



Paxton Net2

BioBridge Manual

Summary

This document describes how to configure the MorphoManager BioBridge integration with Paxton Net2. A Biometric Enrolment button can be added to the Add Users form within the Net2 software, making it more convenient to enroll the biometrics of new users.

The document describes the configurations needed to get the MA SIGMA series readers working in a Biometric/Fingerprint Only authentication mode. Other Authentication Modes are available but they are not covered by this document.

Further information about MorphoManager and the Morpho readers can be found in the installation directory C:\Program Files\Morpho\MorphoManager\Client.

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MorphoAccess Software & Firmware requirements

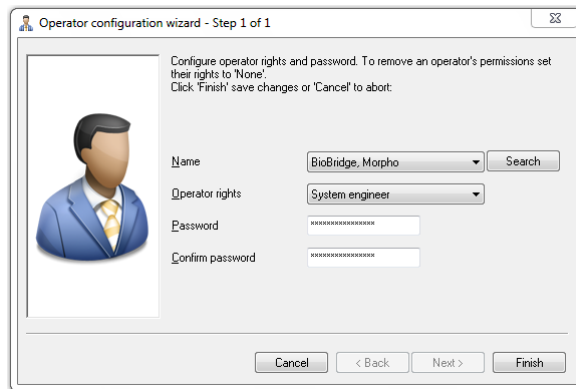
This document has been written for the following versions of Software & Hardware:

- MorphoManager v12.6.6 or higher.
- MorphoAccess Firmware v3.5.1 or higher.

Configurations required in Paxton Net2

Create a Net2 Operator

A new Net2 operator, with System Engineer rights, needs to be added to enable BioBridge to make a connection to the Paxton Net2 system. For this example an Operator called *Morpho BioBridge* with a password of *MorphoBioBridge1* has been created.



Create Departments in Net2

Departments are used by Net2 to make sure users have access through the correct doors. One or more Departments can be added to Paxton Net2, later these Departments will be linked to *MorphoManager's User Distribution Groups*.

Placing a user in the Paxton Net2 Department will then govern on to which Morpho readers the users profile will be distributed by MorphoManager. Paxton Net2 can only grant access to a user when the users profile is present on the Morpho reader at that door.

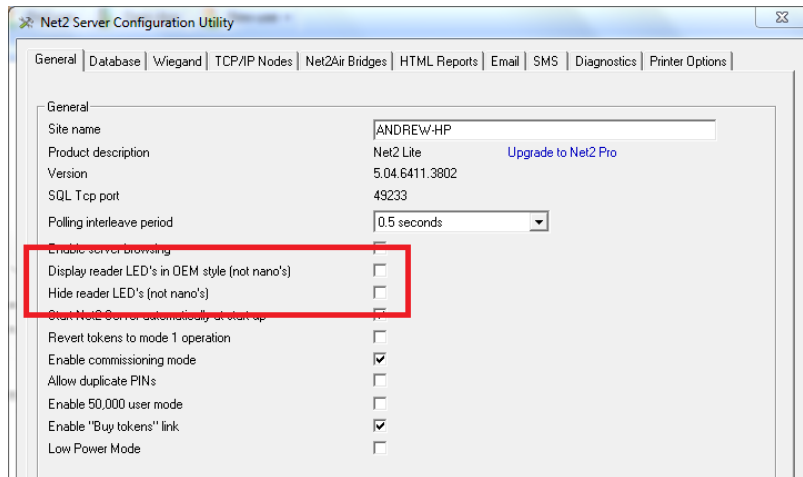
In this example, three groups were created in Net2 called Visitors, Employees & Managers.



Configuration in Net2 Server Configuration Utility

The following configuration needs to be made in the *Net2 Server Configuration Utility* to enable the MA SIGMA series devices to correctly interpret the state of the Green Led line to display the Access Granted & Access Denied message. This Access Granted message will only be displayed on the MA SIGMA series device when the Net2 panel has granted access to the user.

Both the *Display reader LED's in OEM style* & *Hide reader LED's* need to be deselected as shown below.



Configurations needed in MorphoManager

Editing the Administrator password

Once the software has been installed the default password of the Administrator user needs to be changed. The Administrator has full access rights in the MorphoManager software.

Log into the MorphoManager Client using the default username of *Administrator* and password *password*.

Under Administration → Operators highlight the Administrator and click on **Edit**. Click on the Reset password checkbox and then enter a new password for the Administrator operator. Click on **Finish** to save the changes.

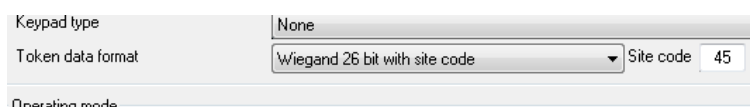
Editing the Wiegand Profile

MorphoManager and the MA SIGMA series readers can support both of the default *Token data format* types used in Paxton Net2. Depending on the Token data format used a Wiegand Profile will either have to be edited or created in MorphoManager.

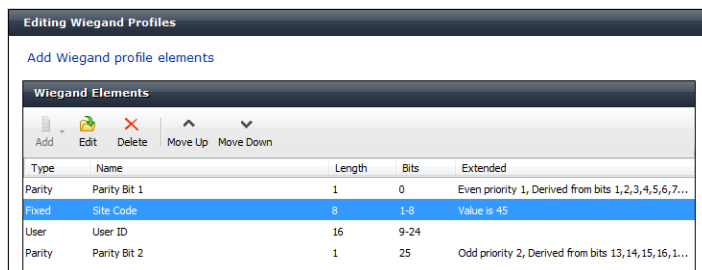
Configuration for Wiegand 26 bit with site code

If the Net2 system has been configured to use the *Token data format of Wiegand 26 bit with site code* then the Standard 26-bit Wiegand Profile in MorphoManager needs to be edited with the correct site code information. By default the Standard 26-bit wiegand profile is configured with a value of 0 for the site code.

The Net2 software has been configured for this example to expect a site code of 45, as shown below.

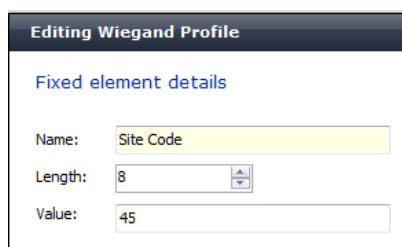


Navigate to *Administration* → *Wiegand Profiles* and highlight the *Standard 26-bit* wiegand profile, then click on **Edit**. On the *Editing Wiegand Profiles* page click on **Next**, the window below will then displayed displaying all of the wiegand elements in the Standard 26-bit wiegand profile.



Type	Name	Length	Bits	Extended
Parity	Parity Bit 1	1	0	Even priority 1, Derived from bits 1,2,3,4,5,6,7...
Fixed	Site Code	8	1-8	Value is 45
User	User ID	16	9-24	
Parity	Parity Bit 2	1	25	Odd priority 2, Derived from bits 13,14,15,16,1...

Highlight the *Site Code* wiegand element and click on **Edit**, change the value in the *Value* field to the match the value of the Site Code configured in Paxton Net2 e.g. 45.



Editing Wiegand Profile

Fixed element details

Name:

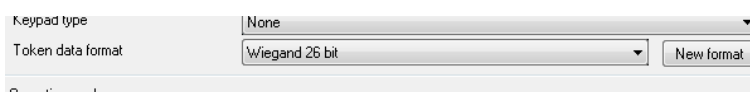
Length:

Value:

Click on **Next** and then on **Finish** to be taken back to the list of Wiegand Profiles.

Configuration for Wiegand 26 bit

In this example we have configured the Net2 system to use a *Token data format* of *Wiegand 26 bit*, we need to create a new Wiegand Profile for this format.

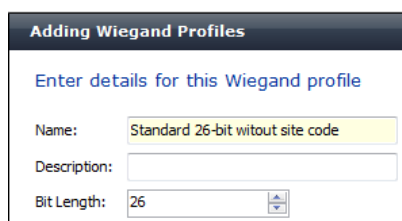


Keypad type:

Token data format:

Operation mode:

Navigate to *Administration* → *Wiegand Profiles* and then click on **Add**. Give the new Wiegnd Profile a *Name* and a *Description*. Set the *Bit Length* to 26, as shown below. Then click on **Next**.



Adding Wiegand Profiles

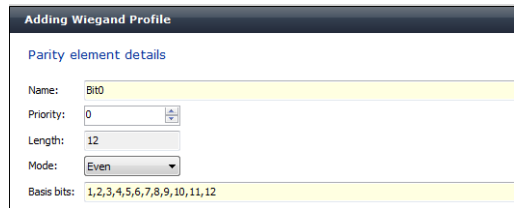
Enter details for this Wiegand profile

Name:

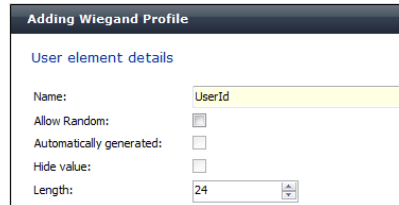
Description:

Bit Length:

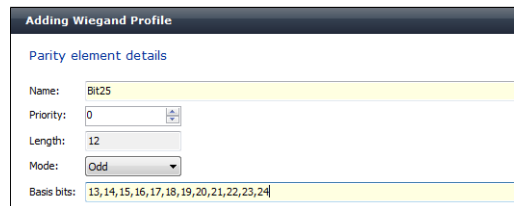
In the *Wiegand Elements* table click on **Add** and select *Parity*. Give the parity element a name e.g. Bit0 , then set the *Mode* to *Even*, then enter '1,2,3,4,5,6,7,8,9,10,11,12' in the *Basic Bits* field as shown below. Then click on **Next**.



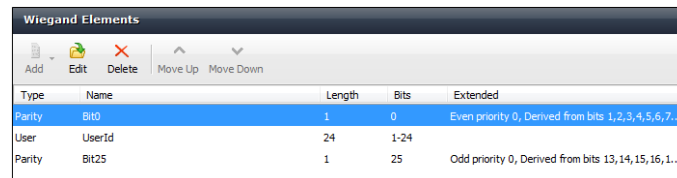
Click on **Add** and select a *User* element from the list. Give the user element a name and set the *Length* to 24, as shown below. Then click on **Next**.



Click on **Add** and select Parity. Give the parity element a name e.g. Bit25 , then set the *Mode* to *Odd*, then enter '13,14,15,16,17,18,19,20,21,22,23,24' in the Basic Bits field as shown below. Then click on **Next**.



The complete structure of the new Wiegand Profile will then be displayed, as shown below. If it is correct then click on **Finish** and the new profile will be added to the list of supported Wiegand Profiles in MorphoManager.

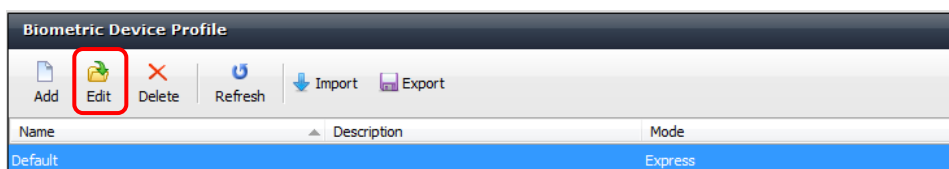


Type	Name	Length	Bits	Extended
Parity	Bit0	1	0	Even priority 0, Derived from bits 1,2,3,4,5,6,7...
User	UserId	24	1-24	
Parity	Bit25	1	25	Odd priority 0, Derived from bits 13,14,15,16,1...

Creating a Biometric Device Profile

A Biometric Device Profile (BDP) in MorphoManager defines common settings and parameters for the MA SIGMA series devices. When a device is added to MorphoManager and a BDP is selected MorphoManager then applies the settings from this BDP to the device.

MorphoManager creates a *Default* BDP for a device to work in *Biometric 1:Many* mode. For this BDP profile to work with Paxton Net2 a number of these settings need to be changed.



Name	Description	Mode
Default		Express

Navigate to Administration → Biometric Device profile, highlight the *Default* BDP and select **Edit**. The form below will now be shown, click on **Next** as no changes need to be made on this first form.

Enter details for the Biometric Device Profile

Name:

Description:

Configuration Mode:

Log Retrieval Enabled:

Log retrieval interval: (seconds)

Duplicate check on biometrics: (MA 100, MA J, MA 500, MA VP, MA Sigma, MA Sigma Lite, MA Sigma Lite+, MA Sigma Extreme and MorphoWave only. Only applicable to new user adds)

MorphoAccess heartbeat interval: (seconds)

Key Policy:

MA Sigma, MA Sigma Lite, MA Sigma Lite+, MA Sigma Extreme Only Settings

Allow Remote Enrollment:

Default User Policy for Remote Enrollment:

In the *Biometric Device Settings* window change the *Wiegand Profile* to the Wiegand Format expected by the Paxton Net2 system i.e. Standard 26-bit, then click on **Next**.

Biometric Device Settings

General Settings

Wiegand Profile:

Language:

Realtime logging enabled:

Biometric Threshold Settings


Biometric Threshold:

MorphoAccess Vein Print Mode:

MorphoAccess Fingerprint Threshold:

Morpho 3D Face Identification Threshold:

Morpho 3D Face Verification Threshold:

 It is recommended the mode set in User Policy for enrollment should be the same mode or a more restrictive mode than the mode set in Biometric Device Profile. Using a less restrictive mode in User Policy than in Biometric Device Profile is likely to increase the False Rejection Rate (FRR) of biometric devices.

Click on **Next** until the *Access Control Settings* window is being displayed. The *Access Control Mode* should be set to **Integrated**.

If the Paxton Net2 panel is going to send feedback to the Morpho reader when a person has been accepted then change the *Panel Feedback Mode* to **LED In** and change the *Panel Feedback No Response Timeout* to **3000** (milliseconds).

Access Control Mode Settings


Access Control Mode:	Integrated
Wiegand Out Enabled:	<input checked="" type="checkbox"/>
Clock and Data Out Enabled:	<input type="checkbox"/>
Panel Feedback Mode:	LED In
Panel Feedback No Response Timeout:	3000 (in milliseconds)
Relay Enabled:	<input type="checkbox"/>
Relay Duration:	1000 (in 10s of milliseconds)
Push To Exit Enabled:	<input type="checkbox"/>
Request to Exit Egress Timeout:	25000 (in milliseconds - please refer to the MorphoAccess Sigma Series Administration Guide for further information)
Duress Wiegand Mode:	Reversed
Duress Wiegand Profile:	Automatically generated random 64 t

Click on **Next** until the *Custom Parameters* screen is shown. The following custom parameters need to be added to the BDP to enable the MA Sigma series device to work with the signals sent by the Paxton Net2 system on an Access Granted.

To add the custom parameter click on **Add** and then enter the Name & Value of the parameter given below.

Note: Care needs to be taken with the parameter name as no checks are made for the correct spelling.

MA Sigma, MA Sigma Lite, MA Sigma Lite+, MA Sigma Extreme, MorphoWave Custom Parameters

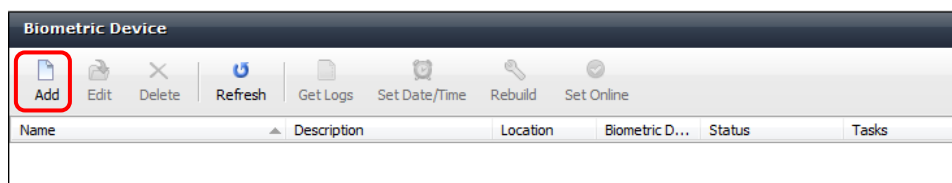
Custom Parameters	
	
Name	Value
controller_feedback.denied_pulse_interval	-1
controller_feedback.denied_pulse_width	-1
controller_feedback.feedback_lines	1
controller_feedback.granted_pulse_interval	100
controller_feedback.granted_pulse_width	100

Then click on **Finish** to save the BDP.

The other settings for the Biometric Device Profile are discussed in the 'MorphoManager User Manual.pdf'.

Add readers into MorphoManager

Readers need to be added to the system before they can be added to a User Distribution Group. In the MorphoManager home screen navigate to *Administration* → *Biometric Device* and click on **Add**.



Give the new reader a *Name* and *Description*. The Name and/or Description should allow a person to easily identify the device in the MorphoManager lists.

Select the correct **Time Zone** for the reader. MorphoManager uses the time of the MorphoManager server and Time Zone to set the correct time on the device.

Select the correct *Hardware Family* according to the device you are adding to MorphoManager.

Insert the correct *IP Address* for the reader that is being added in the *Hostname\IP Address*. Configuration of the IP Address on the devices can either be made through the Administration screen on the device (MA Sigma) or through USB Scripts (MA SIGMA Lite).

Unless a new Biometric Device Profile has been created keep the *Biometric Device Profile* at *Default*.

Enter the details for this Biometric Device

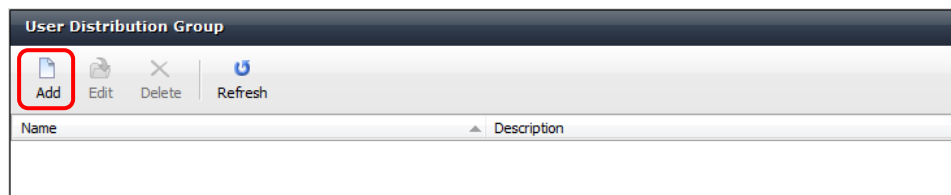
Name:	<input type="text" value="MA Sigma Lite Plus Multi"/>
Description:	<input type="text"/>
Location:	<input type="text"/>
Asset ID:	<input type="text"/>
Export Value:	<input type="text"/>
Time Zone:	<input type="text" value="(UTC) Dublin, Edinburgh, Lisbon, London"/>
Hardware Family:	<input type="text" value="MA Sigma, MA Sigma Lite, MA Sigma Lite+"/>
Serial Number:	<input type="text"/>
IMEI Number:	<input type="text"/>
Hostname\IP Address:	<input type="text" value="192.168.50.171"/>
Port:	<input type="text" value="11010"/>
Biometric Device Profile:	<input type="text" value="Default"/>
Include in Time & Attendance Exports:	<input type="checkbox"/>
Change User Onsite / Offsite Status:	<input type="checkbox"/>
Onsite Key:	<input type="text" value="No Key"/>
Offsite Key:	<input type="text" value="No Key"/>

Click on **Finish**.

In the *Biometric Device* window the new reader will be added and an Online/Offline *Status* will be shown along with a number of *Tasks*. Once the reader has come online then MorphoManager will make all the configuration changes to the Morpho reader as per the BDP, once this is complete the Morpho reader will restart.

Create User Distribution Groups

User Distribution Groups are designed to distribute users onto groups of Morpho readers.



In the MorphoManager home screen navigate to Administration → User Distribution Group. In the User Distribution Group window click **Add** and give the new group a *Name* from the departments list in Paxton Net2 e.g. Visitors.

Adding User Distribution Group

Enter details for this User Distribution Group

Name:

Description:

Click on **Next**, the window shows a list of all the readers that have been added to MorphoManager, select the Morpho readers you want a person who is a member of this User Distribution Group to have access through. Once you have selected the appropriate readers then click on **Finish**. A Morpho reader can be a member of one or more User Distribution Groups.

Select Biometric Devices

Select All Clear All

Name	Description	Location	Model
<input checked="" type="checkbox"/> MA Sigma Lite Aus			MA Sigma Lite+ WR
<input type="checkbox"/> MA Sigma Lite Plus Multi			MA Sigma Lite+ iClass WR
<input type="checkbox"/> MA Sigma Multi			MA SIGMA iClass

All the groups that have been created in MorphoManager will be shown in the main User Distribution Group.

User Distribution Group

Add Edit Delete Refresh

Name	Description
Employees	
Managers	
Visitor	

Create User Policies

User Policies apply an Authentication method to the members of this Policy. To configure BioBridge a *User Policy* with an *Access Mode* of *Per User* must be selected.

A *Default* user policy will already be created in MorphoManager, this uses an Authentication Mode of Biometric (1:Many).

Navigate to Administration → User Policy and highlight the Default user policy. Select **Edit** and change the *Access Mode* to *Per User* and change the Wiegand Profile to the same Wiegand Profile that was used when adding Morpho readers to the system e.g. Standard 26-bit.

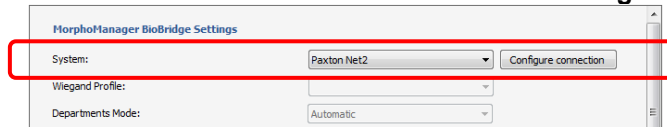
Click on **Finish**.

Note: Other Wiegand Profiles are available in the Wiegand Profile section of MorphoManager. If MorphoManager doesn't include the needed Wiegand Profile then a custom wiegand profile can be created. Instructions to do this are in the MorphoManager User Manual.

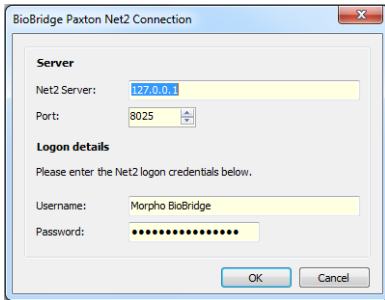
Configure MorphoManager's BioBridge

From the Home page in MorphoManager navigate to the BioBridge tab through *Administration* → *System Configuration* and select the *BioBridge* tab. This is where the link between the Paxton Net2 & MorphoManager's BioBridge systems will be created.

In the *System* drop down menu select *Paxton Net2* and then click on the **Configure Connection** button.



The *BioBridge Paxton Net2 Connection* window below will then appear.



Enter the details into the fields in the window.

Net2 Server: *127.0.0.1* or *localhost*, if both the Paxton Net2 & MorphoManager software is installed on the same computer. Enter the IP address of the Net2 server if it is located on a different PC.

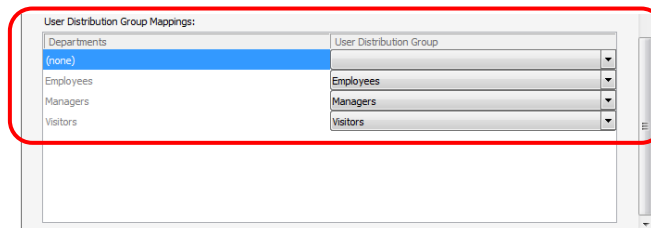
Port: leave as the default 8025.

Username: Morpho BioBridge as in the example above.

Password: MorphoBioBridge1.

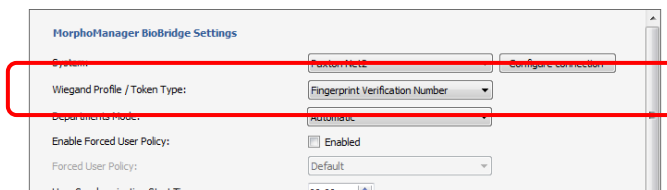
Click on **OK**.

If everything has been configured correctly you should see that the Departments in Paxton Net2 have been mapped to the User Distribution Group in MorphoManager, see below.



If the names for the *Departments* in Paxton Net2 are different from the names used for the *User Distribution Groups* in MorphoManager then you can use the *Manual Department Mode*. The dropdown menus in the *User Distribution Group Mappings* are then used to manually map the two together.

The BioBridge needs a *Wiegand Profile / Token Type* configured, BioBridge will only synchronise users who have this Token Type configured on their profile in Net2. In this example the *Fingerprint Verification Number* Token is used.



If only one *User Policy* has been configured then the *Enable Forced User Policy* can be enabled and the *Forced User Policy* set to the User Policy every user should be enrolled under.

Click on **Save** to save the settings.

Installing the MorphoManager BioBridge enrolment button

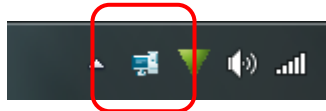
The enrolment button in Paxton Net2 was added in MorphoManager v12.6.3.

The Enrolment button is added to the Add User window of the Paxton Net2 software. This button enables the Biometric Enrolment within MorphoManager to be started from within Paxton Net2 when adding a new user into the system.

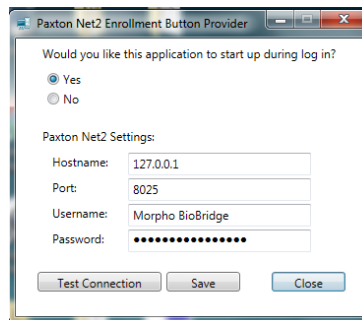
To install the enrolment button the file *ID1.MM.PaxtonNet2EnrollmentButton.exe* needs to be run from the MorphoManager client folder within *Program Files (x86)*.

If the defaults were used during the MorphoManager installation this can be found in *C:\Program Files (x86)\Morpho\MorphoManager\Client*.

After this file has been run a *Paxton Net2 Enrolment Button Provider* icon the following icon will appear in the Windows Taskbar, as shown below.



Right click on the icon and then select *Options*, enter the details of the Net2 Operator added in the previous steps.



Click on the Test Connection button to make sure the settings are correct, if the connection is successful then click on Save. Configure the MorphoManager Advanced Client Configuration

Need to add steps to automatically log into the BioBridge Enrolment Client window.

Configuring Automatic Logon of the BioBridge Enrolment Client

Navigate to Administration → Operator and click on **Add**. The form below will then be displayed.

Enter the details to create a new operator, only the fields with a yellow background are mandatory, then click **Next**. An example of the form is shown below.

Enter the details for this Operator

Username:

First name:

Middle name:

Last name:

Job title:

Authentication method:

Administrator: (Check to set full privilege)

Reset password: (Check to reset password)

Password:

Confirm password:

Active directory domain:

Give the new operator only the privileges to log in through the *BioBridge Enrolment Client*, as shown below. Then click on **Finish**.

Select the Operator Roles for this Operator

Operator role	Grant
Access Logs Monitor Operator	<input type="checkbox"/>
BioBridge Enrollment Operator	<input checked="" type="checkbox"/>
MISO Identification Operator	<input type="checkbox"/>
Onsite/Offsite Monitor Operator	<input type="checkbox"/>
Reports Operator	<input type="checkbox"/>
User Management Operator	<input type="checkbox"/>

Open the *MorphoManager Advanced Client Configuration* under *All Programs* → *MorphoManager*.

In the *Automatic Login* section of the form enable the Automatic Login and then add the Username & Password for the new operator that was previously added, an example is shown below.

Automatic login

Enable automatic login

Username:

Password:

Then click on **Apply Changes** and close the *MorphoManager Advanced Client Configuration* window.

Now the login of the *BioBridge Enrolment Client* window will be skipped when the *Add user and Enroll biometrics* button is clicked in the *Add Users* form of *Paxton Net2*.

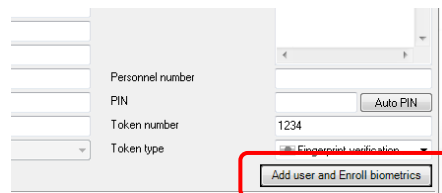
But when using the *MorphoManager Client* the first log in will fail as *MorphoManager* will attempt to log in with the *BioBridge* operator.

Adding a User using the BioBridge enrolment button

A new user is added to the Paxton Net2 system as usual, the new user must have the following parameters set:

- First Name e.g. New
- Last Name e.g. User
- Department e.g. Employees
- Access Rights of either 'All hours, All doors' or 'Working Hours'.
- Token Number e.g. 1234
- Token Type – this must be set to the *Wiegand Profile/ Token Type* used when configuring the BioBridge e.g. Fingerprint Verification Number.

Then click on **Add user and Enroll biometrics button** in the Add User window of Paxton Net2, shown below.



This will close the *Net2 Add User* window and automatically open the *BioBridge Enrolment Client* window.

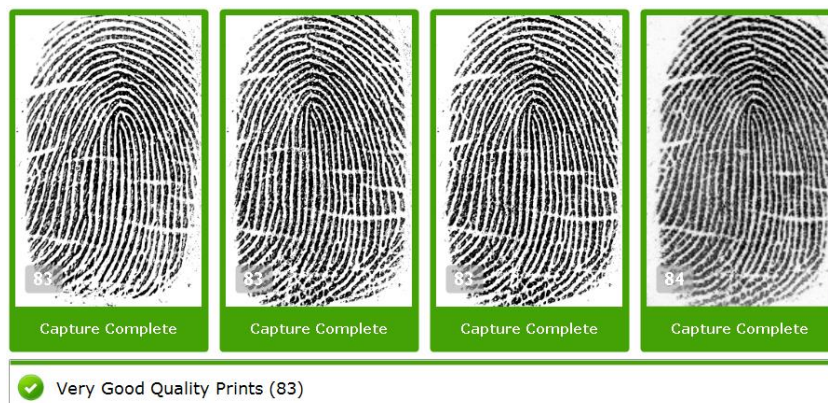
Select in the *User Policy* drop down the *User Policy* for this user and then click on **Next**. If only one *User Policy* is used for everyone then a *User Policy* can be forced in the BioBridge configuration, this will then remove this window from the enrolment process.

You will then be asked to capture a portrait image of the user, then click on **Next**. If no picture is required then this option can be disabled in the *User Policy*, this will then remove this window from the enrolment process.

In *Finger Biometric Enrolment* screen the user needs to enrol two of their fingers. Select the finger on the hand graphic the user wants to be enrol first. When a finger has been selected a 2nd screen will appear, when the user places their finger on the USB fingerprint sensor real time feedback will be given on the screen.

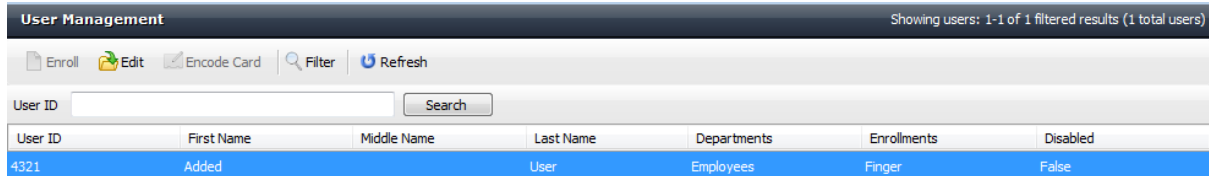
The user needs to place their finger on the sensor four times each time they enrol a finger. During the fingerprint enrolment feedback will be given on the position of the finger on the sensor and the pressure of the finger during enrolment.

Below are examples of a good fingerprint placement during enrolment.



Make sure the Finger1 & Finger2 drop down menu has the correct finger configured. Make sure the Duress finger is set to None.

Then click on **Finish**.



In the *User Management* screen of the *BioBridge Enrolment Client* the Enrolments column for the added user should now show *Finger* and the persons biometric information will have been pushed to the correct Morpho readers.

Disabling a User in MorphoManager

When a user is Disabled in the MorphoManager system then their user profile will be removed from the devices they have access through.

In Paxton Net2 if a user's token is Deleted, marked as Lost or their Access Level Permissions set to 'No Access' then the user will automatically be disabled in MorphoManager.

If then in Paxton Net2 a token is added, marked as found or their Access Level Permission is changed from 'No Access' the user will be automatically enabled again and their biometric profile sent to the readers without a re-enrolment.

For setting on how MorphoManager deals with disabled users go to Administration → System Configuration → System Management. By default disabled users will be deleted from MorphoManager after 90 days at which time the user will need to be re-enrolled.

Connections between MA SIGMA & MA SIGMA Lite devices and the Paxton Net2 Plus controller

Below are the details of the connections between the MA SIGMA or MA SIGMA Lite devices and the Paxton Net2 Plus controller.

Paxton Net2 Plus reader port		MA SIGMA	MA SIGMA Lite
Data D0	→	D0_OUT	Green
Clock D1	→	D1_OUT	White
LED Green	→	LED1	Blue
OV	→	DGND	Black/Red

Note

1. The LED GREEN → LED1 connection is only needed if you have configured the Panel Feedback in the Access Control Mode Settings of the Biometric Device Profile.
2. The connections above are when the Morpho Access device is using an external power source such as PoE.