Biometric Fingerprint Platform

User Guide

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This document aims to guide the user on how to prepare a development environment to use Bayometric Fingerprint Solution.

Requirements

Following are hardware and software requirements to install Bayometric Fingerprint Platform:

- Hardware
    - 2GB of RAM
    - 300MB of free space
- Software
    - Server
        - Server 2012/2008 R2 (recommended)
        - Windows 7 (minimum)
        - .net Framework 4.0
    - Client
        - Windows 7, 8.1
        - .net Framework 4.0
- Compatible fingerprint scanner

Installation instructions

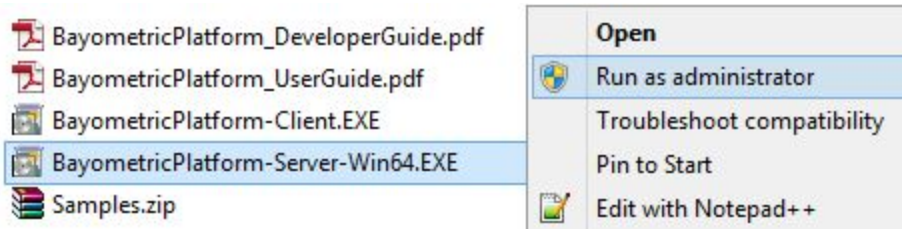
Platform installation package is a zip file that contains the following files:

- BayometricPlatform-Server-Win64.exe
    - Server installation package, this package installs services and tools required to host the Biometric server as well as administration tools.
- BayometricPlatform-Client.exe
    - Client redistribution package. This package installs client software and SDK required for applications to interface with the platform. It also installs a Client Configuration tool that helps user finding server location.
- Samples.zip
    - This zip file contains sample applications in C#.NET, Java and C++, with source code, that demonstrate usage of SDK and API.
- BayometricPlatform_UserGuide.pdf (this document)
- BayometricPlatform_DeveloperGuide.pdf
    - Guide document for developers.

Server Setup

Pre-requisites: Please make sure the computer does not have any previous installation of Bayometric Platform, OR MySQL database prior to installing this software. If any version of MySQL is installed, platform setup will not succeed. Also make sure that no folder named MySQL is present in C:\Program Data folder.

Install Platform by executing BayometricPlatform-Server-Win64.exe as administrator on a clean machine. To install as administrator, right click on the BayometricPlatform-Server-Win64.exe, select “Run as administrator”.



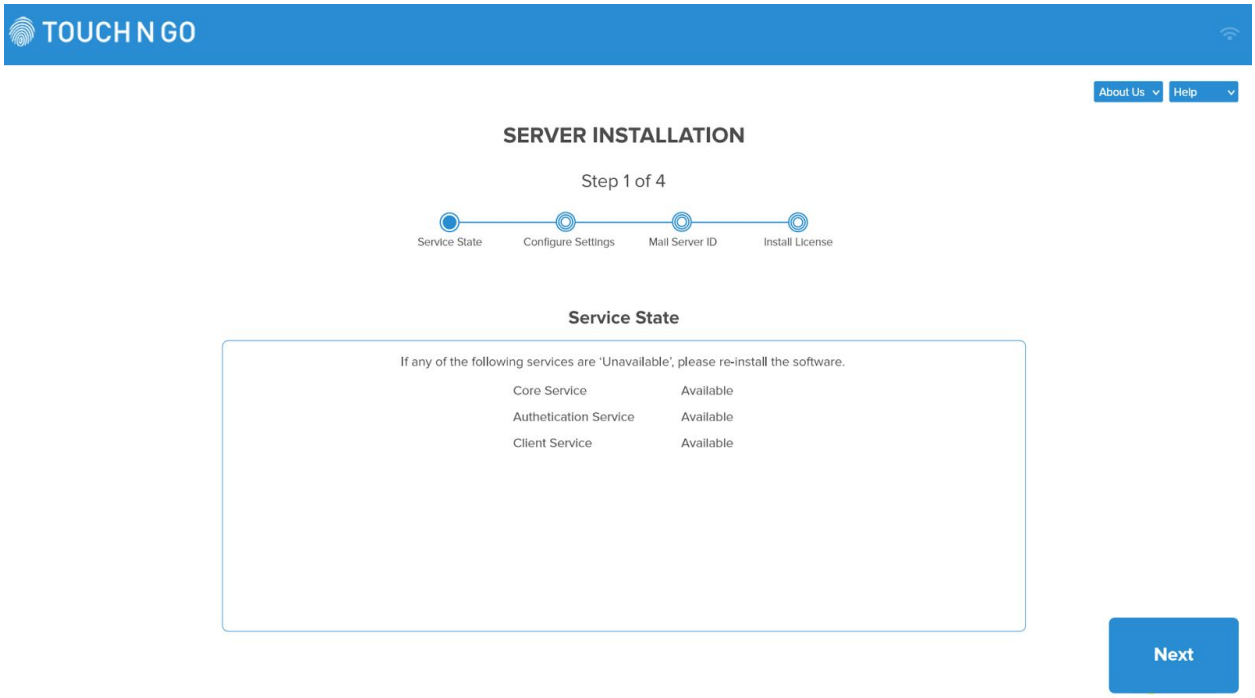
If the option “Run as Administrator” is not used, installer will not be able to start the service.

This setup will install MySQL server, setup database, install Bayometric Platform Services and Administration Tools.

During the steps below, when firewall settings are configured by the tool, consider that it only works for Windows Firewall. If the computer is protected by other solutions, check item “Firewall configuration” below in order to find which ports must be enabled.

Configuration Wizard

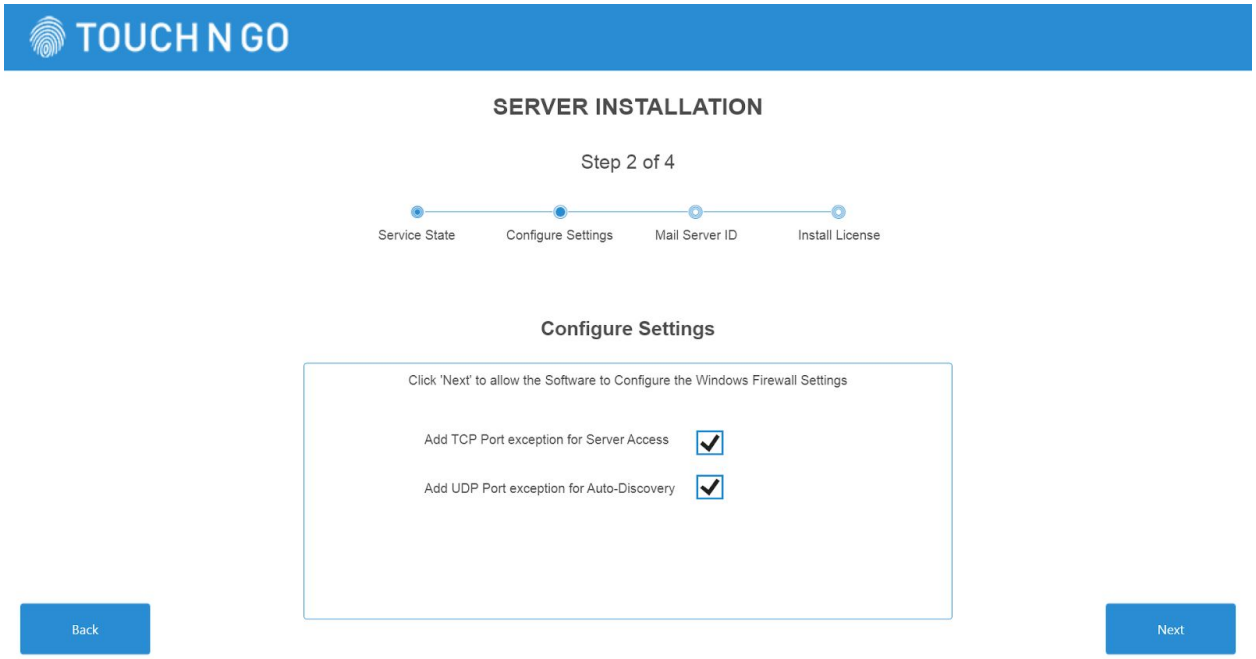
After setup finishes installing all necessary services and tools, Bayometric Configuration Wizard will appear. First screen, figure below, shows services status. If the installation was successful, all 3 services must be with status “Available”. If this is not the case, close the wizard and reinstall the platform.



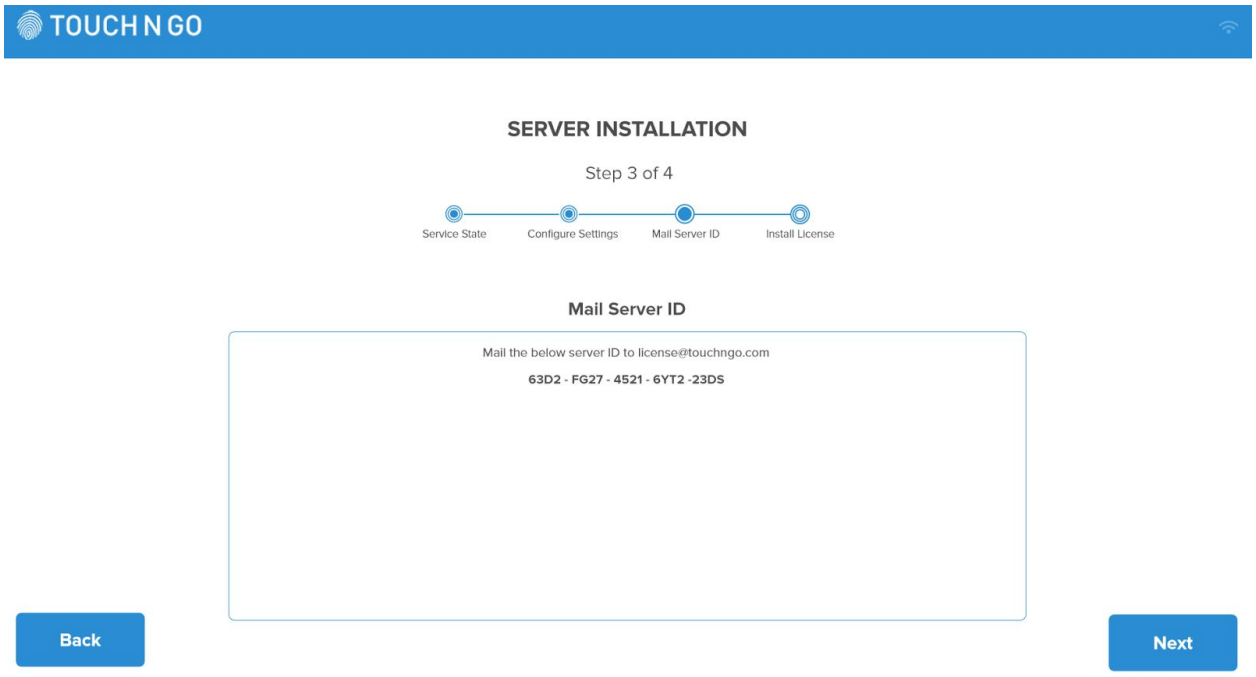
After clicking “NEXT”, following screen should appear. On this screen, it is possible to allow Bayometric Wizard to set firewall rules necessary to run the platform. Please note that this wizard only creates rules on Windows Firewall.

Two firewall settings are available:

- Mandatory Settings: this item must always be configured, so, click SET to create the rules on Windows Firewall.
- Auto Discovery Settings: this item must be configured if auto discovery will be used by client machines to find server location. Click set to have the tool to configure Windows Firewall.

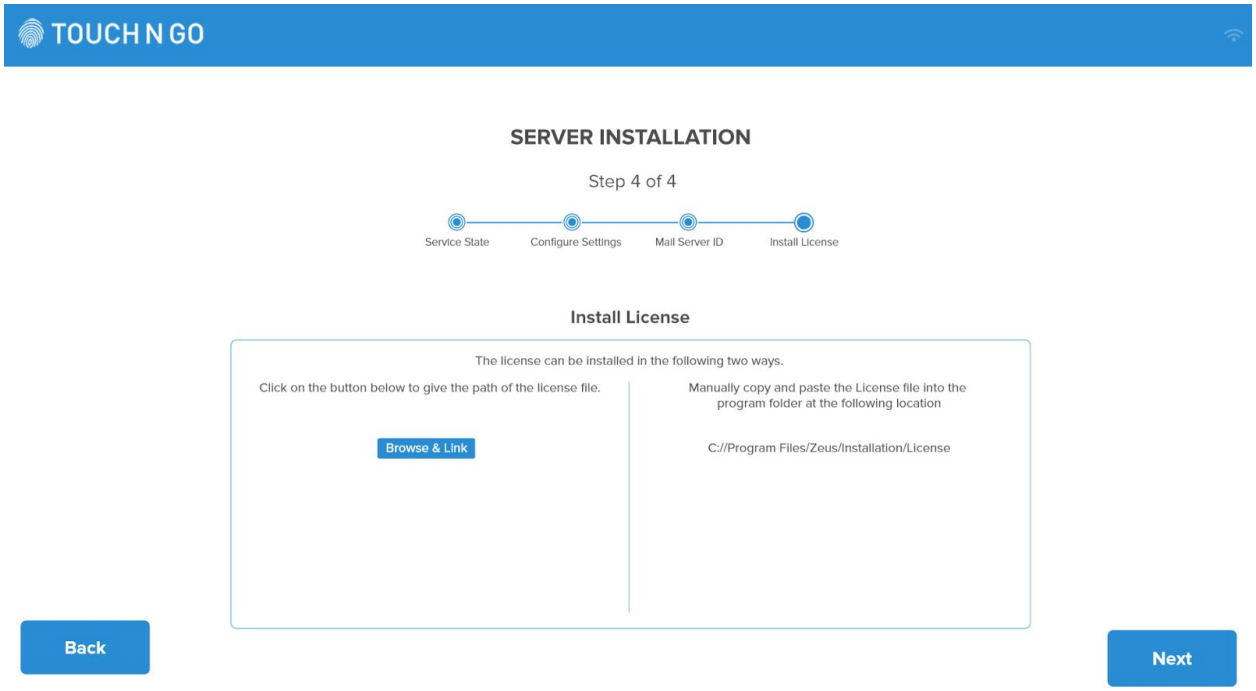


After configuration is done, click “NEXT”, and, if no license is installed on server, the following screen will show up.



This screen shows a Machine ID, that is the machine identification that must be sent to Bayometric in order to acquire a license.

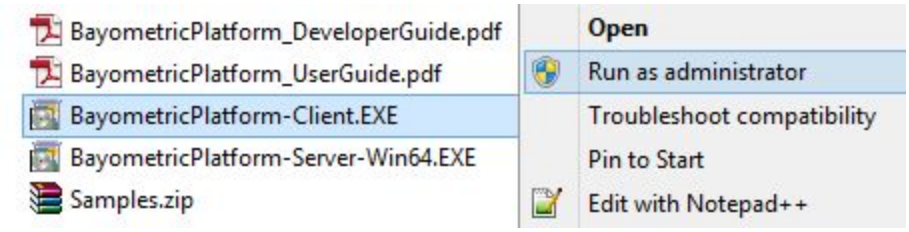
A valid Bayometric Platform license is required for the platform to activate and respond to the application requests. If license file is already available, click “Click to add license” button, and select license file to activate platform.
If license will be installed later place the license file “bfslic.lic” in “C:\Program Files (x86)\Bayometric\Zeus Core” folder.



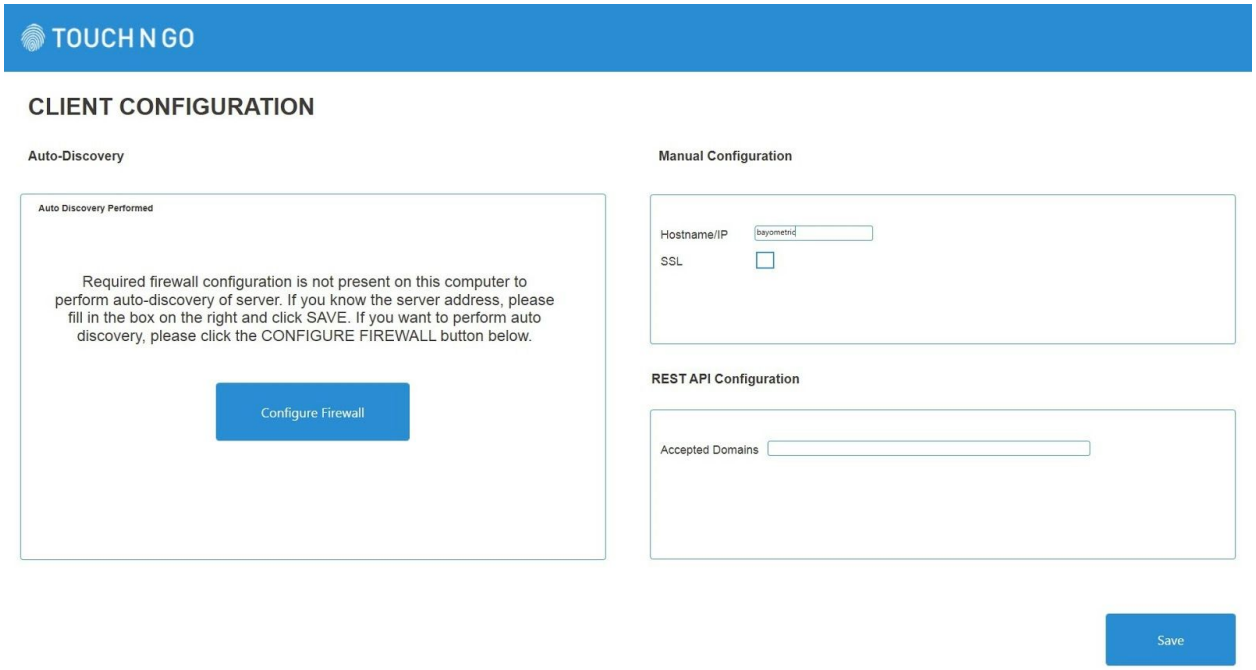
After clicking next, final screen below will appear and Installation Wizard will close.

Client Setup

A remote client can be setup by installing BayometricPlatform-Client.exe. This package must be deployed with applications that use Bayometric Platform.



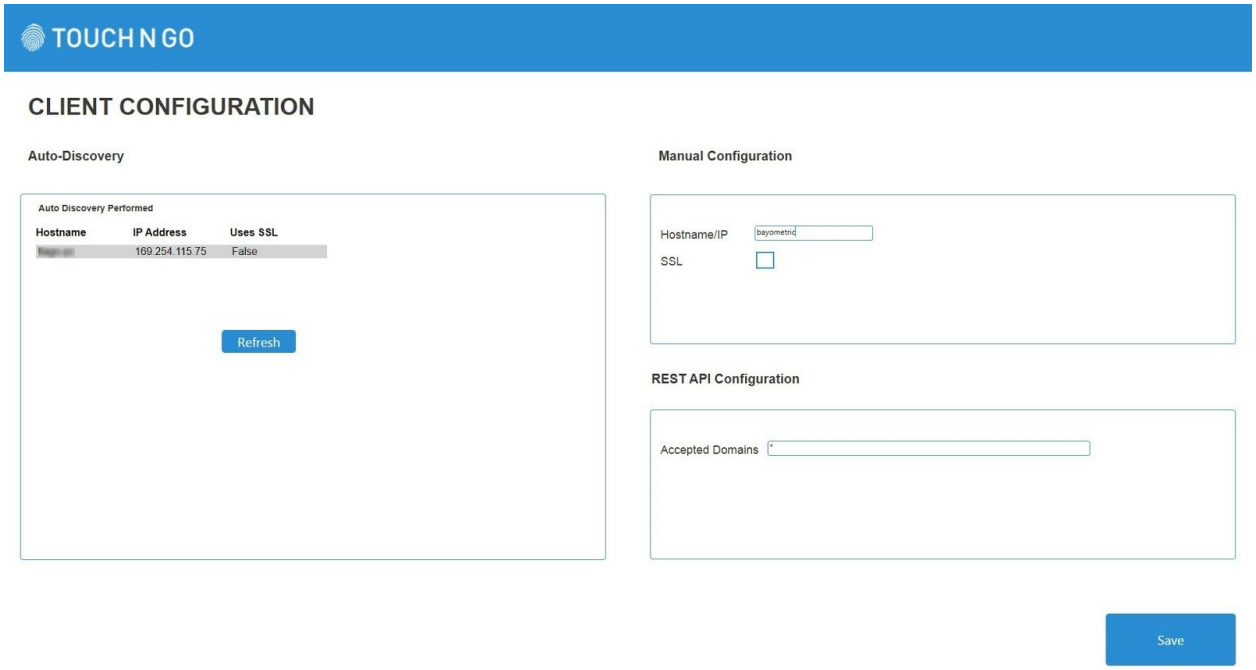
After running as administrator BayometricPlatform-Client.exe, as the last step of installation, Bayometric Client Configuration tool will open and the following screen will appear.



User will be able to see screen above if firewall settings needed to perform auto discovery are not created on the machine. In this situation, two options are available:

- Click Configure Firewall button and let Bayometric do all firewall configuration needed.
- Manually set Hostname or IP address under Bayometric Server section

If “Configure Firewall” button is clicked, the following screen will appear, and if server is properly configured to respond to auto discovery requests, server information will appear, as shown on figure below.



Bayometric Server section will be updated and show correct hostname.

REST API Configuration session allows users to configure which domains are allowed to call local service from web pages. This configuration sets the “Access-Control-Allow-Origin” header on HTTP requests. All browsers expect this information to be set. Default value is empty, which means that no domain can call Bayometric service. For allowing any domain to call it, set it to “*”. For more information, HTTP headers configuration should be followed.

If everything is correct, click Save. If you see a message “Could not find Server”, then please click on Refresh.

It is important to know that auto discovery uses UDP communication between client and server. So, it is possible that some attempts to find server does not work due to packages loss. Button Refresh can be clicked to try again.

Client side of the platform is now ready to be used.

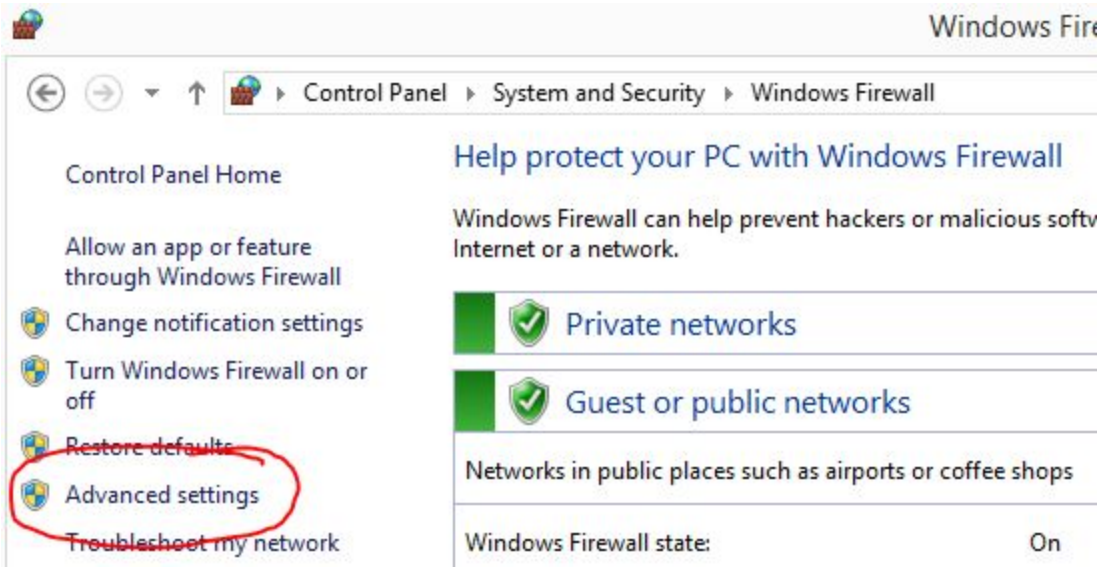
Firewall configuration

If machines running Bayometric Platform use a different firewall solution other than Windows Firewall, or if during installation firewall was not configured, firewall shall be configure to allow Bayometric Platform Clients to be able to communicate with the server over the network and also to allow client machines to find server location during platform setup. By default, firewall

would have blocked the network ports used by Bayometric Platform. This configuration is not required if firewall is turned off on the server and client where Bayometric Platform is installed. Also, please review the network configuration with your network administrator and make sure the network configuration in your organization is setup to allow Bayometric Platform Clients to be able to communicate with the server. Steps below go through configuration process on Windows Firewall. For other solutions, please check with your network administrator how to create the rules for required ports.

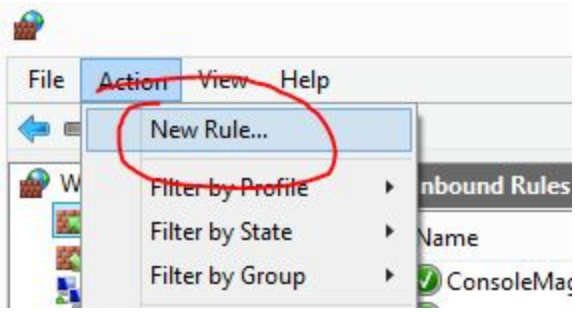
Step 1 - Start Firewall Configuration

Start Firewall Configurator on the computer where Bayometric Platform is installed. Select “Advanced Settings” to start advanced firewall configuration.



Step 2 - Add Exceptions

Click on “Inbound Rules” and select “Action->New Rule…” from the menu



On the rules below, UDP port configuration is only needed if client will use Auto Discovery feature to find server.

Add the following rules for “Port Exception”:

1. TCP port **22960**
2. TCP port **22961**
3. UDP port **22965**

Now, if client machines will use Auto Discovery to locate server, on previous screen, click on “Outbound Rules” and select “Action->New Rule…” from the menu.

Add the following rules for “Port Exception”:

1. UPD port **22964**

Using Auto Discovery

Bayometric supplies a Client Configuration tool that can be ran on client machines in order to allow auto location of server.
If this is the case, client machines firewall must also be configured. Add the following Port Exception rules on each client machine if Auto Discovery is used:

Add the following Inbound rule for “Port Exception”:

1. UDP port **22964**

And also add the following Outboud rule for “Port Exception”:

1. UDP port **22965**

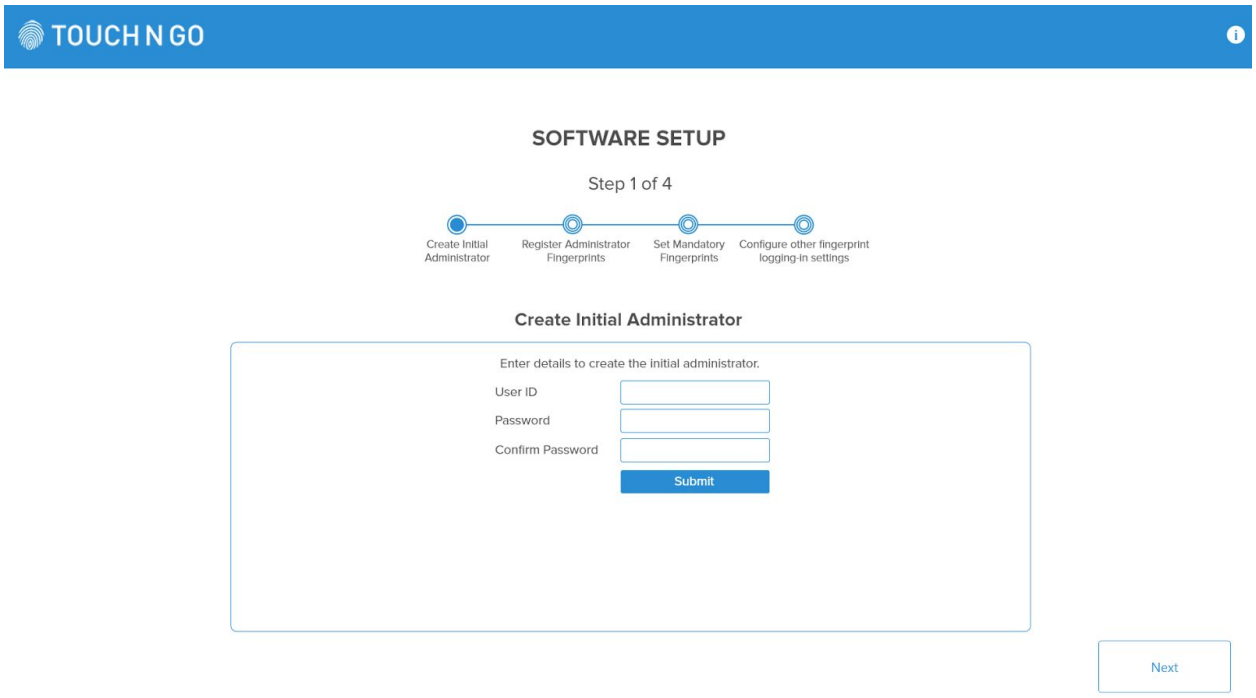
Administration Tool

Bayometric Administration tool helps bootstrap the platform by enrolling the first administrator. A fingerprint scanner is required to enroll the first administrator, so please have the scanner connected before launching the admin tool.

Launch **Bayometric Administration** software under Bayometric folder on Start Menu.

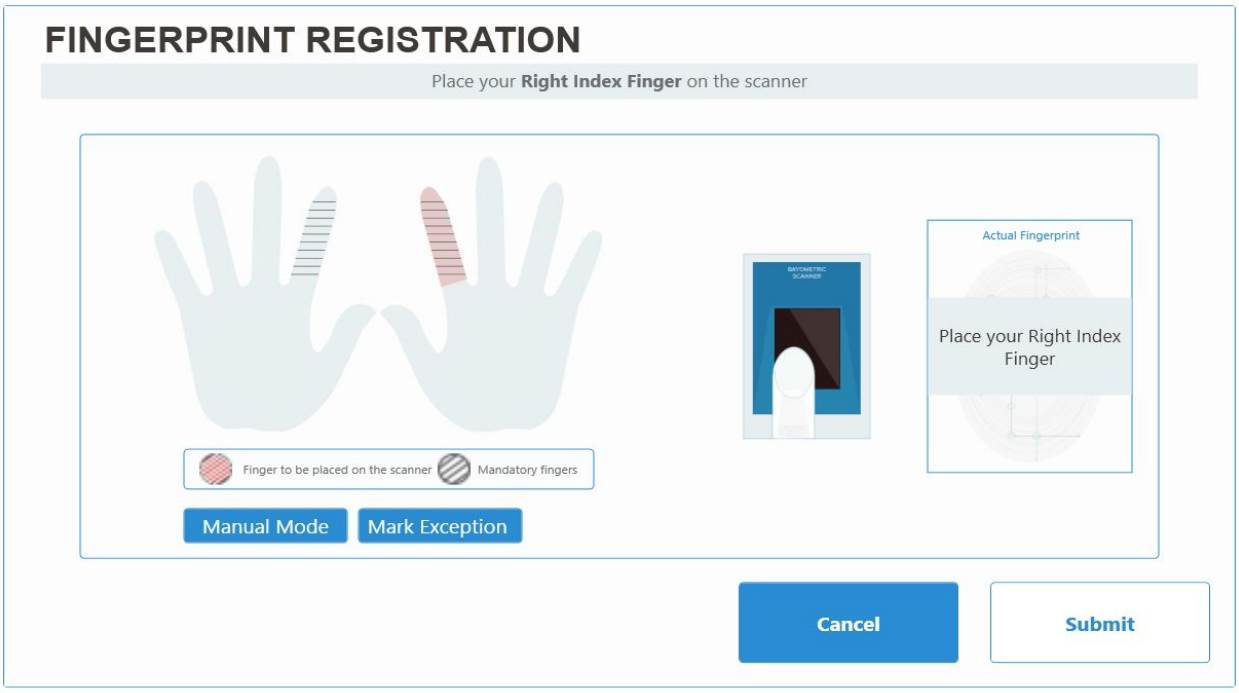
Running the tool from the same machine server is installed is called Local Mode. Running from a different machine is called Remote mode.

When running the tool for first time (when no administrator is registered), two situations are possible. In local mode, the following screen will show.



This screen allows IT Administrator to enroll a new admin or the configure the server.

Fill-in ID, Password fields in the form, and click Submit. Fingerprint capture wizard screen will guide you to enroll fingerprints for administrator.



When enrollment GUI opens, it is in “automatic mode”, this means that this is already waiting for the first finger to be placed on fingerprint reader.

Mandatory fingers are marked with a black lines. These fingers must be captured before submitting captured information. Current finger being captured is marked with pink background.

For each finger to be captured, user should place his finger up to 7 times on the the fingerprint scanner depending on the fingerprint quality. This number guarantees that the quality of the enrollment is good and recognition performance will be high.

After capturing all mandatory fingers, Submit button will be enabled. Upon submission (click on the Submit button), the identity will be registered.

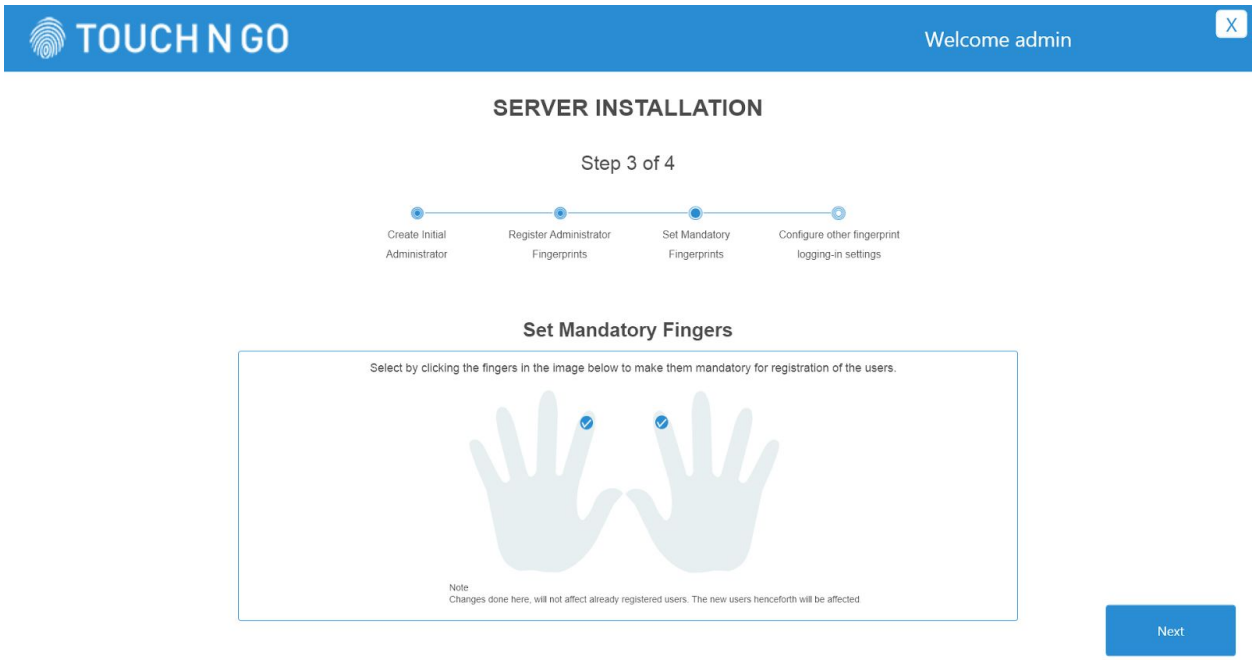
If person being enrolled does not have a mandatory finger or is not able to capture that finger, select Mark Exception. A Mark Exception Window will open. Please select the reason for exception. After an exception is set, finger is considered to be captured.Once an exception is marked, please select the next finger to be registered by clicking on the finger.

If for any reason user needs to switch to “manual mode”, just click “Manual Mode” button. On manual mode, to start capturing a finger, just click on desired finger.

The Next Step is to Login using the Fingerprint that you just registered. Please place your registered finger on the scanner to log into the Admin Panel

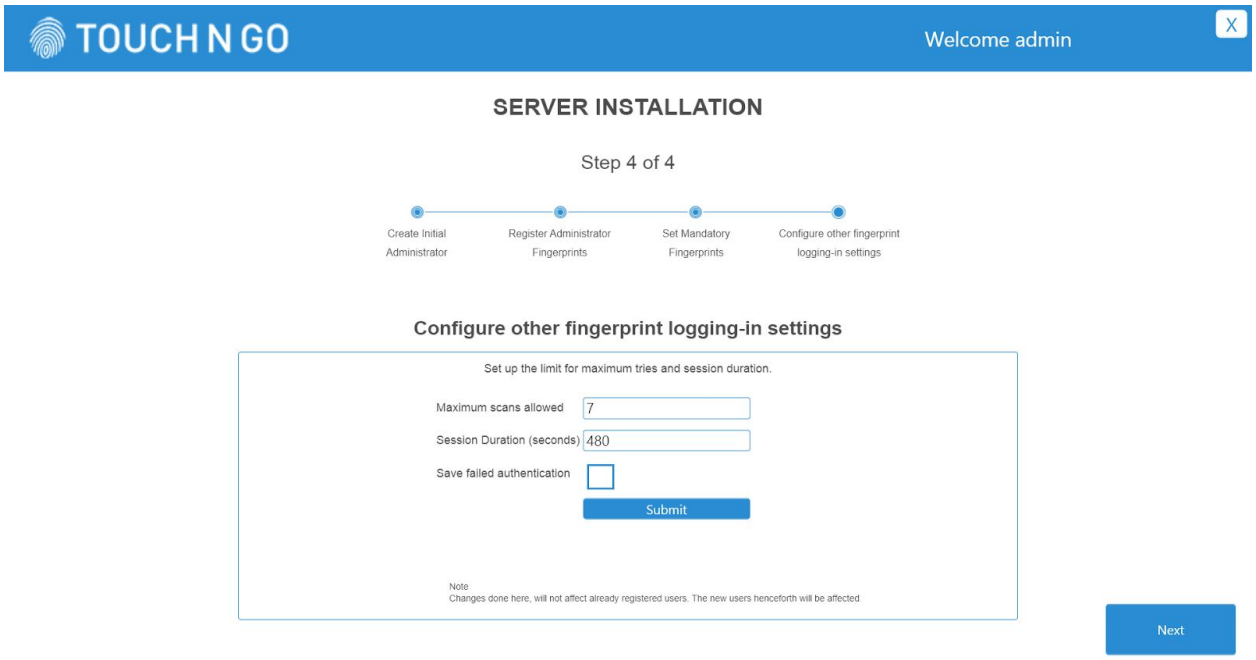
Once you have logged in you will be guided through initial Software Settings.

In the screen below, you can select the fingerprints that are mandatory fingerprints for the user registration. Mandatory Fingers allows administrators to set which fingers are mandatory when enrolling a new user. After saving, it will be used on all client machines on the next enrollment.

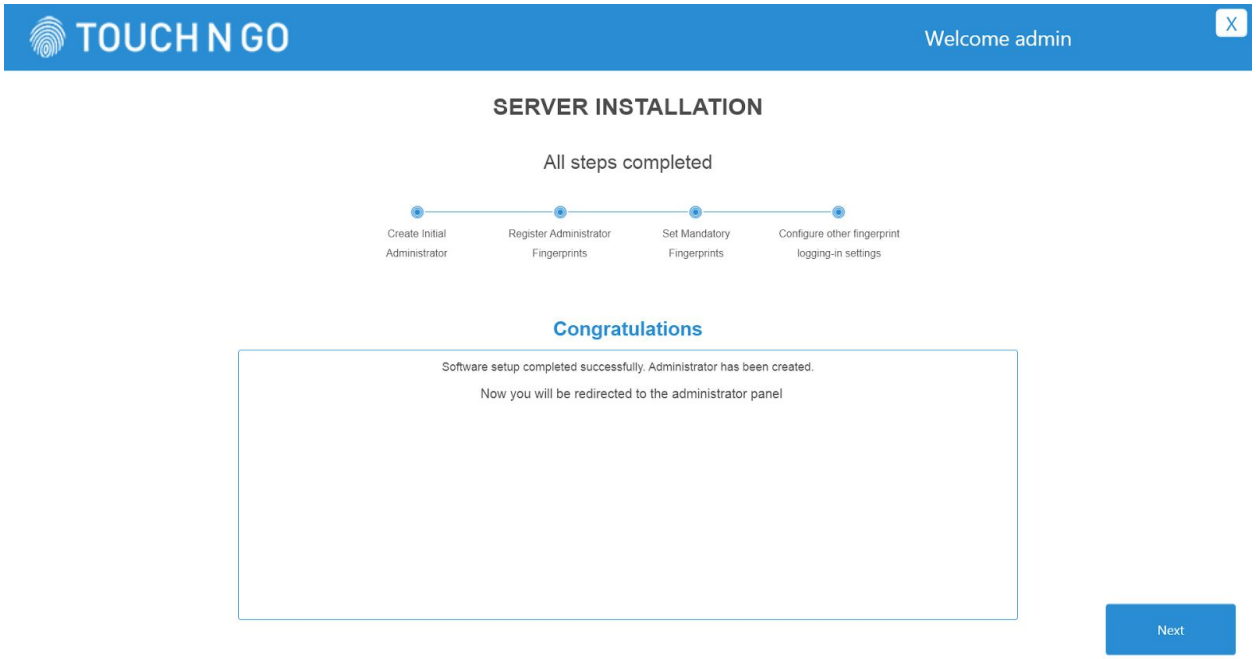


Using the next screen you are able to set the following 3 parameters -

Max finger samples: Defines the maximum amount of samples of the same finger the platform will capture to try to get maximum quality. Bayometric suggests to keep this number as 7. The minimum value is 3 the lower the number the higher the risk to face problems during recognition.
Session Duration: Defines for how long a session will be active on the platform.
Save failed authentication: Defines if failed attempts to create session (fingerprint not found) will store images on server for future auditing.

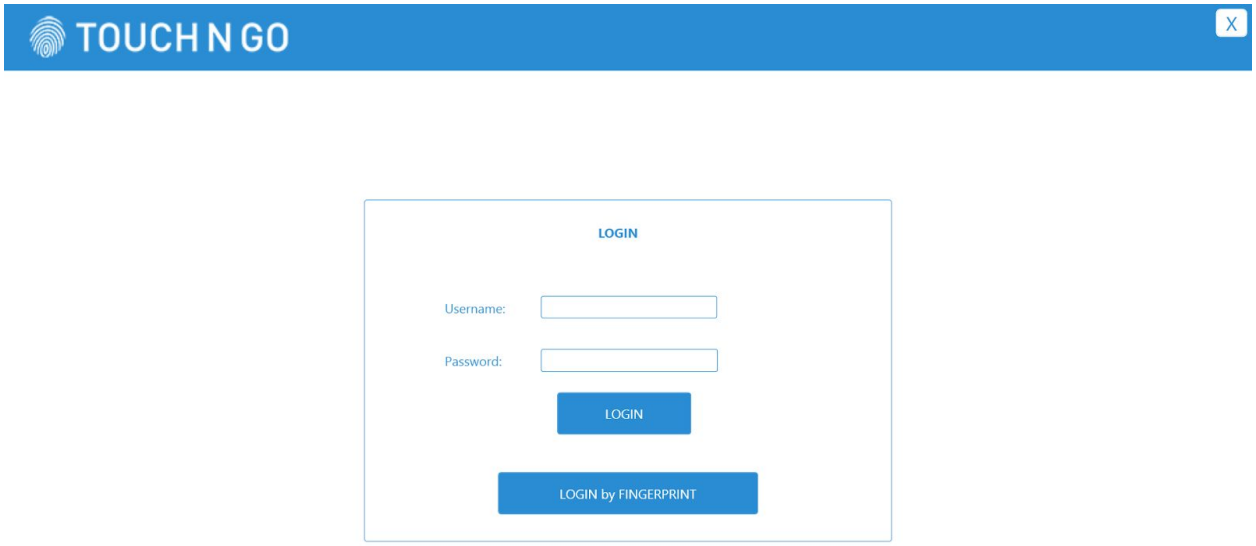


This is the final Step in the initial Software Setup.



On the following sections all operations available on the tool will be explained.

Accessing the tool



To access the platform either fingerprints or username and password must be supplied. Due to security reasons, Username + Password authentication will only be available in Local Mode.
To access the platform via Fingerprint. Please click on the button LOGIN by Fingerprint.

Main screen

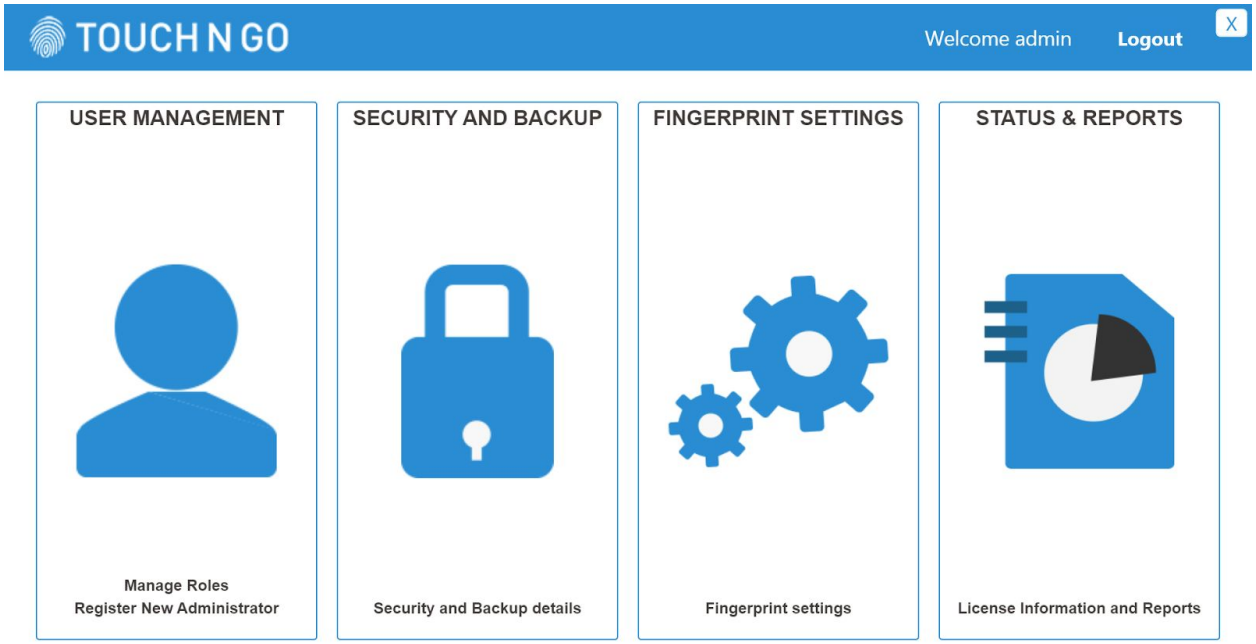
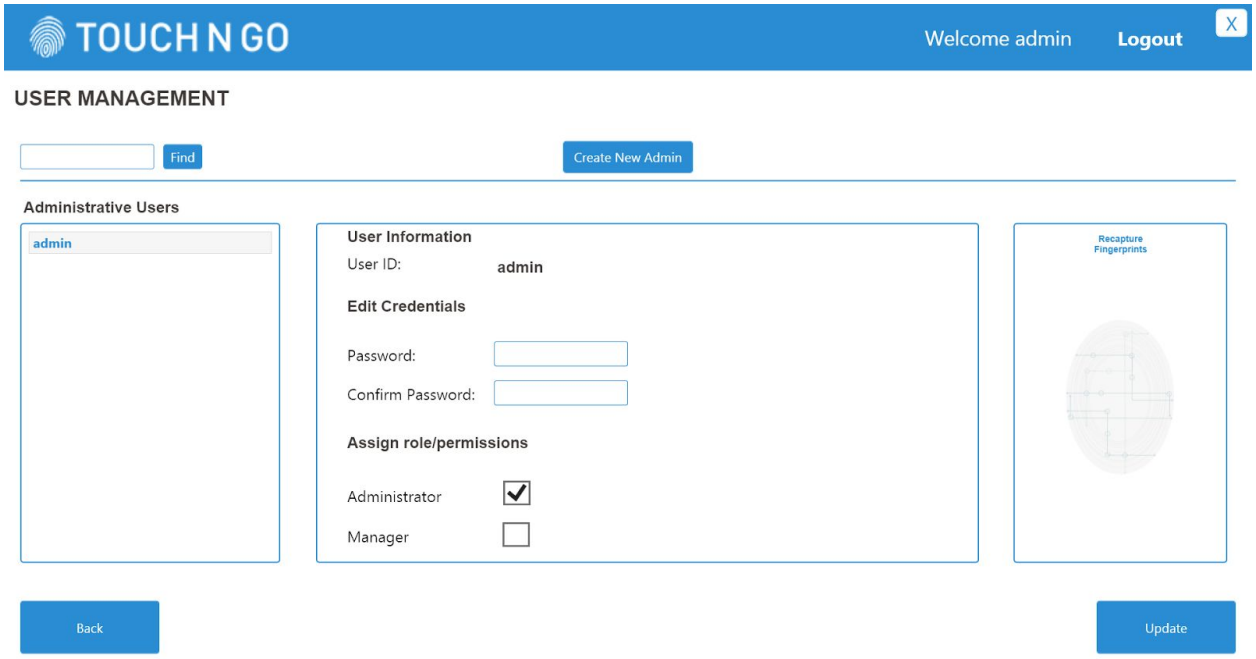


Figure above represents the main screen of Administration Tool. This is the screen that appears after a successfull login. On top right corner it is possible to find the ID of the logged user (admin, in this case).
The four options available will be explained below.

User Management

This feature allows the enrollment of a new user on the platform with an Administrator role. This process is the same as the one explained during the enrollment of the first admin.

Manage Roles



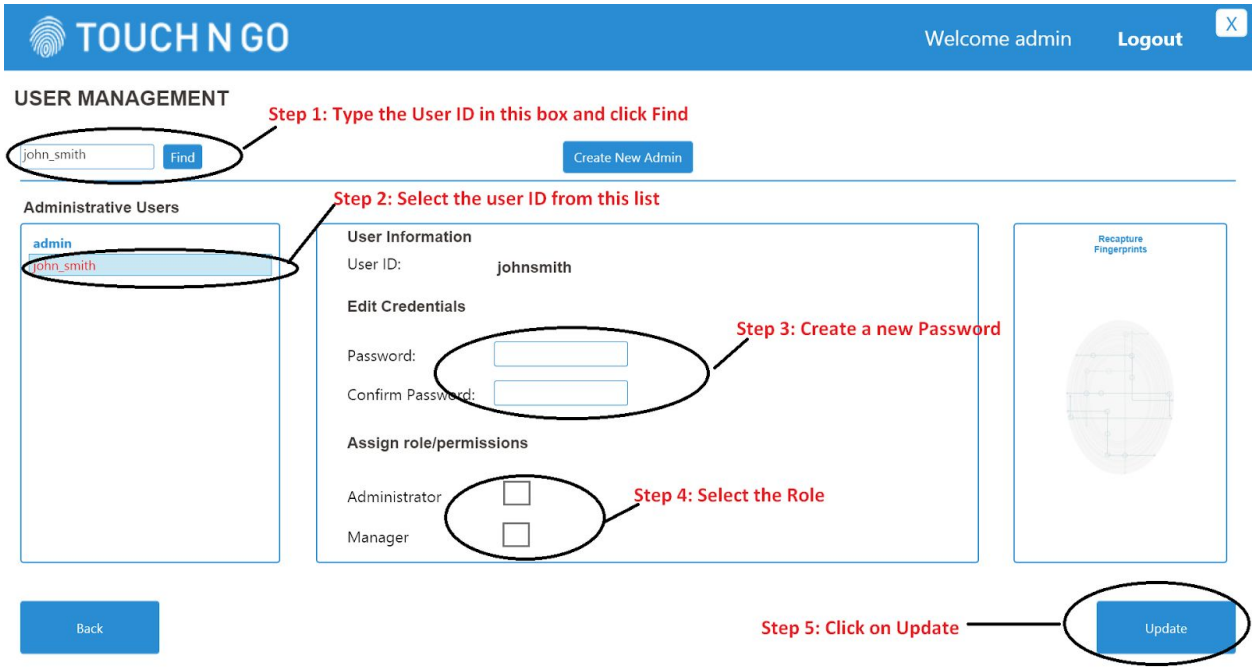
This page is responsible for user roles and data information. The list on the left shows all privileged users that are enrolled on the platform. Two roles are available:

- **Administrator**: Can perform administration operations (change platform configurations), Register and Unregister users.
- **Manager**: Can register and unregister users.

To change a user role, select user ID on left and select role on Permissions box. To change password or recapture fingerprints, User Data box options can be used.

Adding a new privileged user

There are cases where a user was registered by an application but needs to be added as a privileged user later. To do this, type user ID on top of left panel and click “ADD”. If ID exists, it will appear as red on the list, just like john_smith on the figure below.

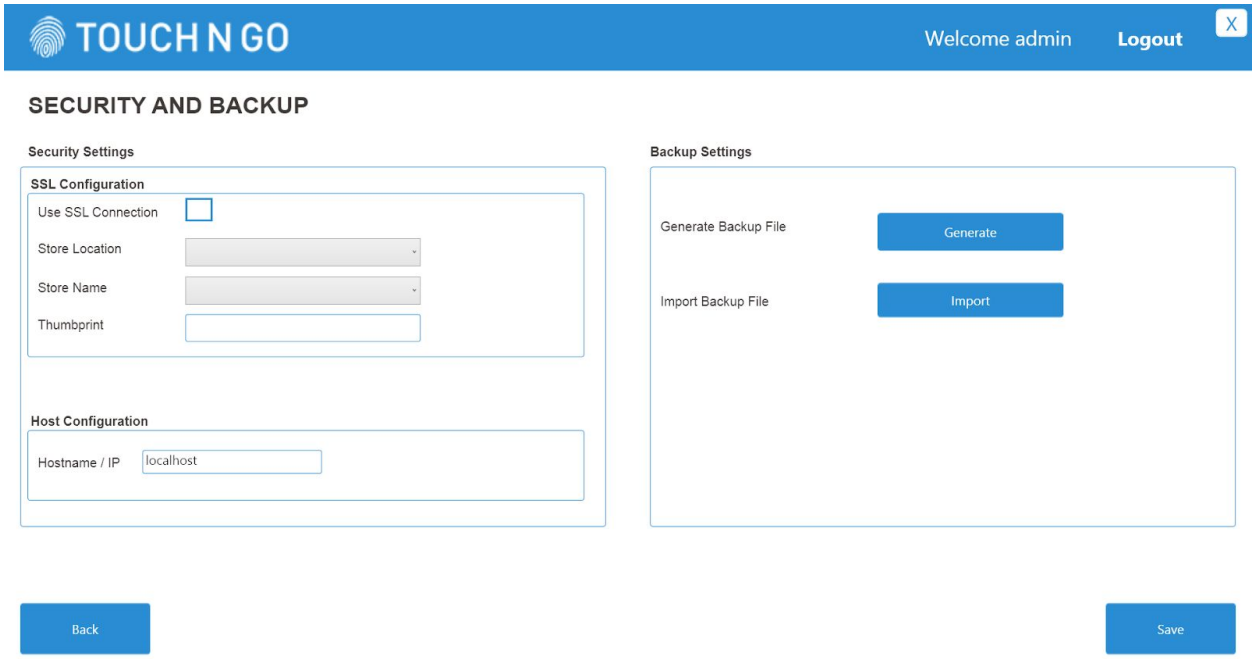


Select the ID and no roles will be set for this user. Select a role, type and confirm password, and click Update. The user will now become a privileged user.

To remove a user from privileged users list, select it's ID and uncheck roles.

Security And Backup

This tab is only enabled in Local Mode.



Security Settings

On this tab, following options are available:

- **SSL Configuration**: If communication between client machines and server needs to be done through a secure channel, then configurations available on this box must be properly set.
    - ***Use SSL connection***: Defines whether or not SSL will be used
    - ***Store Location***: Defines Store Location of the certificate to be used
    - ***Store Name***: Defines Store Name of the certificate to be used
    - ***Thumbprint***: Defines thumbprint of the certificate to be used. Special attention is required while setting this field, specially when copy and past from MMC is used.
- **Hostname/IP**: When auto-discovery feature is used, this is the information that will be sent to client machines to connect to server. This field must contain the hostname/ip of the **server**

It is important to know that even if SSL configurations are correct, ports 22960 and 22961 must be properly configured with the certificate. The following command line can be used for properly configuring the ports:

netsh http add sslcert ipport=0.0.0.0:22960 certhash=CERTIFICATE_THUMBPRINT appid=APPLICATION_ID

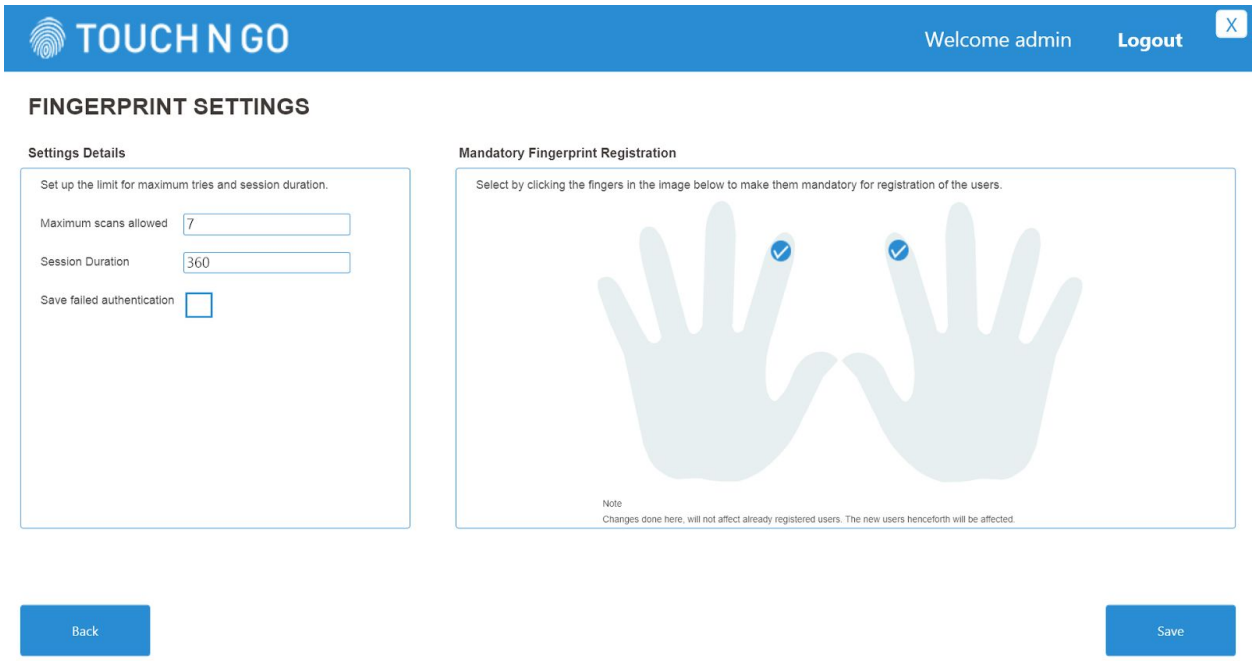
netsh http add sslcert ipport=0.0.0.0:22961 certhash=CERTIFICATE_THUMBPRINT appid=APPLICATION_ID

Please contact system administrator to guarantee that network is properly configured.

Backup Settings

Bayometric Platform allows system administrators to backup all stored information in a very simple way. Clicking “Generate Backup File” button will open a file dialog to type the file name. After choosing it, a backup file with “.bbf” extension will be created.
To import a backup file, click “Import Backup File” and choose the correct file.

Fingerprint Settings

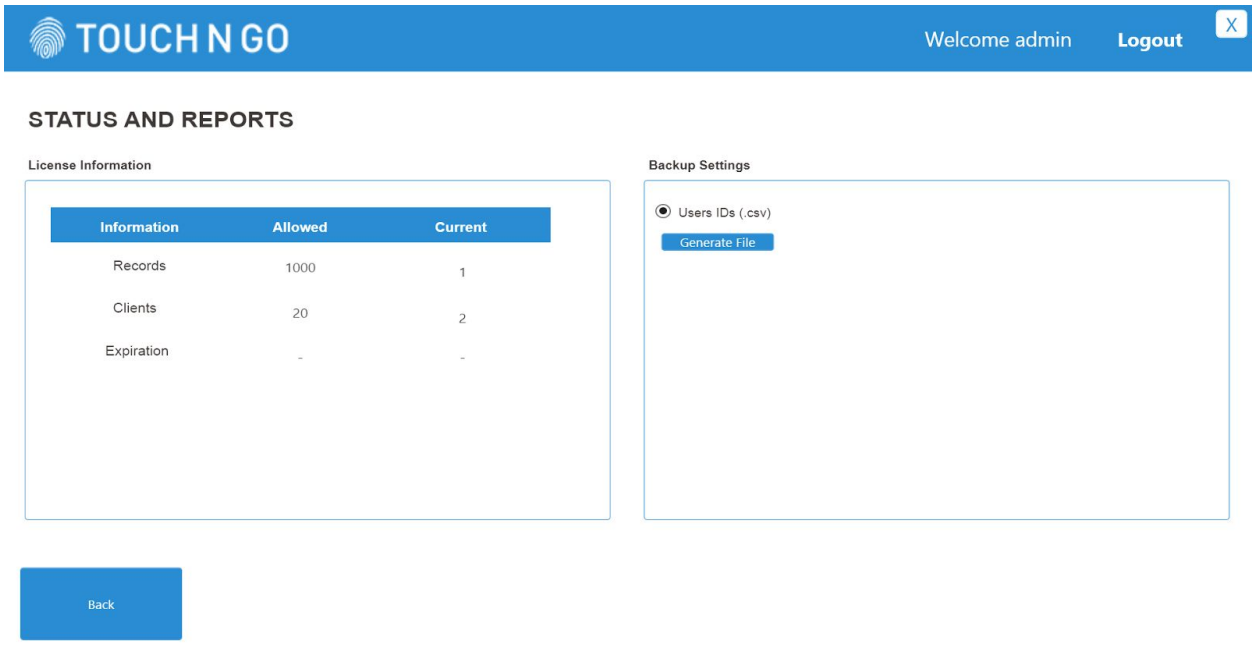


On this tab, following options are available:

- **Mandatory Fingerprint Registration**: Allows administrators to set which fingers are mandatory when enrolling a new user. After saving, it will be used on all client machines on the next enrollment. It is not necessary to restart any service. At least 2 fingers must be set.

- **Max finger samples**: Defines the maximum amount of samples of the same finger the platform will capture to try to get maximum quality. Bayometric suggests to keep this number as 7. The minimum value is 3 the lower the number the higher the risk to face problems during recognition.
- **Session Duration**: Defines for how long a session will be active on the platform.
- **Save failed authentication**: Defines if failed attempts to create session (fingerprint not found) will store images on server for future auditing.

Status and Reports



On this tab, following informations are available:

- **License information**: Shows information about license
  - ***Records***: Shows maximum number of records allowed on database and current number stored.
  - ***Clients***: Shows maximum number of client machines allowed to connect to server and current number
  - ***Expiration***: Shows expiration date if a trial license is being used
- **Reports**: Allows generation of reports. Current version allows the generation of csv file containing all enrolled IDs on the platform.