



BioCred User Guide

Version 1.2 (Oct, 2023)

No part of this document may be reproduced or transmitted in any form or by any means, electronic or physical, for any purpose without the express written permission of Panini.

DATE	Version Reference	DESCRIPTION
02/10/2023	System ver: 00010000 BioCredApp ver: 1.0.0 DisplayApp ver. 1.0.0 Web app ver: 1.0.0	User guide for BioCred product version 1.0 that includes: <ul style="list-style-type: none">• Fingerprint credential process (enrollment, verification, restore)• ID card scanning• Electronic Signature• QRCode/Barcode scanning• NFC reader• Fingerprint scan feature

Contents

BioCred User Guide	1
1. Introduction	4
2. Safety Precautions.....	4
3. Trademark Acknowledgements	5
4. Proper Disposal of WEEE.....	6
5. Unpack BioCred.....	7
6. External Part Description	8
7. Setup procedure	9
8. Operator role.....	12
8.1 Fingerprint Credential	12
8.1.1 Enrollment.....	12
8.1.2 Fingerprint Verification	17
8.1.3 Restore NFC credential	21
8.2 Card Acquisition	25
8.3 Electronic Signature	30
8.4 Data Reader	33
8.5 Fingerprint Acquisition.....	37
8.6 Fingerprint Watermarking	40
9. Customer role	42
9.1 Fingerprint verification	42
9.2 Card Scanner	45
9.3 Electronic Signature	48
9.4 NFC reader.....	50
9.5 QRcode reader	52
9.6 Barcode reader.....	54

1. Introduction

BioCred is an assisted customer operated product.

The device will be installed customer facing but overseen by an operator that will control the device via a Business Application (es example in banking environment the Operator will be the operator and the Business Application will be the Operator Application).

Most functions can be activated by both the customer and the operator, while few only by the operator for security reason.

When a functionality is started by the Business Application (in this guide Web Application), BioCred follows the process as “slave” device; while if the functionality is started directly from BioCred, the Web Application will not be involved in the process.

In field Web Application will be replaced by the Business Application, operating with the control logic.

The following guide describes:

- the instruction for a user simulating the Operator’s role – and therefore using the Web Application UI to drive the device
- the instruction for a final user – and therefore using BioCred Display UI to drive the device

2. Safety Precautions

Before you begin operating or servicing your Panini BioCred as instructed in the User Guide or Service Manual, please make sure you read and understand these important safety instructions:


- For cleaning operations, refer to the BioCred Cleaning and Maintenance Guide.
- Do not attempt to service or repair the device, except as instructed elsewhere in the User guide.
- Do not attempt to service or repair the external power supply of the device that may expose you to dangerous voltage points or other risks.
- Refer all servicing to qualified service personnel.
- BioCred will comply to the standard IEC/EN 62368-1 and UL 62368-1 only using the Power Supply model provided with the device or PoE (Power over Ethernet) 48VDC IEEE 802.3af compliant.
- OPERATING CONDITIONS:
 - Temperature: +15°C ÷ +35°C (59°F to 95°F)
 - Humidity: 20% ÷ 80% R.H. non-condensing

3. Trademark Acknowledgements

PANINI BioCred is a registered trademark of Panini SpA.

© 2020 PANINI S.p.A., ALL RIGHTS RESERVED

PANINI S.p.A patents:
ITA/EU N. 102019000001959
USA 16/786589 - 11308377

The mark  affixed to the product certifies that the product satisfies the basic quality requirements.



The Panini BioCred is also UL 62368 compliant (UL file number E172976).




This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by Panini could void the user's authority to operate the equipment.

4. Proper Disposal of WEEE

	<p>European Union (EU) only</p> <p>The symbol of the crossed-out bin on the product means that used electrical and electronic equipment should not be mixed with general communal waste, in accordance with the European Directive (WEEE) and your national legislation. To dispose of our devices please inform yourself and contact the Local Authorities or local distributor who will give you the practical information you need about the local separate collection system for electrical and electronic products.</p> <p>For other countries (not in EU)</p> <p>The treatment, collection, recycling and disposal of electric and electronic devices will be carried out in accordance with the laws in force in the country in question.</p>
---	--

5. Unpack BioCred

Before unpacking the carton box, examine its condition for any damage received during shipping.



**If the device, or any component, appears damaged do not use it.
File a claim with the shipping company and contact your reseller.**

Make sure that all parts are included:

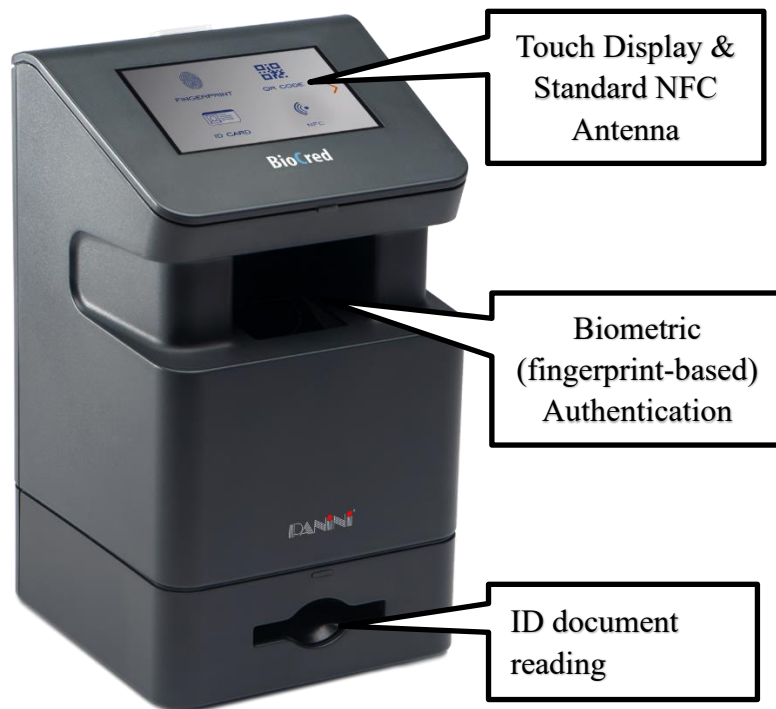
- Panini BioCred
- Quick Guide
- Wall Mount power adapter
- CAT5e F/UTP Ethernet cable 1m
- USB Wi-Fi dongle (optional, not shown in the picture)



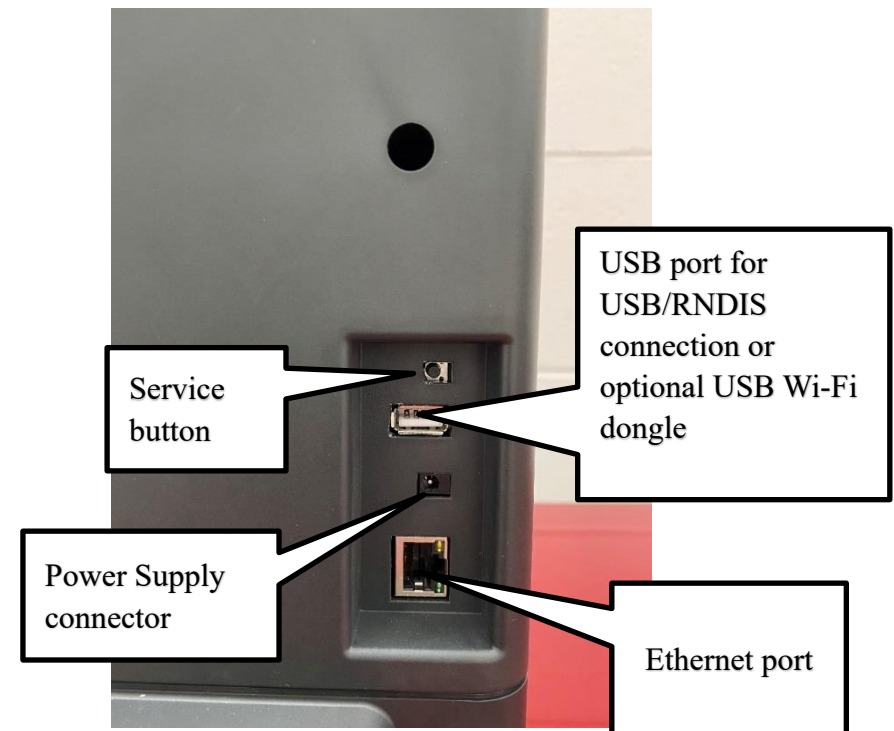
6. External Part Description

This section describes the major components of the Panini BioCred.

Front view:



Rear view:



7. Setup procedure

The device can be connected via LAN, USB/RNDIS, WI-FI.

The product is provided with an Ethernet cable.

Compatible WI-FI dongle is a product option. WI-FI connectivity requires an appropriate working mode setting in the device configuration. For more information, contact your technical reference for the "BioCred Network Configuration Guide".

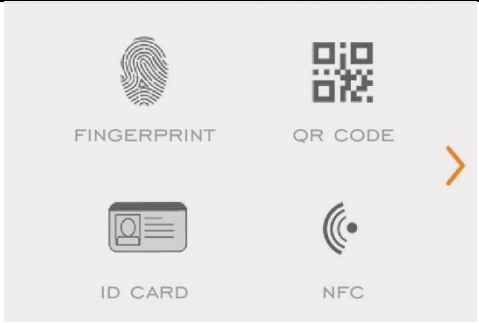

By default, BioCred is configured as following:

- ETH: DHCP mode
- RNDIS: Fixed IP (192.168.101.1)

For instructions about the BioCred first installation, please refer to the “BioCred 1.0 First Installation Guide”.

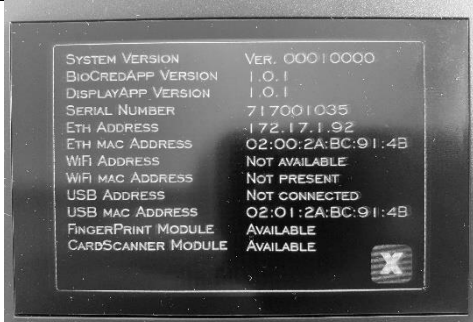
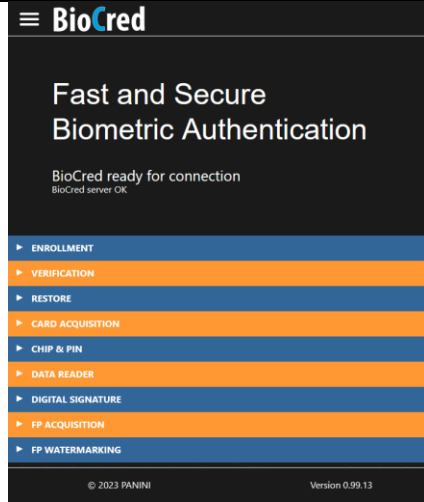
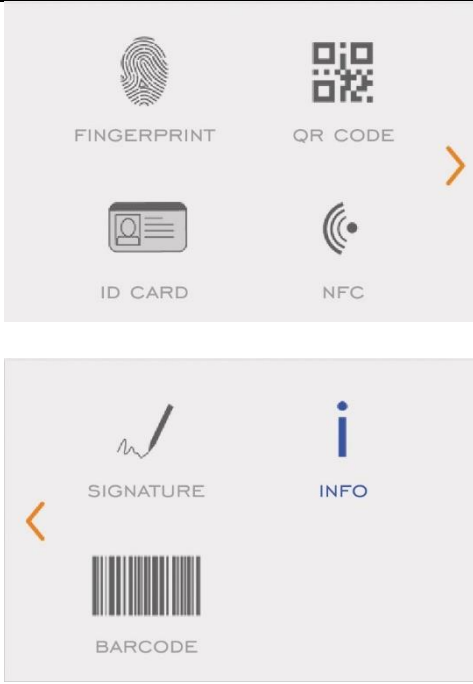
Important: the Enrollment phase, explained later, requires BioCred to have a direct access to an external Panini server, for the creation of the user's encrypted biometric credentials. This function is therefore not accessible with a USB/RNDIS connection or with a peer-to-peer Ethernet connection.

Once removed from the box:

ID	Action/Event	Result	Web app ¹	BioCred display ²
a	Connect the BioCred reader via LAN to the router or via USB cable to the PC NOTE: use type A- type A USB cable. Cable not provided with the device	“boot” information will appear	Na	“boot” information
b	Wait until the BioCred is ready	Greyed buttons will be displayed, and 2 acoustic signals will be performed. If more than 4 features are enabled a lateral arrow will be available (as in the picture) picture	Na	
c	Press on the “i” soft key button to show the “About” menu	Info page will be shown on the display	Na	

¹ Web app = what the Operator sees (throughout) **NOTE:** Web app is intended only for internal tests or demo.

² BioCred display = what the CUSTOMER or USER sees (throughout)

				 <p>SYSTEM VERSION VER. 00010000 BioCredAPP VERSION 1.0.1 DISPLAYAPP VERSION 1.0.1 SERIAL NUMBER 717001035 ETH ADDRESS 172.17.1.92 ETH MAC ADDRESS 02:00:2A:BC:91:4B WIFI ADDRESS NOT AVAILABLE WIFI MAC ADDRESS NOT PRESENT USB ADDRESS NOT CONNECTED USB MAC ADDRESS 02:01:2A:BC:91:4B FINGERPRINT MODULE AVAILABLE CARDS scanner MODULE AVAILABLE</p>
d	Open a browser page and type the IP address shown on the Info Page	Home page of the Panini application will be reached	 <p>BioCred</p> <p>Fast and Secure Biometric Authentication</p> <p>BioCred ready for connection BioCred server OK</p> <ul style="list-style-type: none"> ▶ ENROLLMENT ▶ VERIFICATION ▶ RESTORE ▶ CARD ACQUISITION ▶ CHIP & PIN ▶ DATA READER ▶ DIGITAL SIGNATURE ▶ FP ACQUISITION ▶ FP WATERMARKING <p>© 2023 PANINI Version 0.99.13</p>	 <p>FINGERPRINT QR CODE</p> <p>ID CARD NFC</p> <p>SIGNATURE INFO</p> <p>BARCODE</p>

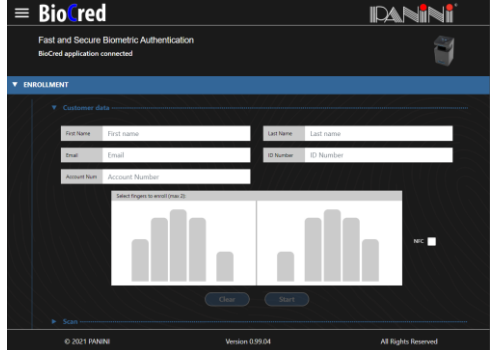
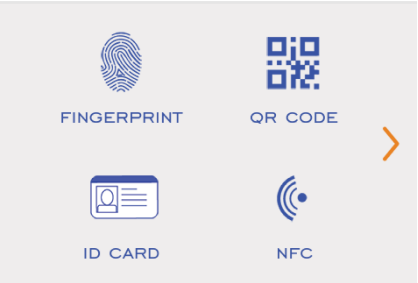
8. Operator role


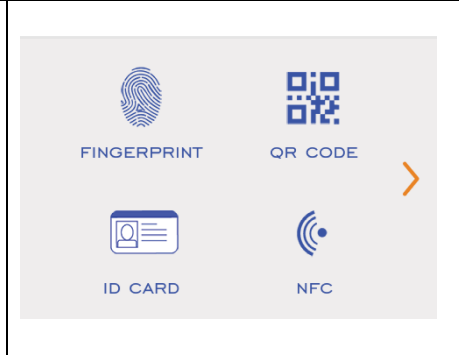

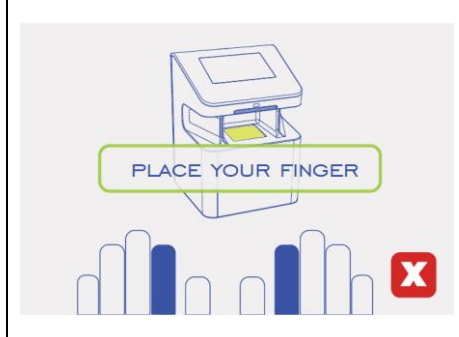
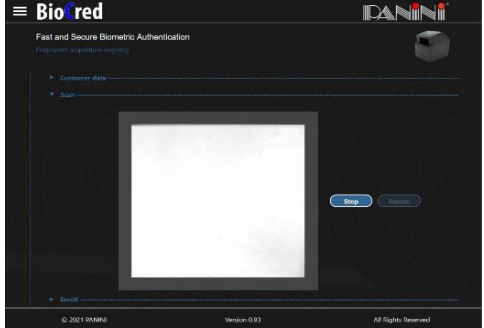
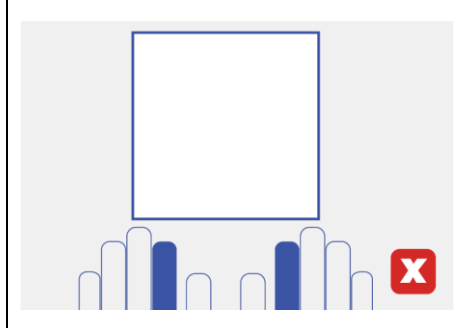
This chapter describes the functions when activated by the operator.
These functions will then start from the Web Application, BioCred follows the process as “slave” device.

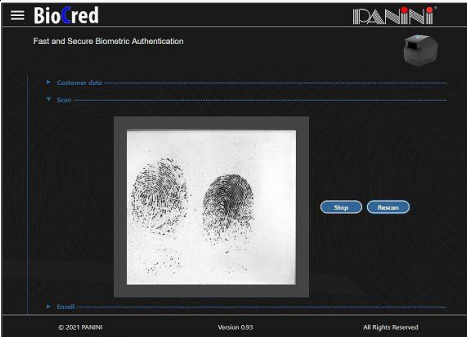


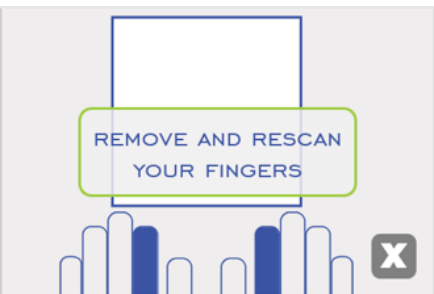
8.1 Fingerprint Credential

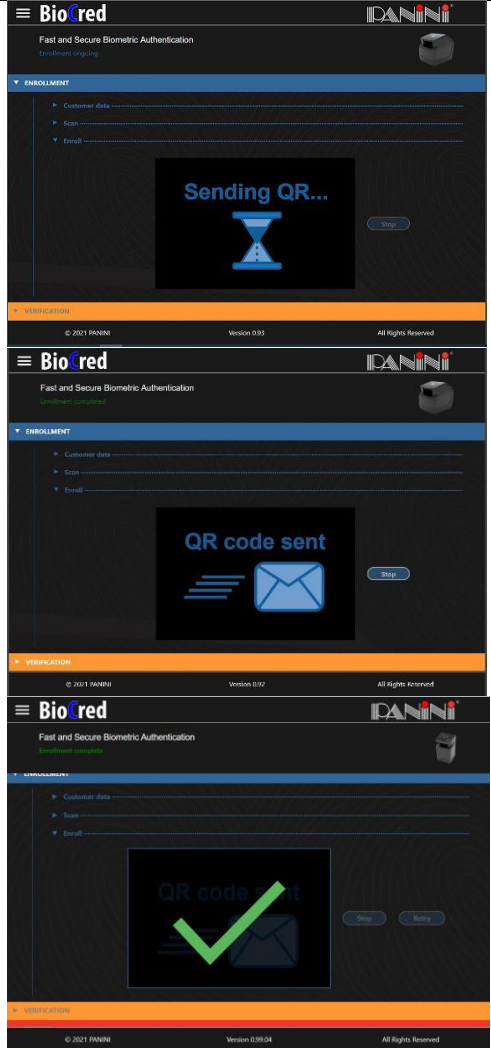

8.1.1 Enrollment

This section describes the user’s biometric encrypted credential creation.
This process cannot be activated by the user (from Display interface), it must be always performed by the Operator for security reason.
The enrollment won’t be directly available on BioCred display (no icon).

ID	Action/Event	Result	Web App	BioCred display
A+	From Home page select “Enrollment”	Customer Data section with empty fields and “Start” button disabled		

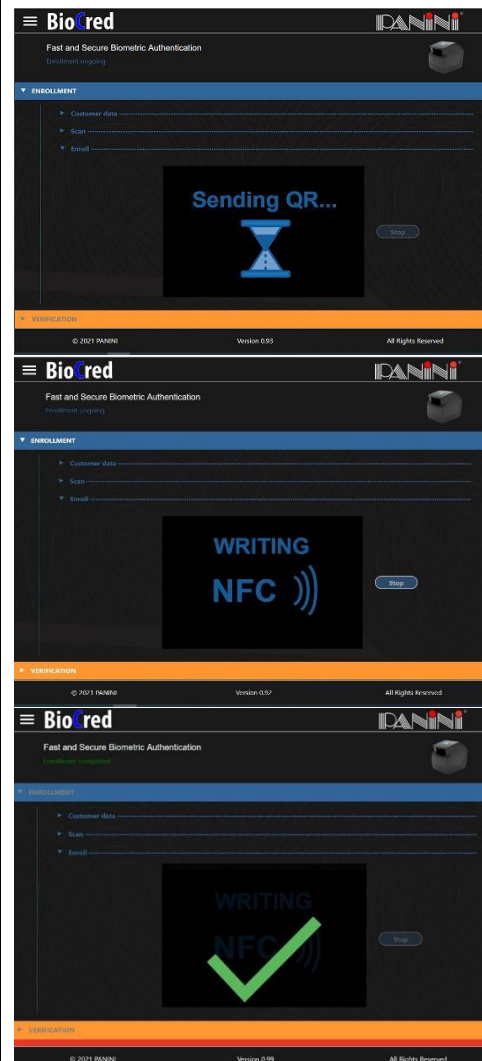
b	<p>Fill in the empty fields in the form with required user data (all fields must be filled). NOTE: in this section Operator can flag the checkbox if wants the NFC card. NOTE: 2 fingers required to start the enrollment</p>	<p>Customer Data section completed and “Start” button enabled</p>	 <p>The screenshot shows the BioCred Enrollment screen. At the top, it says 'Fast and Secure Biometric Authentication' and 'BioCred application connected'. Below is the 'ENROLLMENT' section with a 'Customer data' form. The form has fields for 'User Name' (Mario), 'Last Name' (Rossi), 'Email' (mario.rossi@panini.com), and 'ID Number' (AB 12345). There is also a 'Select Fingers to enroll (Min: 2)' section with a bar chart showing 2 fingers selected. A 'Start' button is visible at the bottom right of the chart area.</p>	 <p>The screenshot shows the BioCred enrollment options screen. It features four icons: a fingerprint icon labeled 'FINGERPRINT', a QR code icon labeled 'QR CODE', an ID card icon labeled 'ID CARD', and an NFC icon labeled 'NFC'. An orange arrow points to the right.</p>
c	<p>Press “Start” and wait until BioCred is ready</p>	<p>You will be redirected to the “Scan” section and a fingerprint icon will be shown. “Stop” button is active and “Rescan” button is disabled</p>	 <p>The screenshot shows the BioCred Scan screen. It features a large fingerprint icon in the center. Below the icon are two buttons: 'Stop' (active) and 'Rescan' (disabled). The screen also shows the 'Customer data' section at the top.</p>	 <p>The screenshot shows the BioCred scan instruction screen. It features a large fingerprint icon with the text 'PLACE YOUR FINGER' overlaid. Below the icon is a red 'X' mark.</p>
	<p>When the device is ready to scan, the fingerprint icon will disappear and you will see the scan area</p>	<p>Scan area is displayed. “Stop” button is active and “Rescan” button is disabled</p>	 <p>The screenshot shows the BioCred Scan screen. It features a large blank square scan area in the center. Below the scan area are two buttons: 'Stop' (active) and 'Rescan' (disabled). The screen also shows the 'Customer data' section at the top.</p>	 <p>The screenshot shows the BioCred scan instruction screen. It features a large blank square scan area with the text 'PLACE YOUR FINGER' overlaid. Below the scan area is a red 'X' mark.</p>

d	Insert the fingers into the BioCred reader slot and follow the instructions shown on its display and on the Web App	Scan section shows fingers acquisition		
e	The enrollment procedure will be repeated 3 times.	Scan area informs that the procedure must be repeated. "Stop" button is disabled and "Rescan" button is active		
f	Repeat point "e" till the end of the enrollment procedure (3 times)	Scan section informs that the enrollment is concluded		

	<p>“QRcode” only selected (NO flag into “NFC” checkbox into the Customer Data section)</p>	<p>QR code automatically generated/updated</p>		
--	--	--	--	--

Writing NFC card (flag into “NFC” checkbox into the Customer Data section) : this implies QRCode creation and NFC tag creation


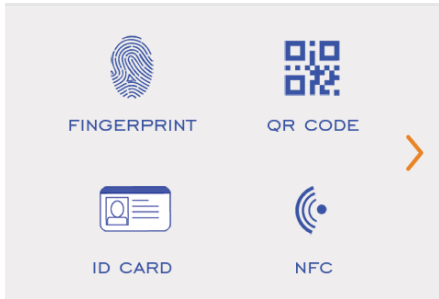


Writing “NFC” card and QR code sent




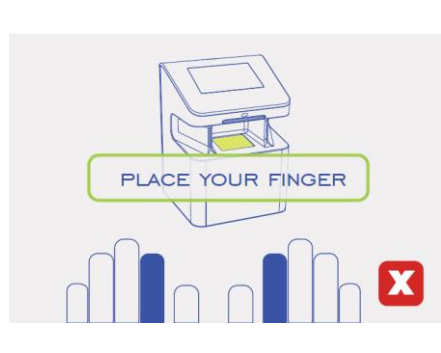
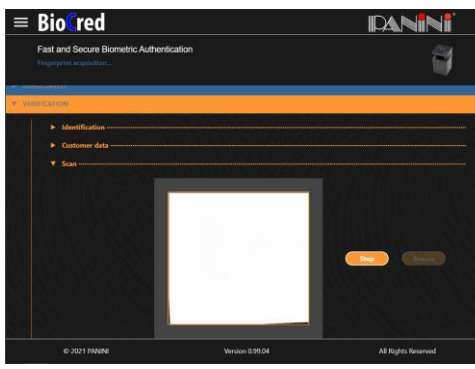
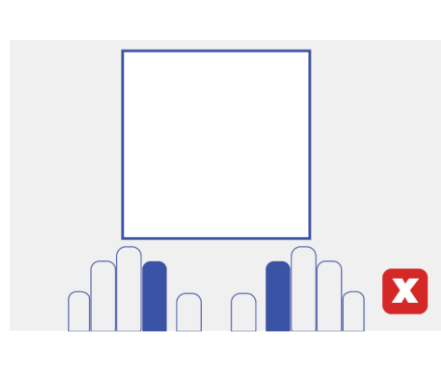
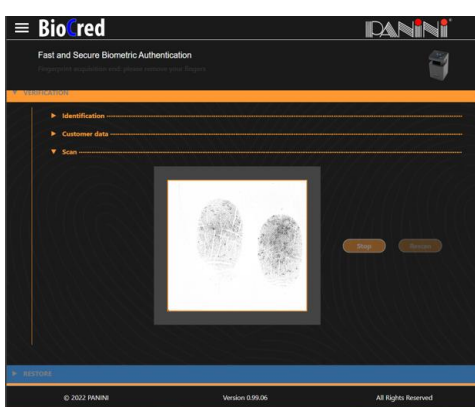

8.1.2 Fingerprint Verification

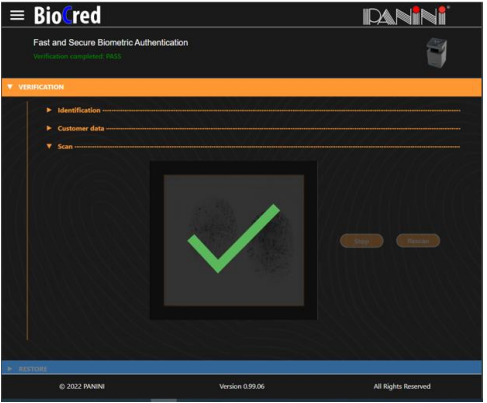

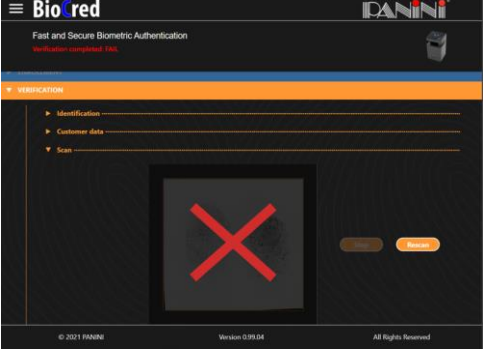

This section describes user's fingerprint verification (customer authentication). This operation enables customer authentication via QR code or NFC card credentials created in 4.1.1

This process can be also activated directly by the user on BioCred Display (see §5.1).

ID	Action/Event	Result	Web App	BioCred display
a	Select "Verification"	Identification section where the user can start the Verification process activates NOTE: Pressing "QR code/NFC" button both the NFC antenna and the camera are activated		
b	Press "QR code/NFC" Login into BioCred mobile app and expose the QR code to the beam behind the display OR tap the NFC card on the right side of the BioCred device	BioCred will be ready to read the code from the smartphone display or from the NFC tag. "Stop" button is enabled and "Start" button is disabled		

	QR code/NFC successfully read	All the fields will be filled and a message will be shown on the BioCred display		
	QR code/NFC NOT successfully read	The field are empty, and an error message is displayed.		





c	Only if QRCode/NFC has been properly read, press “start” to activate the fingerprint verification process and follow the instructions	You will be redirected to the “Scan” section and a fingerprint icon will be shown. “Stop” button is active “Rescan” button is disabled		
	When the device is ready to scan, the fingerprint icon will disappear, and you will see the scan area	Scan area is displayed. “Stop” button is active. “Rescan” button is disabled		
d	Insert the fingers into the BioCred reader slot and follow the instructions shown on display and on the Web App.	Scan section shows fingers acquisition		


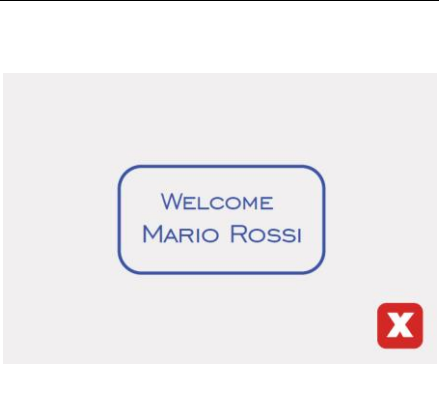
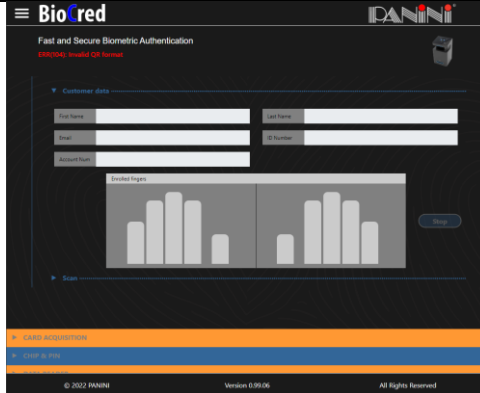


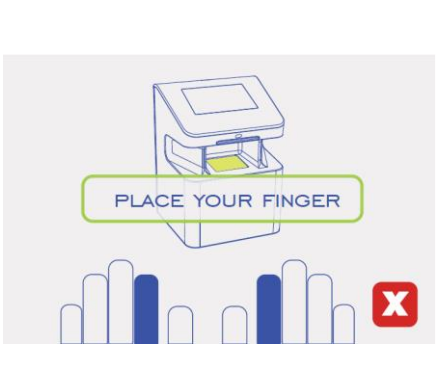
e	<p>Depending on the match result, a proper feedback message will be shown on the Web App and on the BioCred display.</p>	<p>Fingerprint successfully matched</p>		
		<p>Fingerprint match NOT successful. In this case “Rescan” button is active. NOTE: if the user press the “Rescan” button within 15 seconds, the fingerprint acquisition starts again; else the “Identification” section is displayed and the user has to rescan the Qrcode or tap the NFC card.</p>		

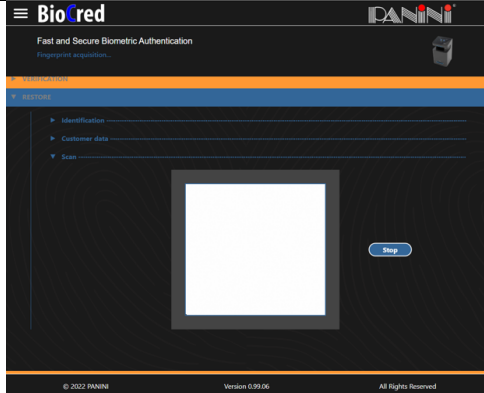
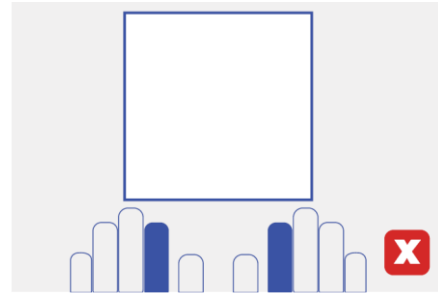
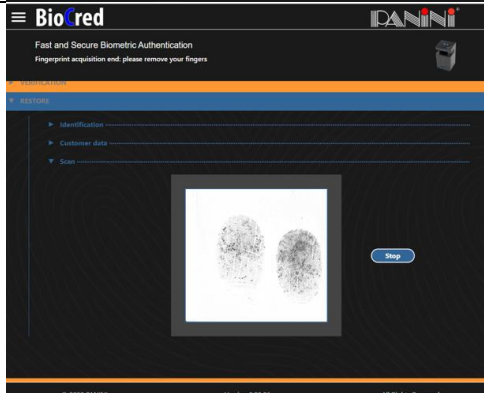

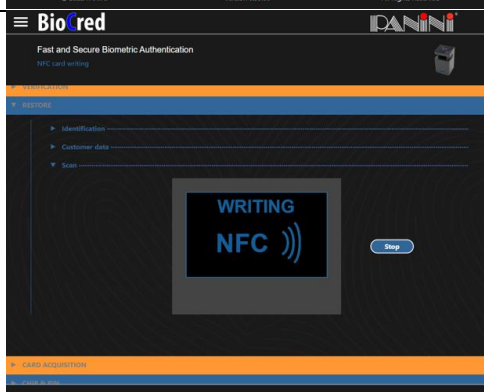

8.1.3 Restore NFC credential







This section describes how NFC user's biometric encrypted credential can be restored.

This process can only be performed by the Operator for security reason, the operation won't be directly available on BioCred display.

ID	Action/Event	Result	Web App	BioCred display
a	Select "Restore"	Identification section is open and the user can start the restore process		
b	Press "Restore" Customer will login into BioCred mobile app and expose the QR code to the beam behind the display	BioCred will be ready to read the code from the smartphone display. "Stop" button is enabled and "Start" button is disabled		

	QR code successfully read	All the fields will be filled and a message will be shown on the BioCred display. The fields are not editable.		
	QR code NOT successfully read	Restore process ends: an error message is displayed (“ERR (104): Invalid QR format”)		
c	Only after a successful QRCode read, to start the fingerprint verification, press “Start” and follow the instructions	You will be redirected to the “Scan” section and a fingerprint icon will be shown. “Stop” button is active		

	When the device is ready to scan, the fingerprint icon will disappear, and you will see the scan area	Scan area is displayed. “Stop” button is active		
d	Insert the fingers into the BioCred reader slot and follow the instructions shown on its display and on the Web App.	Scan section shows fingers acquisition		
e	Depending on the match result, a proper feedback message will be shown on the Web App and on the BioCred display.	Fingerprint successfully matched: NFC writing process starts. The user has to tap the NFC card to complete the restore		

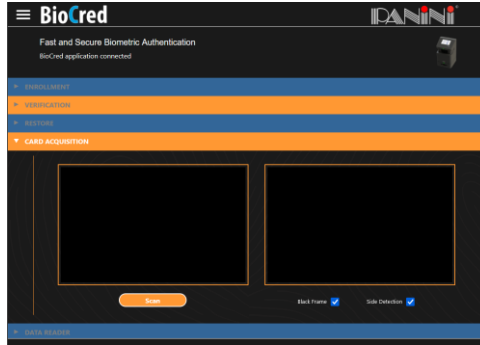
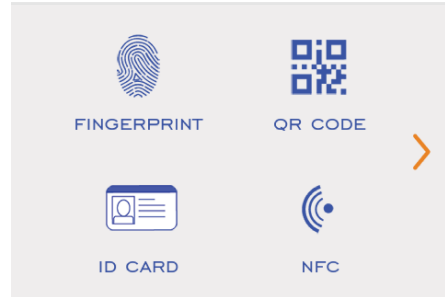
		Fingerprint match NOT successful: restore process ends and an error message is displayed (“ERR: Restore not completed. Verification failed”)		
f	If the verification successfully ended, the application starts writing the biometric credential on a NFC card/tag	NFC card successfully written: restore process is completed		
		NFC card NOT successfully written: restore process is aborted and an error message is displayed (“ERR: Error writing NFC card”)		

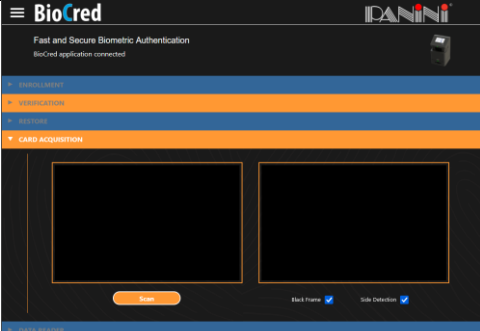

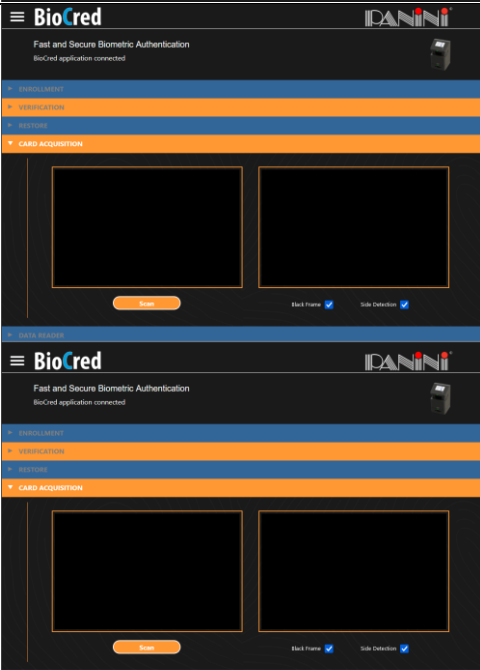
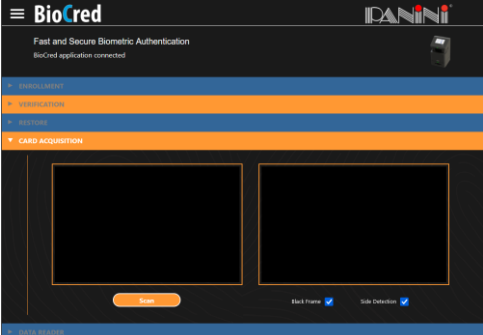
8.2 Card Acquisition

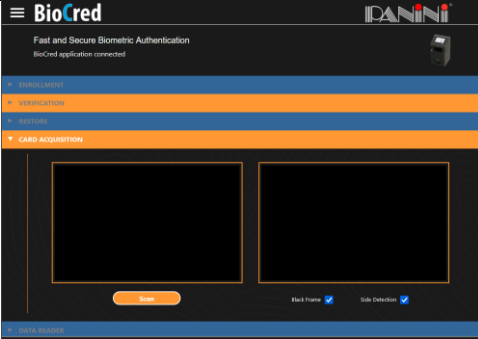

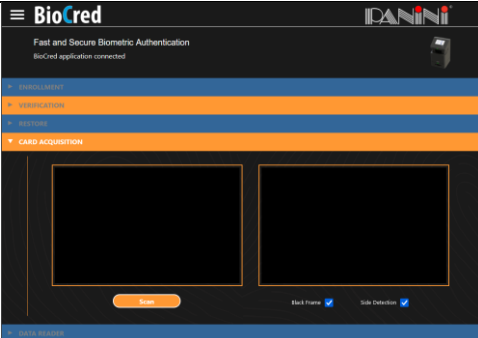

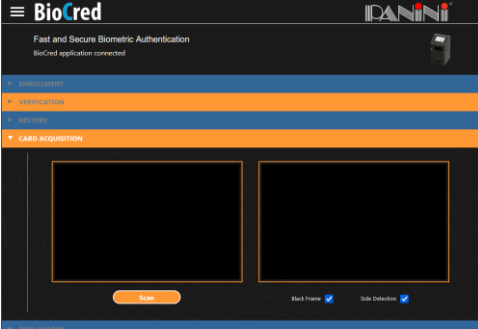

This section describes the plastic card images acquisition (Driver License/ID card etc).

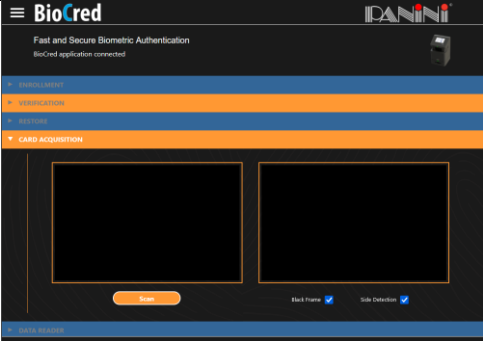



This process can be also performed directly by the user using BioCred Display interface. (see § 5.2)

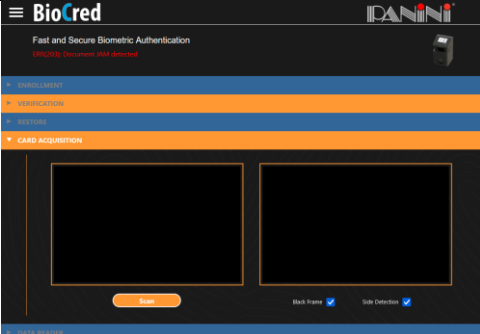

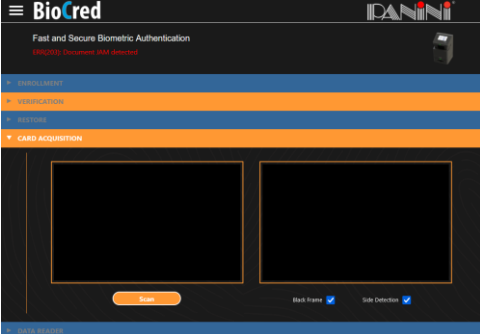
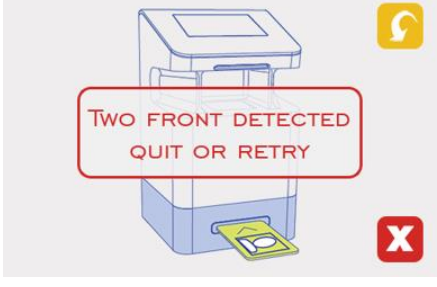
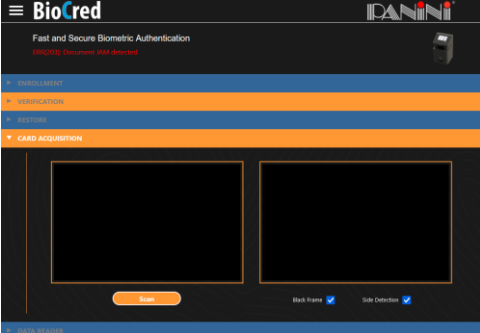

NOTE: Card scanner is motorized. Do not push the card inside the reader or hold the card when the motor starts. This would create jams.

ID	Action/Event	Result	Web App	BioCred display
a	Select “Card Acquisition”	<p>The scan section is open and the Operator can start the process by pressing “Scan” button.</p> <p>“Side Detection” and “BlackFrame” flags are enabled by default. Side Detection allows the device to establish if the same side of the card has been inserted twice. If so, a proper message is provided.</p> <p>BlackFrame adds a black frame around the card images.</p> <p>Both flags can be disabled.</p>		

b	Press “Scan” button	BioCred will be ready to acquire the front side of the card. “Stop” button is enabled		
c	Insert front side	Front acquisition in progress		

d	Depending on the fact that the card has been well acquired, a proper feedback message will be shown on the Web App and on the BioCred display	<p>Front successfully acquired. NOTE: until the user doesn't remove the card, the rear acquisition doesn't start.</p>		
		<p>Front NOT successfully acquired: a Jam is detected. Pressing "Scan" button, the front acquisition starts again</p>		
e	Remove the document	Rear side acquisition starts		

f	Insert the rear side	Rear acquisition in progress		
g	Depending on the fact that the card has been well acquired, a proper feedback message will be shown on the Web App and on the BioCred display	<p>Rear successfully acquired. NOTE: “Scan” button is active and if the Operator press it a new card acquisition will start</p> <p>The user can Tap on the image shown on BioCred display to zoom the images.</p>		

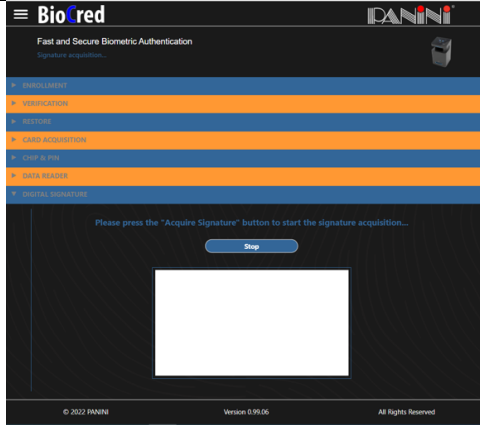

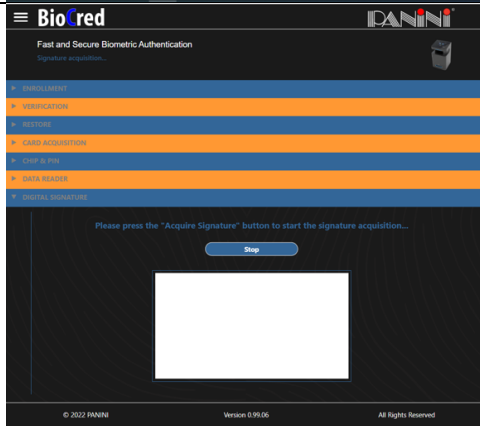
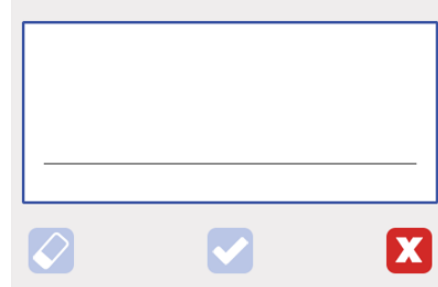
		Rear NOT successfully acquired: a Jam is detected. Pressing “Scan” button, the rear acquisition starts again		
g.1	Depending on the fact that the card has been successfully acquired, “ Side Detection ” flag is enabled, and the same card side has been inserted twice, a proper feedback message will be shown on the Web App and on the BioCred display	2 fronts acquired → “ERR(205): acquired 2 front sides”		
		2 rears acquired → “ERR(206): acquired 2 rear sides”		

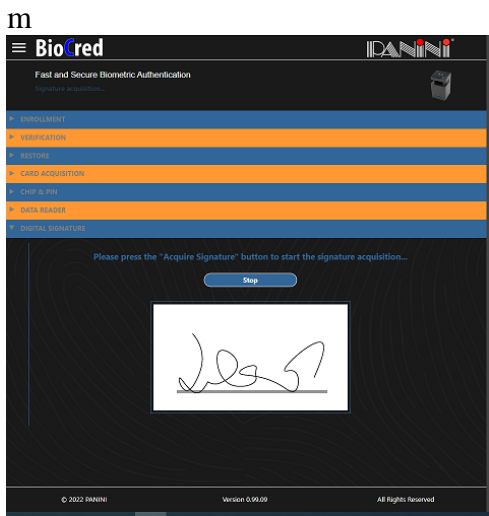

8.3 Electronic Signature

This functionality allows the user to capture a digital signature.

This process can also be activated directly by the user on BioCred display (see §5.4)

ID	Action/Event	Result	Web App	BioCred display
a	Select “Digital Signature”	The Signature acquisition section opens and the user can start the process by pressing “Acquire Signature” button		
b	Press “Acquire Signature”	BioCred shows the area to acquire the signature. “Cancel” button is available on BioCred Display to allow the user to abort the process.		

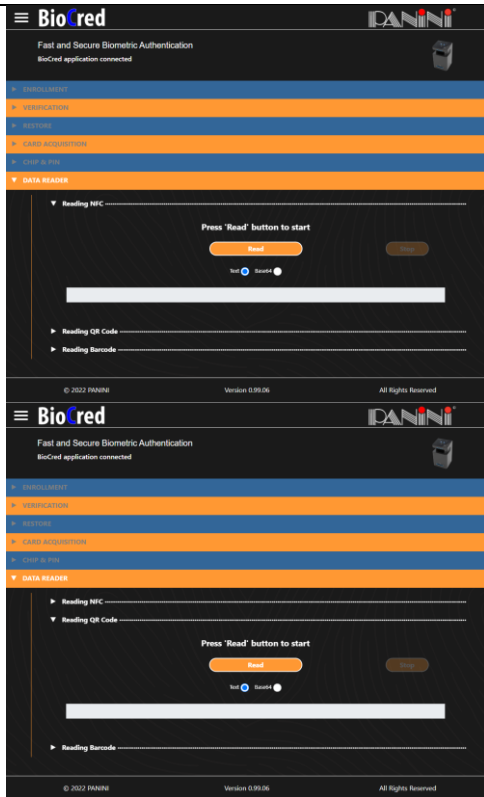
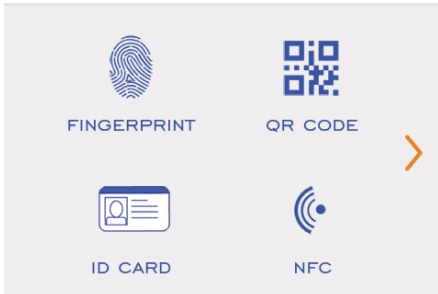
+c	Sign on the BioCred white area	Operator can stop the process pressing Stop button		
	If “Clear” button is pressed, the signature is deleted and the user can insert it again			

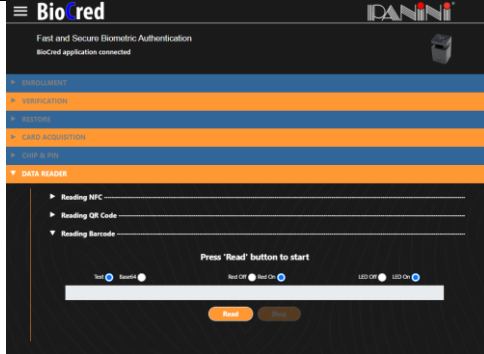
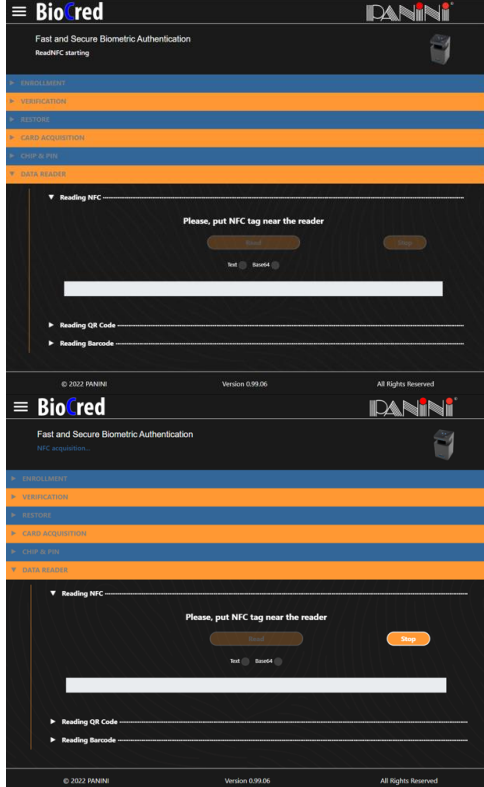


		<p>If “OK” button is pressed, the signature is acquired, the signature displayed on the Web App and BioCred returns to Home Page</p>		
--	--	--	---	---






8.4 Data Reader

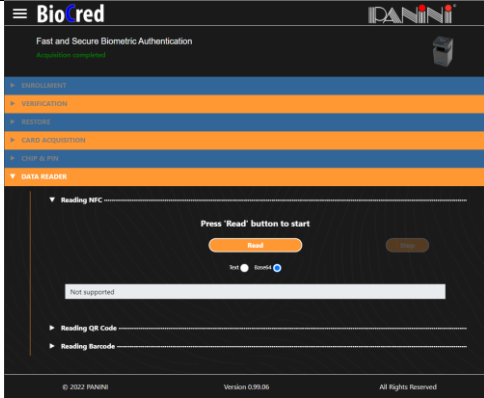


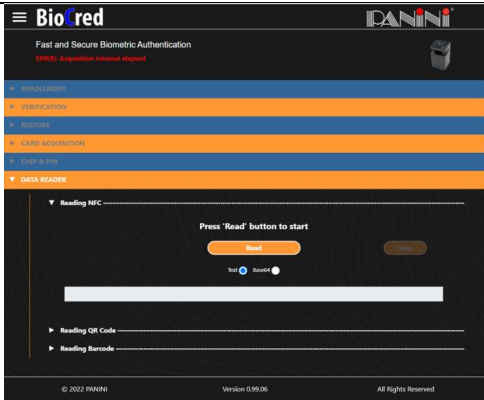

This functionality allows the user to read an NFC tag/QRcode/Barcode independently by the verification process. BioCred returns the result without interpreting it.

This process can also be activated directly by the user on BioCred Display (see respectively §5.5; 5.6; 5.7).

ID	Action/Event	Result	Web App	BioCred display
a	Select “Data Reader”	<p>The reading section is open and the user can choose which kind of reader to start:</p> <ul style="list-style-type: none"> • Reading NFC • Reading QR Code • Reading Barcode <p>Also, the user can select in which format obtain the results:</p> <ul style="list-style-type: none"> • Text • Base64 		

		In case of Barcode reader, the user can decide if enable, or not, the white or red led.		
b	Press “Read” to start the reading	<p>BioCred is ready to read NFC/QRcode/Barcode according to the operator selection.</p> <p>“Stop” button is enabled to allow the user to abort the process.</p>		 

c	Tap the NFC card/tag or scan the QRCode/Barcode	If the reading successfully ends, BioCred returns the results		   


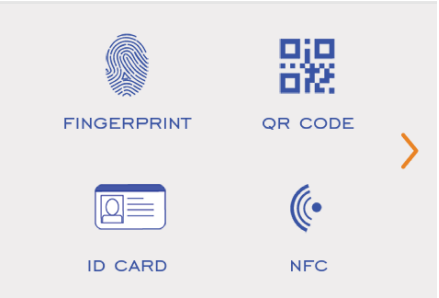
		<p>If the reading is NOT successful, BioCred displays an error message</p>		 
		<p>If a timeout expires an error message is displayed and the process ends.</p>		

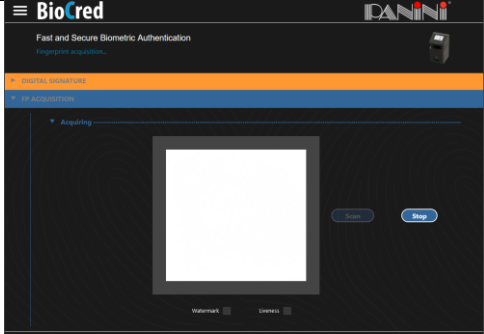
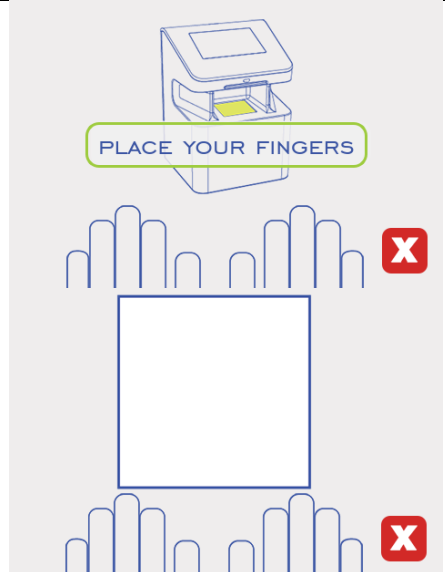
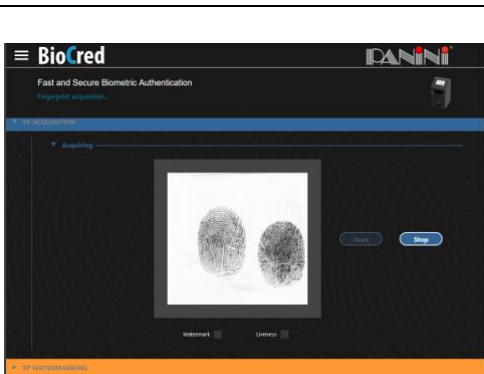
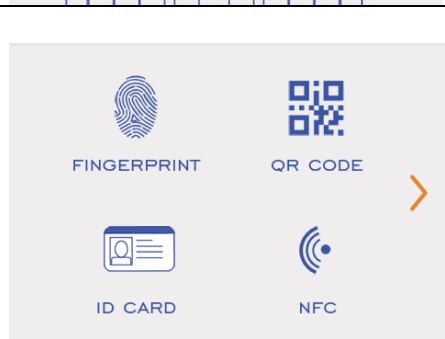
8.5 Fingerprint Acquisition


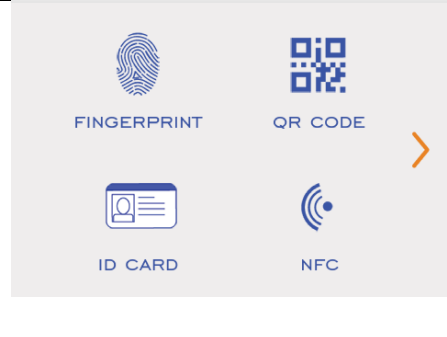
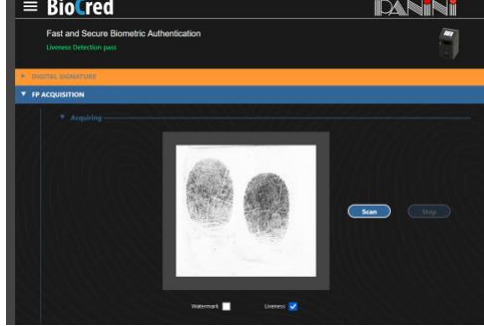
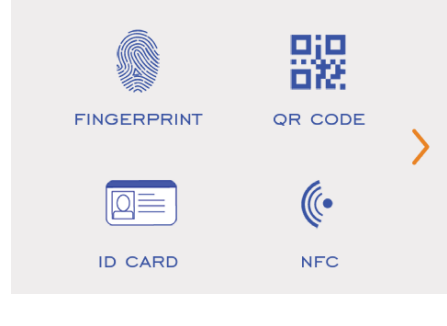
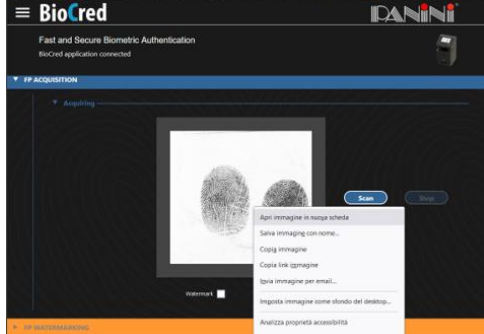
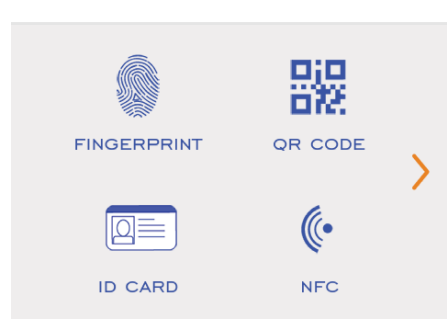
This functionality allows the Operator to capture the user fingerprint with the following options by properly selecting the related flag.

- Save the user fingerprint as is
- Save the user fingerprint with a watermark inside to certify it has been collected with a BioCred device

This process can only be performed by the Operator with the customer in presence and will not generate a BioCred credential on NFC tag or QRcode.

ID	Action/Event	Result	Web App	BioCred display
a	Select “FP Acquisition”	<p>The section opens and the user can start the process by pressing “Scan” button. The section present a black area with the image of a fingerprint.</p> <p>NOTE: There are 2 check boxes: “watermark” and “liveness”.</p> <ul style="list-style-type: none"> - “watermark” embeds a watermark into the image “liveness” detects if the fingerprint is real or fake 		

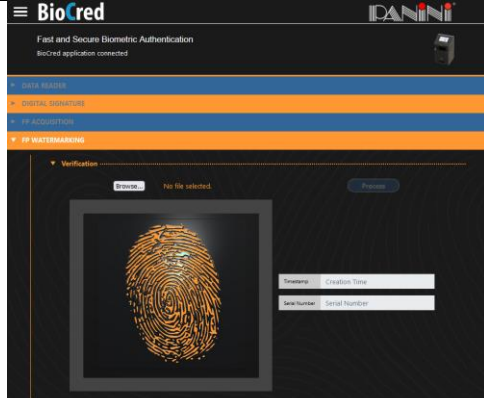
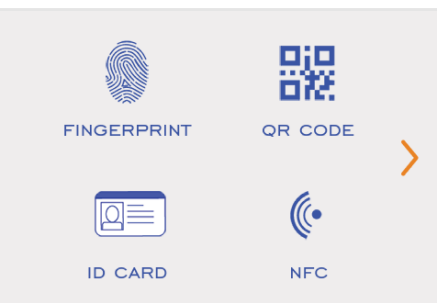
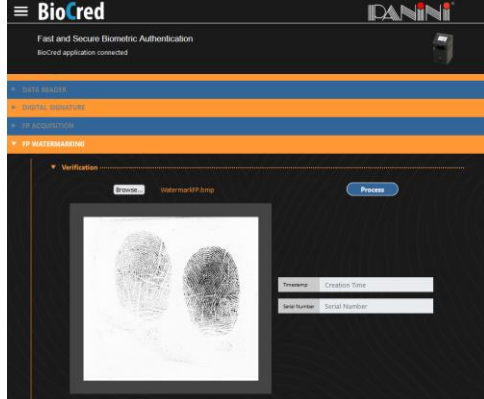
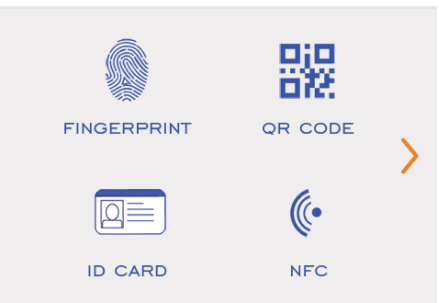
b	Press “Scan”	<p>BioCred shows the area to acquire the signature. “Cancel” button is available to allow the user to abort the process.</p>		
c	<p>Insert the fingers into the BioCred reader slot and follow the instructions shown on the display and on the Web App.</p>	<p>Scan section shows fingers acquisition.</p> <p>After fingerprints acquisition BioCred home is displayed.</p>		


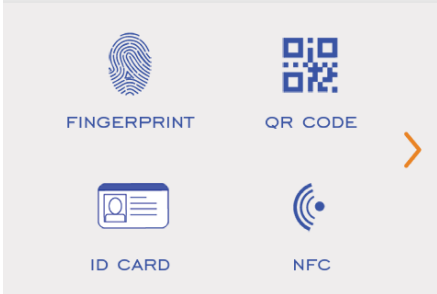

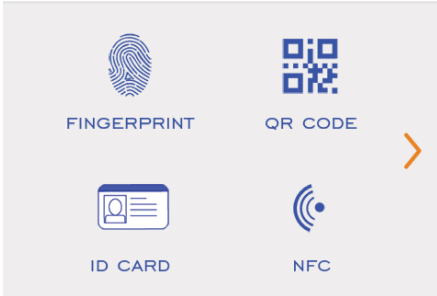
		If “watermark” check box is selected, a watermark is embedded into the fingerprint image.		
		If “liveness” check box is selected, the application returns if the fingerprint is valid considered or not (“Liveness Detection pass” or “Liveness Detection fail”)		
d	Operator can save the fingerprint.	Right click -> “save image with name...” -> select the final path -> press “Save”		

8.6 Fingerprint Watermarking

This functionality allows the Operator to verify if a fingerprint image has been acquired by BioCred or not.

This process can only be activated by the Operator. It won't be directly available on BioCred display.

ID	Action/Event	Result	Web App	BioCred display
a	Select "FP Watermarking"	The section opens and the user can start the process by pressing "Process" button		
b	Select "browse" to load the image	Scan section shows the fingerprints and the name of the file is displayed		



c	Press “Process”	<p>If the fingerprint was acquired using a BioCred, a logo will be displayed on top of the fingerprint image. BioCred also tells when and with which device (Ser the impression was acquired</p>		
		<p>If the fingerprint was NOT acquired using a BioCred, a proper error message is provided</p>		




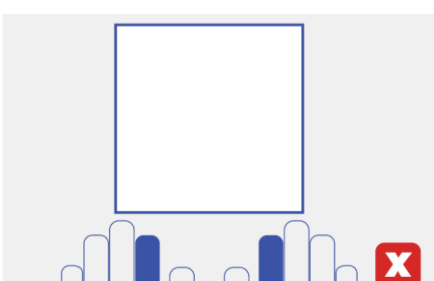
9. Customer role




This Chapter describes how the user can operate the different functions.

When a functionality is started directly from BioCred, the Web Application is not involved in the process.

9.1 Fingerprint verification


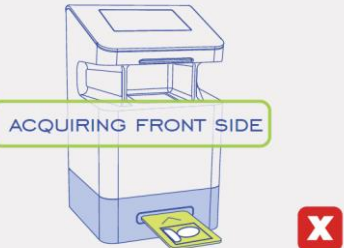

ID	Action/Event	Result	Web App	BioCred display
a	Press “ Fingerprint ” button on BioCred display	<p>BioCred will be ready to read the code from the smartphone display or from the NFC tag.</p> <p>Cancel button (“X”) is enabled and “Retry” button is disabled</p>	na	
b	Login into BioCred mobile app and expose the QR code to the beam behind the display OR tap the NFC card on the right side of the BioCred device	<p>QR code/NFC successfully read:</p> <p>A Welcome message is displayed and the fingerprint acquisition process starts</p>	na	
		<p>QR code/NFC NOT successfully read:</p> <p>Error message is displayed.</p> <p>Cancel (“X”) and “Retry” buttons are enabled.</p>	na	





		<p>If the user press “X” or if the timeout ends the process is aborted returning to the home page.</p> <p>If the user press “Retry”, QRcode/NFC reading starts again.</p>		 
c	<p>If the data have been correctly read, the acquisition starts: Insert the finger (or fingerS) into the BioCred reader slot and follow the instructions shown on its display.</p> <p>Depending on the match result, a proper feedback message will be shown on the BioCred display.</p>	<p>BioCred shows fingers acquisition.</p> <p>Cancel (“X”) button is enabled.</p>	na	 




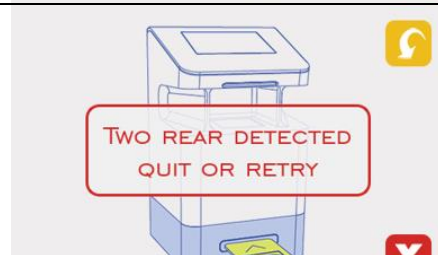
				
		Fingerprint successfully matched	na	
		<p>Fingerprint match NOT successful.</p> <p>“X” and “Retry” buttons are enabled.</p> <p>NOTE: if the user press the “Retry” button within 15 seconds, the fingerprint acquisition starts again; else the process is aborted and Home page is displayed.</p>	na	

9.2 Card Scanner

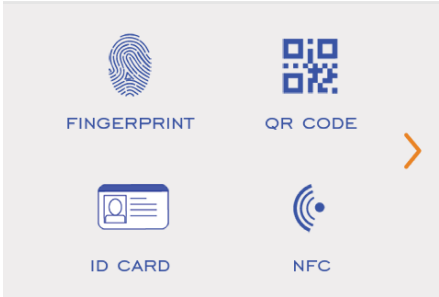
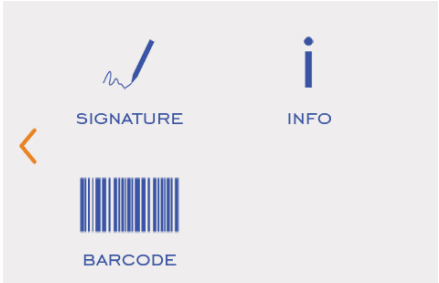
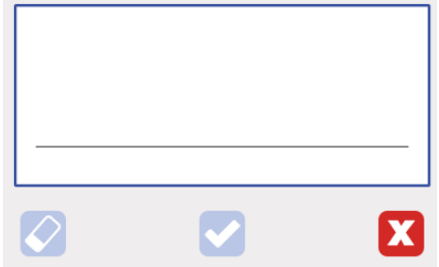
Please note that by default the “Side Detection” is always enabled.

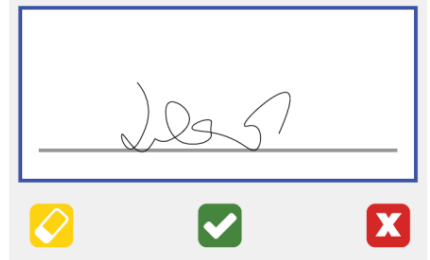
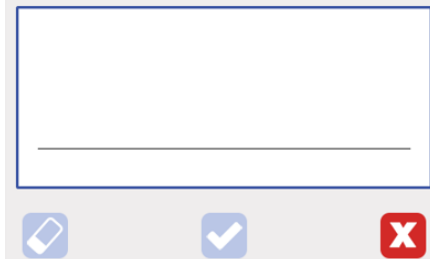

ID	Action/Event	Result	Web App	BioCred display
a	Press “Card Scanner” button	Front acquisition starts	na	
b	Insert front side	Front acquisition in progress	na	
c	Depending on the fact that the card has been well acquired, a proper feedback message will be shown on the on the BioCred display	Front successfully acquired. NOTE: until the card is not removed, the rear acquisition doesn't start.	na	

		Front NOT successfully acquired: a Jam is detected. Pressing “Retry” button, the front acquisition starts again	na	
d	Remove the document	Rear side acquisition starts	na	
e	Insert the rear side	Rear acquisition in progress	na	
f	Depending on the fact that the card has been well acquired, a proper feedback message will be shown on the BioCred display	Rear successfully acquired. “X” button is enabled and “Retry” button is disabled	na	

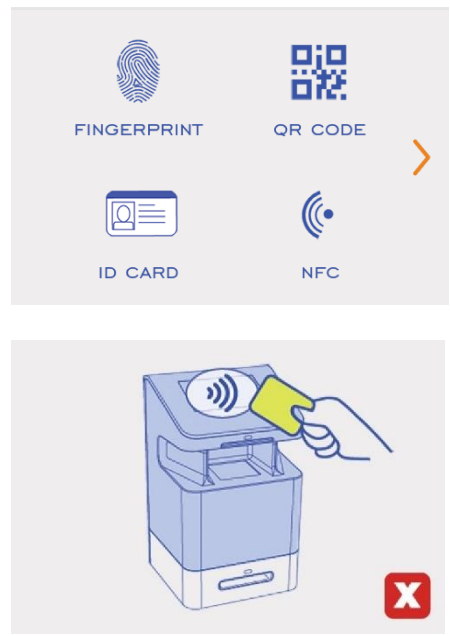

		The user can Tap on the image shown on BioCred display to zoom the images		
		Rear NOT successfully acquired: a Jam is detected. Pressing “Retry” button, the rear acquisition starts again	na	
f.1	Depending on the fact that the card has been successfully acquired, “Side Detection” flag is enabled, and the same card side has been inserted twice, a proper feedback message will be shown on the BioCred display	2 fronts acquired → “ERR(205): acquired 2 front sides”	na	
		2 rears acquired → “ERR(206): acquired 2 rear sides”	na	



9.3 Electronic Signature

ID	Action/Event	Result	Web App	BioCred display
a	Press the Red Arrow on BioCred display to change home page	Signature feature can be selected		 
c	Press “Signature”	BioCred shows the area to acquire the signature. “Cancel” button is available to allow the user to abort the process.	na	

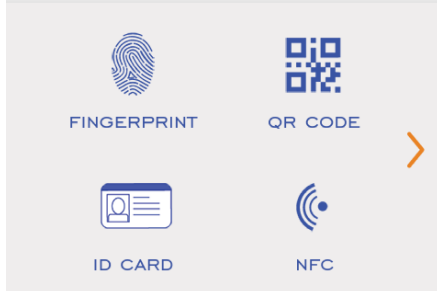


d	Put the signature on the white area	“CLEAR”, “OK” and “Cancel” buttons are enabled on BioCred display	Na	
		If “Clear” button is pressed, the signature is deleted and the user can insert it again	na	
		If “OK” button is pressed, the signature is acquired and BioCred returns to Home Page	na	


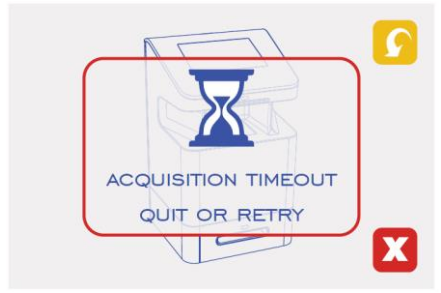
9.4 NFC reader

a	Press “NFC”	BioCred is ready to read NFC card/tag. “Stop” (X) button is enabled to allow the user to abort the process	Na	
b	Tap the NFC card/tag on top of the device	If the reading successfully ends, BioCred returns the results	Na	

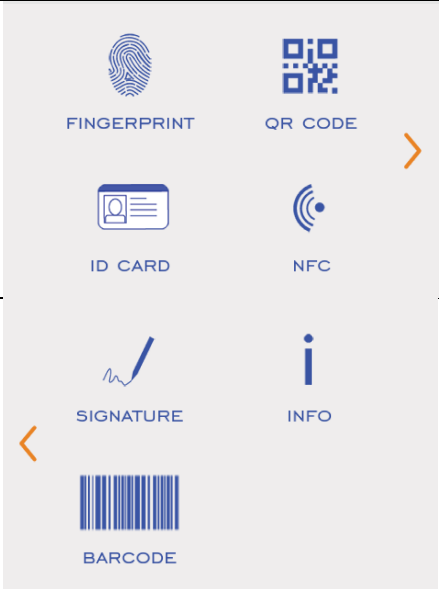

		If the reading is NOT successful, BioCred displays an error message	na	 The image shows a screen with a blue background. At the top, there is a blue box with a white NFC symbol and a green hand holding a card. Below this, a red-bordered box contains the text "NFC READ ERROR" and "QUIT OR RETRY" in red. To the right of the screen, there is a yellow circular arrow icon and a red square with a white 'X'.
		If a timeout expires an error message is displayed and the process ends.	na	 The image shows a screen with a blue background. At the top, there is a blue box with a white hourglass icon. Below this, a red-bordered box contains the text "ACQUISITION TIMEOUT" and "QUIT OR RETRY" in blue. To the right of the screen, there is a yellow circular arrow icon and a red square with a white 'X'.



9.5 QRcode reader

ID	Action/Event	Result	Web App	BioCred display
a	Press “QR Code Reader”	<p>BioCred is ready to read QR Code.</p> <p>“Stop” button is enabled to allow the user to abort the process</p>	Na	 
b	Scan the QRcode	If the reading successfully ends, BioCred returns the results	Na	

		If the reading is NOT successful, BioCred displays an error message	na	 The image shows a screenshot of a BioCred device's display. At the top, there is a QR code icon with a yellow arrow pointing down to the device. A red-bordered box in the center contains the text "QR CODE READ ERROR" and "QUIT OR RETRY" below it. In the top right corner, there is a yellow circular icon with a white arrow pointing right. In the bottom right corner, there is a red square icon with a white "X".
		If a timeout expires an error message is displayed and the process ends.	na	 The image shows a screenshot of a BioCred device's display. In the center, there is a blue hourglass icon. A red-bordered box contains the text "ACQUISITION TIMEOUT" and "QUIT OR RETRY" below it. In the top right corner, there is a yellow circular icon with a white arrow pointing right. In the bottom right corner, there is a red square icon with a white "X".

9.6 Barcode reader

ID	Action/Event	Result	Web App	BioCred display
a	Press the red arrow to reach second page of BioCred UI	BioCred second page will appear on Display.	Na	
b	Press "BARCODE"	<p>BioCred is ready to read NFC card/tag.</p> <p>"Stop" (X) button is enabled to allow the user to abort the process</p>	Na	

c	Scan the Barcode	When the reading ends, BioCred returns the results	na	 A diagram of a BioCred device with a barcode being scanned. A green box with a checkmark and the text "BARCODE SUCCESSFULLY READ" is overlaid on the device.
		If a timeout expires an error message is displayed and the process ends.	na	 A diagram of a BioCred device with a red box and an hourglass icon. The text "ACQUISITION TIMEOUT QUIT OR RETRY" is displayed. To the right of the device are two icons: a yellow circular arrow and a red square with a white 'X'.