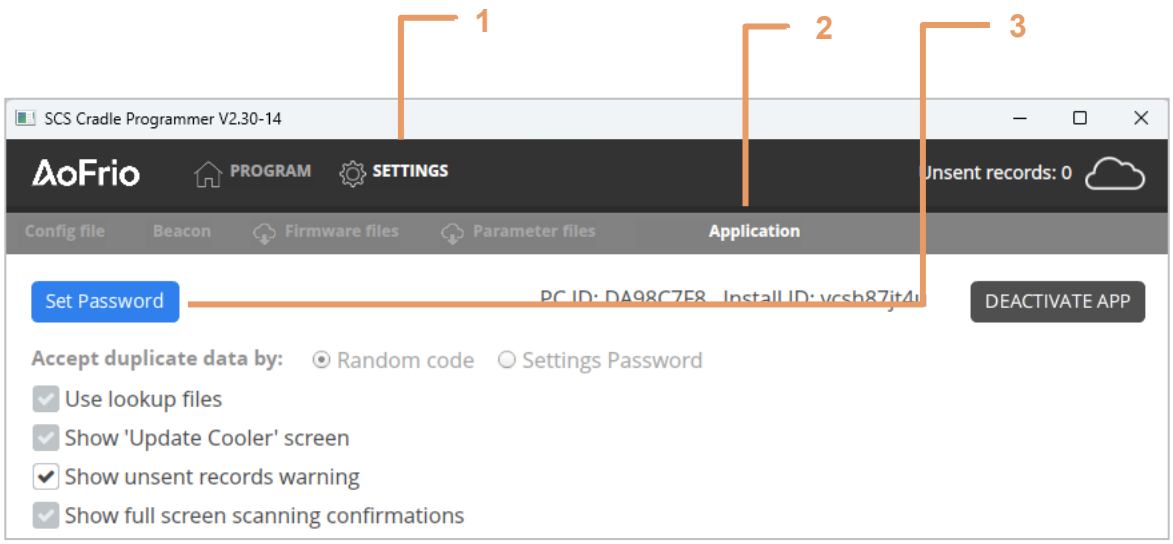
Access to the settings screen and configuration file changes in the programming screen can only be unlocked by entering the correct password.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Click **Set Password**.
4. Enter the password.
5. Re-enter the password and click **OK** to confirm.

Clear password
When a password is active, the previously shown 'set password' button will change to 'clear password'.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Click **Clear Password**.
4. Enter your password and press **Enter**. The previous password is cleared out immediately.

If you forget your password, please contact your AoFrio representative for instructions to reset it.



Duplicate data warnings

When you install an AoFrio SCS controller into equipment, the system must know exactly which controller you installed in each unit. Because of this, you must use a unique asset number for every controller.

You should only program a duplicate asset number if you are replacing a faulty controller that was previously installed in the same equipment. In all other cases, you must use a unique asset number.

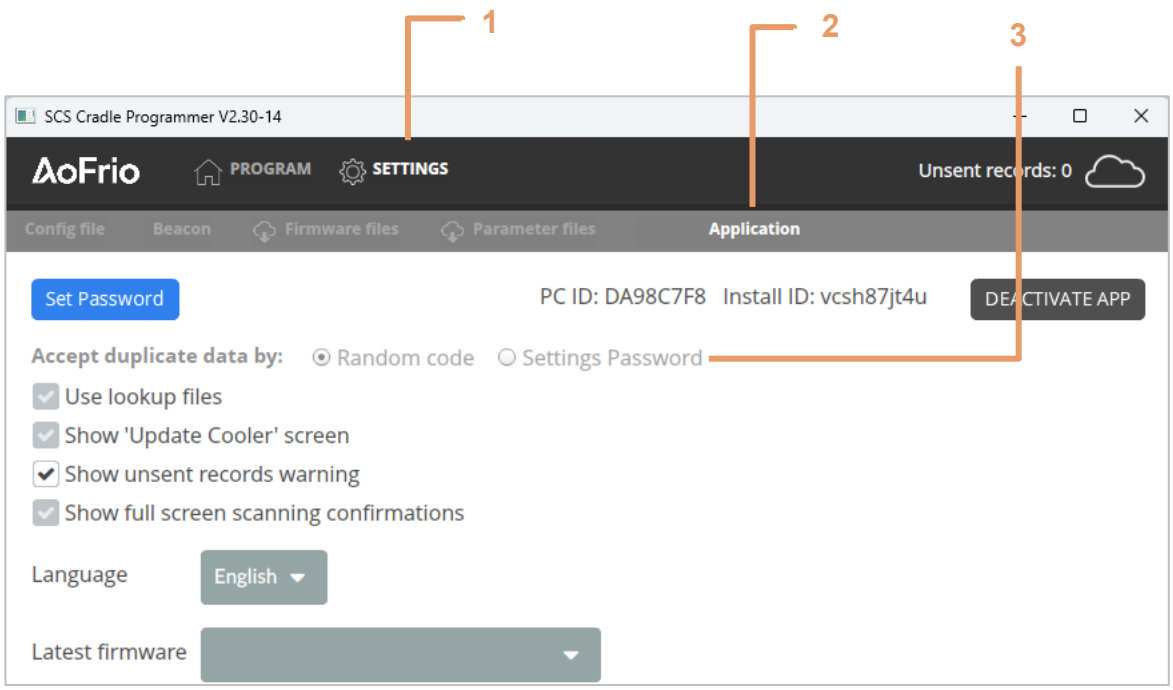
Manufacturing lines are busy, and mistakes can happen. To help you avoid errors, the system shows a warning if you enter an asset number that has already been used. This warning helps you confirm that you are entering the correct information during manufacturing.

For this feature to work correctly and check all historical records, you must connect your PC or laptop to the internet during programming. If you do not have an internet connection, the Cradle Programmer can only check the asset number against information already saved on your PC or laptop.

Supervisor's password setup (Optional)
By default, the Cradle Programmer allows you to accept duplicate data by entering the random code shown on the screen. If you want to change this so that a production supervisor's password is required instead, follow the steps below:

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select **Settings Password**.

The password you use here to approve duplicate data is the same password you can set to access the settings menu.



What to do if you see a duplicate data warning

If you see a pop-up error message notifying you that asset number has been used before, e.g. “Asset # 456 has been used before” there are several options you can take depending on the situation:

- **Entered in error** - If you expected the asset number to be unique and believe the duplicate has been entered in error, click **Cancel** to return to the programming screen so that you can check the information and adjust it as needed.

  NOTE: If you continue to receive a duplicate data warning after you have adjusted the information, ask your production supervisor for assistance.

- **Intentional duplicate** - The Cradle Programmer should ONLY be allowed to program a duplicate asset number if a faulty controller was previously installed into the equipment unit and now must be replaced. In any other situations, the asset number MUST be unique.

  If the information entered was supposed to be a duplicate:

1. Click **OK** to proceed with programming of the duplicate asset number.
2. Follow all on screen prompts. These are dependent on the app setup.
3. Enter the numeric passcode shown on the final pop-up or request the line supervisor to enter their password.
4. Click **USE DUPLICATE** to proceed.

Lookup files

Lookup files

Lookup files offer you the flexibility to use existing values (that you have already entered or scanned) to configure other controllers. In a production line that has either:

- Specific equipment model information embedded in a longer barcode, OR
- Multiple pieces of information in a single barcode (i.e. asset number, equipment serial number and compressor serial number).

You can use a lookup file to can overwrite values in an SCS Controller that are normally set by the configuration file.

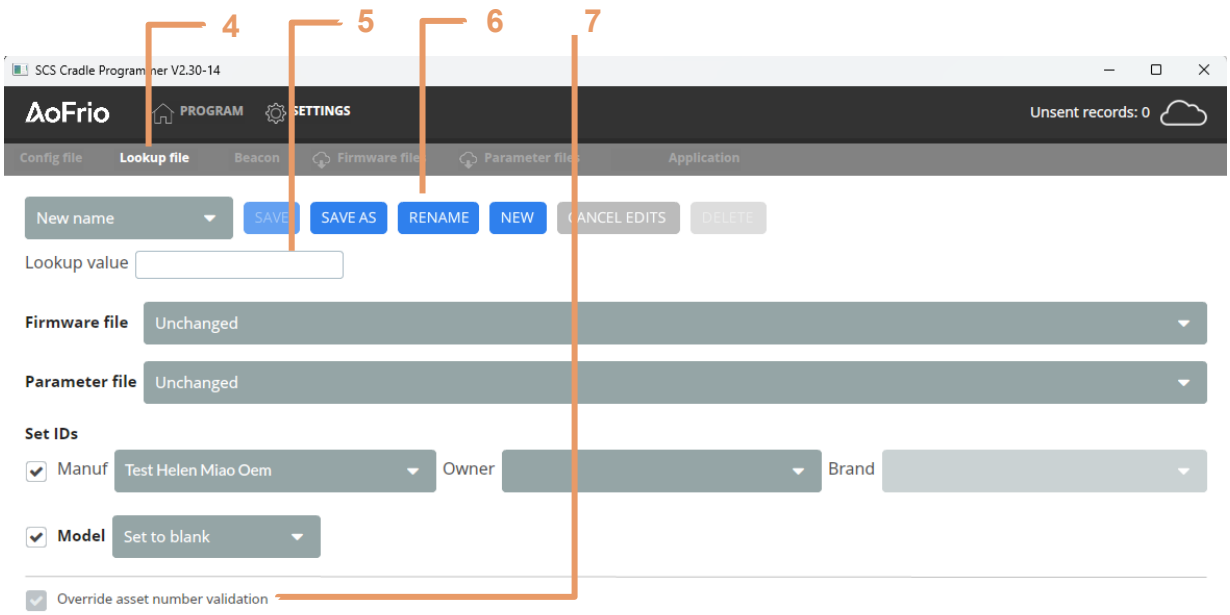
Step One : Enable lookup files

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select the **Use lookup files** checkbox.

You should now see a **Lookup file** option in the submenu. On the **Config file** submenu page, you will also be able to see a **Scan lookup** option.

4. Click on **Lookup file** submenu option.
5. Enter a value in the **Lookup value** field. This will be number you enter to trigger the use of this lookup file configuration.
6. Click **RENAME** to give the lookup file a name and click **OK** to confirm.
7. (Optional). If you are programming controllers for different owners that use different asset number formats, or are operating a mixed order production line, select the option to **Override asset number validation**.

Now you've enabled lookup files, follow the steps on the next page to make them available during programming.



Step Two: Set the main configuration options to be ready for lookup variations

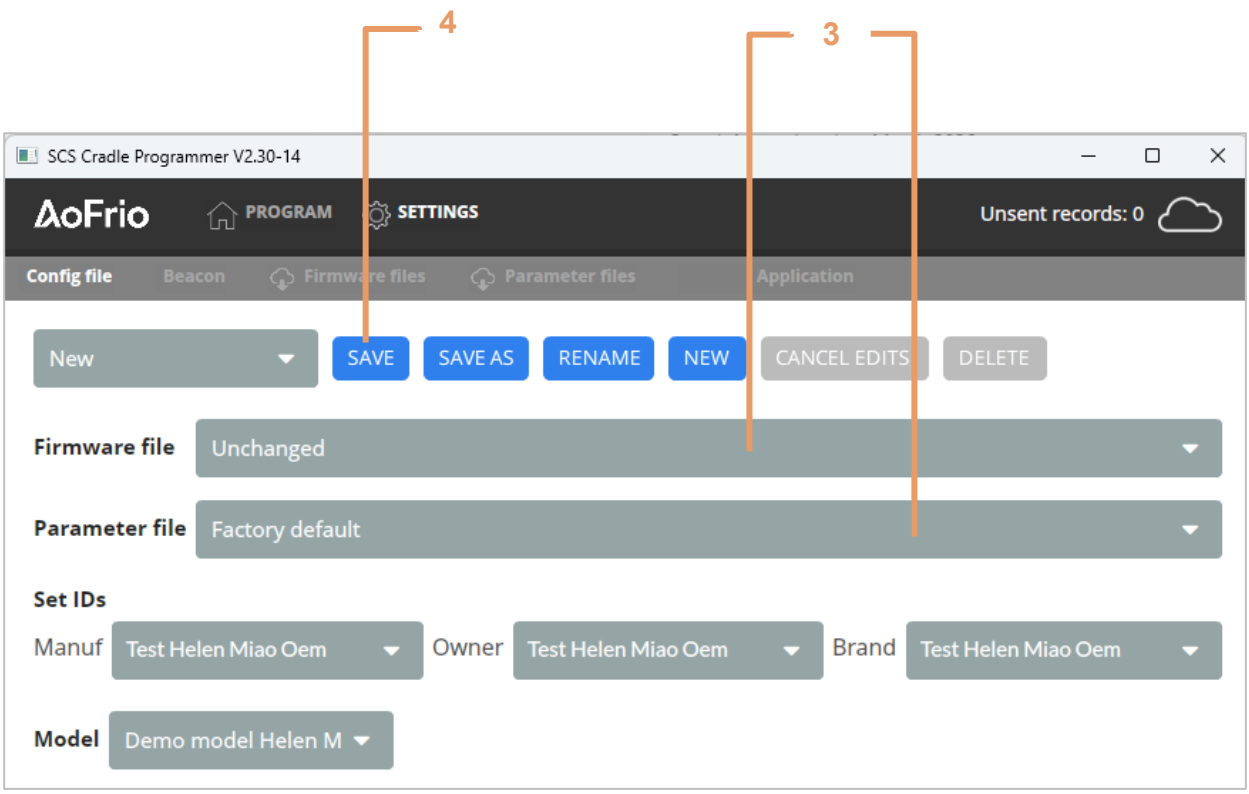
To introduce lookup files into your programming phase, you'll need to set the main configuration options first.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select all required configuration options desired from the available drop-down menus as below (see the Configuration settings section for more detail). If you choose:

- **Unchanged** - This field will not be updated, and the version installed in the AoFrio SCS controller at the time of programming will continue to be used.
- **Latest firmware** - The firmware version will be configured with the firmware you have selected as "Latest firmware'.
- **Factory default** - The Cradle Programmer app will use AoFrio-provided values for parameters.
- **Set to undefined** - The Cradle Programmer app will not configure the field at time of programming. While this is acceptable for the **Brand** field, it is NOT RECOMMENDED for the **Owner** field.
- **Set to blank –** This clears values previously set in this field, leaving it blank.

4. Click **SAVE** to confirm.

Now you are ready to select your lookup file variations. Find out how to enable them on the next page.

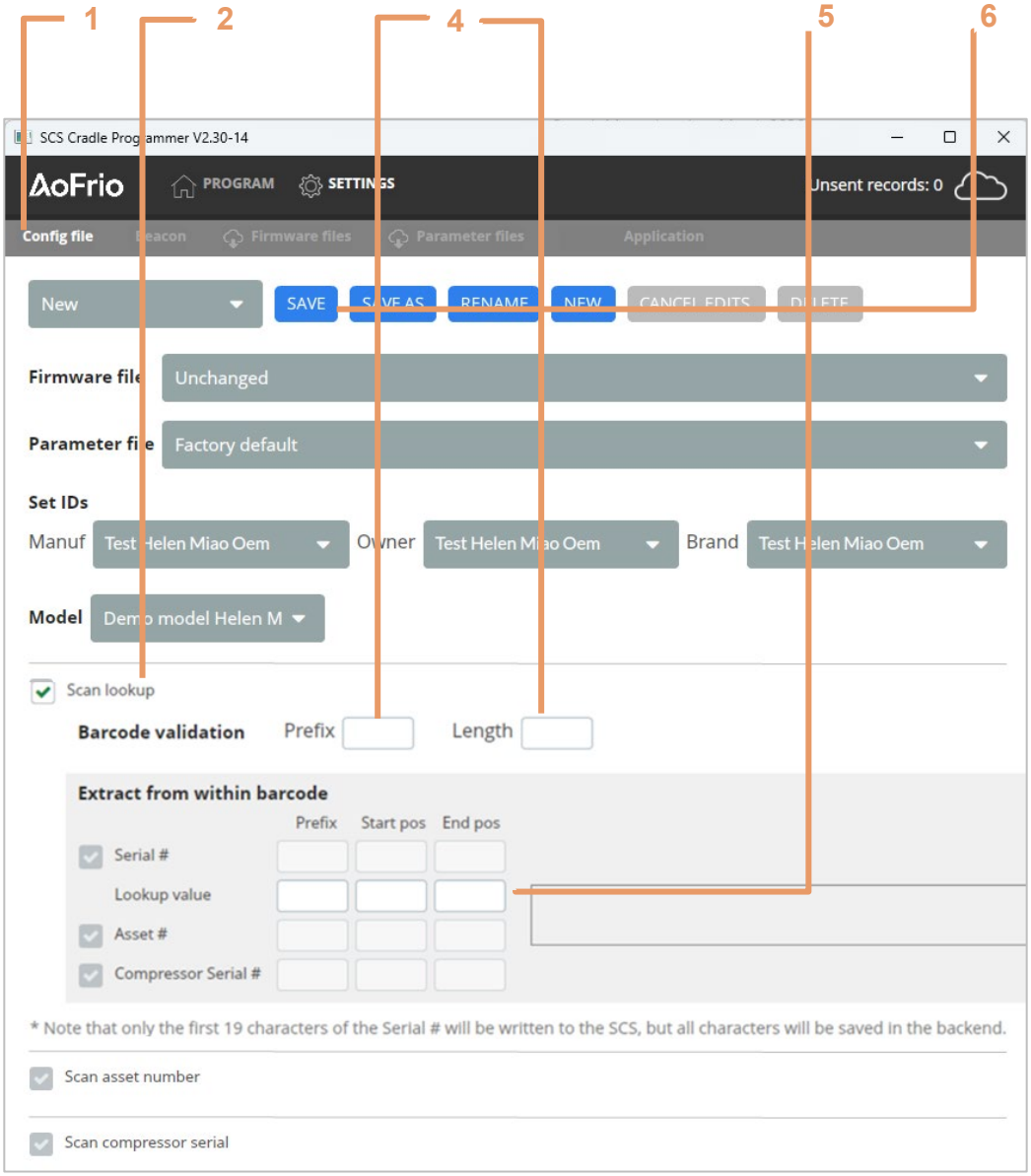


Step Three: Enable lookup file variations

To enable lookup file variations during programming, you must enable **Scan lookup:**

1. Click on the **Config file** submenu.
2. Select the **Scan lookup** checkbox.
3. (Optional) Set the **Barcode validation** rules.
4. In addition to scanning the serial number, you can also set the prefix and/or length parameters of this number within the Cradle Programmer app by adding **Barcode validation** information in the text fields. This ensures the scanner operator is prompted to scan the correct barcode information and reduces the potential for incorrect data to be programmed into the controller.
5. Select each checkbox for any fields (**Serial #**, **Asset #**, **Compressor #**) under the **Extract from within barcode** heading where you want to extract the lookup value rather than the configuration file. NOTE: You must specify start position (**Start pos**) and End position (**End pos**) to set the lookup value. Setting the **Prefix** field is optional.
6. Select **SAVE** to confirm your changes.

Now if you choose to use a lookup file during programming, all information set in the **Scan lookup** section will overwrite the configuration file fields in the controller.



Update cooler screen & scanning confirmations

Update cooler screen

If your production process requires:
- Information to be set **AFTER** the controller has been programmed, OR
- Additional information for the equipment **AFTER** the programming process is complete

You can do this through the **Update cooler** screen feature.

Before you start

- Using this feature only updates information held on the server. Information held in the controller is NOT affected.
- Ensure your computer is connected to the internet to upload the manufacturing information for each controller you are programming to the cloud server.

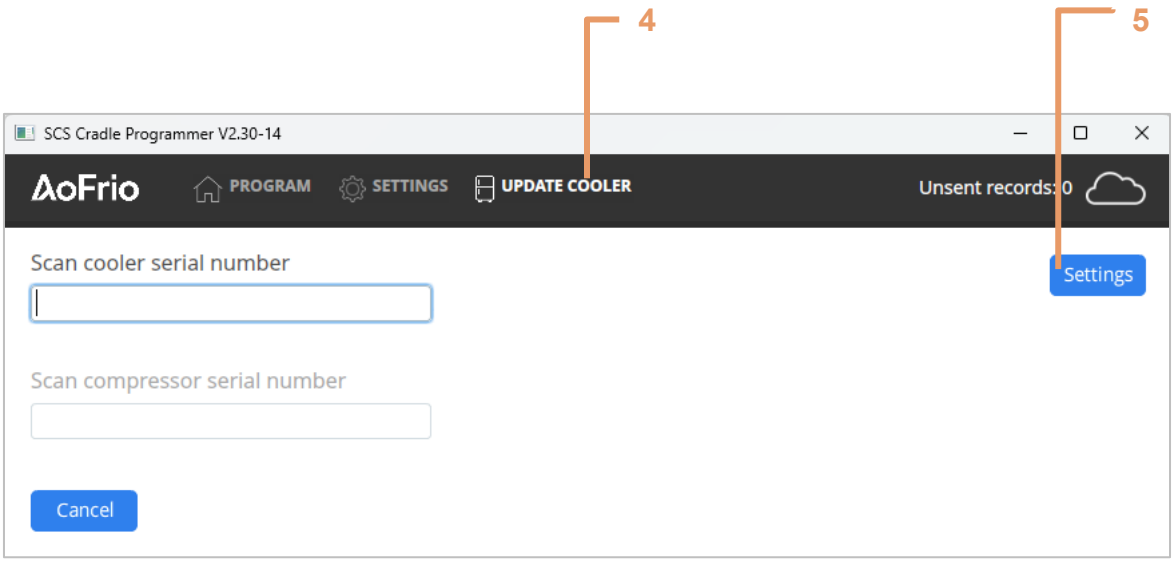
Step One: Enable UPDATE COOLER screen

The Update cooler feature is disabled by default. To turn it on:

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select the **Show 'Update Cooler Screen'** checkbox.

You should now see the **UPDATE COOLER** tab in the top tab menu next to **SETTINGS**.

4. Select the **UPDATE COOLER** tab.
5. Click the **Settings** button to view configuration options.



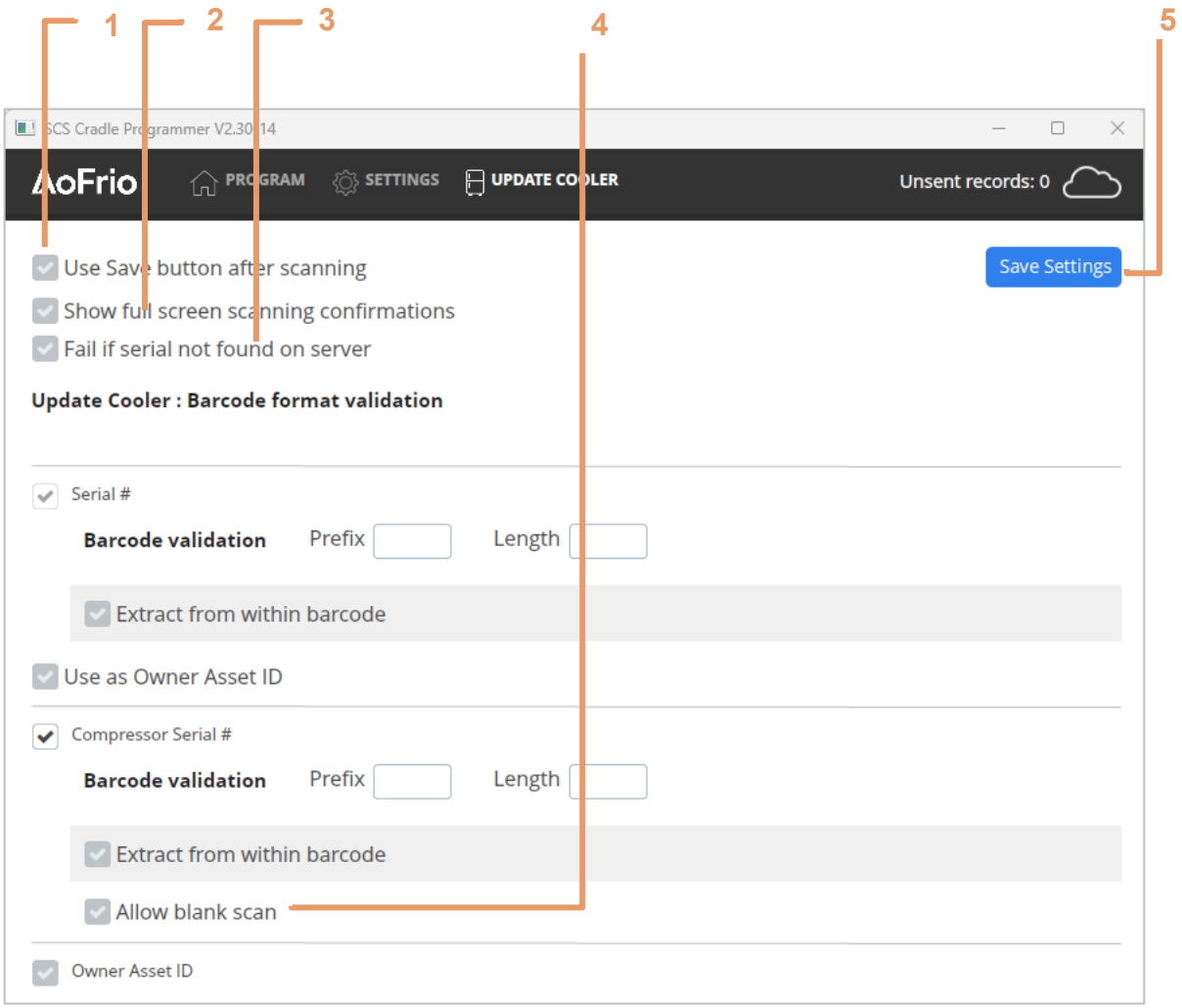
Step Two: Edit the the Cooler Screen settings

In the **UPDATE COOLER** settings section:

1. (Optional). Select **Use Save button after scanning** checkbox if you want to use the **Save** button to manually confirm each scan. By default, scanned values are saved automatically.
2. (Optional). Select **Show full screen scanning confirmations** checkbox if you want to see a full screen notification for several seconds each time your scan has been successful. You can read more detail in the Full screen scanning confirmations section of this manual.
3. (Optional) Select **Fail if serial not found on server** if you want the system will discard information recorded against an invalid serial number.
3. (Optional). Configure your preferred scanning options under the **Update Cooler : barcode format validation** heading. You can read more detail in the Configuration files section of this manual.
4. (Optional). Select **Allow blank scan** if you want to the asset display name blank, when scanning additional information for cooler.
5. Select **Save Settings** to confirm these changes.

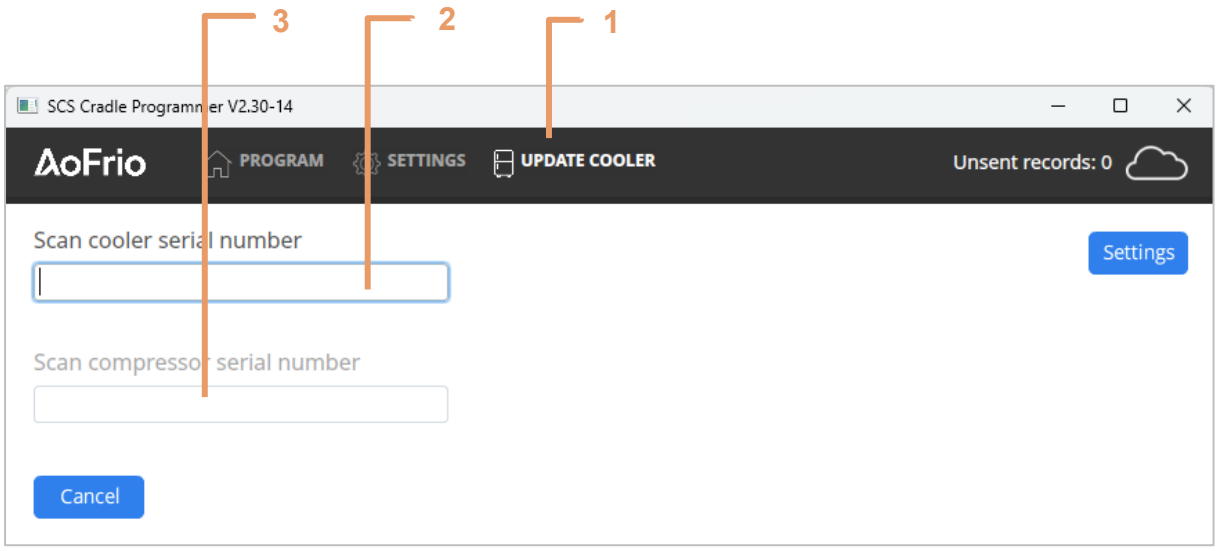
Once the scan requirements for the **UPDATE COOLER** screen have been set, you can proceed with scanning the information for each cabinet or asset type.

NOTE: Scan inputs depend on your manufacturing process. Make sure to follow all on screen prompts so that you enter the correct information in each field.



Step Three: Start scanning

1. Click on the **UPDATE COOLER** tab.
2. Scan the equipment serial number with your hand scanner.
3. Scan the compressor serial number with your hand scanner.
4. (Optional) Click **Save** if this function is enabled.

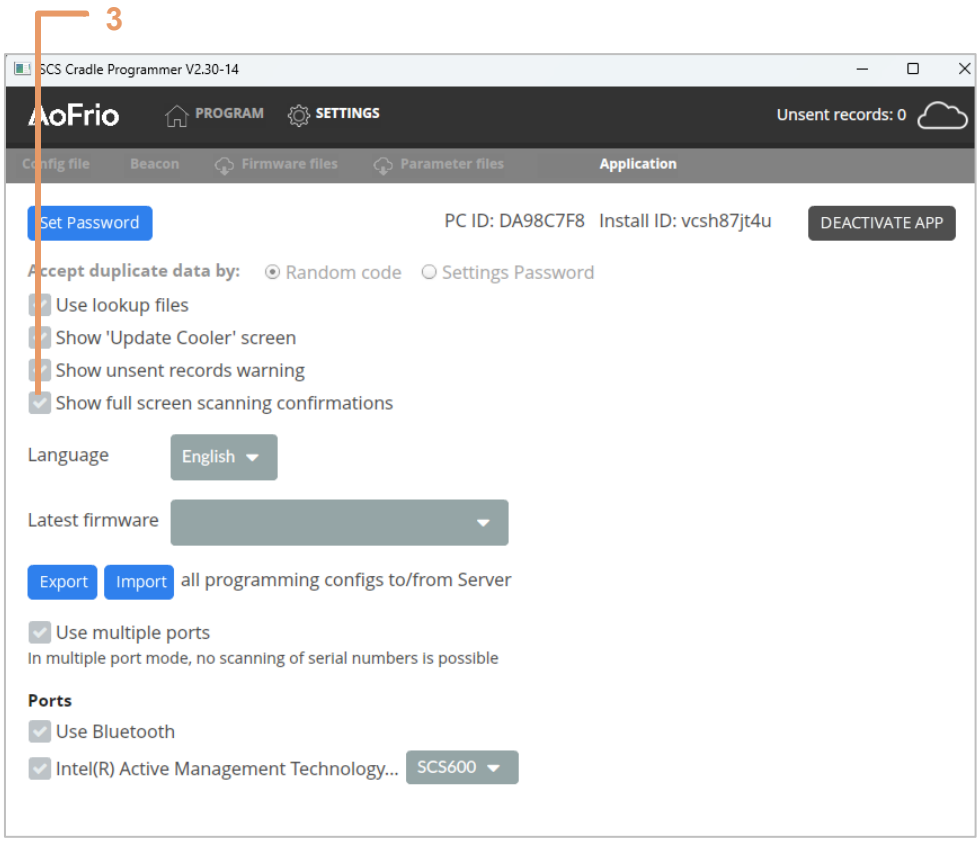


Full screen scanning confirmations

If you need to validate scanning on your computer screen from a distance (i.e. you are standing next to a cooler to scan it and the computer display is several meters distant), you can set up a full screen scanning confirmation.

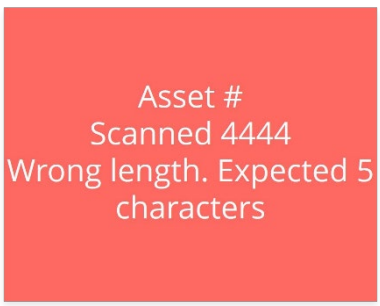
NOTE: This setting adjusts both the update cooler screen and the programming screen.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select **Show full screen scanning confirmations** checkbox.



Now when you scan, you will see either:

- **Green screen** – This confirms a successful scan (including the field indicated)
- **Red screen** – This shows an unsuccessful scan. This means there has been a ‘read error’, or that the specified validation rules have not been met. The cause of the fault will be displayed on the screen.



Export / Import programming configurations

Export / Import programming configurations

The Cradle Programmer app lets you export and/or import configuration files and lookup files between local storage in your PC/Laptop and the AoFrio Cloud server.

This feature is important when configuration files and lookup files are generated by a research and development team or lab technicians and stored on the server ready for use on a PC/Laptop used in the production line.

NOTE: We recommend that you only make the necessary files available for each production line to reduce potential for errors and confusion at the time of programming.

How it works

- **Import** overwrites all lookup and configuration file settings currently saved to local storage on a PC/Laptop with the version imported from the Cloud server.

- **Export** overwrites all lookup file and configuration file settings currently saved to the Cloud server with the version exported from the local storage.

The ability to import/export configuration files and lookup files is only available to users with login access to the AoFrio system, as cloud authentication is password-protected. Please contact your organization's user manager for permissions, or your AoFrio representative for support and additional information.

Export files

The export feature allows the upload of lookup and configuration files **FROM** local storage **TO** the server.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select **Export**.
4. Click **YES** to Export Configs to the server and overwrite the current setup.
5. Use your credentials to authenticate with the AoFrio Cloud (server) and click **LOGIN**.
6. Select **OK** to acknowledge the 'Export Success' popup message.

Once files are successfully uploaded to the AoFrio Cloud server, any PC/Laptop equipped with the Cradle Programmer app can import the new configurations and make them locally available.

Import files

The import feature allows the download of lookup and configuration files **FROM** the server **TO** local storage.

NOTE: A file containing all lookup and configuration files must be previously uploaded to the server using the Export feature for the Import to be successful.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select **Import**.
4. Select **YES** to Import Configs from the server and overwrite the current setup.
5. Select **OK** to acknowledge the 'Import was successful' popup message.

Advanced settings & troubleshooting

Batch programming

AoFrio's Cradle app can be set to programme new SCS Controllers in two different ways: batch or in-line.

- **In-line programming (Default) -** This method is recommended when SCS Controllers are programmed in final assembly at the OEM factory when they are associated with a specific asset or cooler. This ensures asset number information is written to the SCS Controller. Only one controller can be programmed at a time via a single USB port to ensure the scanned serial number and asset number are written to the correct controller.
- **Batch or bulk programming -** We recommend this method when the SCS Controllers already have some information pre-programmed as this will speed up the final assembly process. Up to four SCS Controllers can be programmed at the same time via multiple USB ports.

  This process simultaneously programs the same information against multiple SCS Controllers:

- Parameters
- Firmware
- Manufacturer
- Owner
- Brand
- model

This process does NOT allow programming of identifiers that are unique to the individual equipment, such as:

- Asset number
- Equipment serial number
- Compressor serial number

NOTE: If you wish to use batch programming, please speak to your AoFrio representative. There are several consequences and processes that must be discussed beforehand.

Before you start

- Scanning of serial number, asset number, and compressor serial number is disabled in batch programming mode.
- When using batch programming, ensure to use configuration files or lookup files that do not require scanning of unique identifiers (asset number, equipment serial number, compressor serial number), otherwise programming errors may occur.

Enable batch programming

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select the **Use multiple ports** checkbox.
4. Select the applicable **Ports** by marking the checkboxes.

Language settings

The Cradle Programmer supports the following languages:

- English
- Spanish
- Portuguese
- Turkish

To change the language settings:

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Select a language from the **Language** dropdown.
4. Click **OK** to confirm.
5. Restart the Cradle Programmer app to see the new language setting.

Deactivation

The Cradle Programmer app can be deactivated at anytime.

- This means AoFrio SCS controllers cannot be programmed until the application is reactivated, which requires entering an activation code. For more detail, see the Activation section in this manual.
- Deactivating the Cradle Programmer app does NOT delete any information kept your computer's local storage (such as configuration, lookup, parameter, or firmware files).
- If the Cradle Programmer app is reactivated on the PC or laptop with the same activation code previously used, all locally saved settings will be restored.

1. Click on the **SETTINGS** tab.
2. Select the **Application** submenu.
3. Click **DEACTIVATE APP**.

Troubleshooting

Issue	Actions
Cradle Programmer does not detect controller	• Check set to **RUN**, not **STOP**. • Check correct port has been selected for programming. • Remove controller, try inserting again.
Desired owner is not available in the drop-down list	• Owner company has not been associated with your company. Please contact your AoFrio representative to create the required link.
Parameter file is not visible	• Check internet connection. • Check file has been created and uploaded to the AoFrio cloud. • Check the file is in “released” status, not “draft”.

Glossary of terms

Glossary of terms

Term	Definition
Asset number	The unique identifier for the equipment. This information is recorded into the controller and must be unique.
Brand	A classification within the AoFrio IoT system that enables the Owner to create a categorization for its equipment. Leads to data subdivision within the system.
Compressor serial number	The unique identifier for the compressor unit installed into the equipment. It can be associated with the controller to improve component control for the equipment Owner and/or Manufacturer.
Configuration file	A master file containing all information required to program a controller. Intended to facilitate selection during production, it can be made to manage specific equipment model, owner, firmware version, etc.
Cradle Programmer	The software component that enables programming and configuration of AoFrio SCS controller in the equipment manufacturing facility, as well as controls ownership associations.
Equipment serial number	A series of characters used to uniquely identify equipment and is often electronically embedded by the manufacturer.
Factory default parameters	The set of parameters that comes installed in the controller from the AoFrio factory.
Firmware file	A specific version of the software that provides the low-level control for the hardware in the specific controller. Controls the features and functionality available.
Latest firmware	The most up to date and recently released version of the firmware.
Lookup file	A delimited file that contains configurations for a controller and that responds to specific information being entered or scanned into the user interface of the Cradle Programmer.
Manufacturer	The company responsible for manufacturing or assembling the equipment in which AoFrio components are installed. Also called “OEM” or “original equipment manufacturer” or “supplier”.
Operator	The staff working on equipment production lines, whether manufacturing or final assembly.
Owner	The company who purchases and manages the equipment for its entire lifecycle, frequently called “bottler”.
Parameter file	A file that contains a list of initialization information and a value for each parameter that controls the equipment.
Programming screen	A screen that provides user with information about the programming process of a specific controller.
Server	The AoFrio Cloud, where information is centrally stored online to be accessible to all authorized users of a specific database.
Supervisor	The person responsible for supervision of the manufacturing and assembly activities.
Update cooler screen	A screen that gives the opportunity for additional information to be inputted once the controller has been programmed.
User Manager	A separate digital tool in the AoFrio IoT ecosystem that is used by customers to control and manage access to their database and other tools in the system.

Cradle Programmer app
User manual

www.aofrio.com

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