USER MANUAL

MICRONIC CODE READER SOFTWARE

V 4.4.0

MICRONIC

CONTENTS

1. INTRODUCTION

1.1 ABOUT THIS DOCUMENT

This document is intended to be used in concert with the ***Micronic Code Reader Software 4.4.0.*** (MCR Software). In this user manual the names of interface items (windows, (tab) pages, fields, and menus) are printed in *italic*, while user controls (keyboard keystrokes, mouse or trackball clicks, edit controls, check boxes and menu choices) are indicated in **bold** print.

Symbol	Definition
	WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in damage to the instrument or personal injury. This signal is used only in extreme situations and, therefore, requires special attention.
	ATTENTION: Indicates problems or important information. Read the accompanying text carefully as it is important for understanding the specific topic or command.
	NOTE: Indicates information that is useful, but not essential, to a task. Read the accompanying text carefully as it can help to clarify issues.

The PDF version of this document will be available with the MCR Software.

1.2 ABOUT THE SYSTEM

The MCR Software runs on a PC (or laptop or notebook). A reader is connected to the PC via a USB cable. The vials (with ECC200 code) to be read are placed in a tray and placed on the scanner. The software reads the code and decodes them.

2. INTRODUCING THE MICRONIC CODE READER SOFTWARE

2.1 INTENDED USE

The MCR Software is intended to be used by trained personnel, familiar with the process of sample preservation and storage. The software is compatible with the RS210, RD235, DR500, DR505, DR515, DR700, DR710 and DR900 readers. The scanned image will be processed and decoded to generate an output file with decoded results.

2.2 MINIMUM SYSTEM REQUIREMENTS

The minimum requirements for running the MCR Software on PC are:

- Windows 8.1
- Windows 10, version 1803 update
- Windows 11

2.3 INSTALLATION

The user can initiate the installation of MCR Software by **double click** on the *setup.exe* file. Installation is a 5-step process, described as below:

Step 1: Destination Folder

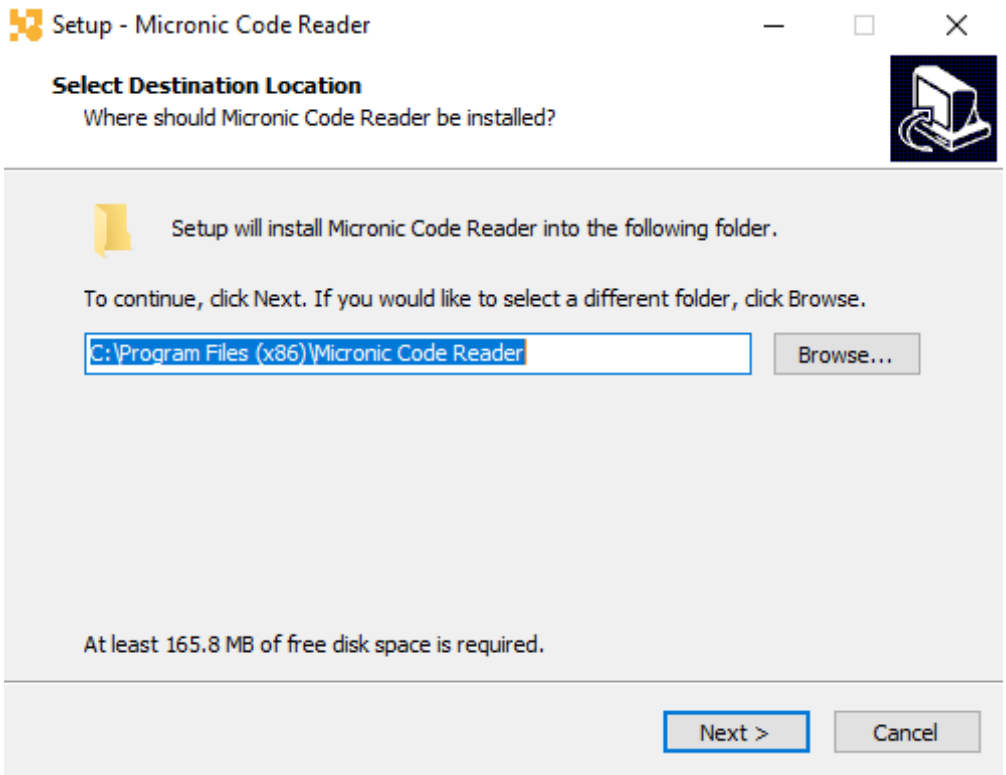

Fig 1: Select Destination

The user may select the destination folder where the MCR Software is to be installed. The user can enter the file path in the '*Text field*' or click '**Browse**' to select the file path and click '**Next>**' to proceed further. The user can click '**Cancel**' to terminate the installation.

If an older version of the MCR Software exists on the system, setup will display a dialogue box to notify the user. The user can click on '**Yes'** to proceed with the installation of the newer version or click '**No'** to cancel installation.

If the user attempts to install an older version of the MCR Software, the setup will display a dialogue box, informing the user of the existence of a newer version on the system. The user can click '**OK'** to close the dialogue box

If the user attempts to install the same version of the MCR Software, the setup will display a dialogue box to confirm re-installation. The user can click on '**Yes'** to proceed with the re-installation or click '**No'** to cancel re-installation.

Step 2: Selection of Additional Tasks

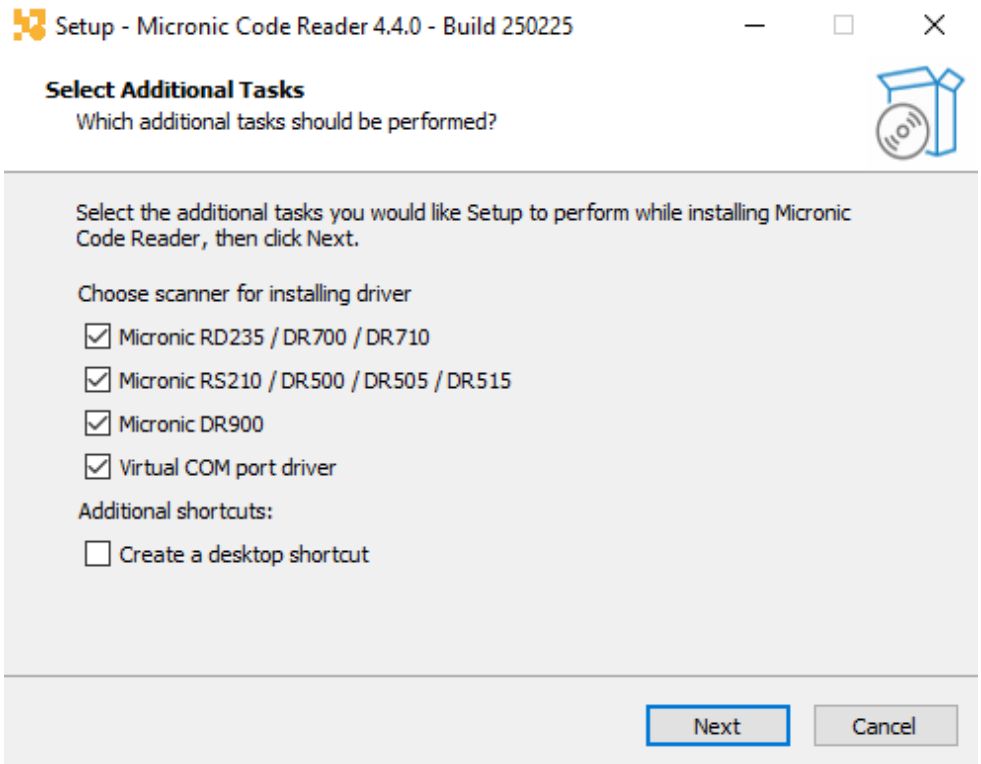

Fig 2: Selection of Additional Tasks

The user may select additional tasks for MCR Software to perform. Additional tasks include:

- Option to select following scanner drivers for installation
  - Micronic RD235 / DR700/ DR710
  - Micronic RS210 / DR500/DR505/DR515
  - Micronic DR900
  - Virtual COM port driver
- Desktop shortcut creation.

The user can click '**Next>**' to proceed further, '**<Back**' to go back to previous step or '**Cancel**' to terminate the installation.

If scanner drivers are previously installed on the system, the user may deselect the corresponding items.

Step 3: Ready to Install

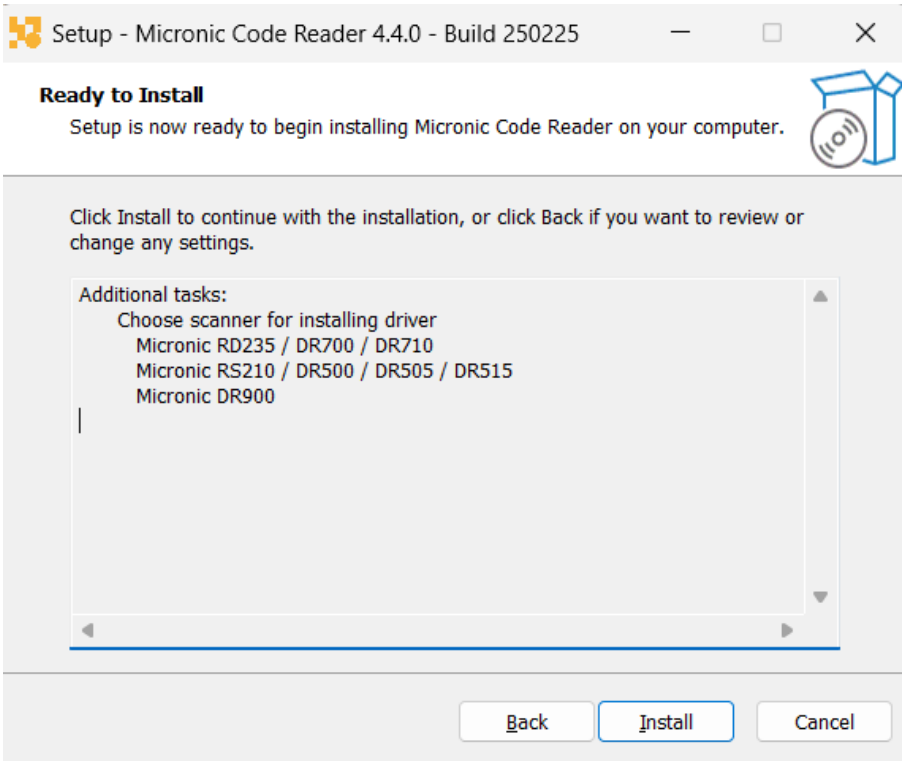

Fig 3: Ready to Install

The *Ready to Install window* displays the additional tasks as opted by the user. The user can click '**Install**' to proceed with installation, '**<Back**' to go back to previous step or '**Cancel**' to terminate the installation.

Step 4: Scanner & Virtual COM Port Driver Installation

The *setup* installs the AVA6 *Plus* , *PaperStream IP (TWAIN), camera* driver softwares and the *'Micronic Side Barcode Reader for DR500/DR505/DR515/DR700/DR710/DR900'* virtual COM port driver software, based on the options selected in Step 2 (Selection of Additional Tasks). The user can click '**Cancel**' to skip the installations and click '**Next**' to complete the installations.

During installation, the *'Tracxer 1D rack Barcode Reader BC210/BC235'* virtual COM port driver set up file gets copied to *C:\Program Files (x86)\Micronic Code Reader\PreInstallers*. The user must separately install the software from the same location.

During installation, the *'Micronic Side Barcode Reader for DR500/DR505/DR515/DR700 DR710/DR900'* virtual COM port driver uninstallation file gets copied to *C:\Program Files (x86)\Micronic Code Reader\PreInstallers*.

Step 5: Completion

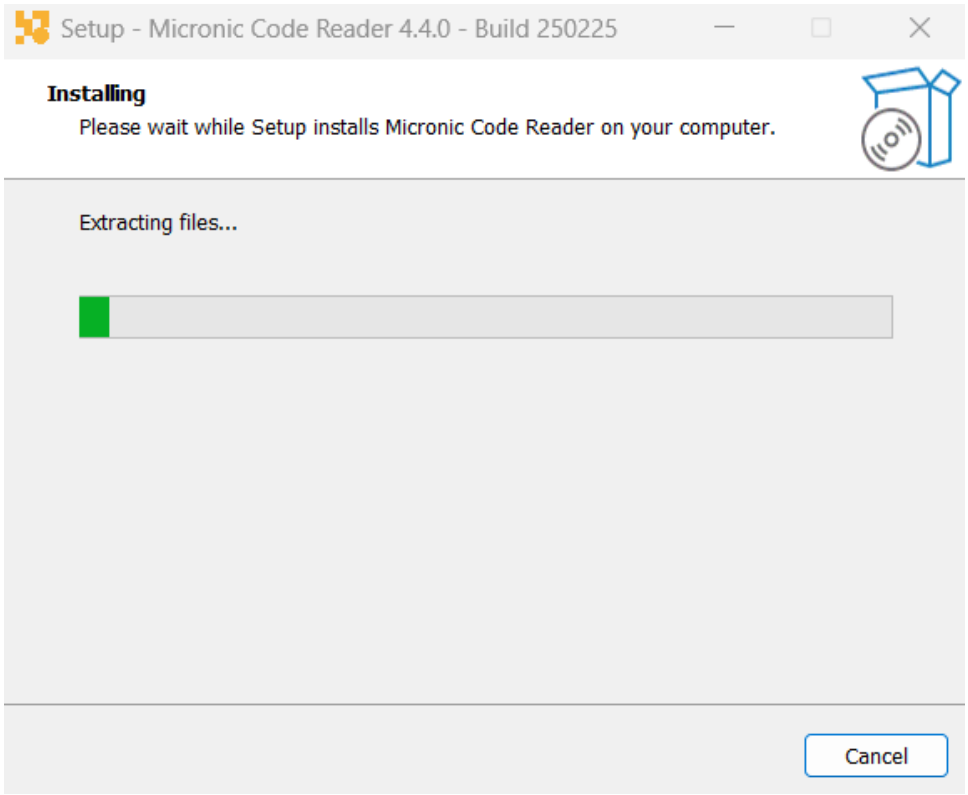

Fig 4: Installing

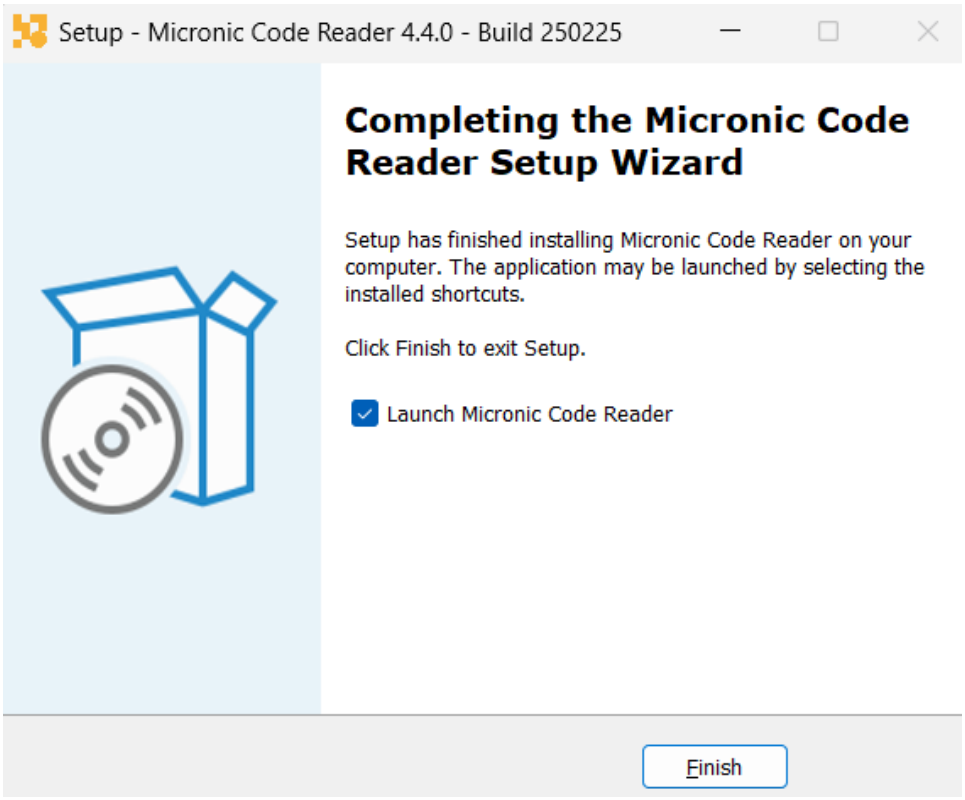

Fig 5: Installation Completion

Setup may take a few minutes to complete the installation process. The user can click '**Cancel**' to terminate the installation. Upon installation completion, the user can check the '**Launch Micronic Code Reader**' option and click '**Finish**' to launch the software.

2.4 UNINSTALLATION

The user can initiate the uninstallation of MCR Software by double clicking the *'unins000.exe'* file. Uninstallation is a 2-step process, described as below:

Step 1: Confirmation

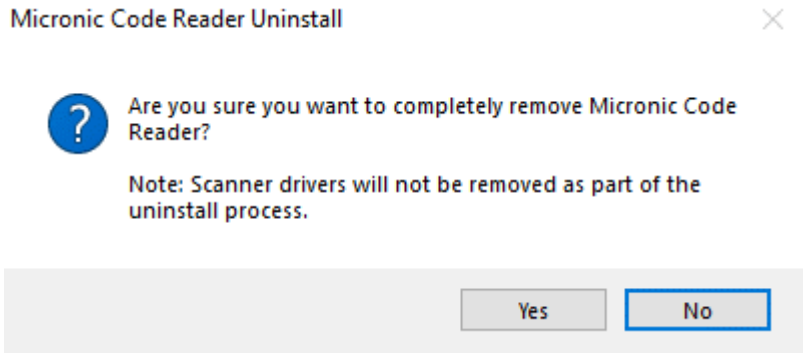

Fig 6: Uninstallation Confirmation

The user may confirm uninstallation of MCR Software. The user can click on '**Yes**' to proceed with uninstallation or '**No**' to terminate the uninstallation.

Uninstallation does not remove the *AVA6 Plus* or *PaperStream IP (TWAIN)* scanner driver software, camera driver, or the *'Micronic Side Barcode Reader for DR500/DR505/DR515/DR700/DR710/DR900'* virtual COM port driver software, installed based on the options selected in Step 2 (Selection of Additional Tasks) of installation.

Step 2: Completion

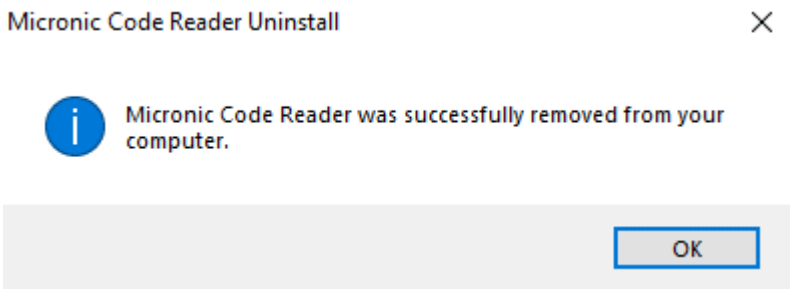

Fig 7: Uninstallation Completion

The uninstallation completion message will be displayed. The user may click '**OK**' to finish the uninstallation and close the window.

3. HOME PAGE

3.1 LOGIN

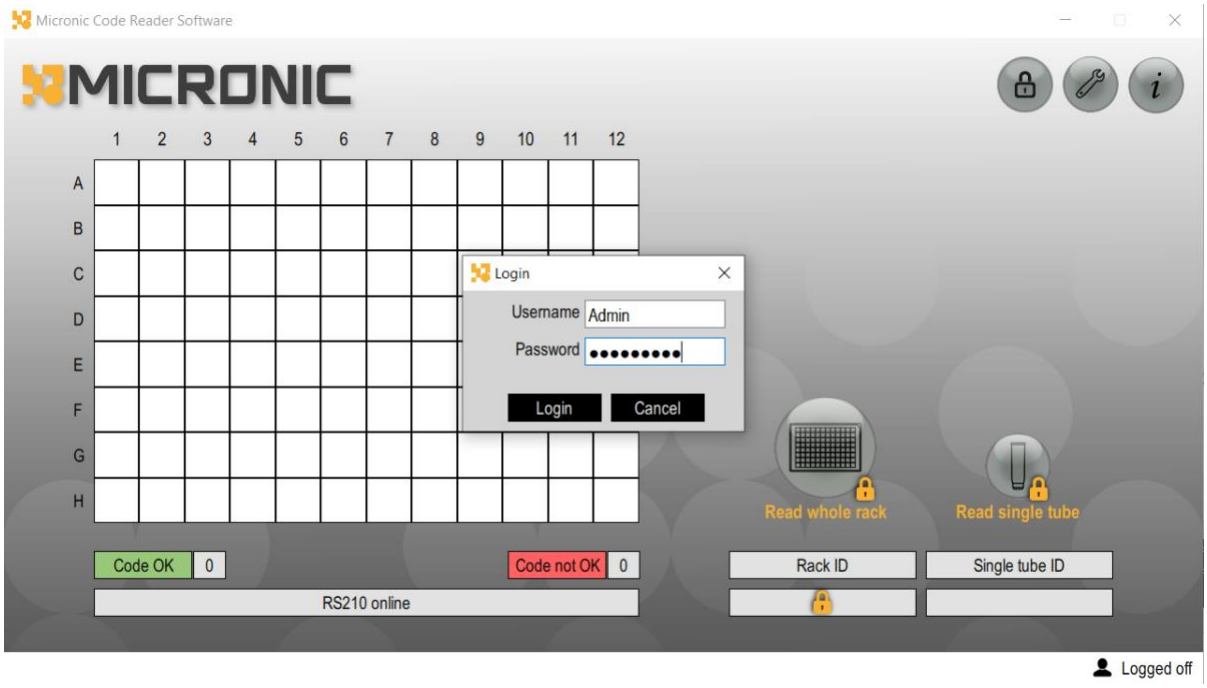

Fig 8: Login Screen on Start-up

Users can log in to the MCR Software using the **'Login'** button. For first time start-up, users may use the following login credentials to gain administrative access:

Username: Admin
Password: Admin@123

3.2 TUBE / VIAL DECODE STATUS MATRIX

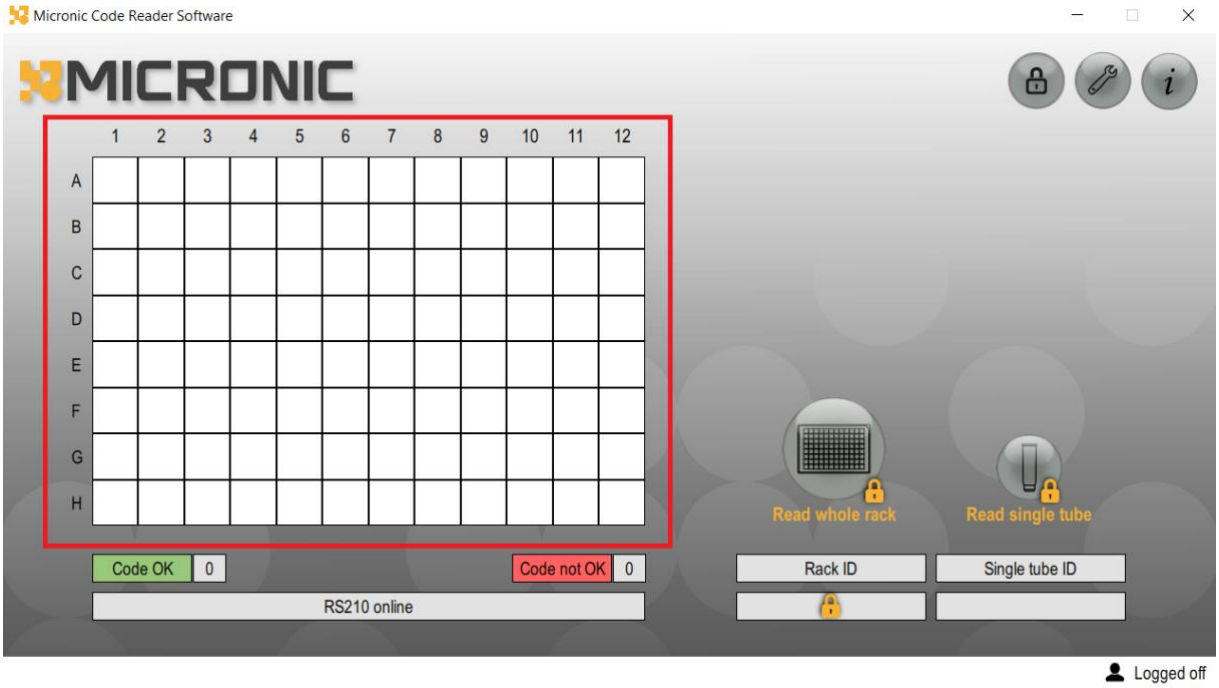

Fig 9: Status Matrix before scan/decode

The tube / vial decode status matrix displays the status of each tube / vial. The rows are identified by alphabets and columns are identified by numbers. Each cell in the matrix represents the tube / vial located at the corresponding position on the sample tray. The user can click on '**Read whole rack**' or '**Read single tube**' to initiate scan.

The user may click individual cells to display the decoded information of the corresponding tube.

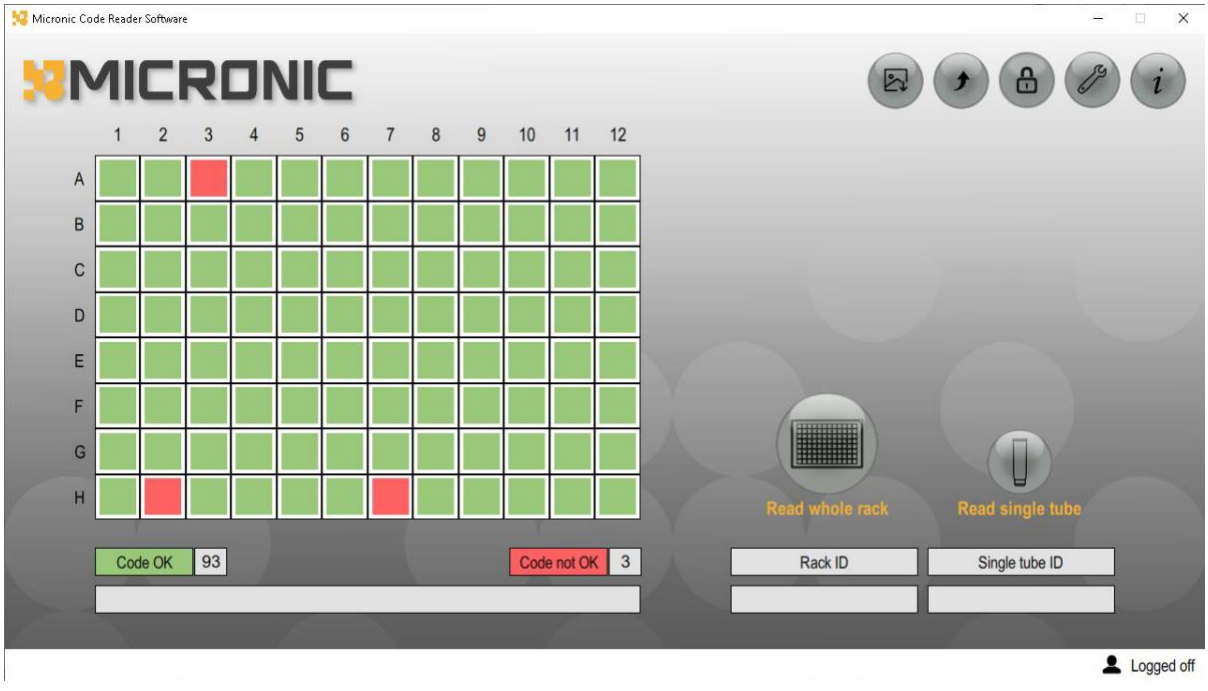

Fig 10: Status Matrix showing Code OK, and Code not OK

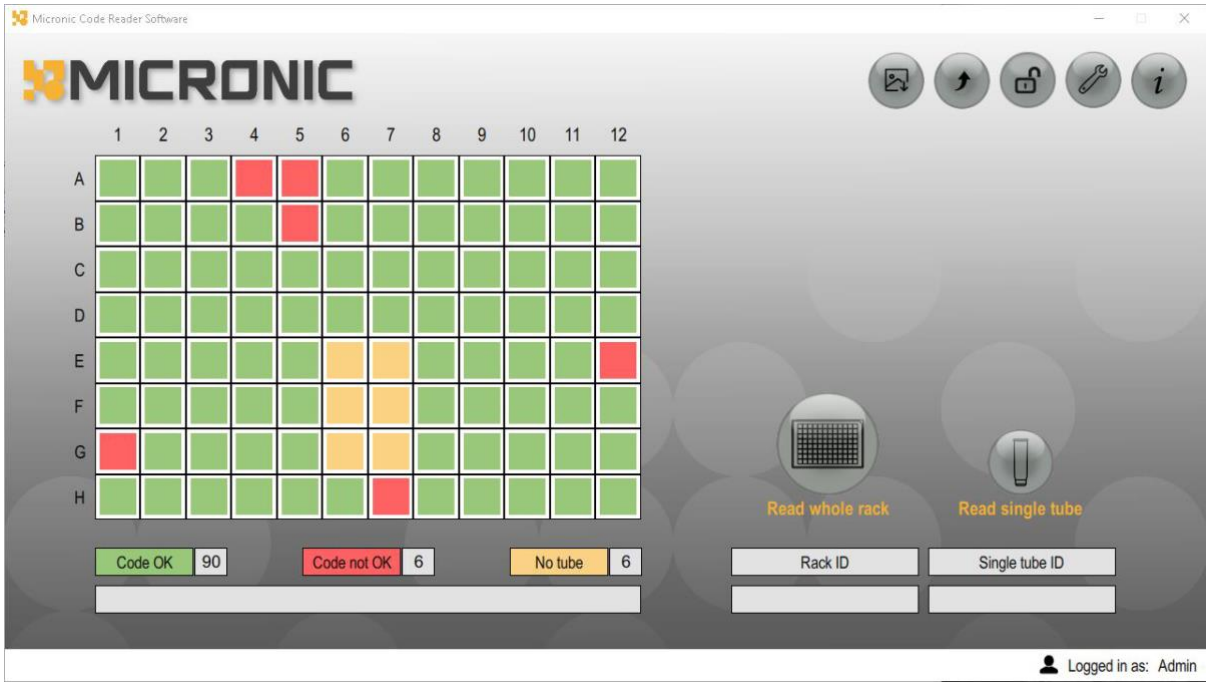

Fig 11: Status Matrix showing Code OK, Code not OK and Co tube

The cells can appear in green, yellow, red or white colours depending on the status of the individual tubes and the classification format in data export settings. The colours represent the following for each classification format.

i. Code OK/Code not OK

- Green - Good reading from the tube / vial, i.e., codes were decoded.
- Red - No tube / vial detected, or Tube was detected but code was not found.
- White – Scanning / decoding is yet to be performed.

ii. Code OK/Code not OK/No tube

- Green - Good reading from the tube / vial, i.e., codes were decoded.
- Yellow - No tube / vial detected
- Red - Tube was detected but code was not found.
- White – Scanning / decoding is yet to be performed.

The order of the matrix depends on the rack type selected in *'Rack Type'* under the *'Labware Settings'* (refer section 4.2.1 for details). The software provides 3 pre-configured rack types - *24(4x6)*, *48(6x8)*, *96(8x12) and 138 (11 x 13-12)* - and a provision to create a user defined rack type.

For a single tube / vial scanning, the *status matrix* is reduced to a single *status cell* that can be clicked on to display the information of the tube.

3.3 READ WHOLE RACK

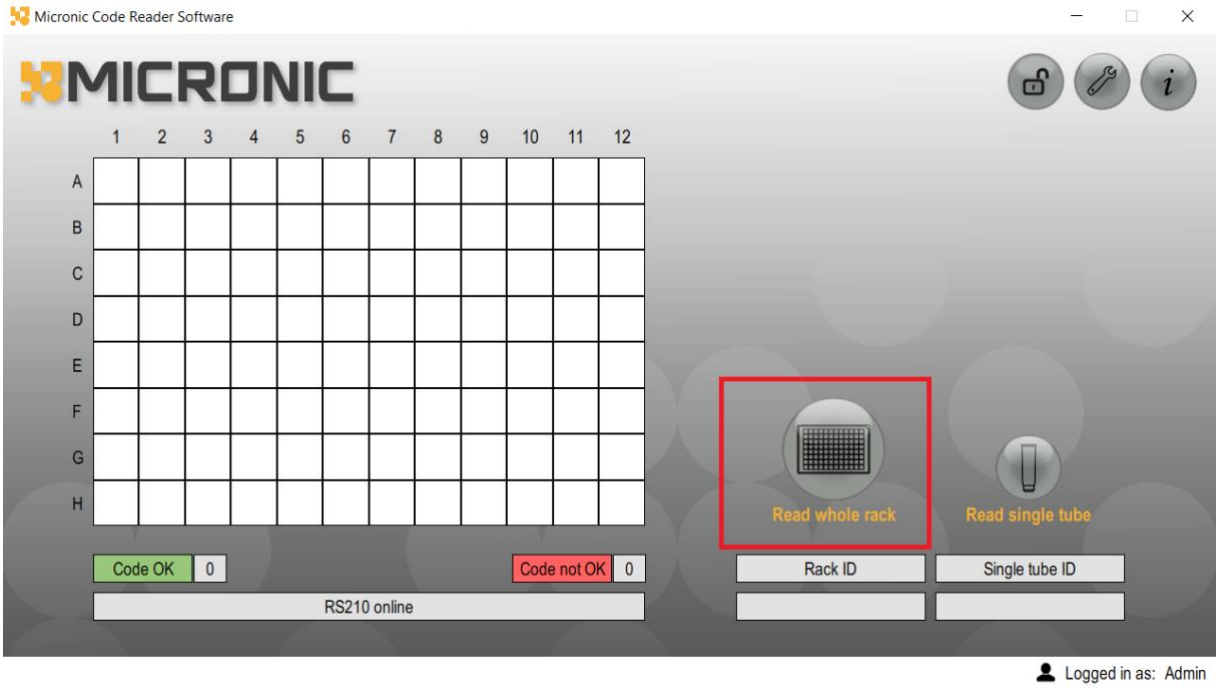

Fig 12: Option to Read Whole Rack

This option supports reading of the entire rack. The user can click on '**Read whole rack**' button to initiate the scan & decode process. At the end of scan / decode completion, the '*Rack ID*' field is automatically cleared, and the *status matrix* is updated.

The proper placement of the Tube / Vial Tray is necessary for best results. The tray is to be kept with cell A1 (row A, column 1) at the top left corner of scanner bed (position on scanner indicated with an arrow).

3.4 READ SINGLE TUBE

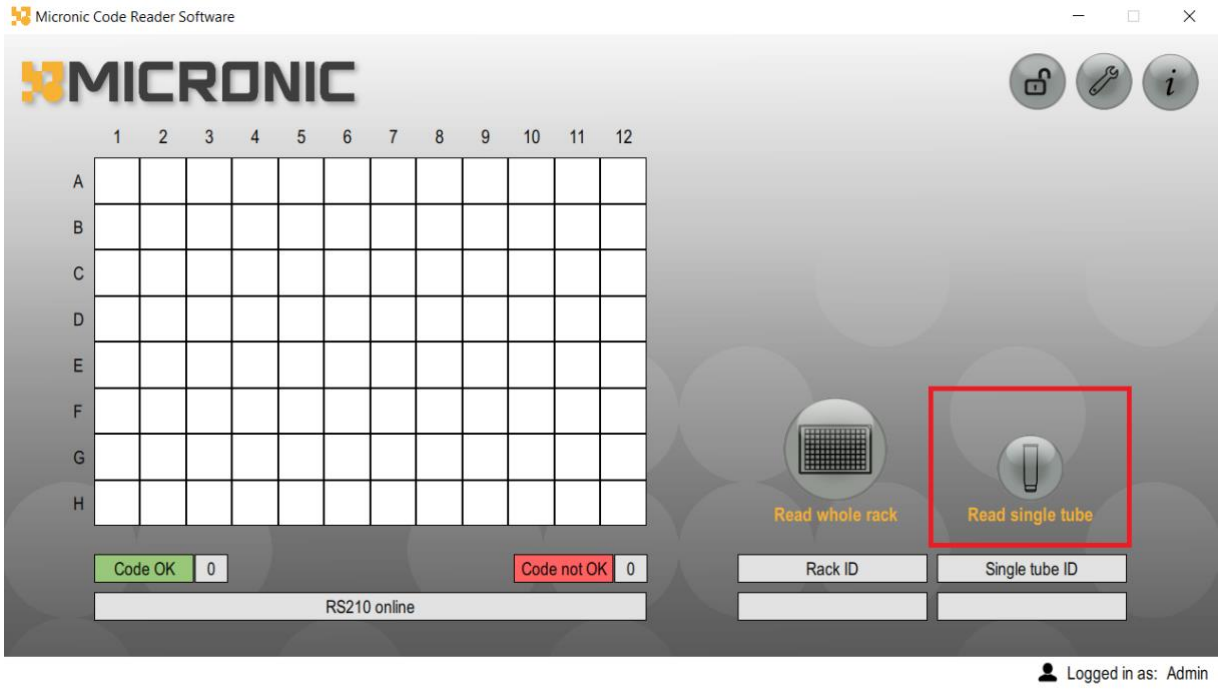

Fig 13: Option to Read Single Tube

This option supports scanning of a single tube / vial. The user can click on '**Read single tube**' button to initiate the scan & decode process. At the end of scan/decode completion, the '*Single Tube ID'* field is automatically filled with the identification information corresponding to that tube / vial and the *status cell* is updated.

3.5 REVIEW RESULTS

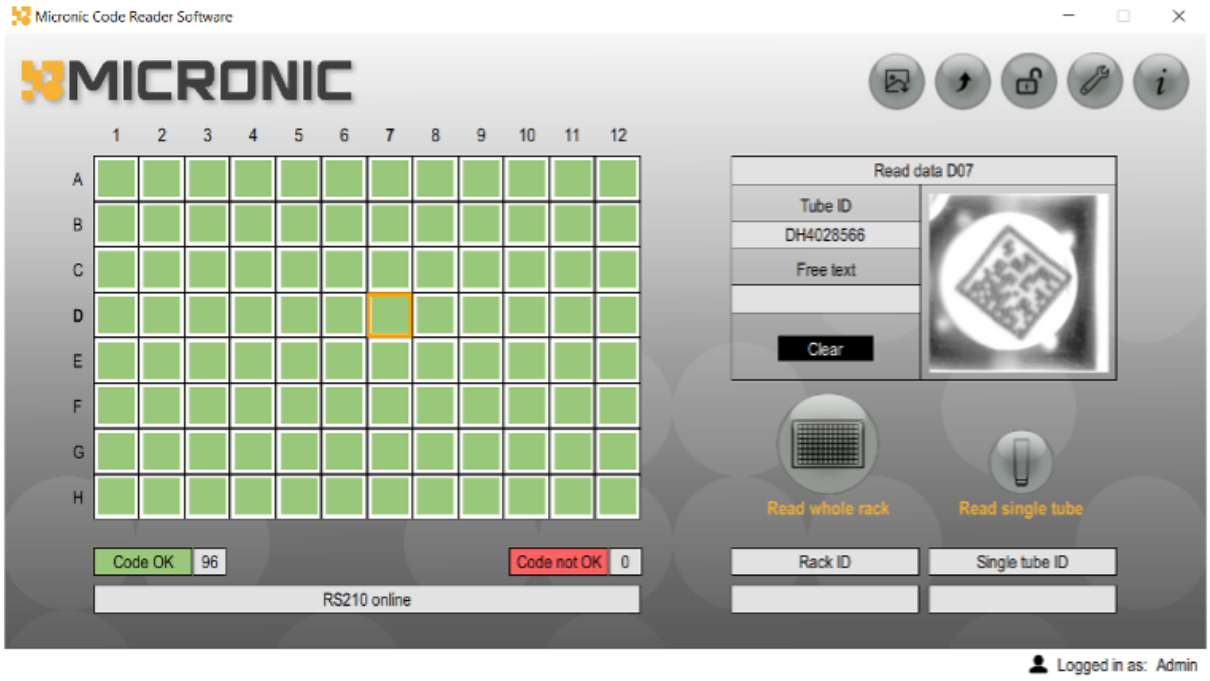

Fig 14: Review Result for Good Read

This is a result frame that displays decoded information. The user can click on any *status cell* marked green to display the following:

- *Position in Rack*
- *Tube / vial image*
- *Tube ID*.
- An editable field marked *'Free Text'* (up to 30 alphanumeric and special characters)

The user can use the arrow keys on the keyboard to navigate between each *Position in Rack*. The first click after the scan, on any arrow key, selects cell A1. The user can use the '*Tab'* key on the keyboard to move between the selected *Position in Rack* and the *'Free Text'* field

The user can click to toggle between acquired image and processed image.

Any text entered in the *'Free Text'* field is automatically saved upon clicking on any other cell or control in the MCR Software. The user can clear the '*Free Text*" field by clicking the **'Clear'** button.

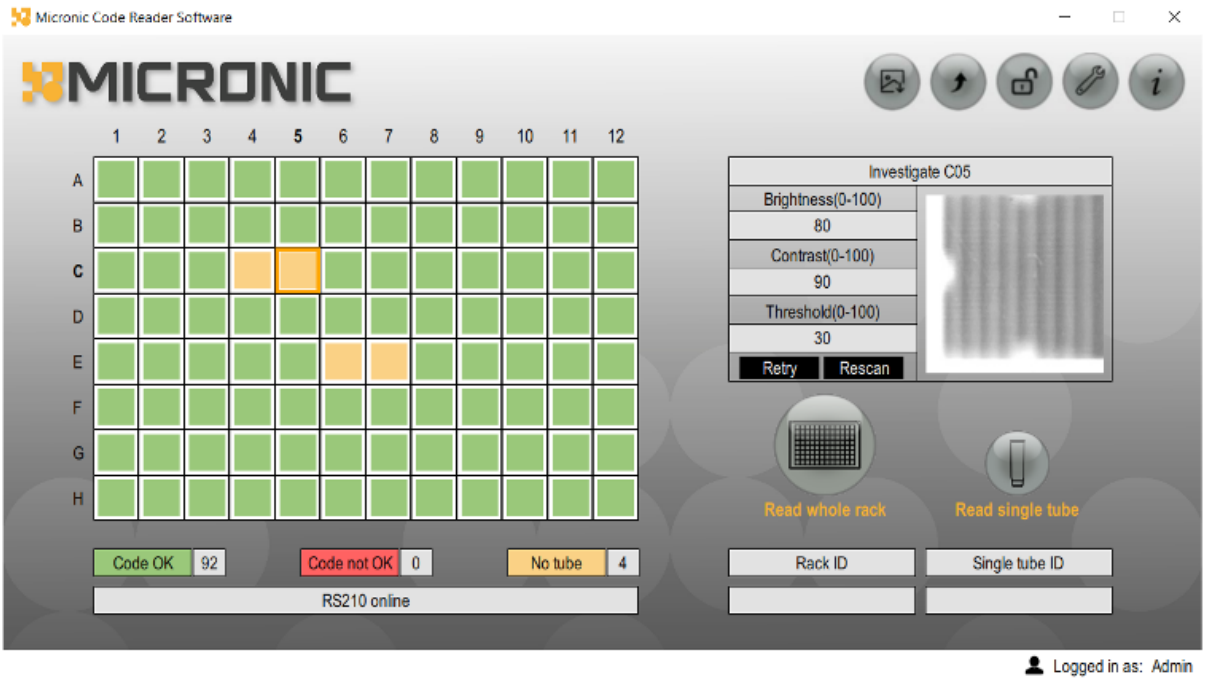

Fig 15: Review Result for No Tube

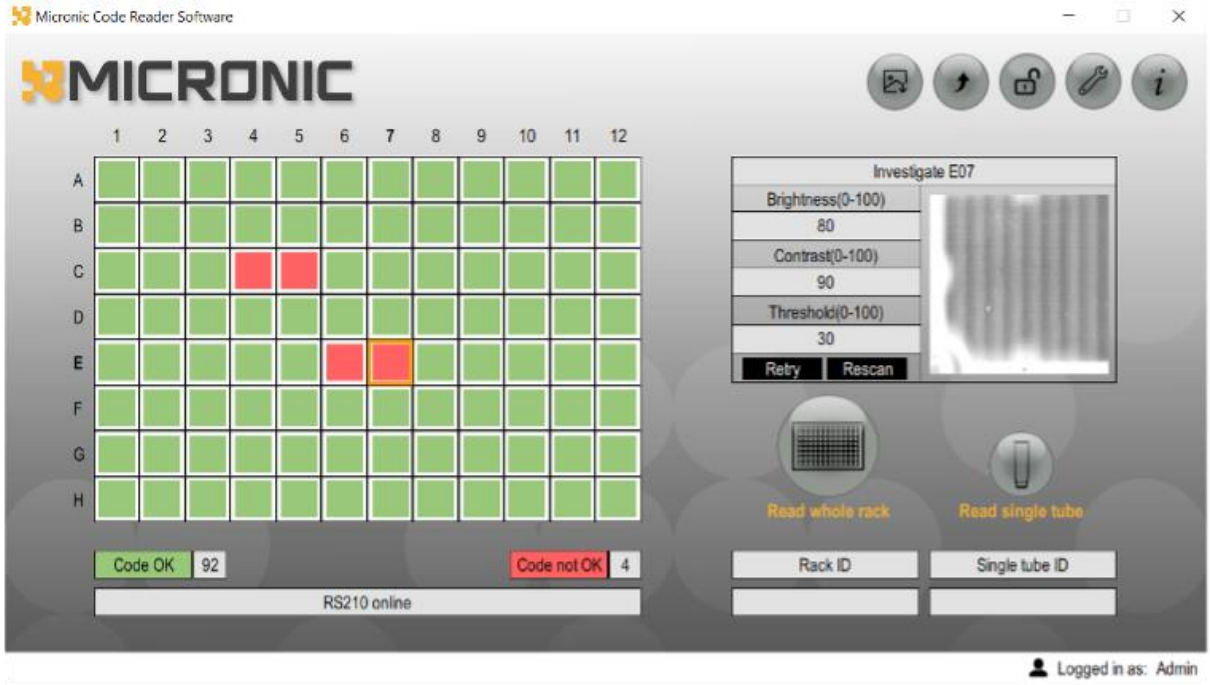

Fig 16: Review Result for Code not OK

The user can click on a *status cell* marked yellow or red to investigate. The tube image will be displayed along with options to edit the following image parameters:

- *Brightness*
- *Contrast*
- *Threshold*

The user can click to toggle between acquired image and processed image. The user may click '**Retry**' to re-process the acquired image with modified values of *brightness, contrast and threshold.* The user can click '**Rescan**' to redo scanning of the tube/vial under investigation.

Switching to settings screen and coming back will cause the values of *brightness, contrast and threshold* to default to corresponding values set in Labware settings.

The user can use the '*Tab'* key on the keyboard to move between the selected *Position in Rack* and *Brightness, Contrast* and *Threshold* fields.

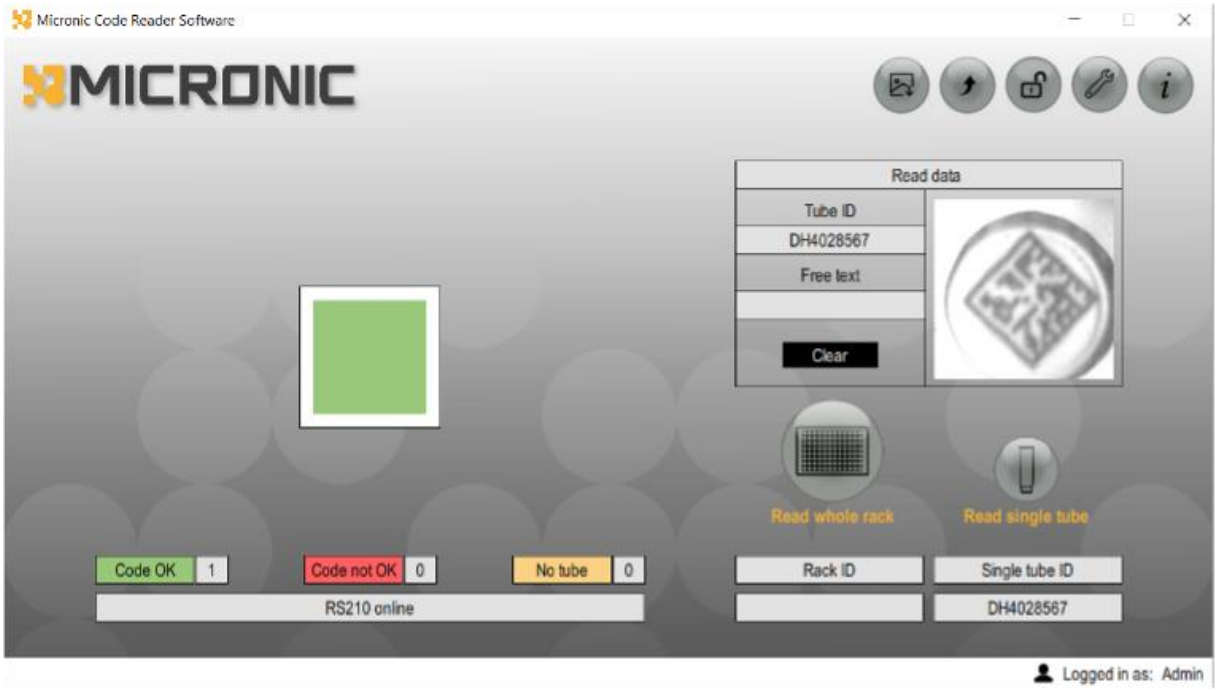

Fig 17: Review Result for Single Tube Good Read

Fig 18: Review Result for Single Tube Code not OK/ No Tube

3.6 SUMMARY OF READINGS

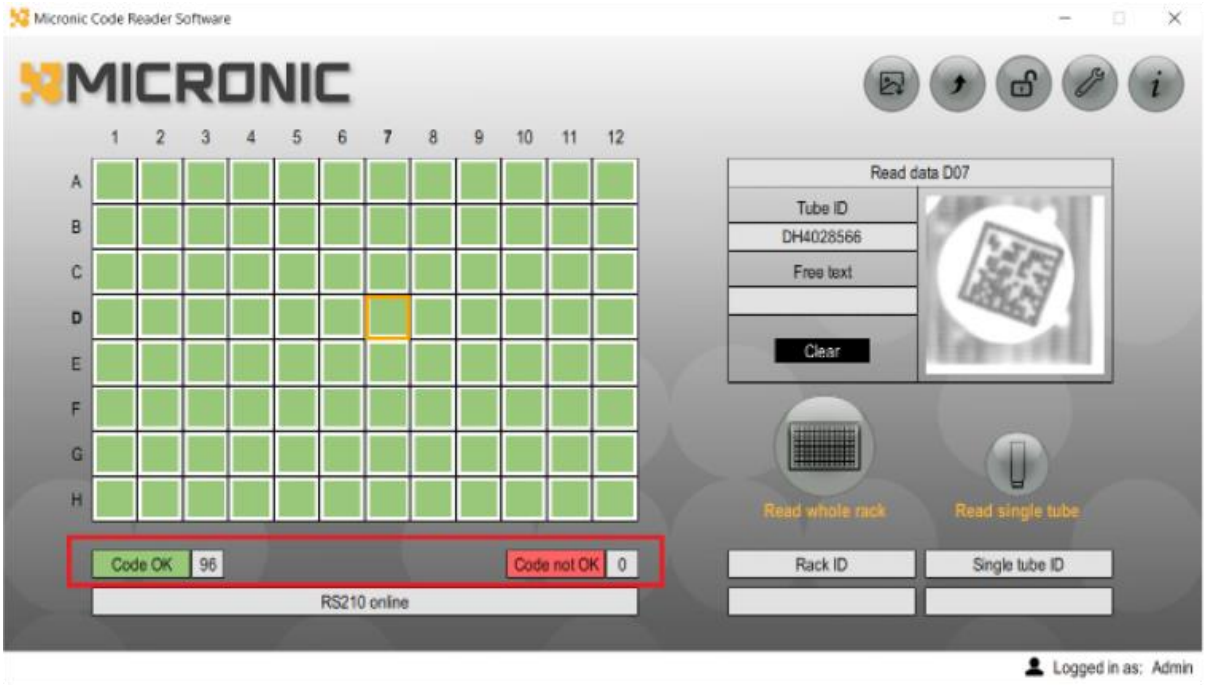

Fig 19: Summary of Readings format 1

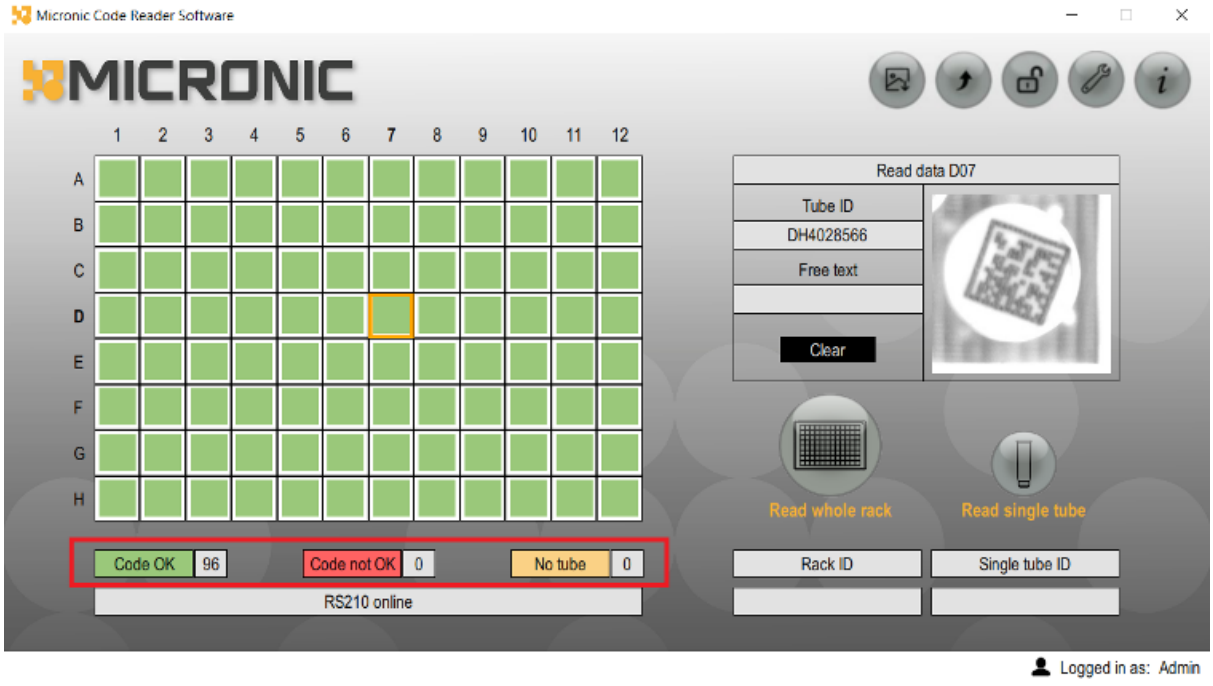

Fig 20: Summary of Readings format 2

This is a summarized view of each scan that appears below the *Status Matrix based* on the classification format selected in the Data Export settings. The readings are classified as follows:

i. Code OK/Code not OK

- The '*Code OK' field*, marked in green, indicates the number of correctly decoded codes in rack.
- The '*Code not OK*' field, marked in red, indicates the number of positions where tube was detected but code was not found or number of positions where tube was not detected.

ii. Code OK/Code not OK/No tube

- The '*Code OK' field*, marked in green, indicates the number of correctly decoded codes in rack.
- The '*Code not OK*' field, marked in red, indicates the number of positions where tube was detected but code was not found.
- The '*No tube*' field, marked in yellow, indicates the number of positions where tube was not detected.

3.7 SCANNER IDENTIFICATION BAR

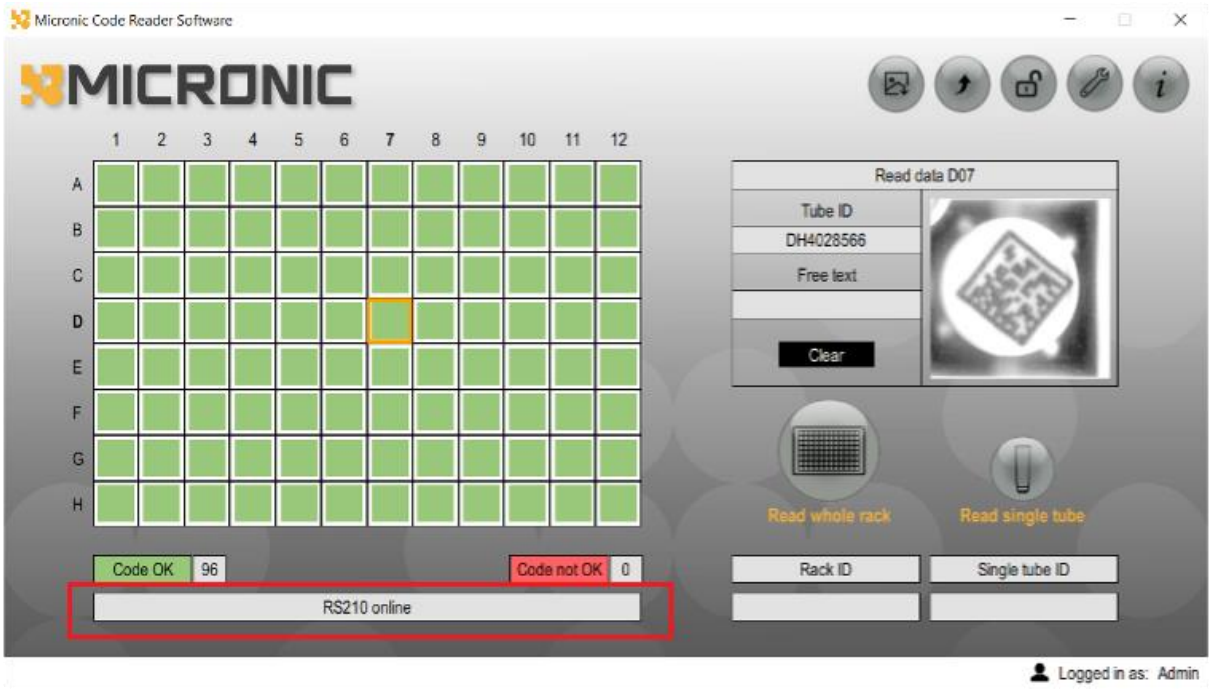

Fig 21: Scanner Identification Bar

This is a frame that identifies the connected scanner (RS210, RD235, DR500/DR505/DR515, DR700/ DR710 or DR900) and its status.

'Offline' status indicates that the reader is not connected to the computer. '*Online*' status indicates that the reader is ready to scan.

3.8 RACK ID

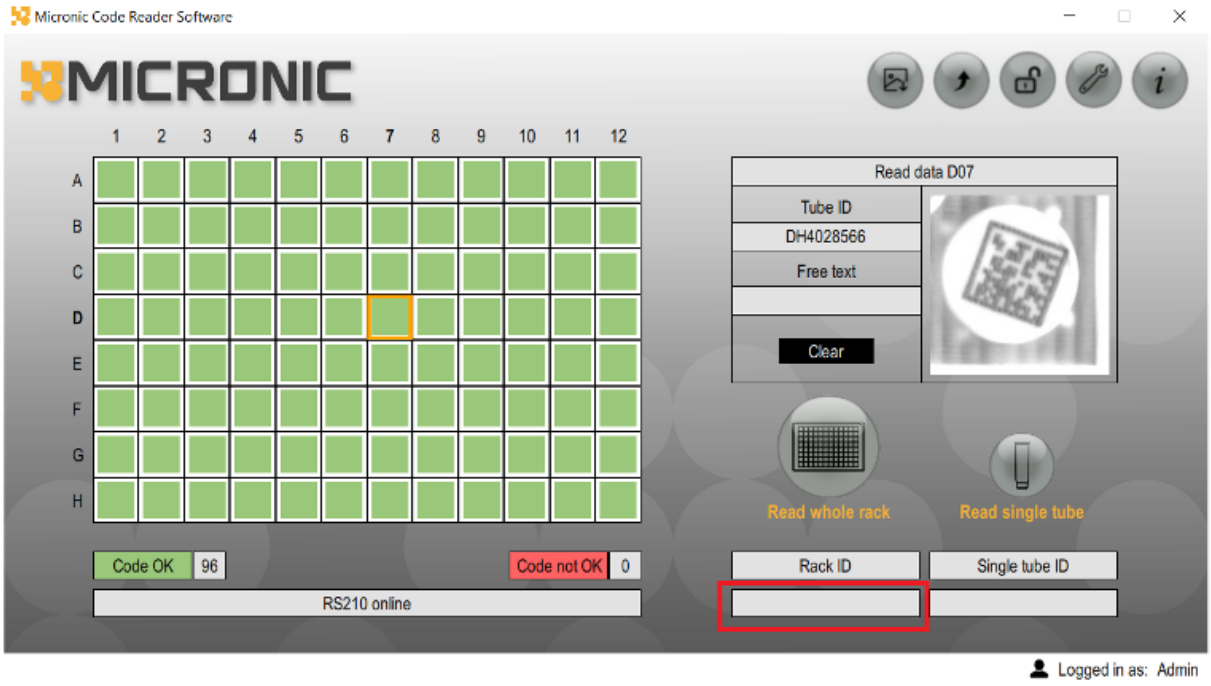

Fig 22: Rack ID

This is an editable field for the user to enter the identification text for each rack scan. The user can enter the *Rack ID* in a *pop-up window* that appears upon clicking field indicated in Fig 25. The user may enter the desired identification text and click '**OK**' to set the *Rack ID* or click '**Cancel**' to reverse any changes. The user can enter alphanumeric or special characters (except reserved characters such as ,<>:"/\\|? *")

3.9 SINGLE TUBE ID

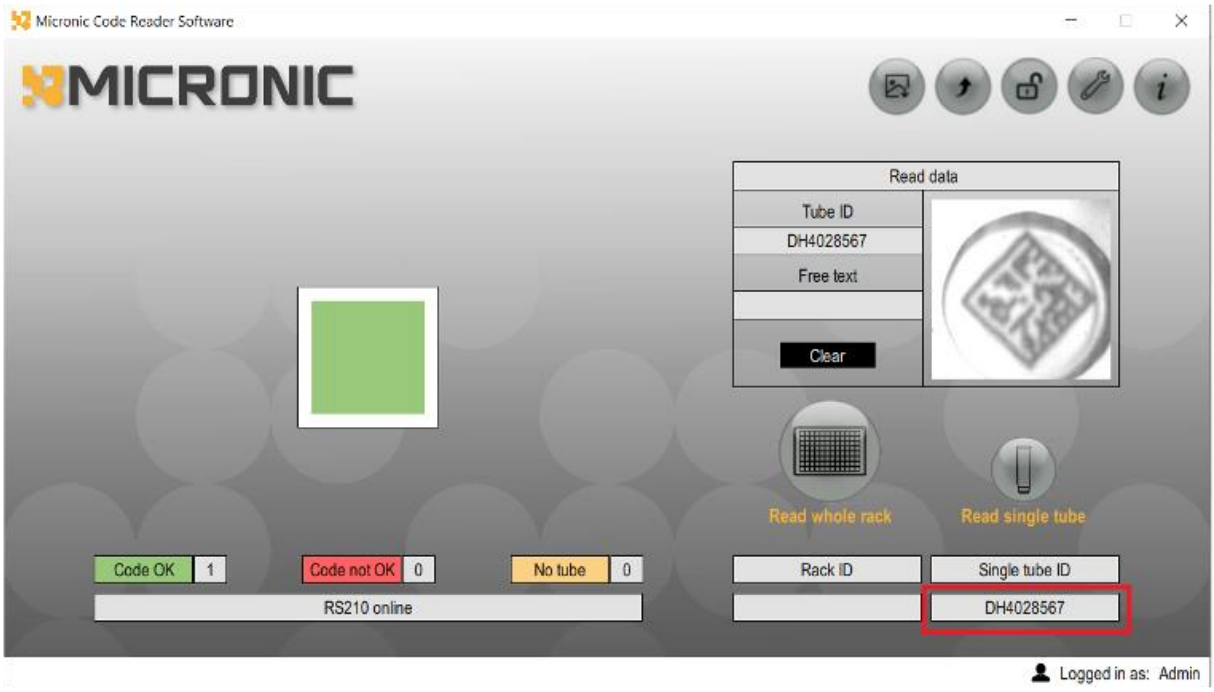

Fig 23: Single Tube ID

This is a non-editable field that displays the identification text for each single tube scan, which is used for export of scan data. The user can enter alphanumeric or special characters (except comma).

3.10 STATUS BAR

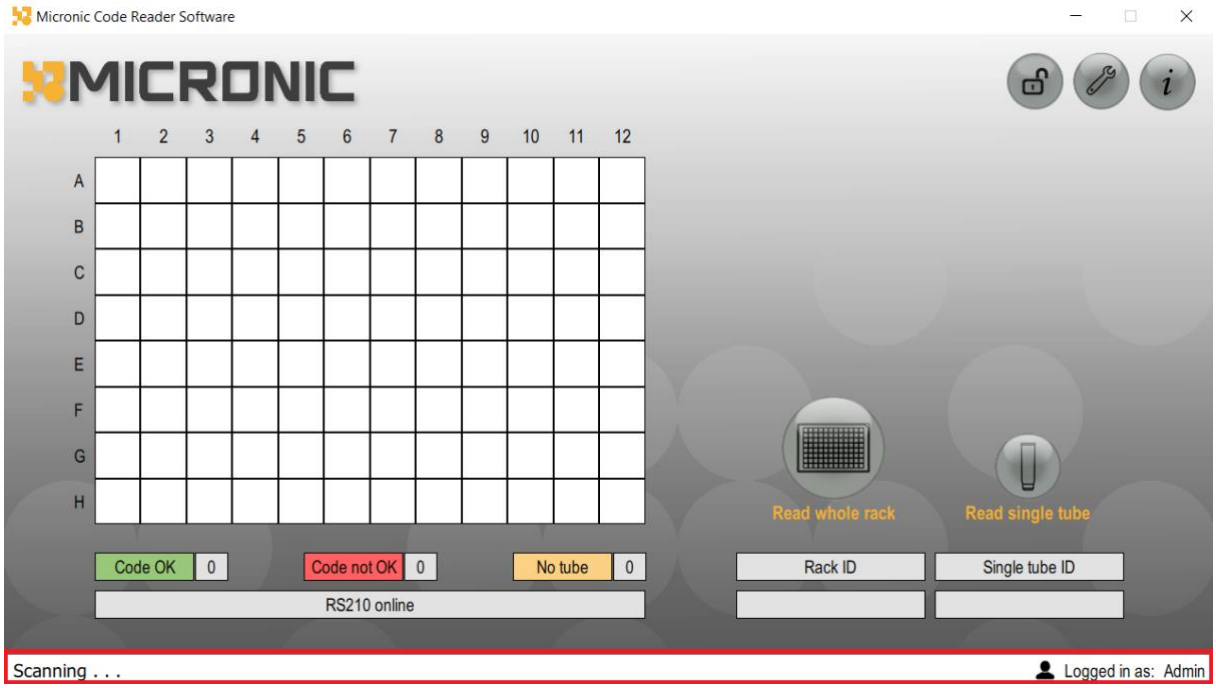

Fig 24: Status Bar

This is a frame at the bottom of the '*Home Page*' that displays the status of the ongoing process. It also displays the logged in status of the user. The status of the ongoing process with their corresponding descriptions are given below:

- Scanning - When the user presses the Read whole rack / Read single tube.
- Re-scanning - When the user presses the re-scan button in 'No code' / 'No tube' *review result* frame.
- Exporting data - During data export operation.
- Some tubes are not decoded. Re-reading the rack - When the user has enabled the re read feature and if some tubes are not decoded.
- Re-reading completed - When the software has completed automatic re-reading of the Data Matrix codes, as set by the user (refer section 4.2.4).
- Decoding - When software is decoding the data matrix codes.
- Image decode process completed - When software completes the decoding of the data matrix codes.
- Retrying the decode process - When user clicks the retry feature in the code result window (for No tube / No code).
- Scanner not connected - When the user tries to scan the rack while scanner is disconnected.
- Data export completed – Upon completion of export of data matrix codes and the *'Rack ID'*
- Reading rack ID – During operation of reading Rack ID by *'Micronic Side Barcode Reader for DR500/DR505/DR515/DR700/DR710/DR900'* or *'Tracxer 1D rack Barcode Reader BC210/BC235'* or *'Bottom Rack ID'*

3.11 MANUAL EXPORT

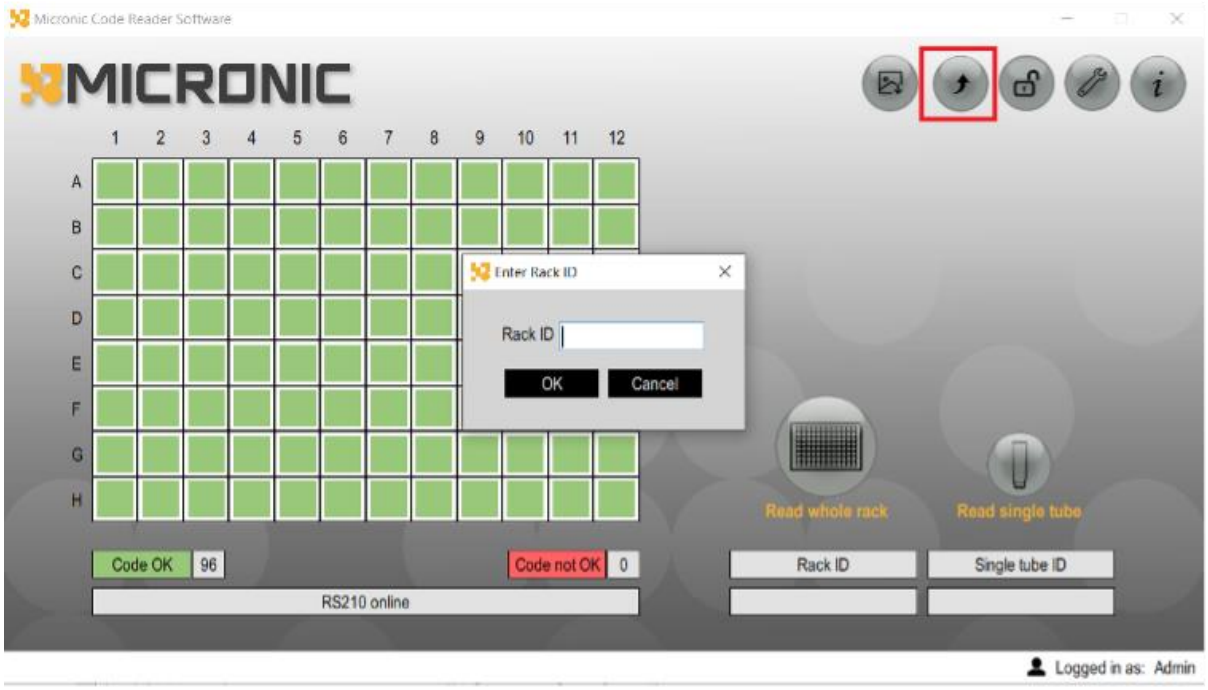

Fig 25: Manual Export Option

This is an option for the user to initiate the manual export function. The export file is generated in the csv format. If '*Micronic Side Barcode Reader for DR500/DR505/DR515/DR700/DR710/DR900'* or *'Tracxer 1D Rack Barcode Reader BC210/BC235'* is chosen as *'Rack ID Source' in 'Source Settings'*, Rack ID will be read from the rack being scanned. If *'Bottom Rack ID*'' is chosen as *'Rack ID Source'* in *'Source Settings'*, *'Rack ID'* will be checked and decoded from last scanned whole rack image at the enabled positions for bottom rack ID in *'Bottom Rack ID'* in *'Labware settings'.* If *'Keyboard Wedge'* is chosen as *'Rack ID Source'* in *'Source Settings'*, *'Rack ID'* will be requested before export.

Using '*Bottom Rack ID*'' as *'Rack ID Source'* can only read *'Rack ID'* after a scan whole rack is done since getting bottom rack ID requires last scanned whole rack image.

3.12 SCANNED IMAGE EXPORT

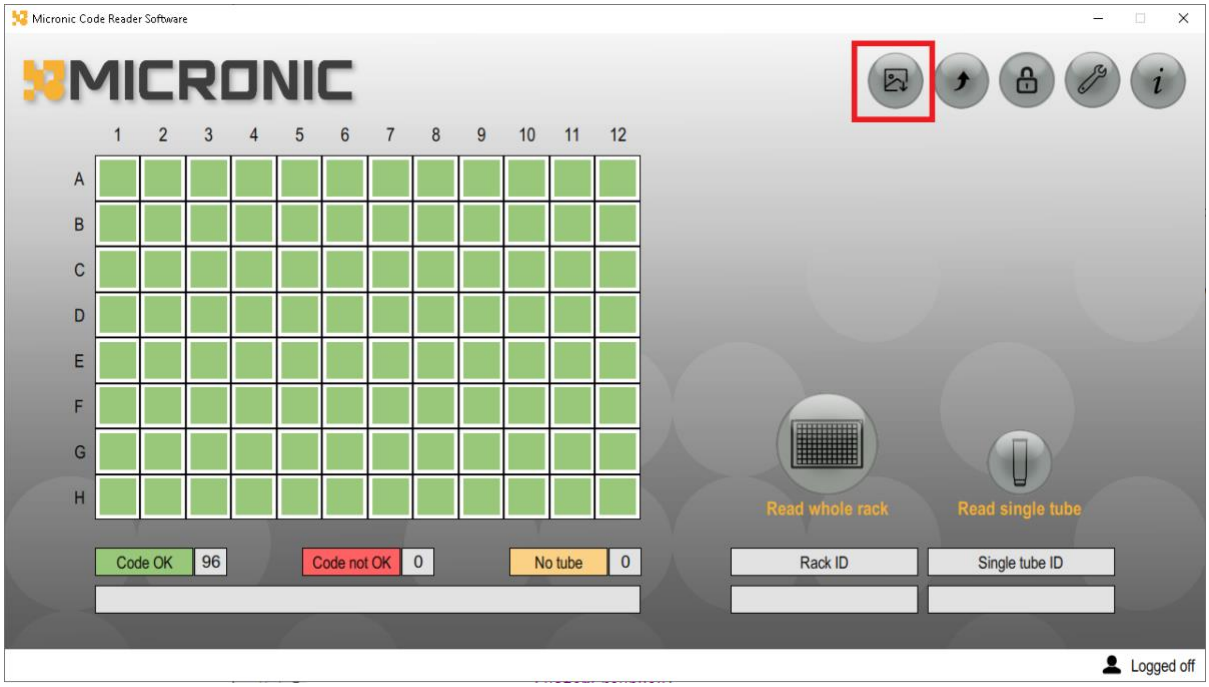

Fig 26: Scanned Image Export Option

This is an option for the user to initiate the export for scanned image. The export file is generated in the JPEG format. The scanned file is appended with the timestamp.

Once generated user gets option to open the location of the exported file.

3.13 SETTINGS

Fig 27: Settings Option

This is an option for the user to access the *'Software Settings Page*'. See section 4 for more details.

3.14 HELP

Fig 28: Help Option

An option for the user to access the '*Software Help Page*'.

4. SOFTWARE SETTINGS PAGE

The user may configure the settings using the '*Software Settings*' page.

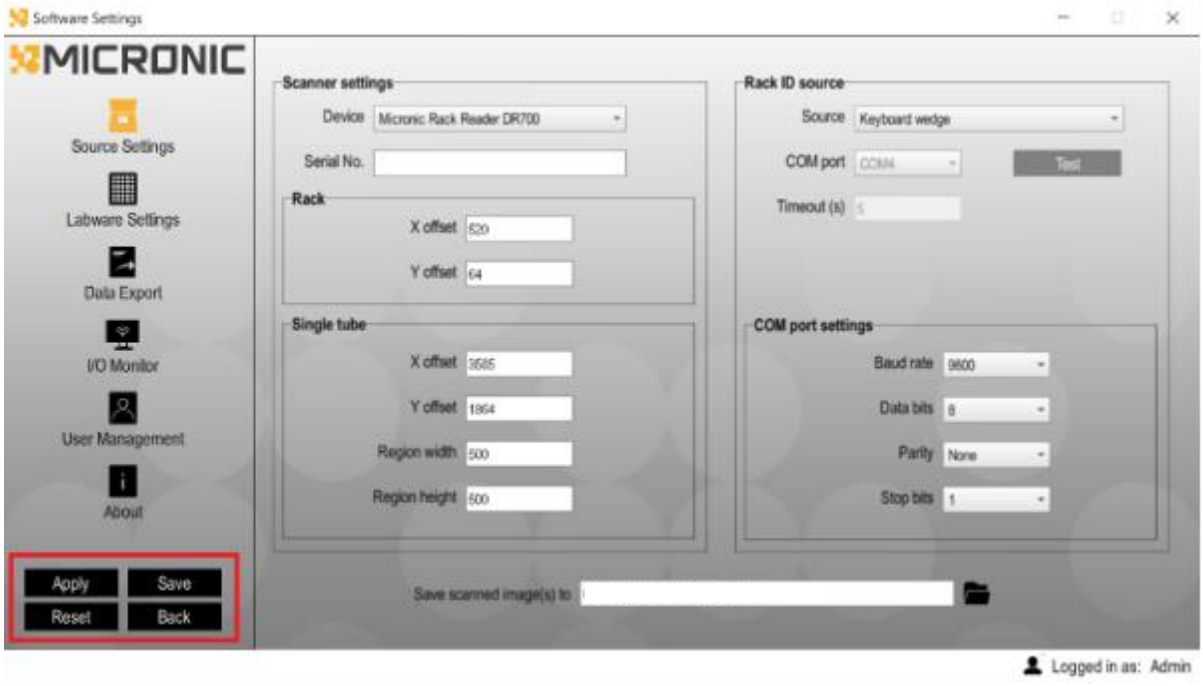

Fig 29: Options to Apply, Save, Reset and Cancel Changes to Settings

The user can utilise the following buttons to alter any configuration changes:

- **Apply** – Changes made by the user to *'Settings*' are enacted.
- **Save** - Changes made by the user are enacted and the *'Settings' window is closed*.
- **Reset** – The settings are reverted to default value upon clicking '**Yes**' in the *pop-up.*
- **Cancel** - Changes made by the user are invalidated and the *'Settings' window is closed*.

All settings configurations are in pixels.

4.1 SOURCE SETTINGS

The user may configure the '*Scanner Settings'* and *'Rack ID Source'* on the '*Source Settings*' page.

4.1.1 Scanner Settings

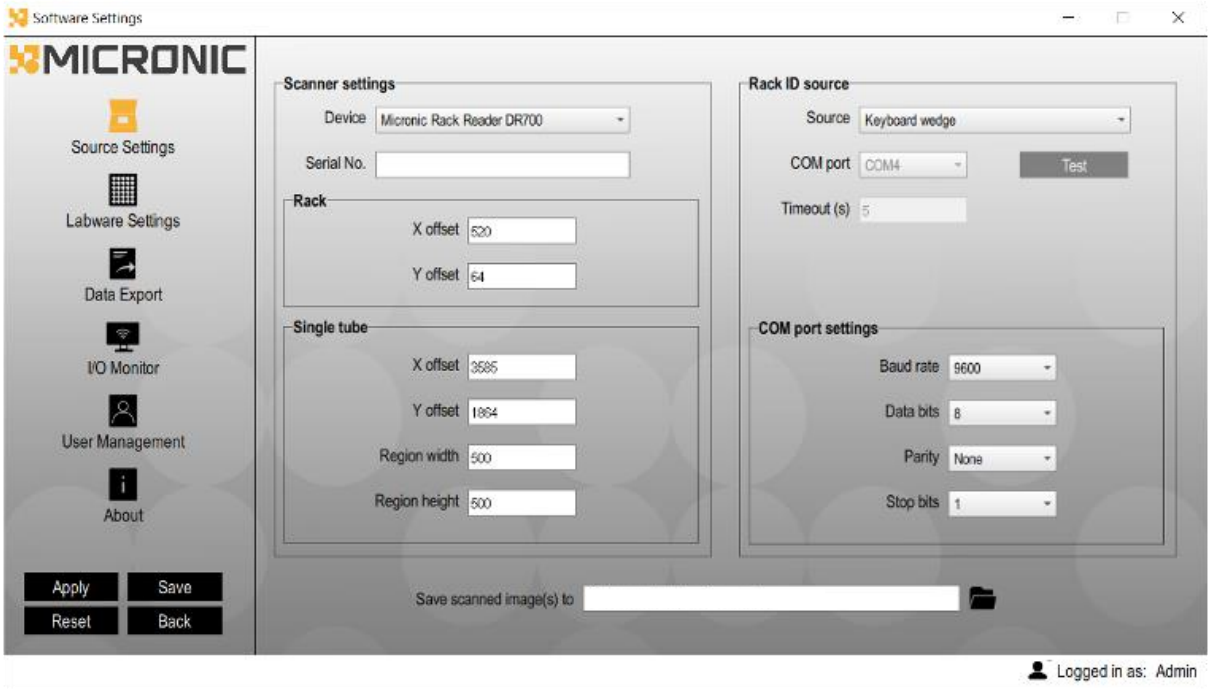

Fig 30: **Scanner** Settings

The user can choose from the displayed lists of supported readers (Micronic Rack Reader DR500, Micronic Rack Reader DR505, Micronic Rack Reader DR515, Micronic Rack Reader DR700, Micronic Rack Reader DR710, Tracxer Code Reader RD235, Micronic Rack Reader RS210 or Micronic Rack Reader DR900). Selected reader shall be used to acquire the rack image. The user must enter the '*Serial No.'* to validate the selected scanner. The '*Serial No.'* may be alphanumeric or special characters.

'Serial No.' can be found at the bottom of the reader, (for the DR900 the serial no. can be found at the back of the reader).

If *'Serial No.'* field is empty or incorrect, 'Scanner not registered, please add valid scanner serial number in settings' message will be displayed in the '*Status Bar*'.

The user can change the '*Rack'* settings for selected reader by altering the '*X offset'* and '*Y offset'* values.

The user can change the '*Single Tube*' settings for selected reader by altering '*X offset*', '*Y offset'*, '*Region width'* and '*Region height*'' values.

4.1.2 Rack ID Source

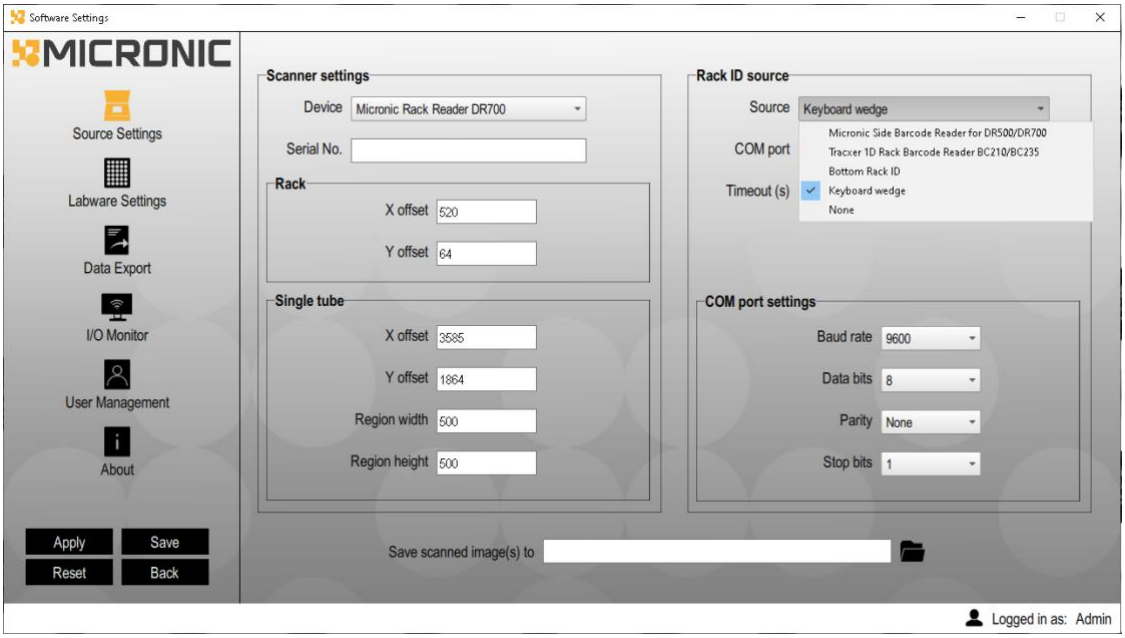

Fig 31: Rack ID Source Settings

The user can choose the source of *'Rack ID'* from the displayed lists. The user can also select the *'COM'* port and set the *'Timeout'* duration (in seconds). The user may use the *'Test'* button to verify the communication with the reader.

The user can change the *'COM Port Settings'* for the selected *'Rack ID Source'* by altering the values of *'Baud Rate' 'Data Bits'*, *'Parity'* and *'Stop Bits'*.

The following messages – *NO_SCANNER* (in case the scanner is not connected), *NOREAD* (in case of no return value) or *ERROR* (in case the selected COM Port is not available) – are displayed upon clicking the *'Test'* button.

A new scan after any changes in *'Source Settings'* will result in data acquisition, as per the latest settings. Data from the previous scan will be displayed to the user, till a new scan is initiated.

4.1.3 Save Scanned Image

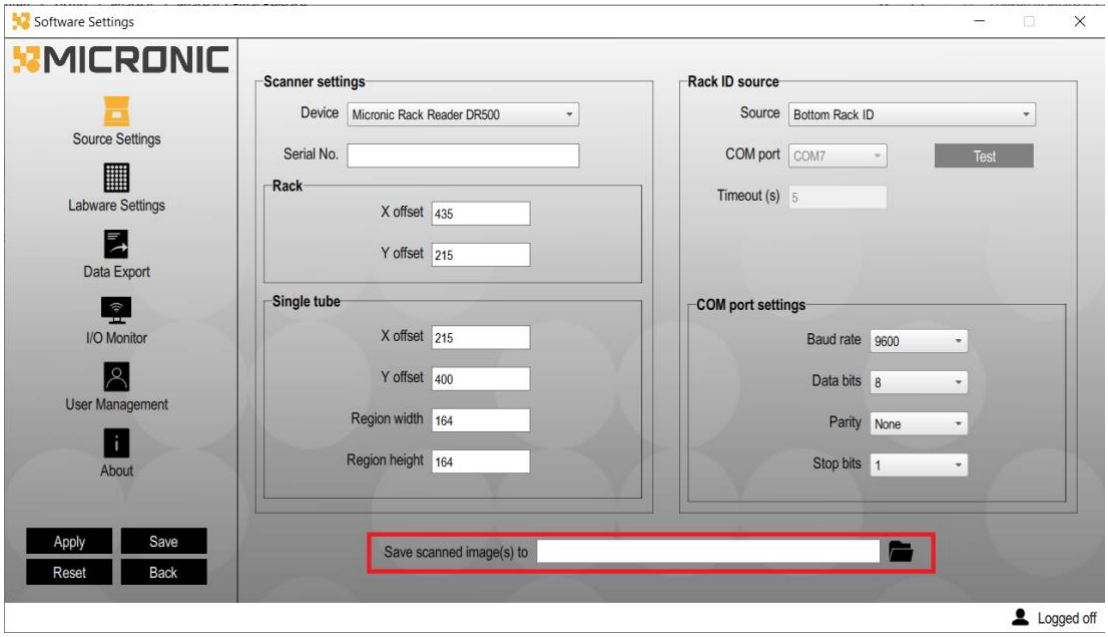

Fig 32: Scanned image export location

The user can choose the location where the scanned image should be saved.
After scanning a rack or tube, the user can choose to keep the scanned image.

If the image is not saved, it cannot be recovered after a new scan.

4.2 LABWARE SETTINGS

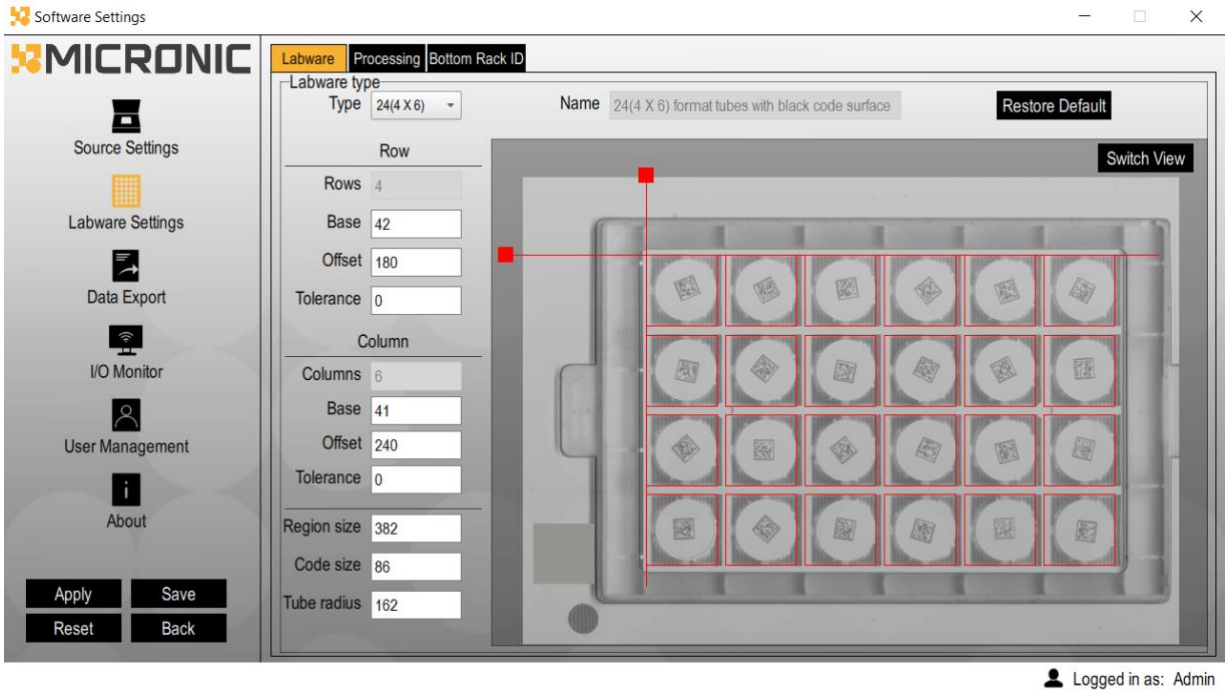

Fig 33: Labware Settings Tab

The user may configure the '*Labware type', 'Processing Settings', 'Single tube' (Fig 40), 'No code Behaviour' (Fig 40)*, *'Decode Strength' (Fig 40)* and *'Bottom Rack ID settings' (Fig 41)* on the '*Labware Settings*' page.

4.2.1 Labware tab

4.2.1.1 Labware Type

Eight predefined rack types are available on the MCR Software. They are:

- 24(4x6) rack
- 24(4x6) W rack
- 48(6x8) rack
- 48(6x8) W rack
- 96(8x12) rack
- 96(8x12) W rack
- 138(11x(13-12)) rack (Compatible with RD235, DR700/ DR710 and DR900)
- 138(11x(13-12)) W rack (Compatible with RD235, DR700/ DR710 and DR900)

'W' indicates that the code bearing surface is white in colour.

The *'Name'* field displays the *'Labware Type'* and indicates the colour of the code bearing surface. Each of the predefined rack types has a default value for '*Row base', 'Column base', 'Row offset', 'Column offset', 'Region size', 'Row tolerance', 'Column tolerance', 'Code size'* and '*Tube radius'*. The fields for number of rows and number of columns cannot be edited by the user for the pre-defined rack types.

The user may create a custom rack type and save the settings for future use by utilising the '*USERDEFINED'* rack type. Only one '*USERDEFINED'* rack can be saved in the MCR Software. Once modified and saved, the parameters of '*USERDEFINED'* rack type cannot be rolled back to an earlier value.

4.2.1.1 Live Grid

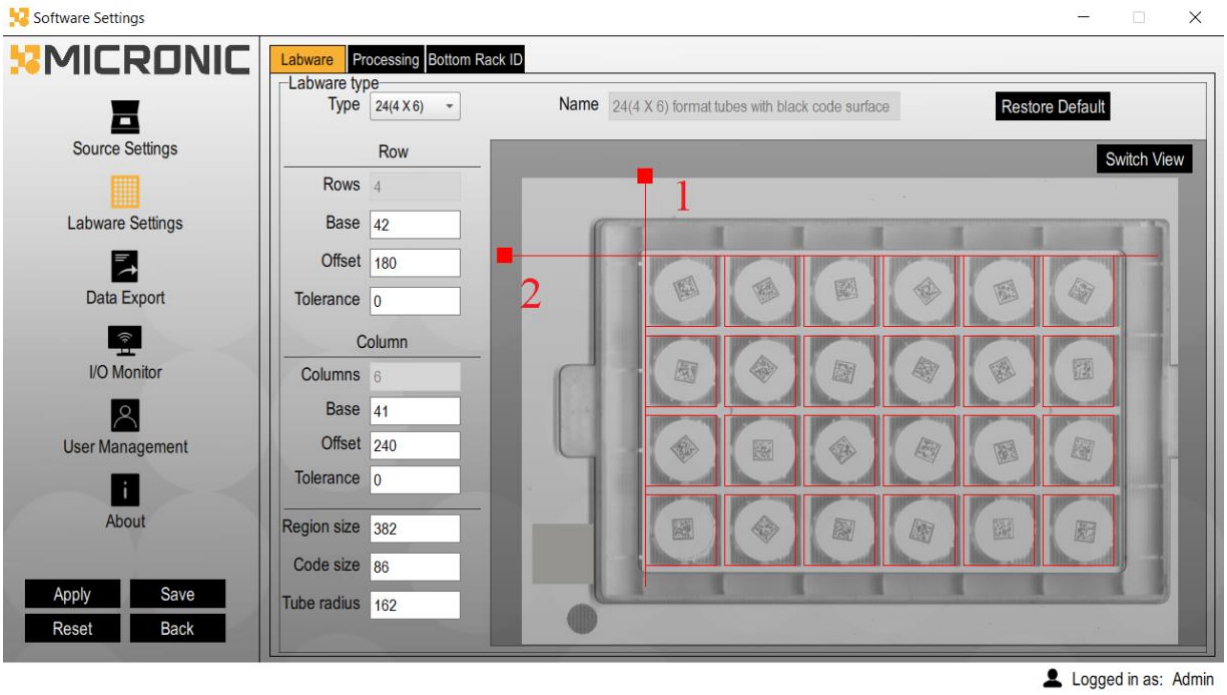

Fig 34: Live Grid column offset control (1) and row offset control (2)

The user can see the live grid drawn over the last scanned rack image with the values of '*Row base', 'Column base', 'Row offset', 'Column offset', 'Region size', 'Code size'* and '*Tube radius'*. User may use the controls given in the live grid marked as 1 & 2 to drag and position, thereby adjusting the values of the *'Column offset'* & the *'Row offset'* respectively.

'Row Tolerance' and *'Column Tolerance'* values can be changed using text fields.

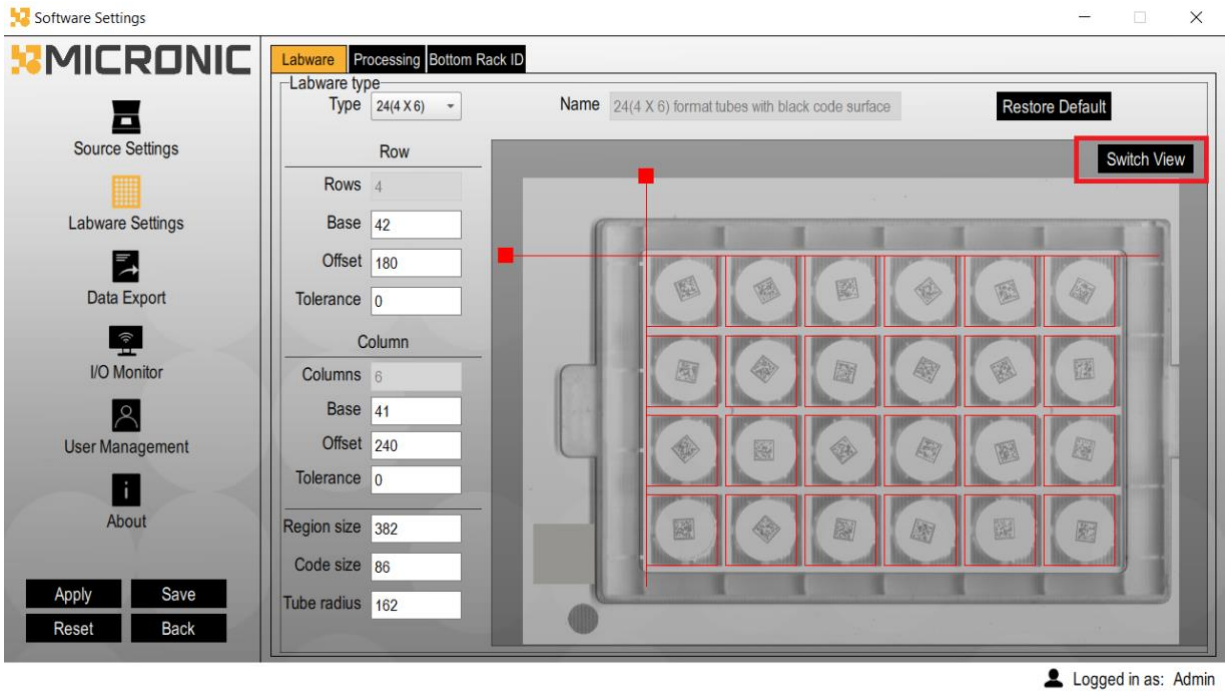

Fig 35: Switch View Button

The user can click on ‘Switch View’ button and see a “zoomed in” view of the first tube based on the values of *‘Column offset’ & ‘Row offset’.* In this view, the user can use controls marked as 3, 4, 5, 6 & 7 to drag and position the tube area, thereby adjusting the *‘Region size’, Tube radius’*, *‘Code size’* ,‘*Row base’ & ‘Column base’*.

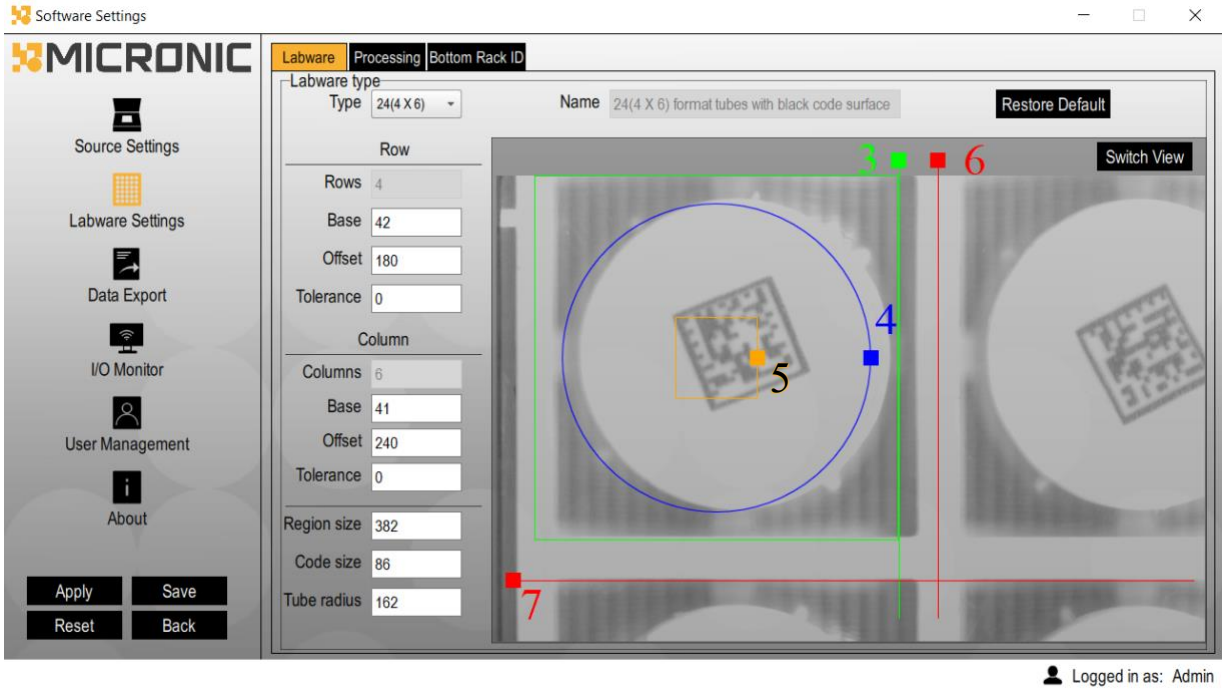

Fig 36: Zoomed in View of Live Grid

The “zoomed in” view of the Live grid allows the user to modify the below parameters. These parameters can be changed by using corresponding text fields or below controls.

- Region size control (3)
- Tube radius control (4)
- Code square control (5)
- Column base control (6)
- Row base control (7)

It is recommended to change the parameters in the below mentioned order:

- Region size (3)
- Tube radius (4)
- Code square (5).

The maximum values for each of the parameters is as below.

- Region size – 500
- Tube radius – minimum of 200 or size of the circle than can be inscribed in the region.
- Code size – minimum of 100 or size of the code that can be inscribed in the tube circle.

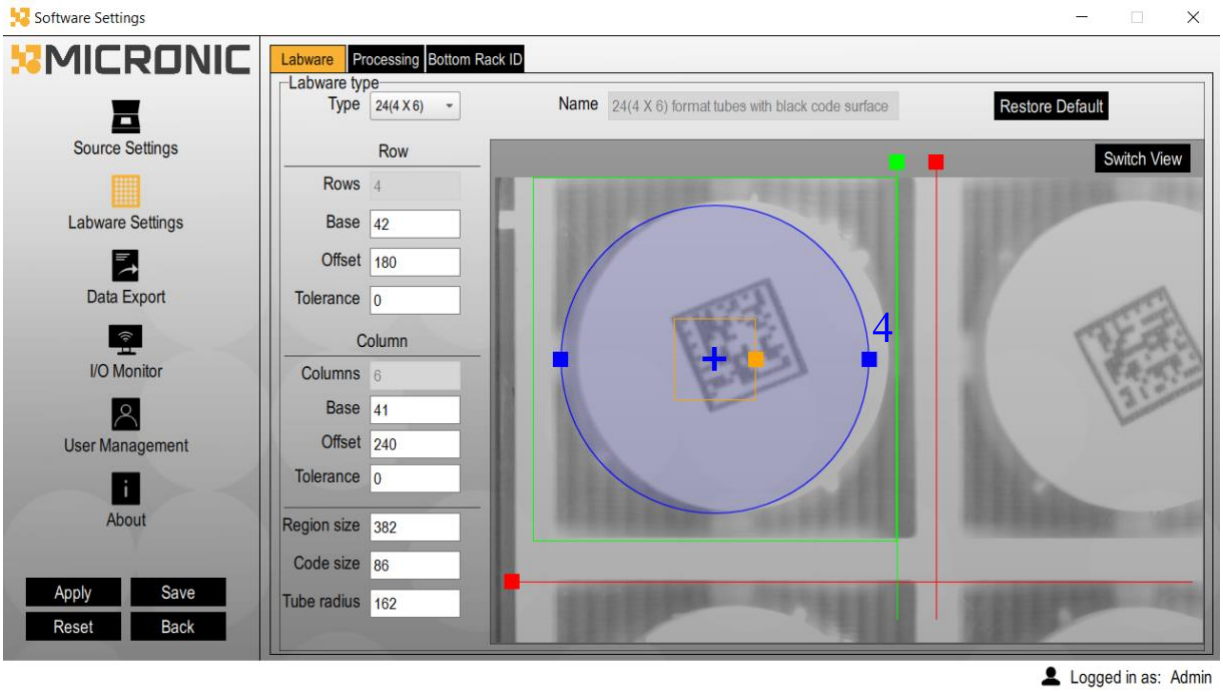

Fig 37: Tube circle selected

The user can click on the slide handle control of Tube radius circle marked as 4 to select operation on tube circle. On selection, the tube circle will be highlighted and additional slide handle and drag handle (crosshairs) will be displayed on the diametrically opposite edges and at the center, respectively. Drag handle (crosshairs) can be used to drag and re-position the tube circle so that they be placed exactly above the actual tube present in the “zoomed in” view of the scanned rack image. The user can use two diametrically opposite slider handles to resize and change the values of the ‘*Tube radius’*.

Dragging and re positioning the tube circle will also move the code square along with it.

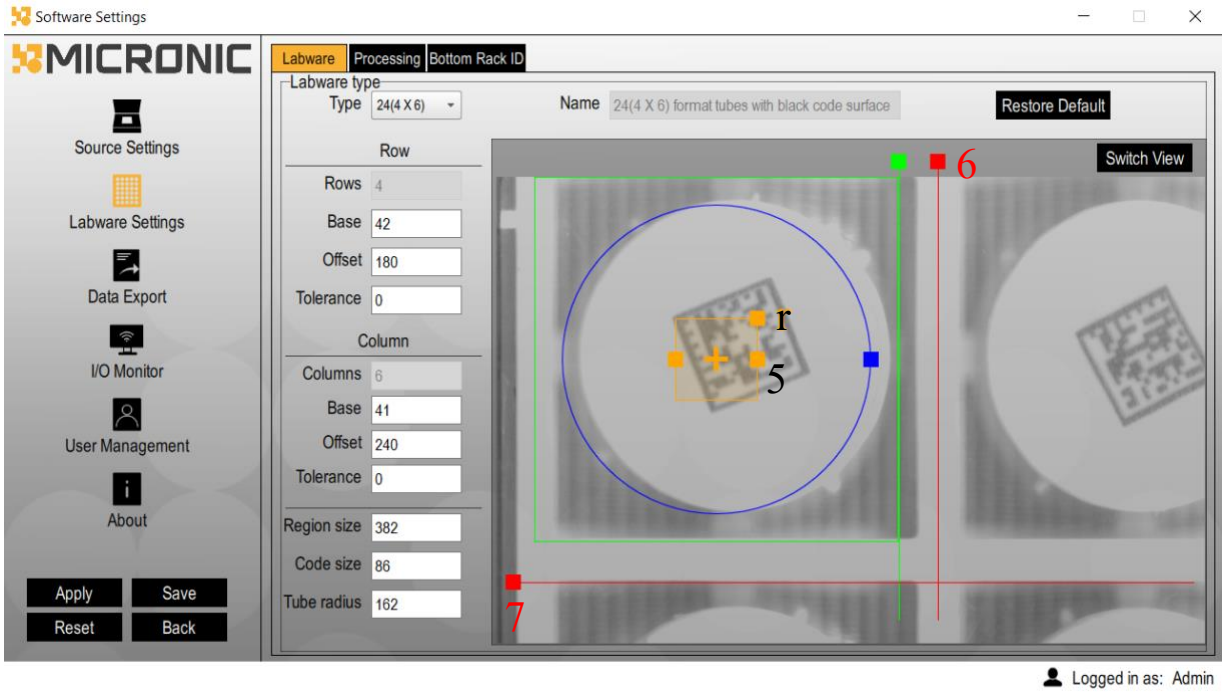

Fig 38: Code square selected

The user can click on the slide handle control of the Code square marked as 5 to select the operations on the Code Square. On selection, the Code square will be highlighted and additional slide handles, drag handle (crosshairs) and rotate handle will appear on the diametrically opposite edges, at the center of the square and at the corner of the square, respectively. Drag handle (crosshairs) can be used to drag and re-position the Code square so that they be placed exactly above the actual code present in the "zoomed in" view of the scanned rack image. Rotate handle marked as r in figure can be used to rotate the code square with respect to its center. Both the combination of rotation and dragging can be used to exactly align the Code square with the actual code present in the "zoomed in" view of the scanned rack image. The slide handle at the edges can be used to resize the code size.

The position or orientation of the Tube circle and Code square will not impact decoding. The user can use the controls 6 and 7 to drag and position, thereby adjusting the values of '*Row base', 'Column base'* respectively.

Live grid cannot be used for adjusting single tube parameters.

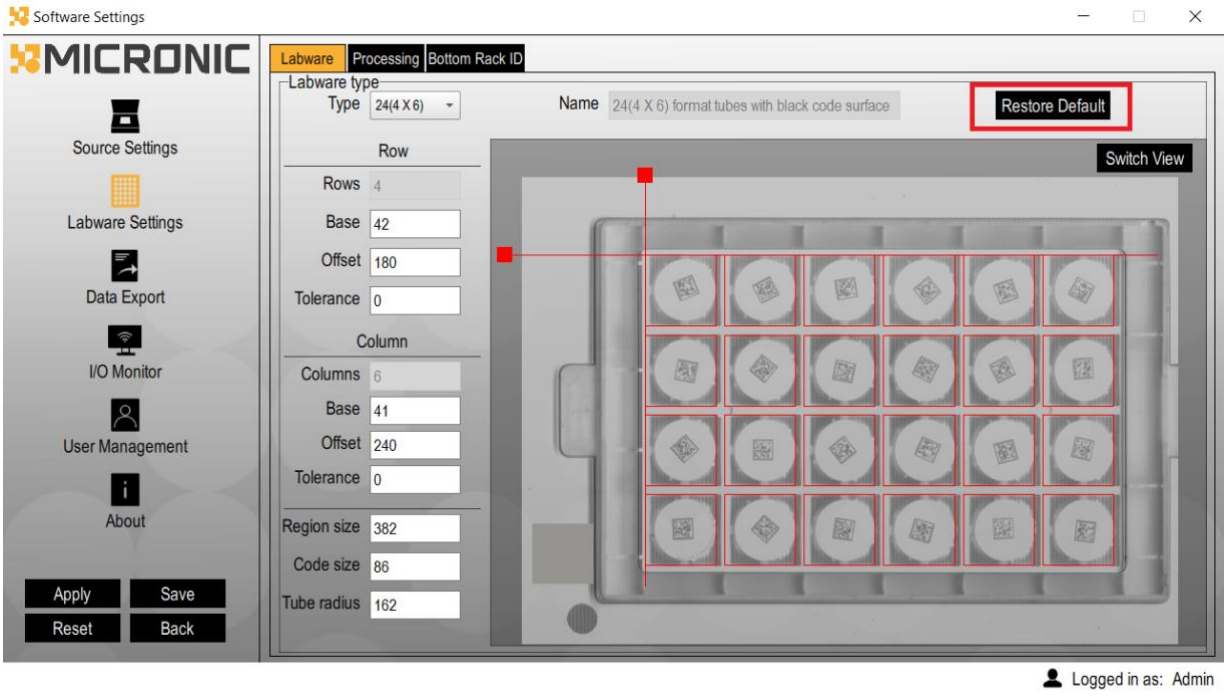

Fig 39: Restore Default button

The saved changes can be undone by clicking on the '**Restore Default**' button. On clicking this button, the default rack configuration for the selected labware type will be applied.

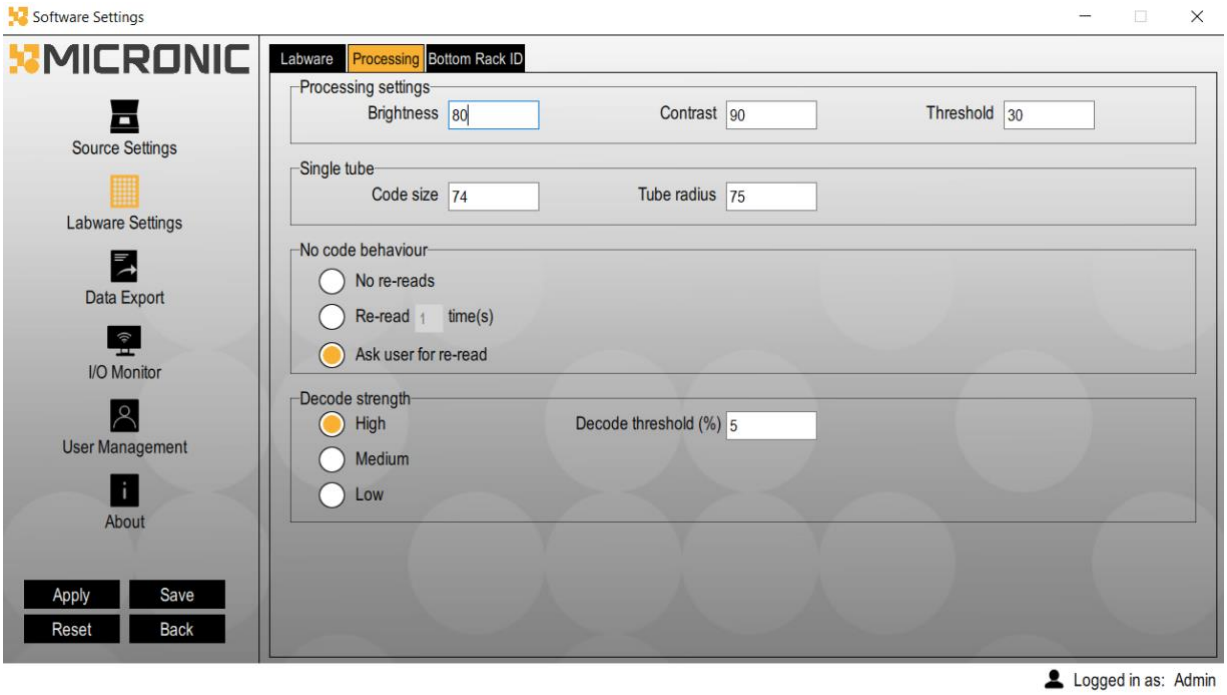

Fig 40: Processing Settings Tab

4.2.2 Processing Settings

The user can change the values for '*Brightness'*, '*Contrast'* and '*Threshold'* in the '*Processing Settings'*. These are image processing parameters for each rack type.

4.2.3 Single Tube

The user can change the values for '*Code size'* and '*Tube radius*'.

4.2.4 No Code Behaviour

The user can determine the action to be taken by MCR Software when No code is detected. The following options are available:

- '**No re-reads**' – An option for the user to prevent any re-reads in case of any error in decoding.
- '**Re-read**' – An option for the user to set the number of times the software will attempt to re-read, in case of any error in decoding.
- **Ask User for re-read**' - Prompts the user for confirmation for re-reads of Data Matrix code.

4.2.5 Decode Strength

The user can determine the intensity of the decoding process by MCR Software. The following options are available:

- '**High**' – Longest decode time, giving best results
- '**Medium**' – Shorter decode time.
- **'Low**' – Shortest decode time

The user can set the threshold value (as a percentage of the number of tubes) for which the decoding process needs to be repeated, using the *'Decode Threshold (%)'* field.

By default, the *'Decode Strength'* is set to **'Low'**. For **'Medium'** or **'High'** options, the MCR software will start decoding with **'Low'** intensity. If percentage of non-decoded tubes is below the *'Decode Threshold (%)'*, subsequent decoding will be carried out, first using **'Medium'** and then using **'High'** settings, as per user selection.

A new scan after any changes in *'Labware Settings'* will result in acquisition of data, as per latest settings. Data from the previous scan will be displayed to the user, till a new scan is initiated.

4.2.3 Bottom Rack ID Settings Tab

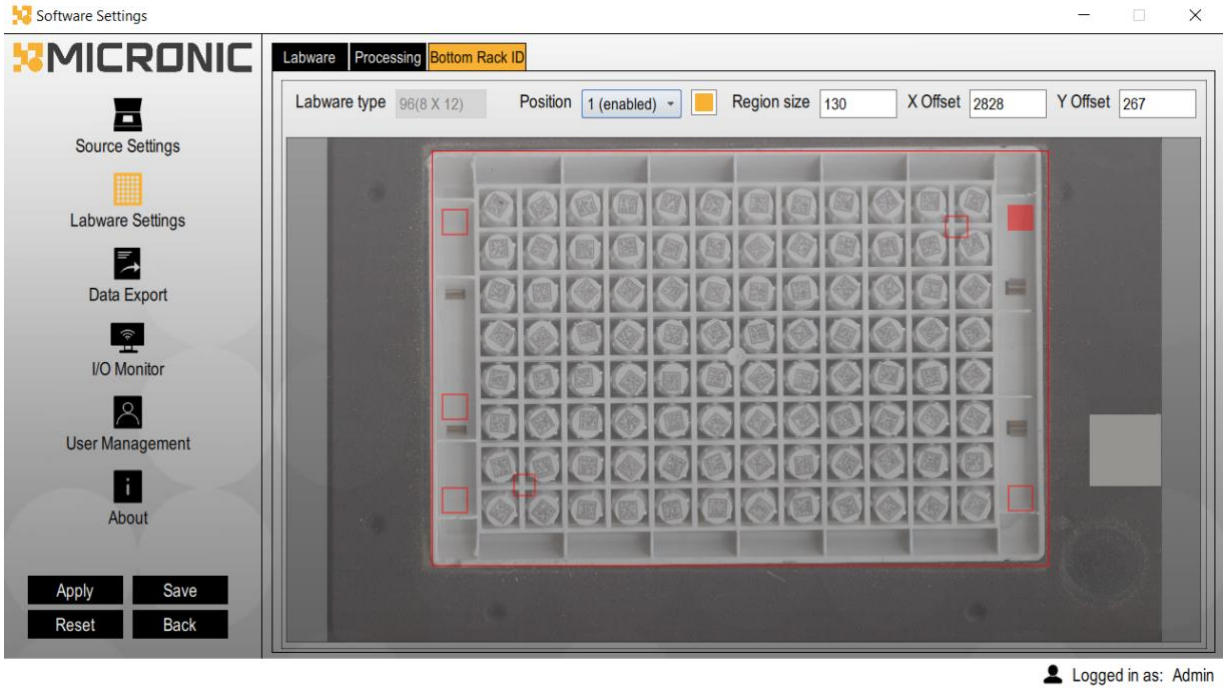

Fig 41: Bottom Rack ID Settings tab

The user can change the values for '*Region Size'*, '*X Offset* ', '*Y Offset'* and *'enable'* or *'disable'* for each position in the '*Bottom Rack ID settings'*. These are image processing parameters for bottom rack ID in each rack type.

The *'Labware Type'* field displays the name of currently selected labware type in the labware settings tab. *'Position'* field can be used to select any bottom rack ID position from the drop-down list.

Check Box besides, '*Position'* combo box is used to either *'enable'* or '*disable'* selected position. Text fields '*Region Size'*, '*X Offset* 'and '*Y Offset'* can be used to set values of Region Size, X offset and Y offset for a bottom rack ID position selected.

Ten predefined bottom rack ID positions are available on the MCR Software. They are marked as number 1 to 10.

Inside the '*Position'* drop down list the positions are shown as <Number> <(Status)>. Number will be from 1 to 10 and Status will be either *'enabled'* or '*disabled'.* Only if a position is enabled then that position will be considered as a possible candidate where bottom rack ID may be present, and the Rack ID be decoded.

By changing the status of any Position from *'enabled'* to '*disabled'* or vice-verse the <(Status)> shown in '*Position'* drop down list for that position number will be updated accordingly.

By default, the position 1 to 7 are enabled and set with '*Region Size'*, '*X Offset* ', '*Y Offset' values.* Positions 8,9 and 10 are disabled and '*X Offset* ', '*Y Offset' are set* as 0.

Last scanned rack image is used to show the bottom rack ID's actual positions. Based on the values of '*Region Size'*, '*X Offset* ', '*Y Offset'* for each position's squares are drawn.

Only those bottom rack ID which are enabled will be shown over the last scanned rack image at any instant. Changing any position from *'enabled'* to '*disabled'* will make that position's square disappear. In order to see any bottom rack ID position over scanned rack image it must be *'enabled'*.

On changing any of the values of '*Region Size'*, '*X Offset* ' or '*Y Offset' in* the text field will cause the bottom rack ID code square to be redrawn based on the new value if it is *'enabled'*. Changes made to the values of '*Region Size'*, '*X Offset* 'or '*Y Offset'* for the bottom rack ID position which is *'disabled'* will only be reflected over the scanned rack image when it will be *'enabled'*. However, the changes can be made to the values of '*Region Size'*, '*X Offset* ' or '*Y Offset' in* the text field and saved regardless of whether that position is *'enabled'* or '*disabled'.*

By clicking on the bottom rack ID position square the corresponding bottom rack ID square is highlighted and corresponding '*Position'* is selected from the drop-down list automatically. Selected bottom rack ID code square can be dragged and re-positioned anywhere inside the rack region and '*X Offset* ' and *'Y Offset' values* will be set based on the new position.

'Region Size' values can be modified from the text field only.

4.3 DATA EXPORT

Fig 42: Data Export Settings

The user may control the automatic export behaviour and the file options on the '*Data Export'* page.

4.3.1 Automatic Export Behaviour

The user can choose between options to **'Disable automatic export'**, '**Always export'** and **'Export only after 100% good reads on tubes'**.

4.3.2 Tube Decode Classification

The user can choose between options to **'Code OK/Code not OK'**, and **'Code OK/Code not OK/No tube'** to what classification status format must be used in the home screen result and in the exported data.

4.3.3 Tube Position Format

The user can choose between options **'A01,B01,C01...'**, **'A1,B1,C1…' and '1,2,3…'** to generate the tube position in the export file in the specified format.

4.3.4 Export Options

The user can determine the name and type of the export file to be generated using the '*File Options*'. The user can choose to save data to either a new file, by selecting **'New File'** option, or append to the existing file, by selecting *'***Same File'** option. The file name will be a combination of '*Free text',* '**Rack ID**', '**Time**' and '**Date**', as selected by the user. The user can enter alphanumeric or special characters (except reserved characters such as <>:"/\\|? *") in the '*Free text'* field. The user can choose the order in which '*Free text',* '**Rack ID**', '**Time**' and '**Date**' appear in the file name, according to the selections of the respective fields in the drop-down menu. If all drop-down fields are selected as **'None'**, the output file will be named 'ReaderOutput'. Users can also choose the fields to be exported and can choose the file path for the file to be saved. By default, the file path will be *C:/Users/*<username>*/Documents.*

The user can choose between CSV,XML and TEXT file formats for the export file. When CSV or TEXT file format is selected, the user has the option to choose between comma, comma with space, semicolon and tab space for the delimiter.

The user can sort the content of the export file by selecting either '**Column wise' (A01, B01, C01 ...)** or **'Row wise' (A01, A02, A03 …)** option. When '**Column wise**' is selected, the data on the exported csv file will be arranged corresponding to each column of the scanned rack. When '**Row wise**' is selected, the data on the exported csv file will be arranged corresponding to each row of the scanned rack.

Sorting is not applicable for export files in XML format.

The default format for file name will be *<Free Text>_<Rack ID>_<Date* (in yyyymmdd format)*>_<time* (in hhmmss format)*>.csv*.

A new file may overwrite an existing file if it has the same entry in the 'Free text' field as the existing file, and '**Rack ID'**, **'Date'** and **'Time**' options are not chosen

A new file may overwrite an existing file if **'Rack ID**' and **'Date'** are chosen and *"No ID"* or *"NOREAD" is* returned as the value of **'Rack ID**'

4.3.5 Header/Footer options

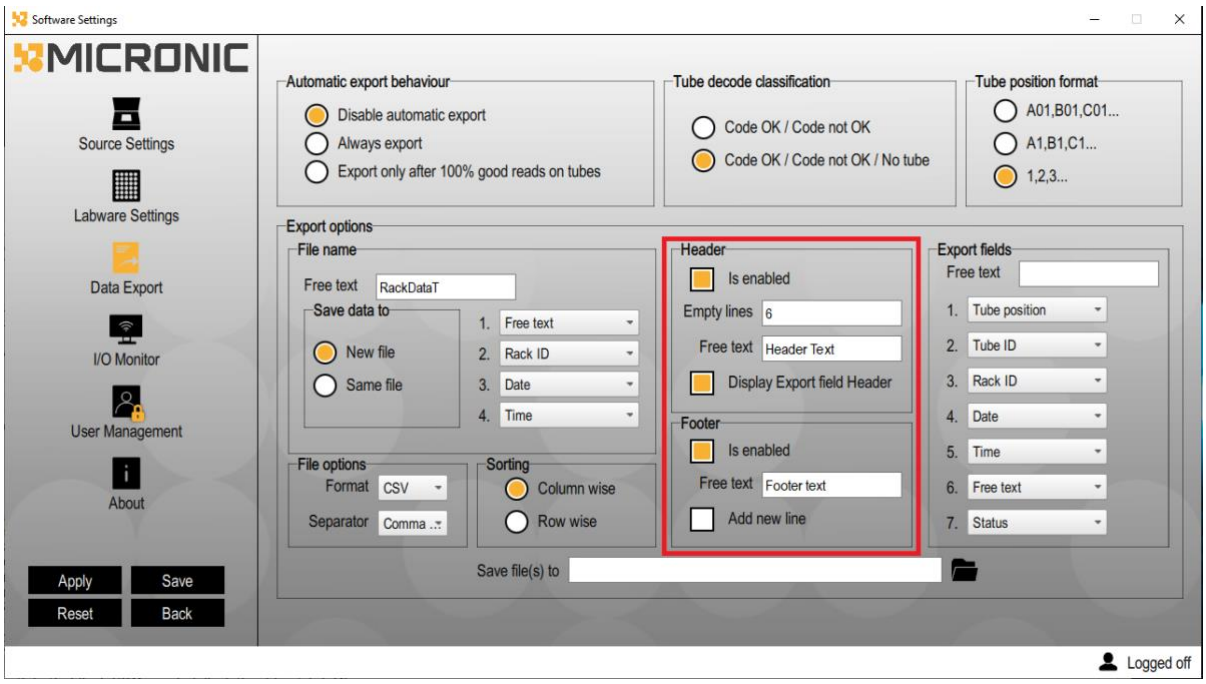

Fig 43: Header and Footer

The user can disable the “Empty lines” and “Free text” property by unselecting the “Is enabled” property in the Header settings. The “Empty lines” setting accepts a numerical input between 0-99. The user specified empty lines will be added before the Header. The Header “Free text” property adds the entered text at the start of the file. This property allows a maximum of 100 characters. The “Display Export field Header” setting enable/disable changes the visibility of heading of export fields.

The user can disable the “Free text” and “Add new line” property by unselecting the “Is enabled” setting the Footer settings. The Footer setting’s “Free text” property adds the entered text at the end of the file. This property allows a maximum of 100 characters. The “Add new line” property adds a new line at the end of the file after the Footer free text.

ti The free text for header and footer is a only a custom text, entered at header and footer.

4.4 IO MONITOR

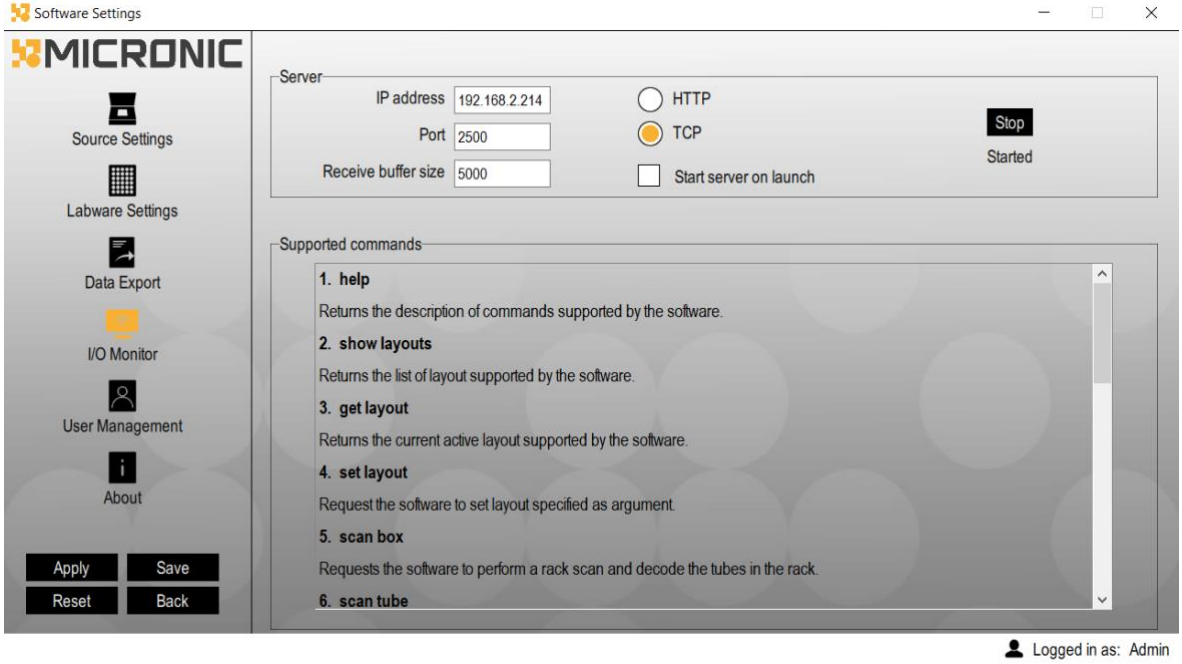

Fig 44: IO Monitor Settings

The user may configure external access to MCR Software from a third-party client application, using the TCP/IP or HTTP server options on the '*IO Monitor*' page. The user can modify the port and buffer size to be received using the *'Port'* and *'Receive Buffer Size'* text fields, respectively. At the most, the MCR Software supports one external client at a given time.

The default configurations are as follows:

- HTTP options is selected
- The '*IP address'* field is populated with the IP address of the first active network interface on which the MCR Software is running. An external client can connect with the MCR Software using the IP addresses of any of the active network interfaces, and the corresponding IP address will be displayed in the *'IP address'* field.
- The value for *'Port'* field is 2500.
- The value for *'Receive Buffer Size'* is 5000

The user may click on **'Start'/'Stop'** button to start or stop the TCP/IP or HTTP server. The current status is displayed below the **'Start'/'Stop'** button. Following are the status displayed:

- **Started** – The TCP/IP or HTTP server is running
- **Connected** – The MCR Software is connected to an external client, the IP address of which is displayed
- **Stopped** – The TCP/IP or HTTP server is not running

'Start server on launch' check box is enabled then either TCP/IP or HTTP server based on the selected option will run with the applications launch from the next time.

The **'Start server on launch'** check box option is only available for the Admin User.

The **'Apply'** and **'Save'** is required to enable the TCP and HTTP server to accept the commands and provide proper responses.

A list of **'Supported Commands'** is also displayed for the user's reference.

External access to the MCR Software from a third-party client application is not possible when the status is **'Stopped'** or when the MCR Software is already connected to a third-party application.

If the user clicks **'Stop'**, the external connection to the MCR Software from a third-party client application is immediately terminated. However, any ongoing process is not affected. To reconnect to the MCR Software, the user must click **'Start'** and the third-party client application must re-establish the external connection.

The user may set *'Port'* to any value from 1 and to 65535. The user may set *'Receive Buffer Size'* to any value from 100 to 10000.

4.5 USER MANAGEMENT

4.5.1 Users

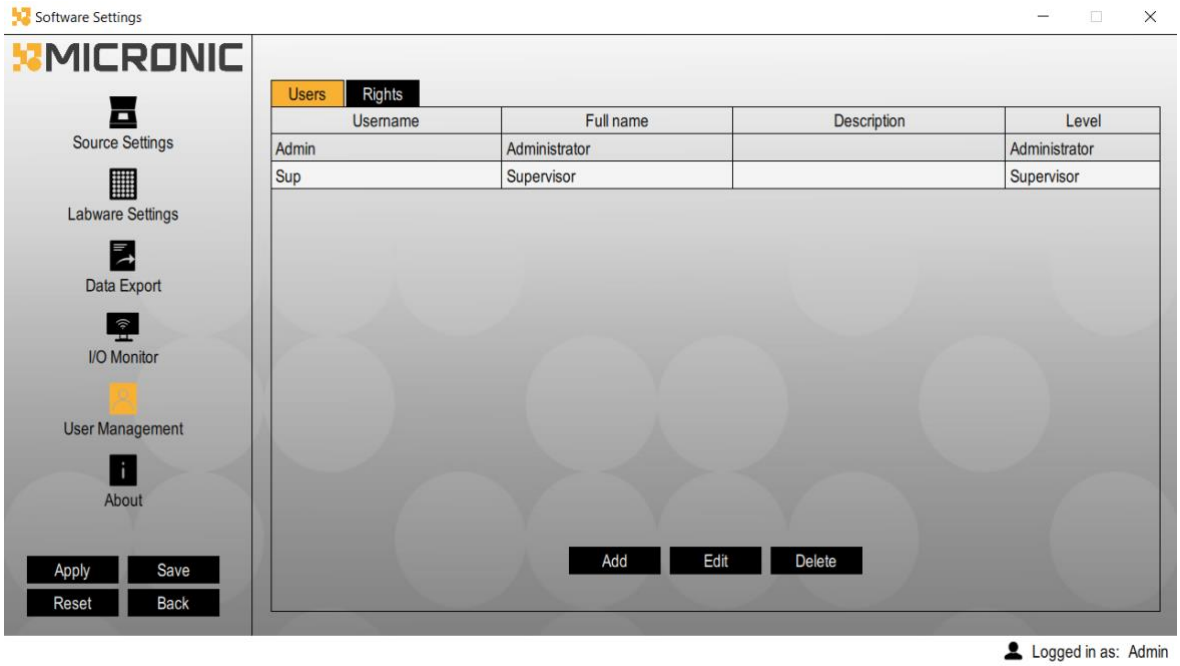

Fig 45: User Management Settings

The user can create new users using the **'Add'** option, edit existing users using the **'Edit'** option delete users using the **'Delete'** option, using the **'Users'** screen. During user creation, each user can be assigned a **'Username'**, **'Full Name'**, **'Level', 'Password'** and **'Description'**.

'Username', **'Full Name'**, **'Level', 'Password'** are mandatory fields, while **'Description'** is not a mandatory field**.**

If the current logged-in user modifies **'Username'** or lowers own user **'Level'** to a lower user **'Level'** the application will force log out the current logged in user.

The '**Username'** must be unique, alphanumeric and its length must be between 3 and 20 characters. It cannot contain space/blank or any other special characters. The **'Full Name'** must contain only alphabets and its length must be between 3 and 20 characters. It cannot contain numeric, blank or any other special characters. The **'Level'** may be chosen from a drop-down menu. The user may be assigned 'Administrator', 'Supervisor' or 'User' level. The **'Password'** must be a combination of alphanumeric and special characters (at least one special character is mandatory) and its length must be between 8 and 30 characters. The **'Description'** may be alphanumeric, may contain special characters or may be blank. Its length must not exceed 40 characters.

4.5.2 Rights

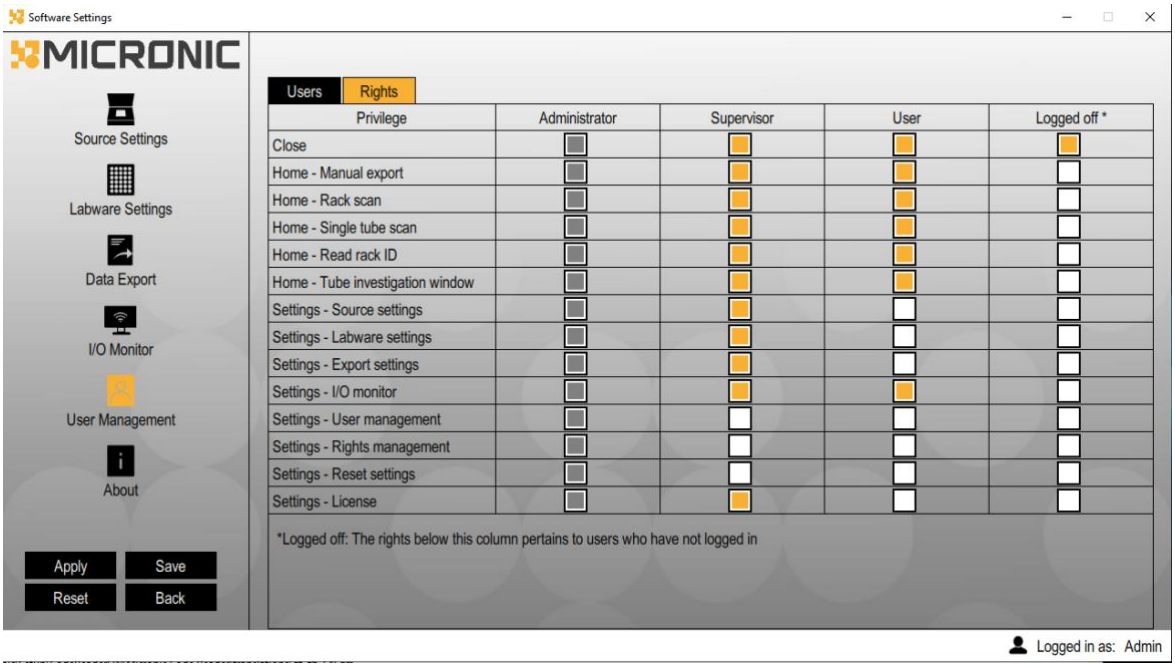

Fig 46: Rights Management Settings

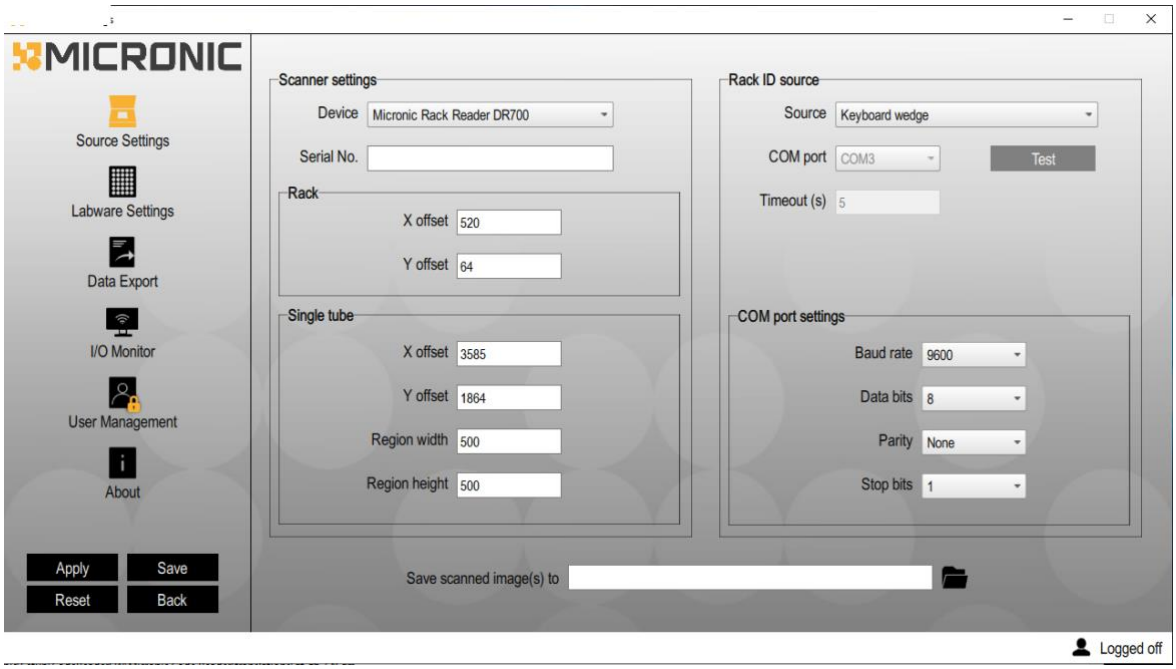

Fig 47: User without access rights to **'User Management'** Settings

The user can assign various access rights to each user level, using the ‘Rights’ screen. Access rights may be assigned by enabling the corresponding option under a specific user level. By default, users of the ‘Administrator’ level have privileges to all functionalities of the MCR Software. By default, the users of ‘Supervisor’ level do not have the access rights to user management, rights management and the right to reset settings. By default, users of ‘User’ level do not have access rights to ‘**Settings’** of the MCR Software.

4.6 ABOUT

The user can view the version information of MCR Software.

The user must install a PDF viewer application to view the user manual. The *‘About’* section does not display the user manual unless default app to open PDF files on the PC is set as a PDF viewer.

4.6.1 LICENSE MANAGEMENT

The user can view the license information of MCR Software.

The user must add a License file to use the available scanner. If a license is not added, the scanner will not work. For support, please contact us at support@micronic.com

The supplied license can be added here in the software:

Fig 48: About Screen – Add license

The license is available for one year, what can be reviewed on this screen. To remove or update the license, this can be done in the same screen after adding a license.

Fig 49: About Screen – License found with validity date specified

5. TROUBLESHOOTING

5.1 SCANNER DRIVER NOT FOUND

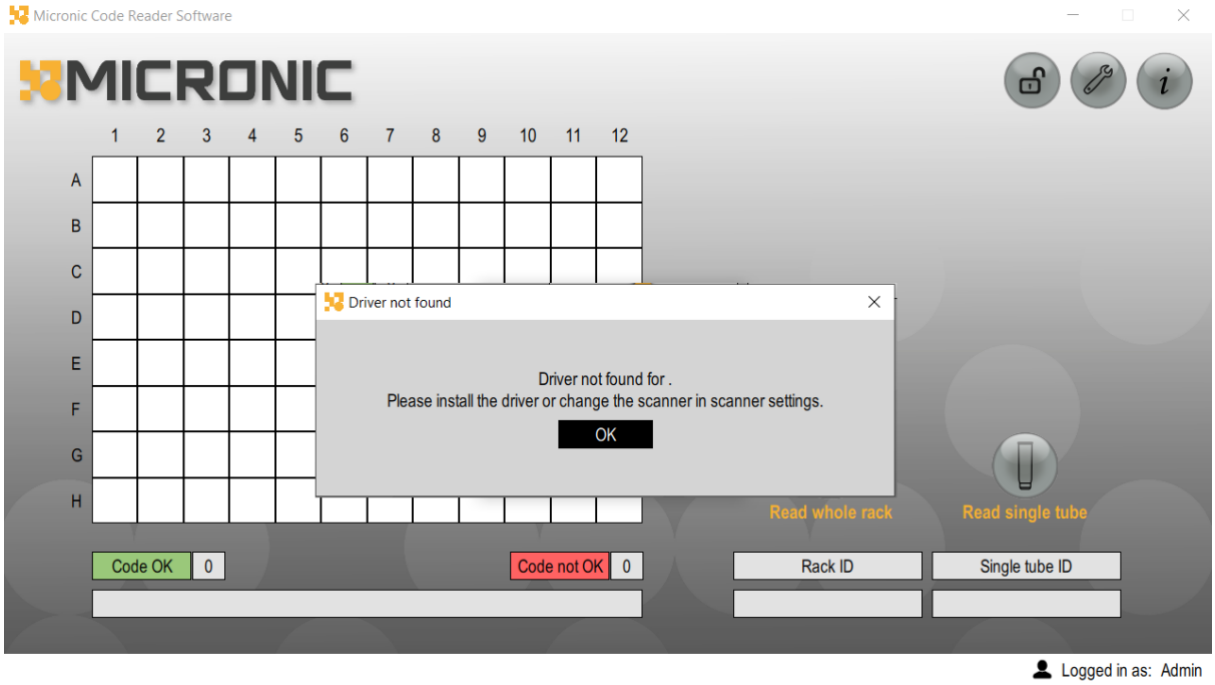

Fig 50: Error Screen for Scanner Driver Not Found

In cases where MCR Software reports that the scanner drivers are not found, an error screen will be displayed. To troubleshoot, the user can uninstall ***MCR Software*** (refer section 2.3) and install the application (refer section 2.2) afresh along with appropriate scanner driver(s). If problem persists, the user is advised to contact customer support (refer section 7.1).

5.2 SCANNER NOT CONNECTED

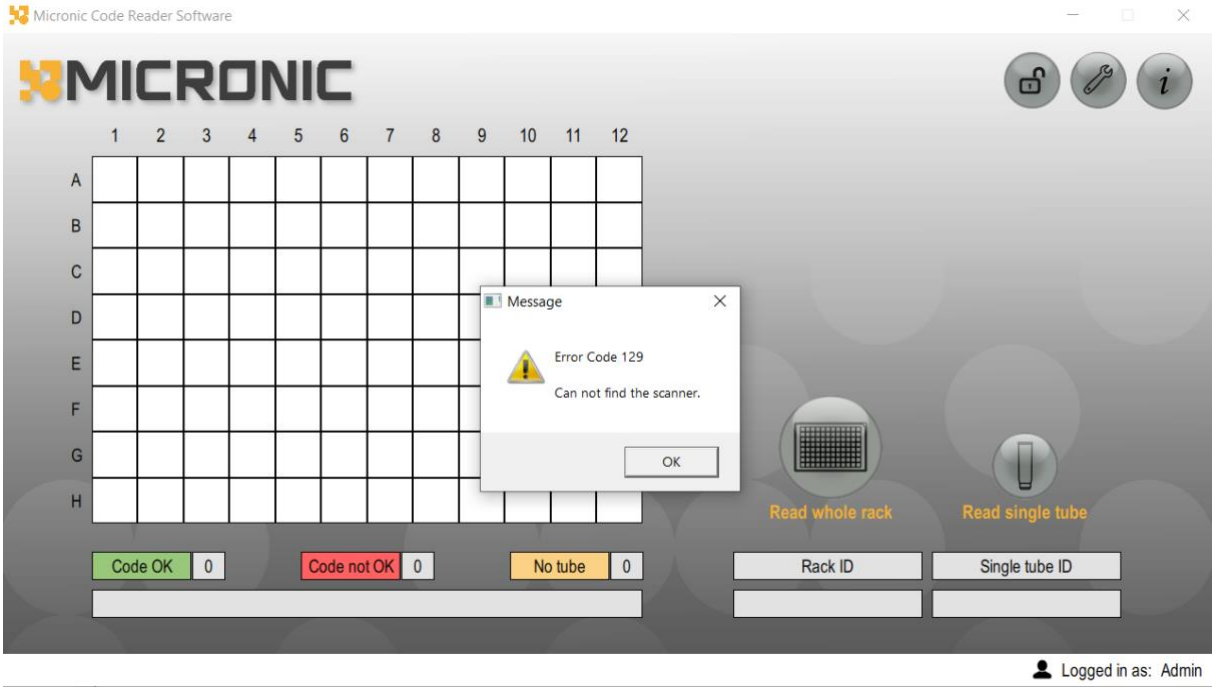

Fig 51: Error Screen for RD235 Scanner Not Connected

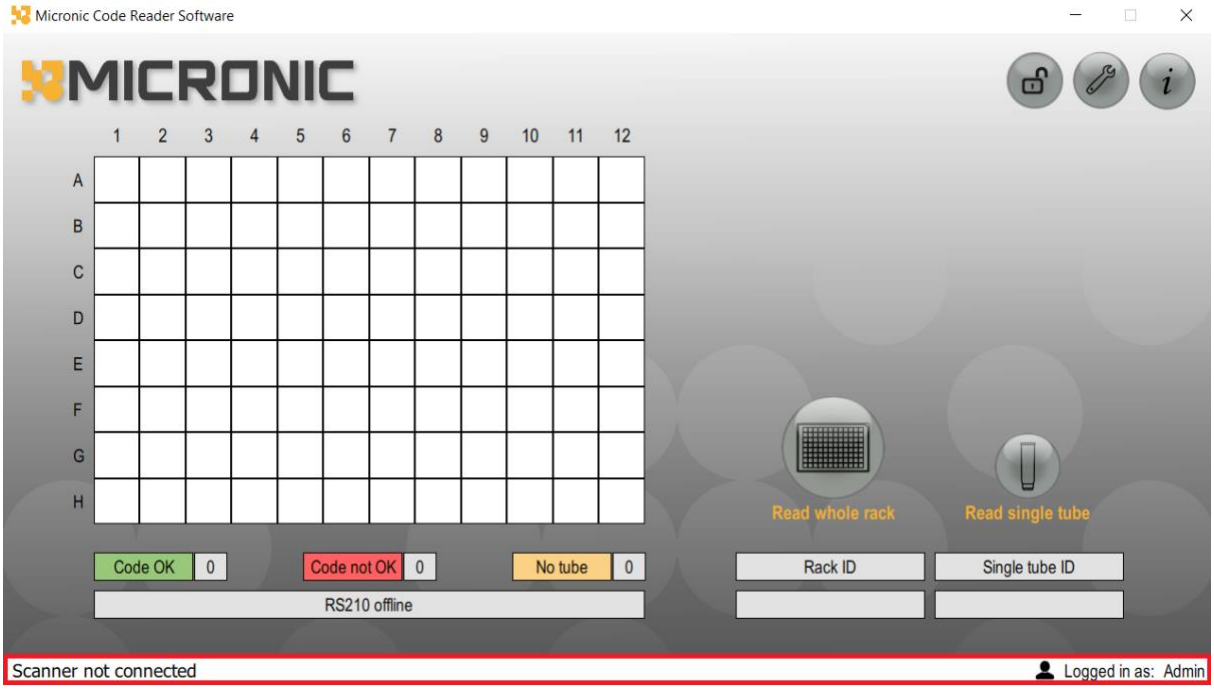

Fig 52: Error Screen for RS210/DR500/DR505/DR515 Scanners Not Connected

In cases where MCR Software reports that the scanner is not connected, the following error screens may be displayed. The user can click '**OK**' to close the error window. To trouble shoot, the user can check the USB cable connecting the PC and the scanner for lose connection. If no change in status, the user can turn off/on the power to the scanner and try again. If problem persists, the user is advised to contact customer support (refer section 7.1).

5.3 DATA MATRIX CODE IMAGE MISALIGNMENT

Fig 53: A Series of Cells in the *Tube/Vial Decode Status Matrix* as Yellow i.e. '*No Tube/Vial Detected*''

In cases where MCR Software displays a series of cells in the *Tube/Vial Decode Status Matrix* as Yellow i.e. '*No Tube/Vial Detected*'' (refer section 3.1) or a series of skewed images in '*Review Results*' (refer section 3.4), it may be the result of incorrect values for *'Rack Offset'* in the *'Source Settings'* (refer section 4.1). To trouble shoot, the user may reset the '*Settings'* configuration of MCR Software (refer '**Reset'** under chapter 4). If problem persists, the user is advised to contact customer support (refer section 7.1).

5.4 APPLICATION FREEZE ERROR WHILE SCANNING

In cases where MCR Software freezes in case of an error while scanning (for example, USB cable unplugged from PC/scanner or power loss to scanner) and scanning process does not resume when error is resolved, the user may troubleshoot by restarting the application.

5.5 GRID NOT PROPERLY ALIGNED IN MICRONIC CODE READER SOFTWARE (MCRS) IN COMBINATION WITH DR900

This issue is caused by an outdated ParameterFile. When installing an earlier version of MCRS, version 1 of the ParameterFile was created. This file is not automatically removed when installing a newer version of MCRS or when uninstalling the software. As a result, certain essential parameters remain incorrectly configured, leading to the alignment issue.

Solution:

1. Navigate to the AppData location of MCRS: C:\Users\Username\AppData\Local\MicronicCodeReaderGUI (*Quick access via Win + R → type "appdata" → navigate to the correct folder.)*
2. Delete **ParameterFile.json**.
3. Restart MCRS. The software will automatically generate a correct version of the file.

5.6 WINDOWS 10 COMPUTER DOES NOT WORK WITH THE DR500 & DR505

Multiple PaperStream drivers are installed instead of just one.

Solution:

1. Check if the **PaperStreamIP driver** is installed.
2. Remove all PaperStream drivers.
3. Restart MCRS. The software will automatically generate a correct version of the file.

6. KNOWN ISSUES

6.1 SCANNER STATUS NOT ACCURATE FOR RD235 & DR700/DR710

The *'Scanner Identification Bar'* (refer section 3.7) does not accurately display the status of scanner in case of scan operation with RD235 & DR700/ DR710 scanners.

6.2 PREVIOUS SCAN RESULTS RETAINED UNTIL NEW SCAN

Data from the previous scan will be displayed to the user, till a new scan is initiated.

6.3 ZERO VALUE ACCEPTED IN TIMEOUT FIELD OF 1D BAR CODE SCANNERS

The *'Micronic Side Barcode Reader for DR500/DR505/DR515/DR700/DR710/DR900'* and *'Tracxer 1D rack Barcode Reader BC210/BC235'* for reading RackID accepts 0 value in the timeout field. In such cases, the application uses default timeout of 10 seconds.

7. CUSTOMER SERVICE

7.1 SERVICE

For any questions, the user may the local Micronic Distributor or use the following contact information:

☎ Tel: +31 (0)320 277 070 (Micronic Europe) or +1 484 483 8075 (Micronic America)

✉ technicalservice@micronic.com

8. LICENSE INFORMATION

The MCR software uses libdmtx, OpenCV and OpenSSL libraries. Please refer below links for information.

https://github.com/lnmx/libdmtx/blob/master/LICENSE

https://opencv.org/license.html

https://www.openssl.org/source/license.html