BaroPAM User Guide(App/Web)

Contents

1. BaroPAM app

Download for BaroPAM app's Android phone (https://play.google.com/store/apps/details?id=com.baropam), which is a generator of disposable authentication key to be entered in "**Verification code**" when logging in to information assets. In Google's "**Play Store**", the iPhone is available in Apple's "**App store**", and the installation is the same as that of a normal app.

The BaroPAM app is available for Android 6.0 (Marshmalliw) API 23, iOS 13.0 or higher, and does not support landscape mode.

If you cannot download and install the "BaroPAM" app for Android from **Google's "Play Store"**, you must download the apk from the following address and install the "BaroPAM" app manually.

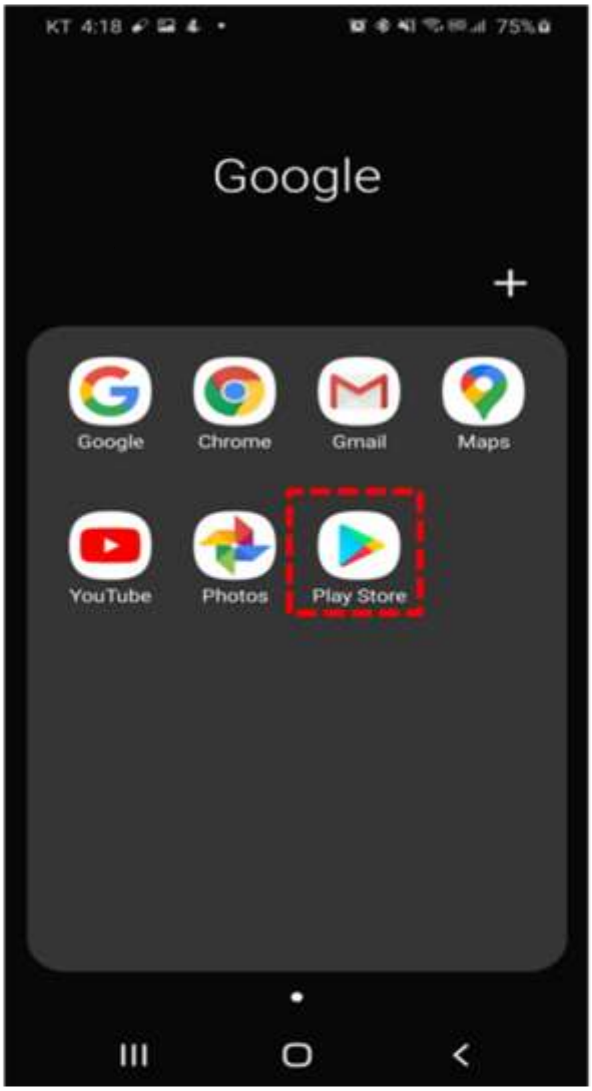
Korean version: http://nuriapp.com/apk/app_baropam.apk
English version: http://nuriapp.com/apk/app_baropams.apk

1.1 Install BaroPAM app

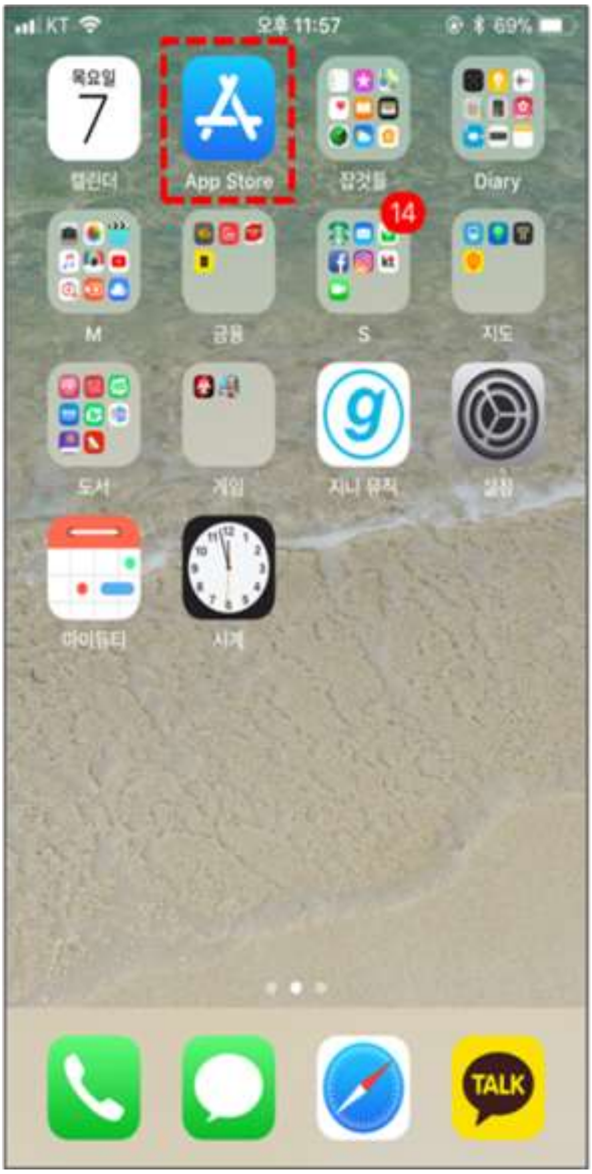
Downloading and installing the "BaroPAM" app proceeds as follows.

1. Click the "Pay Store" or "App Store" icon on your smartphone.

For Android phones)

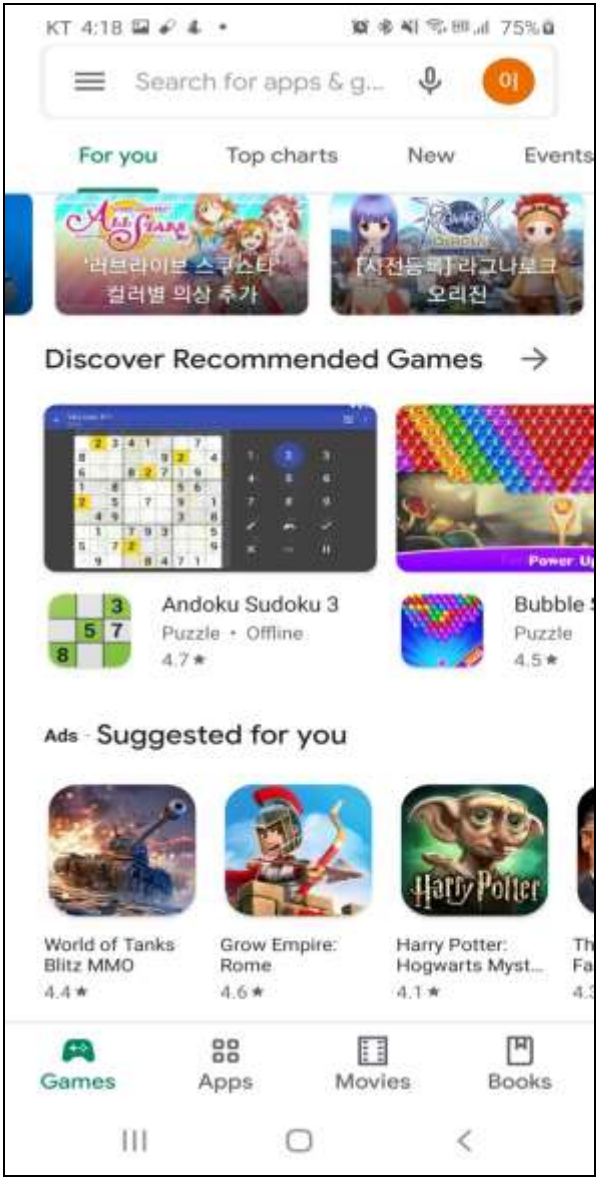

KT 4:18
75%
Google
+
Google
Chrome
Gmail
Maps
YouTube
Photos
Play Store

For iPhones)

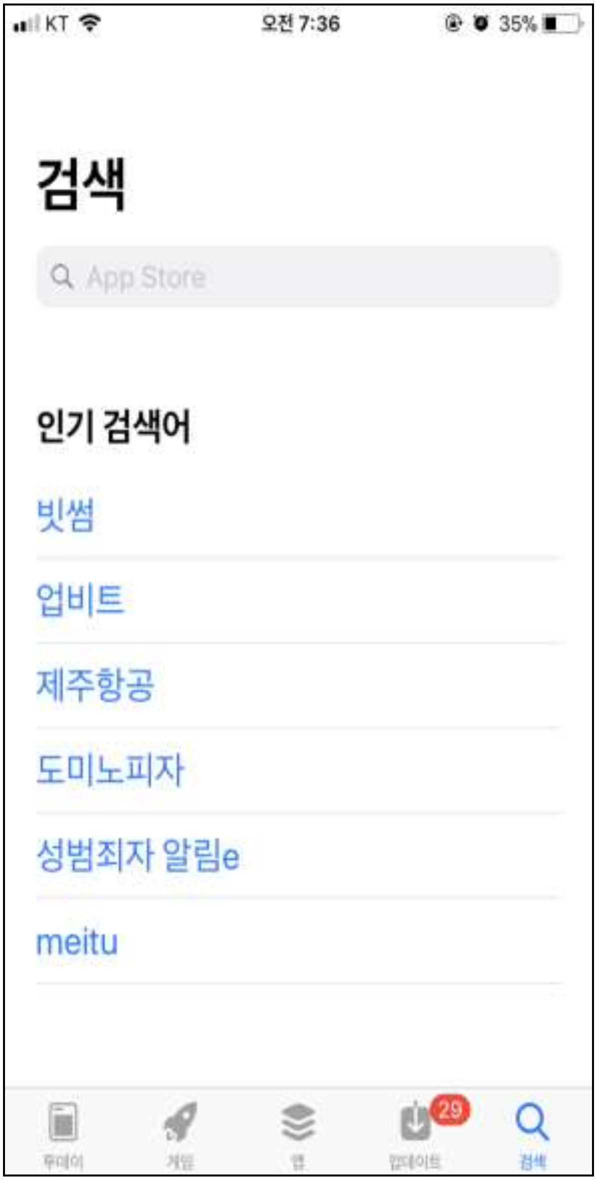

KT
오후 11:57
69%
목요일
7
캘린더
App Store
잡것들
Diary
14
M
금융
S
지도
도서
게임
지니 뮤직
설정
마이듀티
시계
TALK

2. Google "Pay Store" or Apple "App Store" is activated as follows.

Google "Pay Store")



Apple "App Store")



KT 오전 7:36 35%

검색

App Store

인기 검색어

빗썸

업비트

제주항공

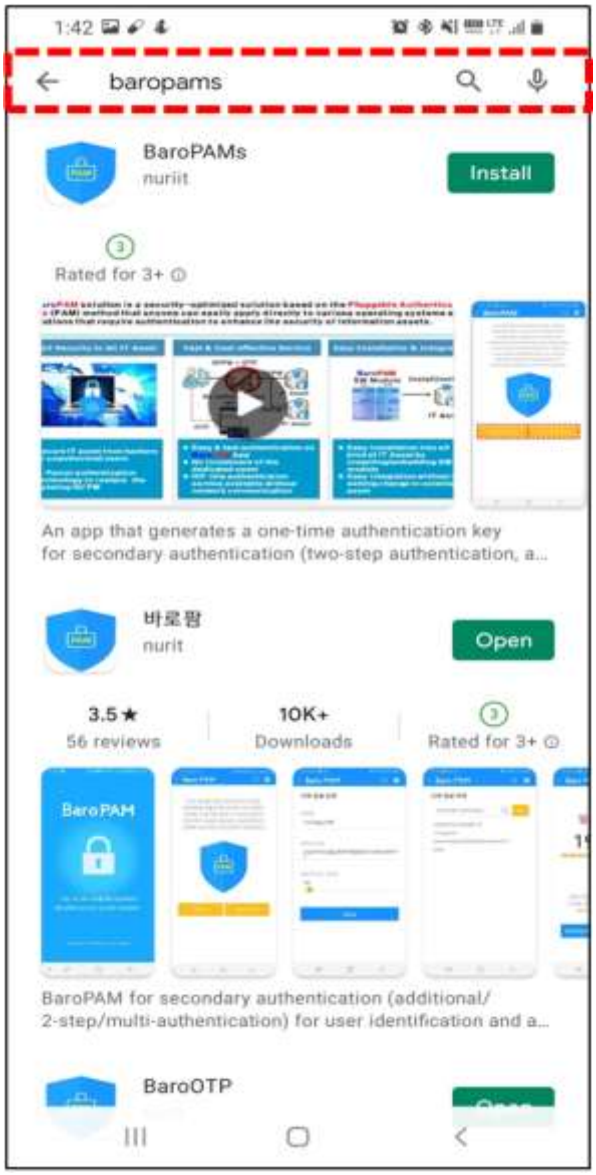
도미노피자

성범죄자 알림e

meitu

3. Enter "baropams" in the search field at the top and search for "BaroPAMs" app.

Google "Pay Store")



1:42

baropams

BaroPAMs
nuriit
Install

Rated for 3+

An app that generates a one-time authentication key for secondary authentication (two-step authentication, a...

바로팜
nurit
Open

3.5★ 56 reviews

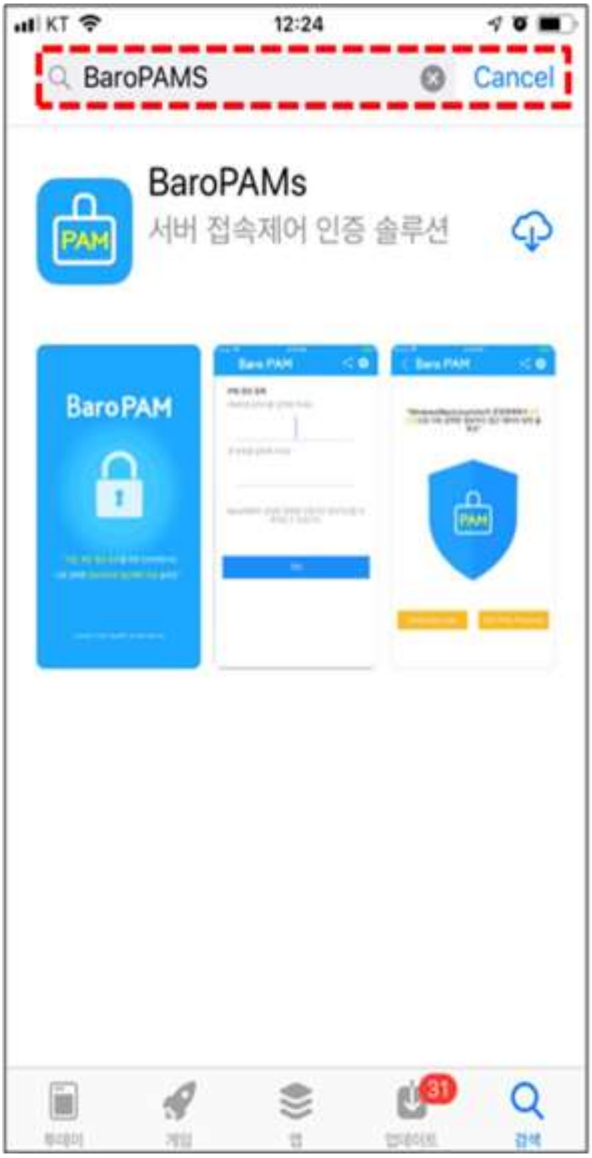
10K+ Downloads

Rated for 3+

BaroPAM for secondary authentication (additional/ 2-step/multi-authentication) for user identification and a...

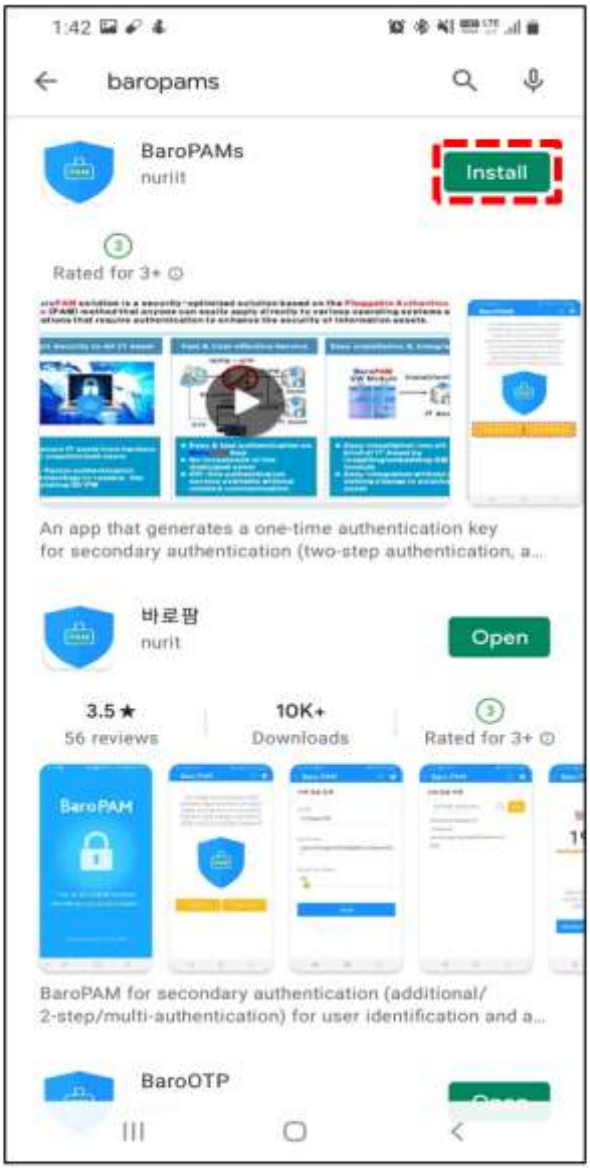
BaroOTP

Apple "App Store")



4. After checking the information of the "BaroPAMs" app, click the "Install" or "Receive" button.

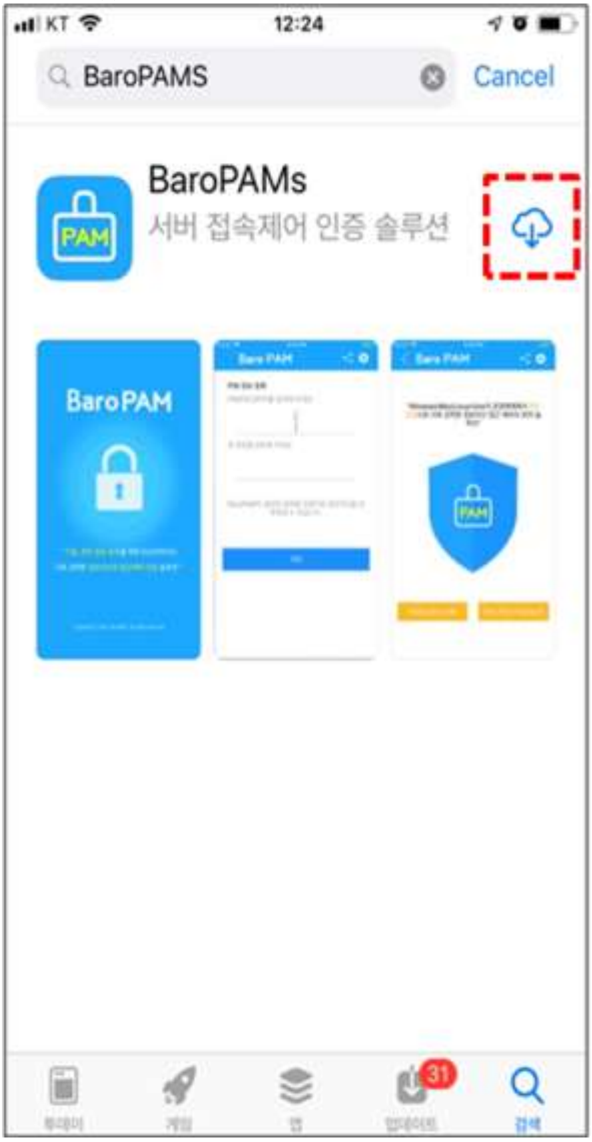
Google "Pay Store")



An app that generates a one-time authentication key for secondary authentication (two-step authentication, a...

BaroPAM for secondary authentication (additional/ 2-step/multi-authentication) for user identification and a...

Apple "App Store")



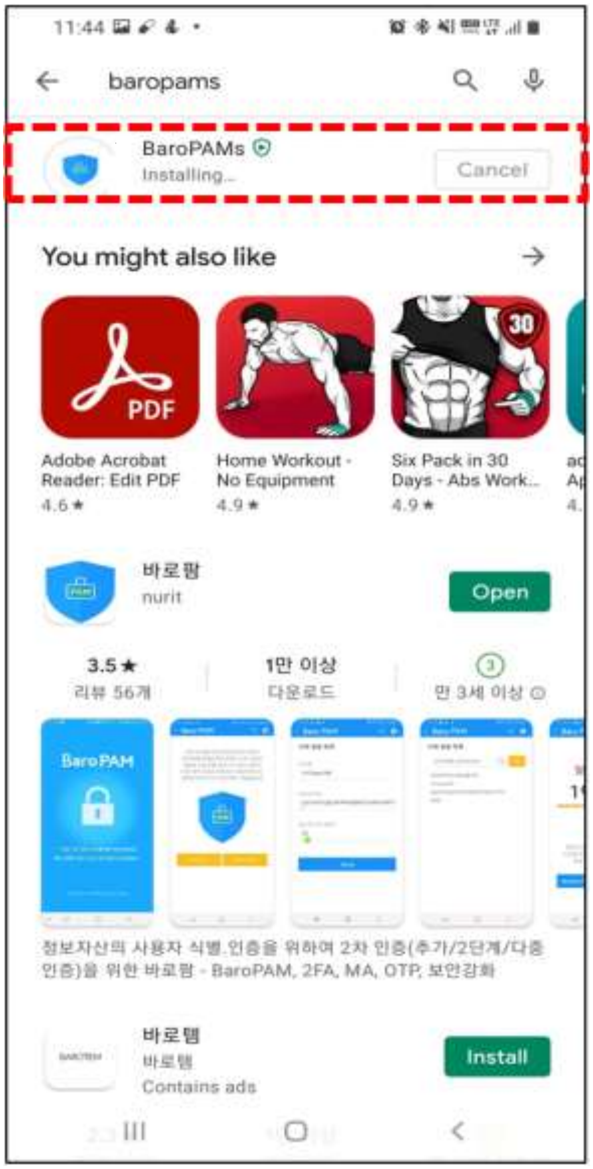
BaroPAMS

BaroPAMs

서버 접속제어 인증 솔루션

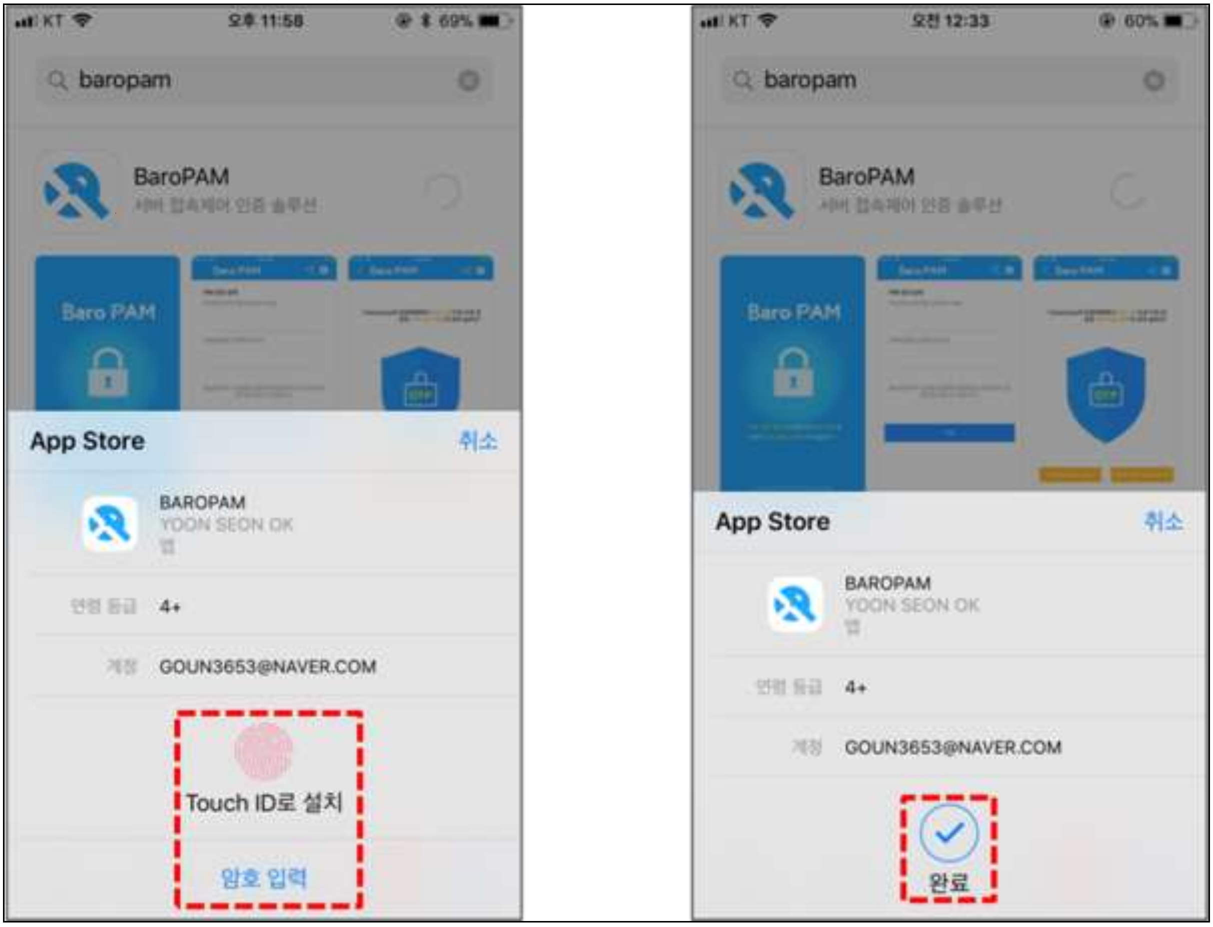
5. Download and install the "BaroPAMs" app as follows.

Google "Pay Store")



정보자산의 사용자 식별.인증을 위하여 2차 인증(추가/2단계/다중 인증)을 위한 바로팜 - BaroPAM, 2FA, MA, OTP, 보안강화

In the case of the Apple "**App Store**", the installation proceeds after completing the following.

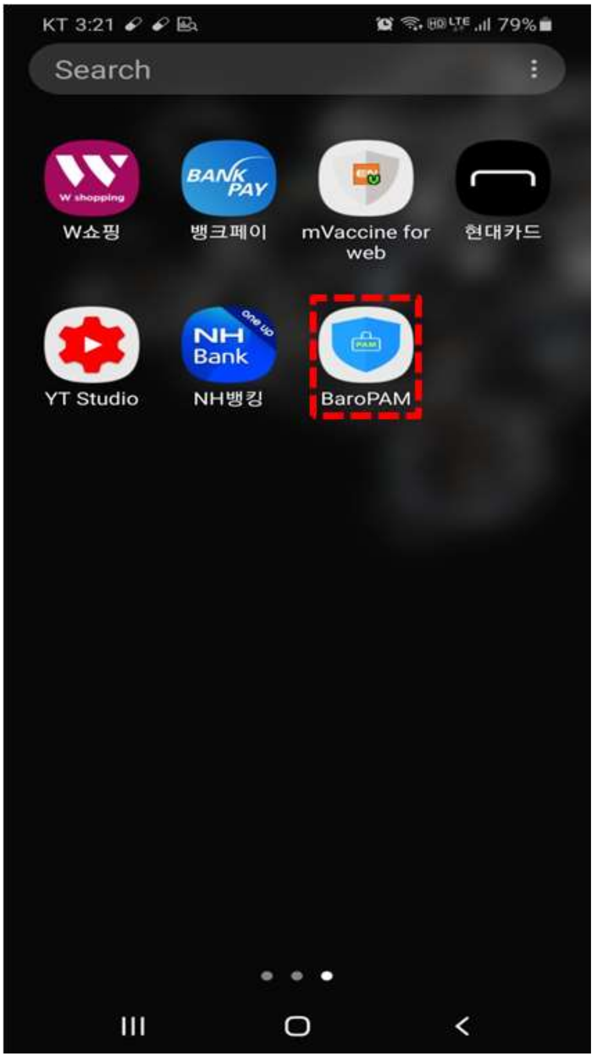


연령 등급 4+

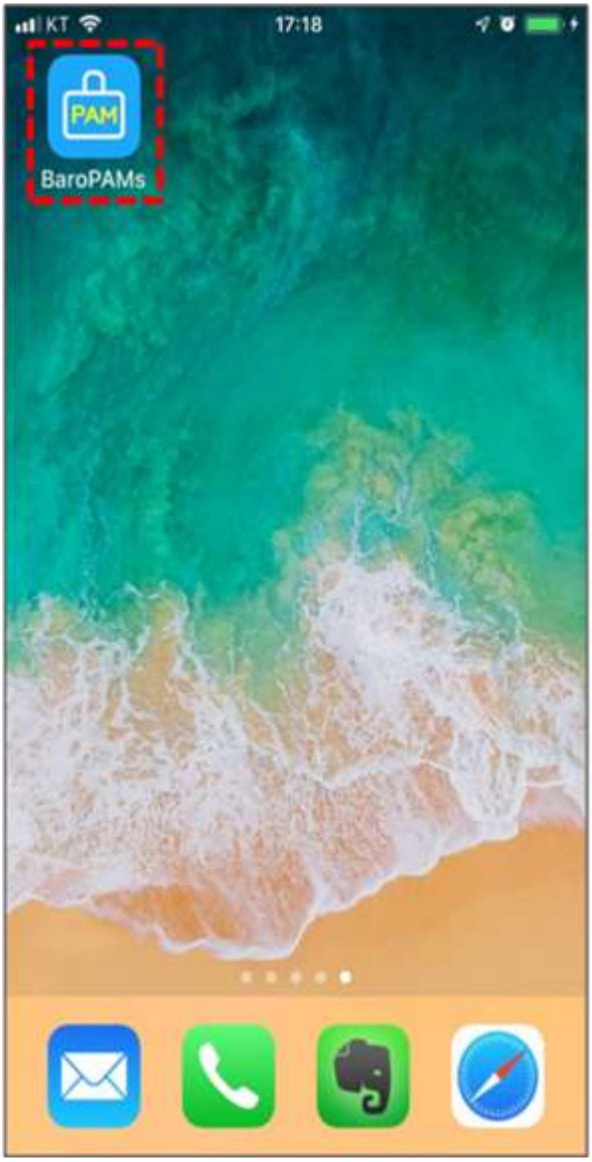
계정 GOUN3653@NAVER.COM

6. When the installation of the "BaroPAMs" app is completed normally, the following "BaroPAM, BaroPAMs" icon is added to the smartphone.

Google "Pay Store")



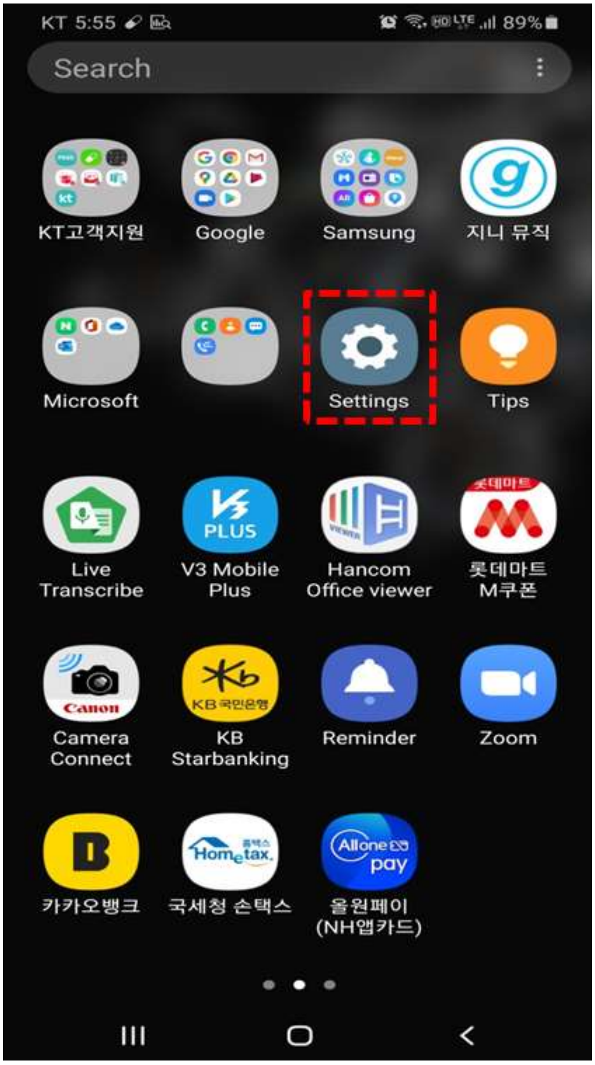
Apple "**App Store**")



After installing the "BaroPAM" app, you must set up a more convenient **password auto-completion function** from iOS12 (Go to "**Settings**" -> "**Passwords**" -> "**AutoFill Passwords**" of the iPhone and allow "BaroPAM").

7. For Android phones, click the "Settings" icon as follows to set the permissions for the "BaroPAM" app. (In case of iPhone, steps 8~11 do not need to be performed.)

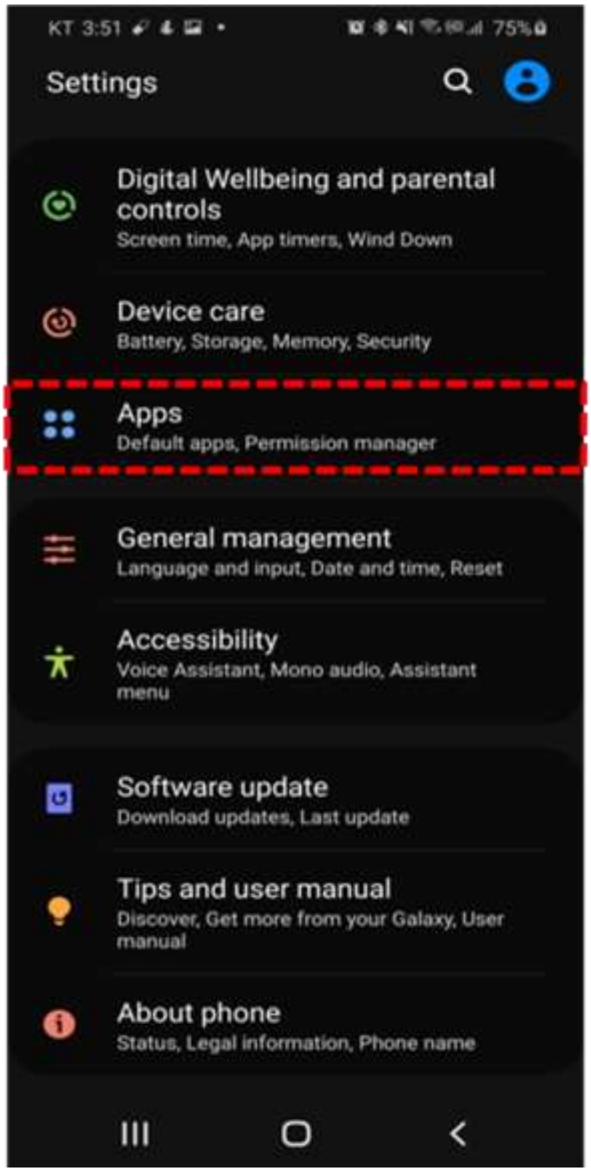
For Android phones)



In the case of an Android phone, a One-Time Authentication key(OTA key) is not generated unless the permission is set.

8. Among the icons on the "Settings" screen, click the "Apps" icon as follows.

For Android phones)



KT 3:51 75%

Settings

Digital Wellbeing and parental controls
Screen time, App timers, Wind Down

Device care
Battery, Storage, Memory, Security

Apps
Default apps, Permission manager

General management
Language and input, Date and time, Reset

Accessibility
Voice Assistant, Mono audio, Assistant menu

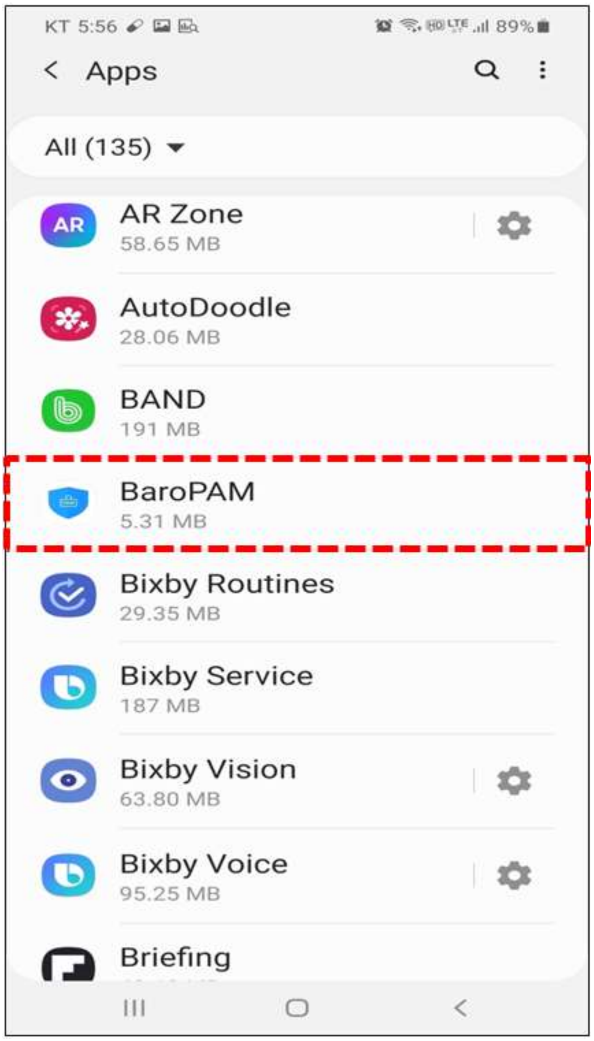
Software update
Download updates, Last update

Tips and user manual
Discover, Get more from your Galaxy, User manual

About phone
Status, Legal information, Phone name

9. On the "Apps" screen, click the "BaroPAM" icon as follows.

For Android phones)



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Apps

All (135)

AR Zone
58.65 MB

AutoDoodle
28.06 MB

BAND
191 MB

BaroPAM
5.31 MB

Bixby Routines
29.35 MB

Bixby Service
187 MB

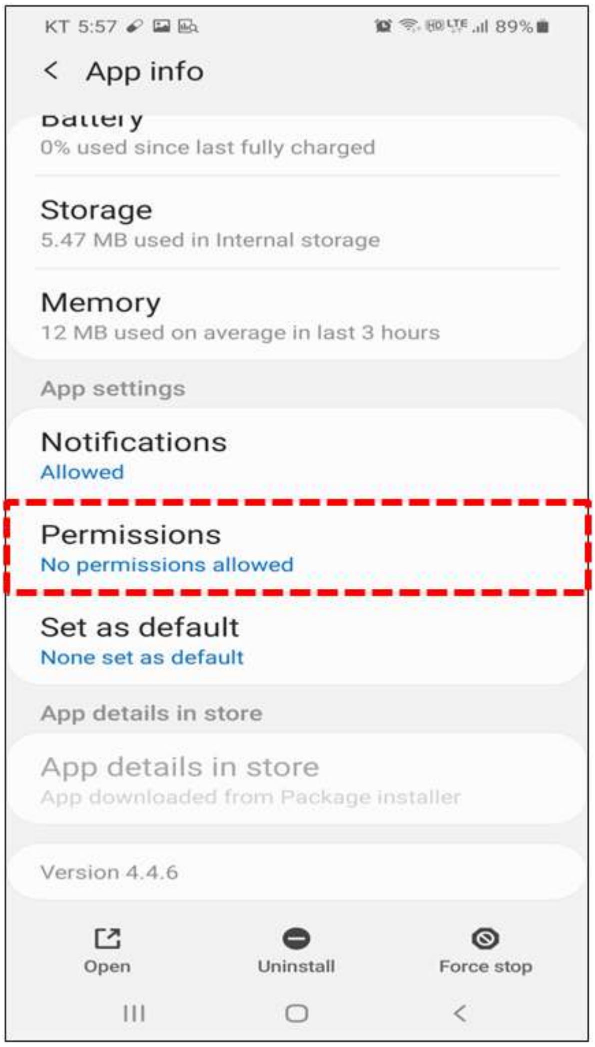
Bixby Vision
63.80 MB

Bixby Voice
95.25 MB

Briefing

10. If you select "Permissions" on the "App info" screen, a screen to set "App Permissions" appears.

For Android phones)



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App info

Battery
0% used since last fully charged

Storage
5.47 MB used in Internal storage

Memory
12 MB used on average in last 3 hours

App settings

Notifications
Allowed

Permissions
No permissions allowed

Set as default
None set as default

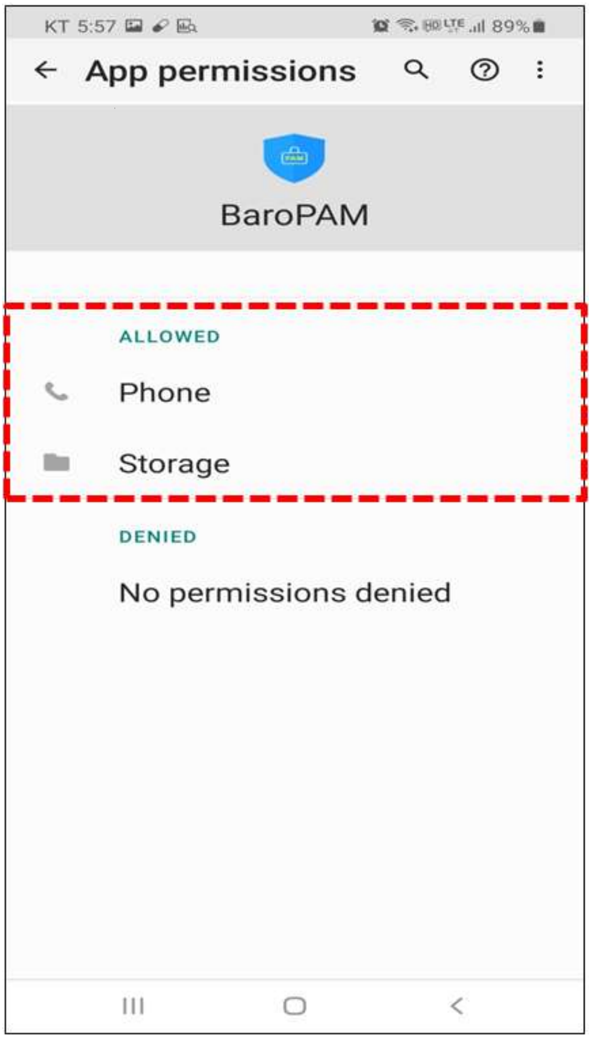
App details in store

App details in store
App downloaded from Package installer

Version 4.4.6

11. On the "App Permissions" screen, change "App Permissions" from "Storage" and "Phone" from off to on.

For Android phones)



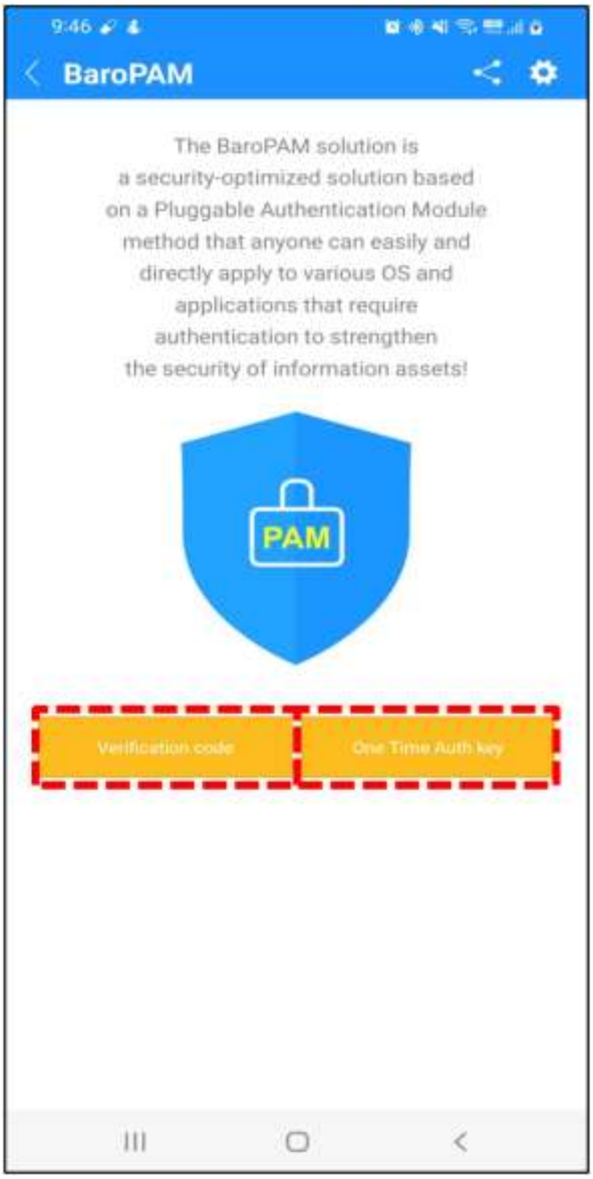
Since the "BaroPAM" app uses the time synchronization method, the time setting of the phone is very important, so the time should be set automatically as follows.

For Android phones: "Settings"->"Date and time"->"Automatic date and time" and "Automatic time zone Auto"->"Allow".
For iPhones: "Settings"->"Date and time"->"Automatic date and time"->"Automatically set"->"Allow".

"BaroPAM" app is largely composed of PIN information, login, server information, login information, environment setting, and information sharing.

1.2 Using the BaroPAM app(Menu selection)

1. When the "BaroPAM" app is activated, a screen to select "Verification code" and "One-Time Auth Key" appears as follows.



9:46

BaroPAM

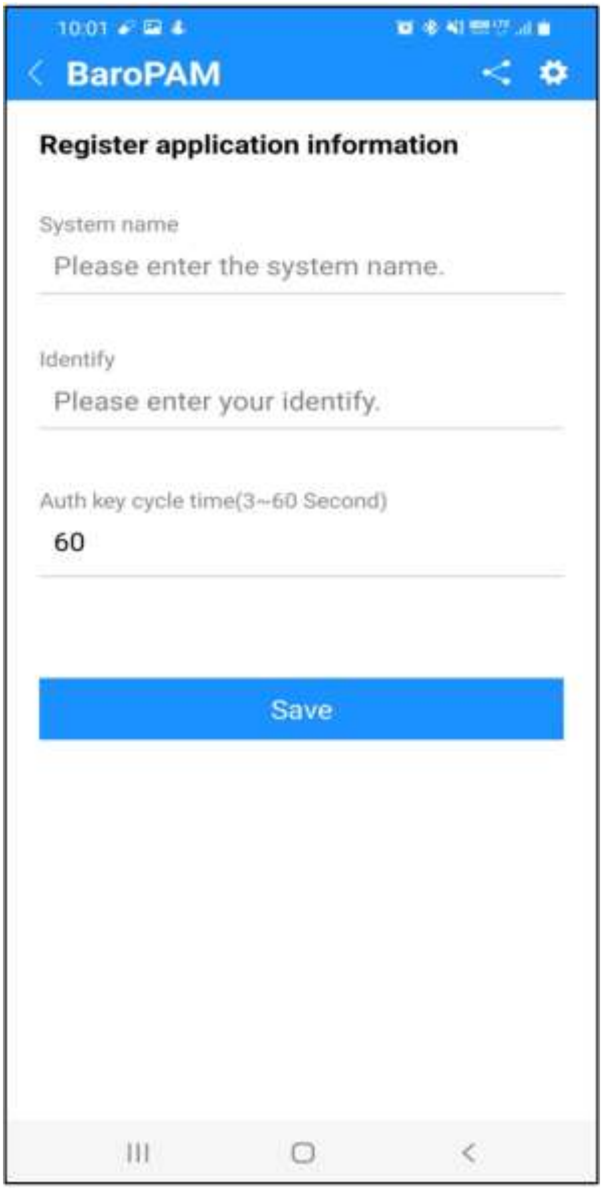
The BaroPAM solution is a security-optimized solution based on a Pluggable Authentication Module method that anyone can easily and directly apply to various OS and applications that require authentication to strengthen the security of information assets!

"**Verification code**" is used when generating a OTA key used to access information assets, and "**One Time Auth key**" is used to replace the password of the application login screen with a OTA key.

First, when the "**One-Time Auth key**" button is clicked, the "**List of application information**" screen appears when there is application login information, and the "**Register application information**" screen appears when there is no application login information.

1.3 Using the BaroPAM app(Application infomation)

1. When the "One-Time Auth key" button is clicked on the "Menu selection" screen If the login information of the application exists, the "List of application information" screen appears. If the login information of the application does not exist, the "Register application Information Registration" screen appears.



Register application information

System name

Please enter the system name.

Identify

Please enter your identify.

Auth key cycle time(3~60 Second)

60

▣System name

The system name to log in is a required field. You can enter at least 1 digit and up to 30 digits.

▣Identify

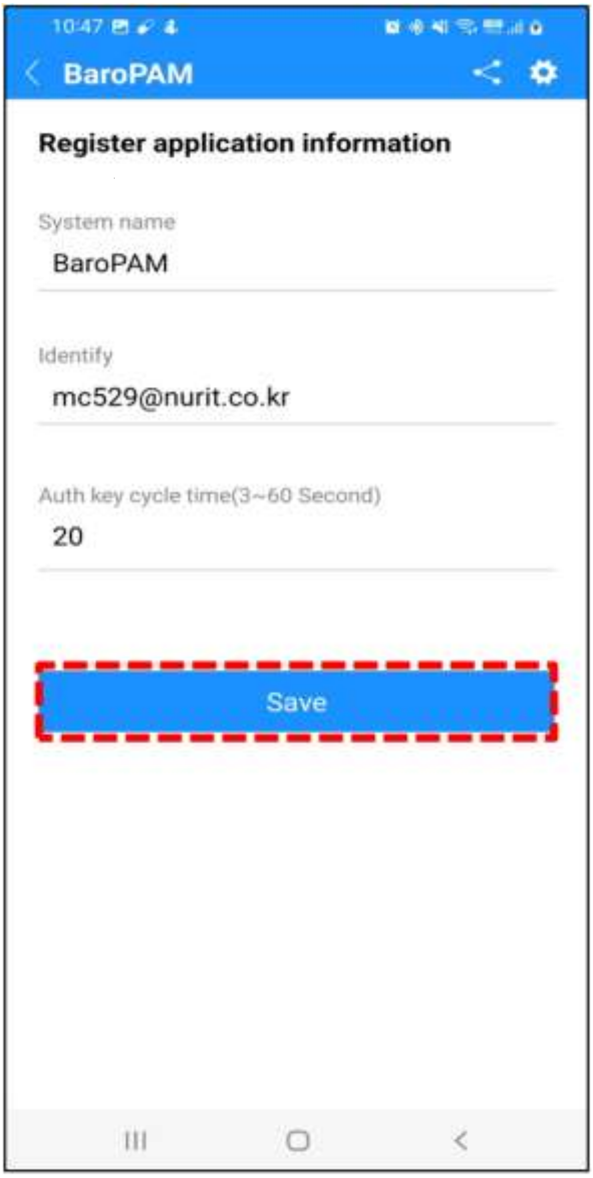
Identify is a required field and you can enter at least 1 digit and up to 50 digits.

▣Auth key cycle time(3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

If the OTA key generation cycle (Auth key cycle time) of the BaroPAM verification module is different from the OTA key generation cycle (Auth key cycle time) specified in the app. Then, there may be a case where you cannot log in because the OTA key is different.

2. After entering the login information of the application, click the "Save" button.



Register application information

System name
BaroPAM

Identify
mc529@nurit.co.kr

Auth key cycle time(3~60 Second)
20

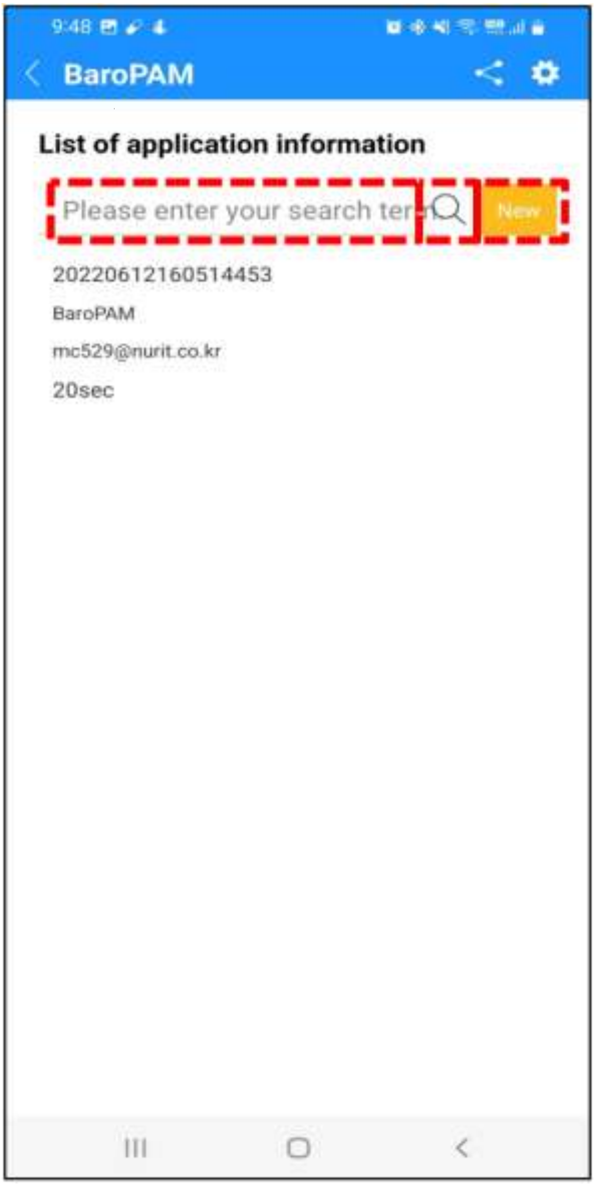
When the "**Save**" button is clicked, the first thing to check the validity of the input items is to save the login information of the application.

If the system name is not entered, the message "**Please enter the system name.**" appears on the screen.

If identify is not entered, the message "**Please enter your identify.**" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "**Please enter or confirm the auth key cycle.**" appears on the screen.

3. If the saving of login information of the application is not completed normally, the "Register application information" screen continues, and when it is completed normally, the "List of application information" screen appears as follows.



List of application information

Please enter your search ter

20220612160514453

BaroPAM

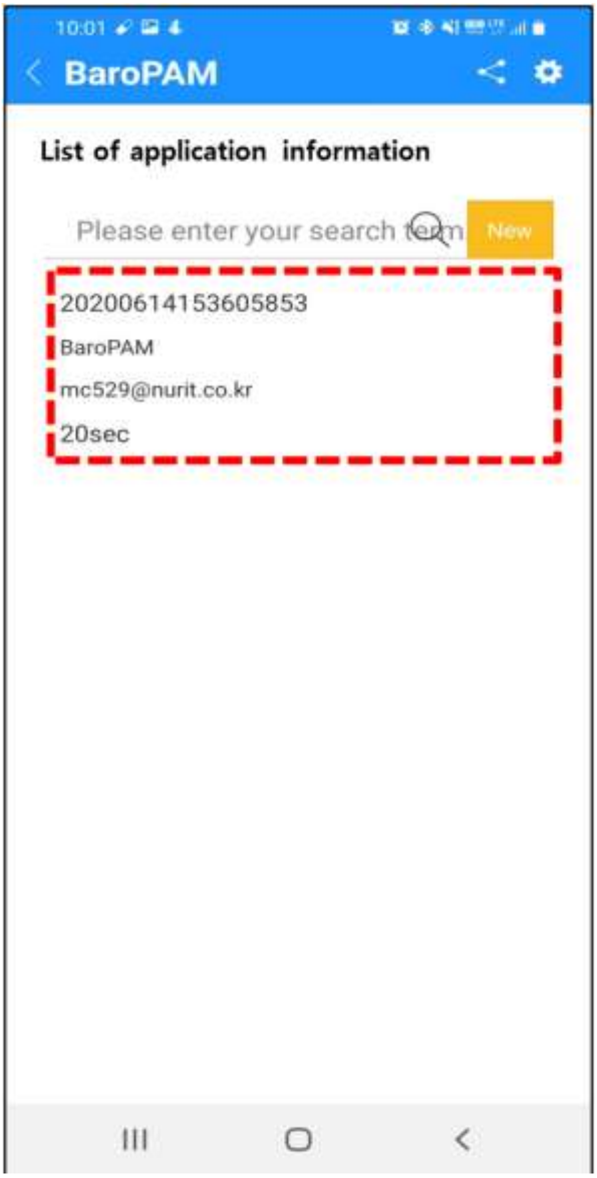
mc529@nurit.co.kr

20sec

If you want to search the login information of the application, enter a search term and click the "**Search**" button, then the login information of the searched application will appear on the screen.

If you need to add new login information for the application, click the "**New**" button to display the application login information registration screen.

4. If you need to generate a secondary authentication key(OTA key), click the application information item in the "List of application information" as follows.

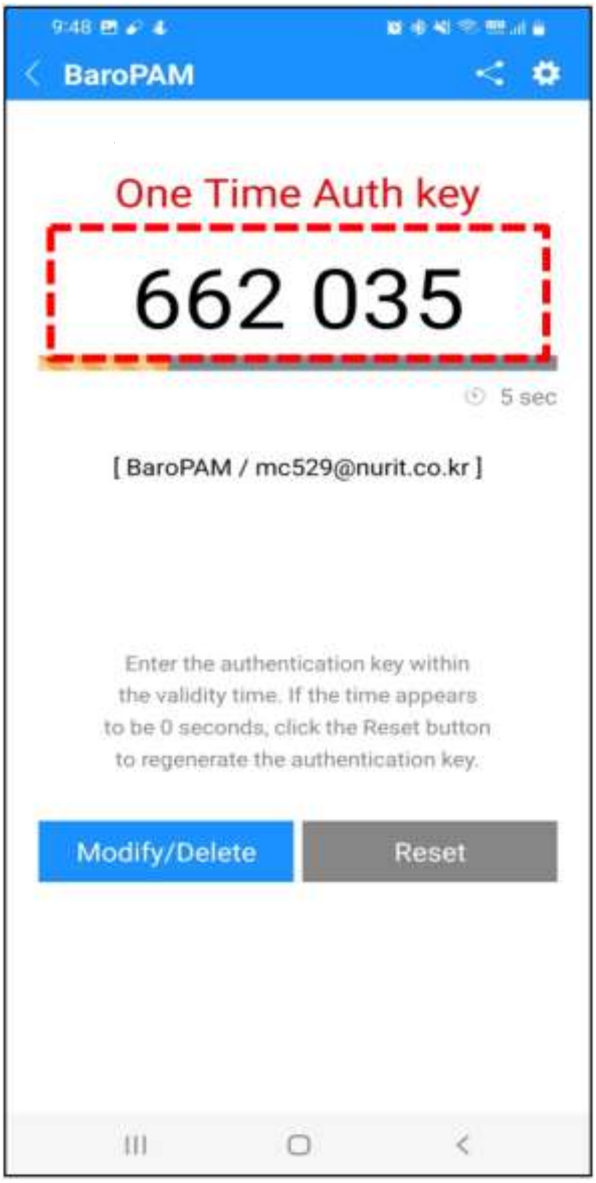


10:01
BaroPAM
List of application information
Please enter your search term
New

20200614153605853
BaroPAM
mc529@nurit.co.kr
20sec

In the "List of application information", click on the login information item of the application to generate a secondary authentication key(OTA key). It is necessary to apply a separate identification function to prevent unauthorized use of another person's phone number only in the case of an iPhone because it is impossible to obtain an iPhone. The screen for executing the "1.4 Using the BaroPAM app(Identity verification)") is called.

5. Then, a screen for generating a secondary authentication key(OTA key) based on the login information of the application appears as follows.



[BaroPAM / mc529@nurit.co.kr]

Enter the authentication key within the validity time. If the time appears to be 0 seconds, click the Reset button to regenerate the authentication key.

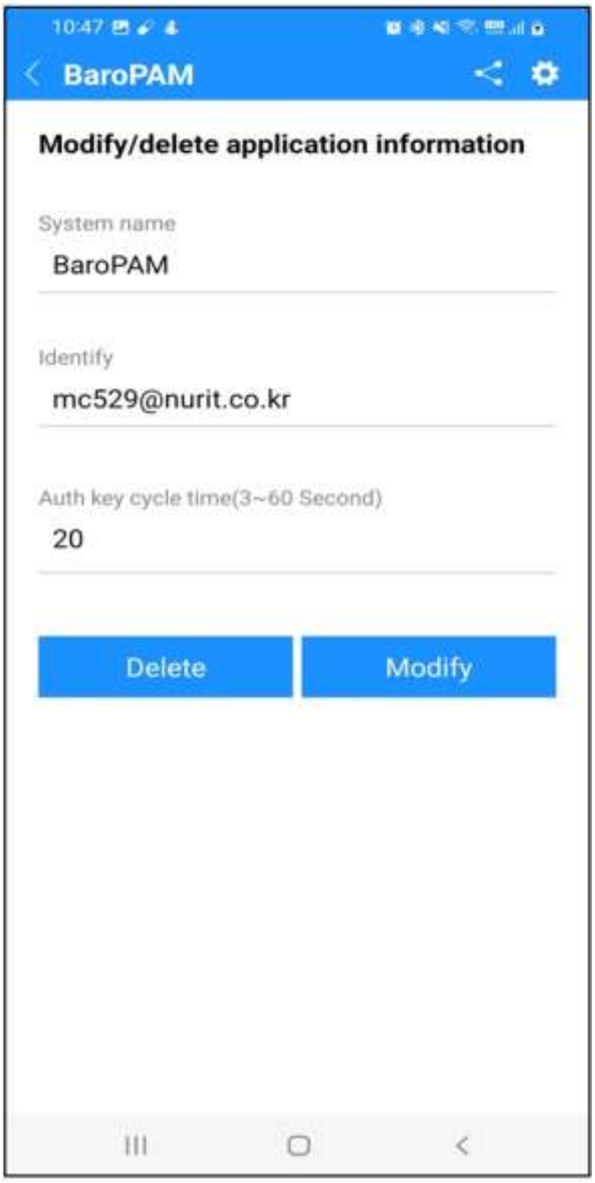
If you need to proceed with the modification/deletion of login information, click the "**Modify/Delete**" button.

During the same authentication key cycle time, the "**Reset**" button is deactivated, and when the authentication key cycle time passes, the "**Reset**" button is activated.

When the activated "**Reset**" button is clicked, a new secondary authentication key (OTA key) is generated, and the same secondary authentication key (OTA key) is generated during the one-time authentication key generation cycle (Auth key cycle time).

Note) If you click the number "**662 035**", which is the generated OTA key, the OTA key is regenerated in the same way as clicking the "**Reset**" button.

6. If you need to modify(Modify) or delete(Delete) the login information of the application, click the "Modify/Delete" button and the following screen appears.



Modify/delete application information

System name
BaroPAM

Identify
mc529@nurit.co.kr

Auth key cycle time(3~60 Second)
20

▣System name

The system name to log in is a required field. You can enter at least 1 digit and up to 30 digits.

▣Identify

Identify is a required field and you can enter at least 1 digit and up to 50 digits.

▣Auth key cycle time(3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

If the OTA key generation cycle (Auth key cycle time) of the BaroPAM verification module and the OTA key generation cycle (Auth key cycle time) specified in the app are different, the application cannot be logged in because the OTA key is different may occur.

Click the "**Delete**" button to delete the login information of the application.

If you click the "**Modify**" button, the first thing to do is to check the validity of the input items and then modify the login information of the application.

If the system name is not entered, the message "**Please enter the system name.**" appears on the screen.

If Identify is not entered, the message "**Please enter your identify.**" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "**Please enter or confirm the auth key cycle.**" appears on the screen.

If the application's login information modification (Modify) or deletion (Delete) is not completed normally, the "**Modify/Delete application information**" screen continues, and when it is completed normally, the "**List of application information**" screen appears.

1.4 Using the BaroPAM app(Identity verification)

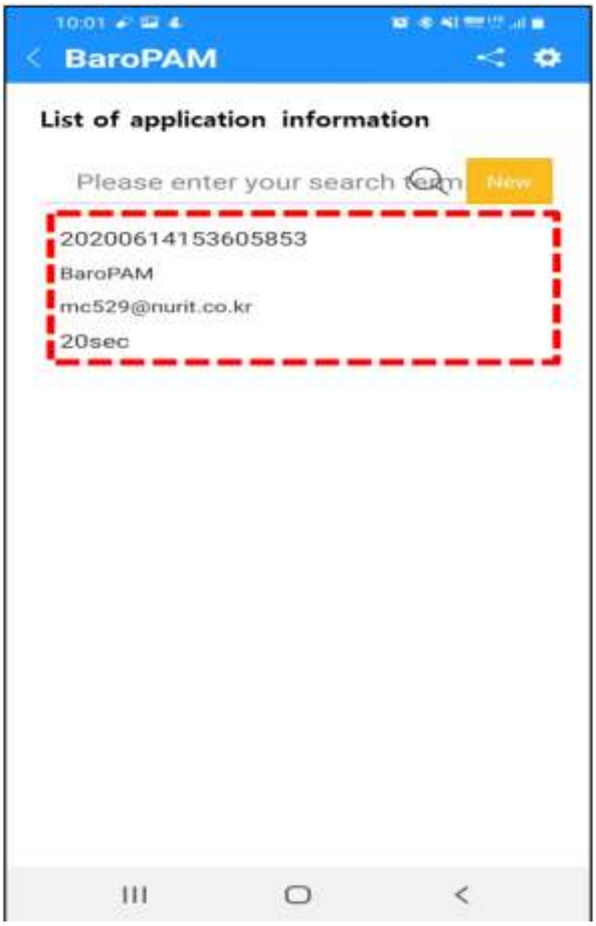
1. For iPhone

Unlike Android phones, when you select the login information item of the application to generate a secondary authentication key(OTA key) on the "**List of application information**" screen because the device information of the iPhone phone cannot be obtained, a "**One-Time Auth key**" is generated. There may be cases where it does not move to the screen.

In addition, in order to prevent unauthorized use of other people's phone numbers, it is necessary to apply a separate identity verification function. In the "BaroPAM" app, its own algorithm is applied and the identity verification procedure is executed as follows.

Unlike Android phones, the iPhone cannot obtain device information due to its own security, so it is necessary to apply a separate identity verification function to prevent unauthorized use of other people's phone numbers only in the case of iPhone. The "BaroPAM" app uses its own algorithm. By applying, the identity verification process is carried out as follows.

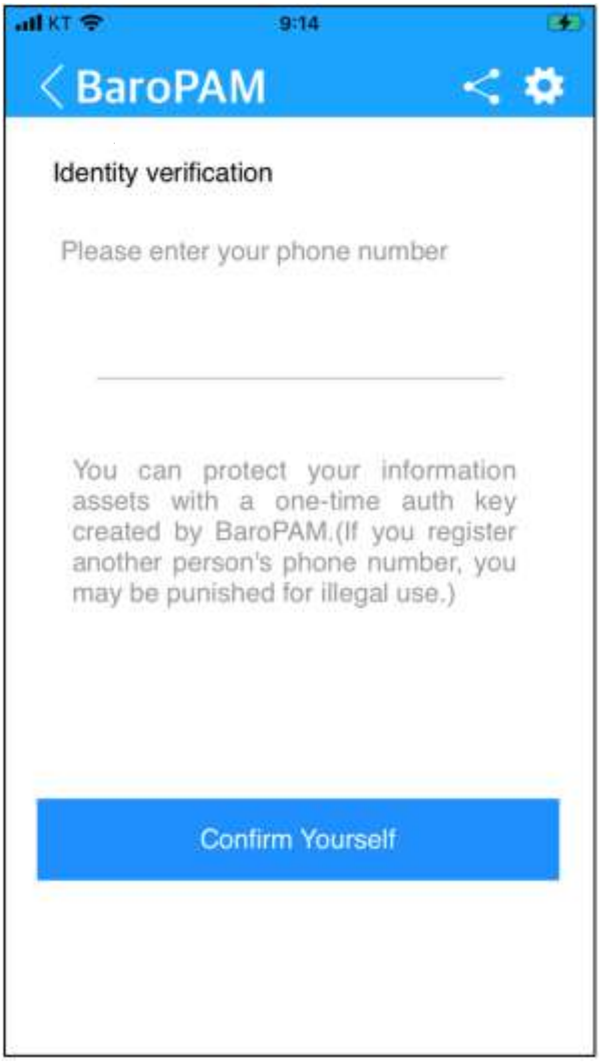
1) In "List of application information", click the application information item to generate a secondary authentication key(OTA key).



List of application information

20200614153605853
BaroPAM
mc529@nurit.co.kr
20sec

2) If you have not performed the identification process, the following screen for identification appears.

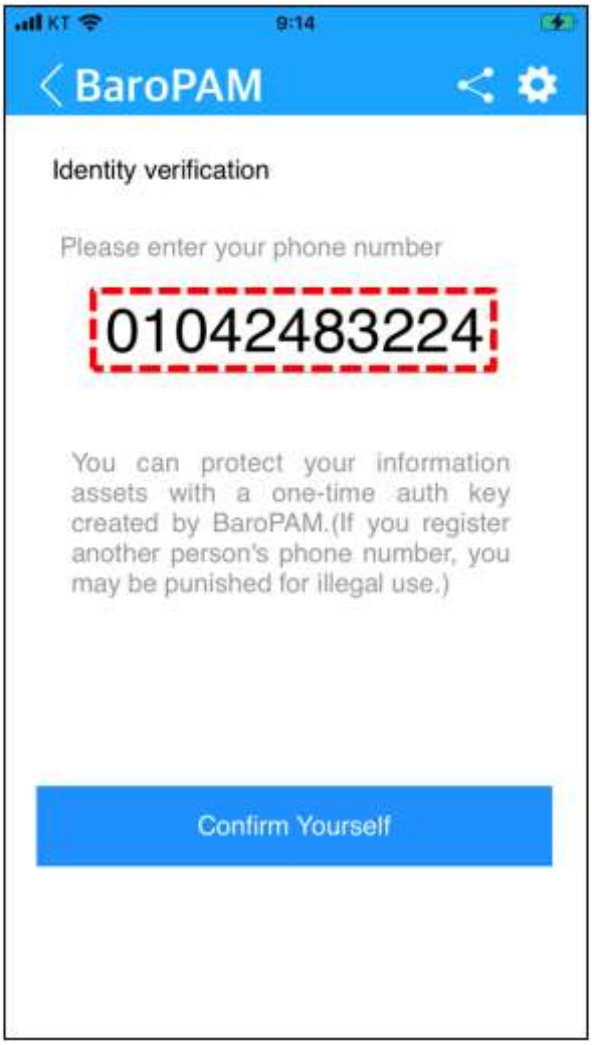


Identity verification

Please enter your phone number

You can protect your information assets with a one-time auth key created by BaroPAM.(If you register another person's phone number, you may be punished for illegal use.)

3) Enter the iPhone's phone number as a number and click the "Confirm Yourself" button.



Identity verification

Please enter your phone number

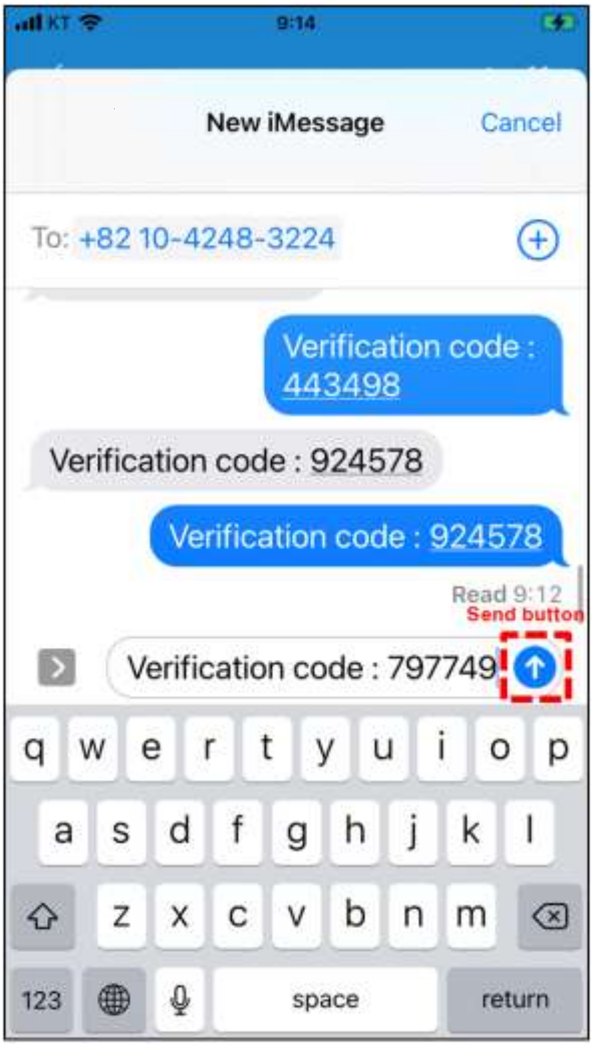
01042483224

You can protect your information assets with a one-time auth key created by BaroPAM.(If you register another person's phone number, you may be punished for illegal use.)

If you click the "**Confirm Yourself**" button, you first check the validity of the input items and then proceed with the verification work for your phone number.

If the phone number is less than 8 digits, the message "**Please enter more than 8 digits of phone number.**" appears on the screen.

4) When it is completed normally, the OTA key is generated by an internal algorithm to check whether it is the user's phone number, and then click the "Send SMS" button on the next screen to transmit the generated OTA key to the input phone number.



Verification code : 443498

Verification code : 924578

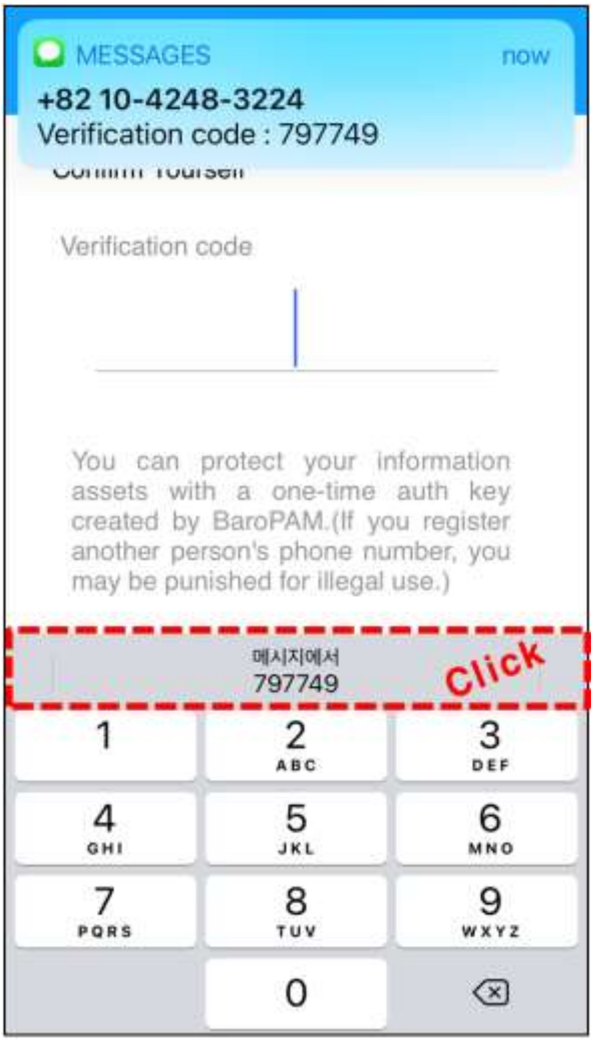
Verification code : 924578

Read 9:12

Verification code : 797749

If you enter someone else's phone number, you may be punished for illegal use.

5) Then, the OTA key sent by SMS is displayed on the keyboard at the bottom as follows.



MESSAGES now

+82 10-4248-3224

Verification code : 797749

Verification code

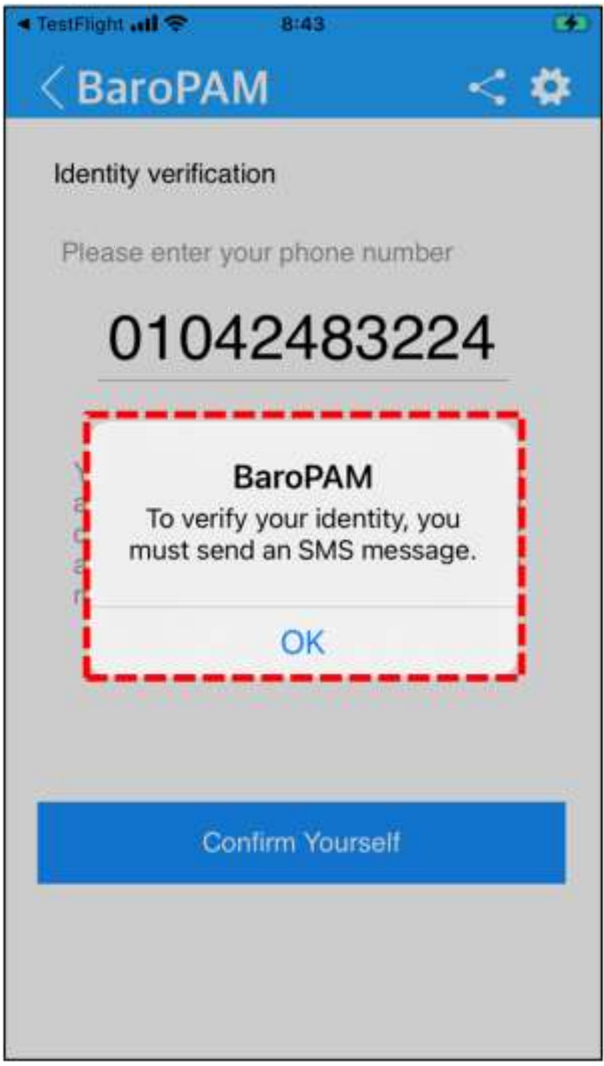
You can protect your information assets with a one-time auth key created by BaroPAM.(If you register another person's phone number, you may be punished for illegal use.)

메시지에서
797749

If you click the OTA key displayed on the keyboard, the internal OTA key verification module proceeds to store the phone number after verification.

If the OTA key is not displayed on the keyboard like the screen above, be sure to set up a more convenient password auto-completion function from iOS12 (Go to iPhone's "Settings" -> "Passwords" -> "AutoFill Passwords" -> "Allow") Confirmation should be done.

If you enter OTA key directly without sending SMS, "To verify your identity, you must send an SMS message." or "To enter the authentication number, you must select the authentication number in [From Message] received by SMS on the numeric keypad at the bottom of the phone." appears on the screen.



Identity verification

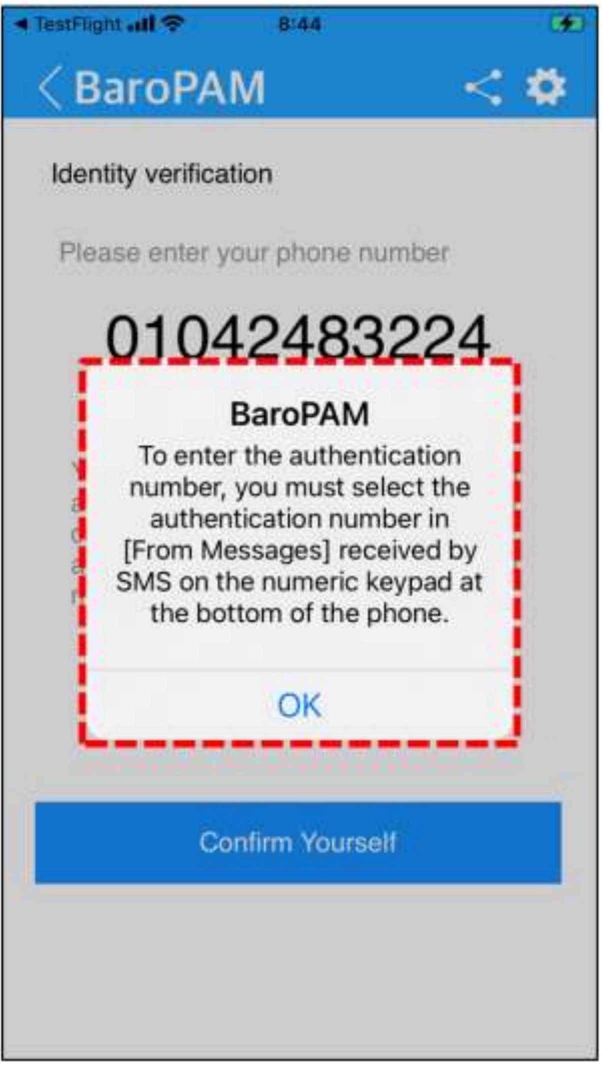
Please enter your phone number

01042483224

BaroPAM

To verify your identity, you must send an SMS message.

OK



Identity verification

Please enter your phone number

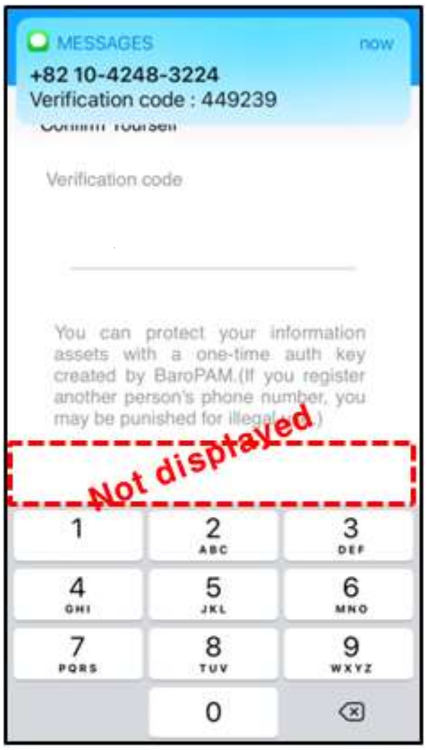
01042483224

BaroPAM

To enter the authentication number, you must select the authentication number in [From Messages] received by SMS on the numeric keypad at the bottom of the phone.

OK

Note) If the OTA key sent by SMS is received but it is not displayed on the keyboard or the OTA key sent by SMS is not received.



MESSAGES now

+82 10-4248-3224

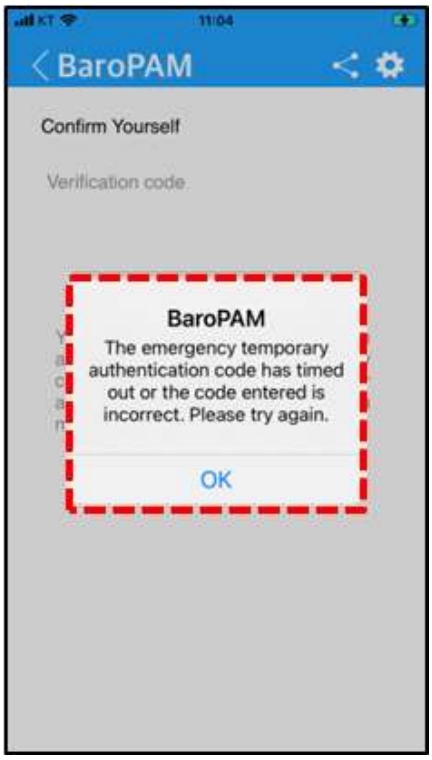
Verification code : 449239

Verification code

You can protect your information assets with a one-time auth key created by BaroPAM.(If you register another person's phone number, you may be punished for illegal.)

If the OTA key is not displayed on the keyboard like the screen above, be sure to set up a more convenient password auto-completion function from iOS12 (Go to iPhone's "**Settings**" -> "**Passwords**" -> "**AutoFill Passwords**" -> "**Allow**") Confirmation should be done.

If the urgently issued temporary verification code verification fails, the following message appears on the screen, and urgently issued temporary verificiation code verification must be performed again.



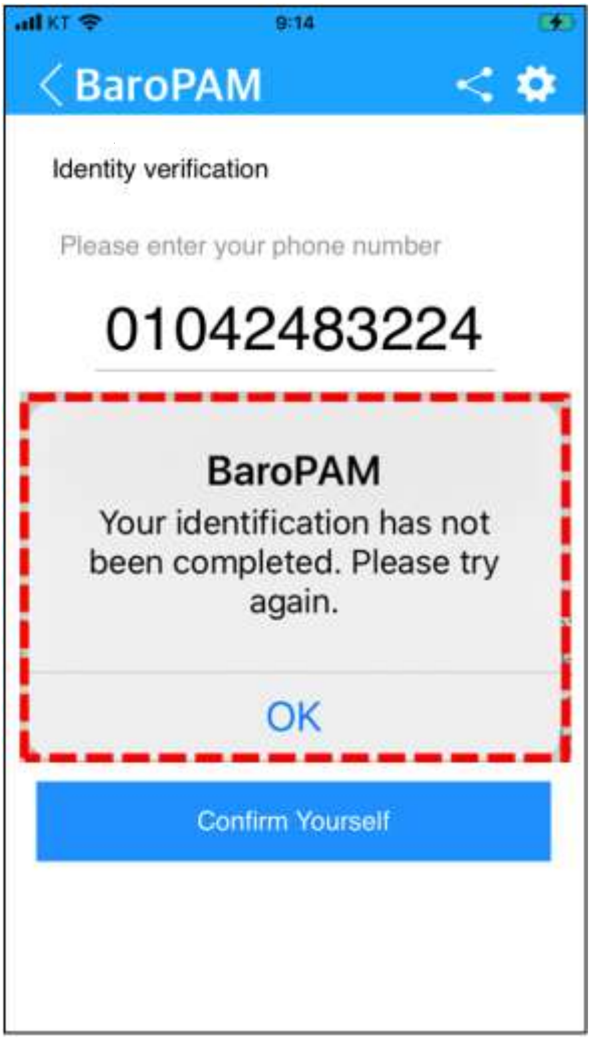
Confirm Yourself

Verification code

BaroPAM

The emergency temporary authentication code has timed out or the code entered is incorrect. Please try again.

6) If the identity verification process fails, the following message appears on the screen, and the identity verification process must be performed again.



Identity verification

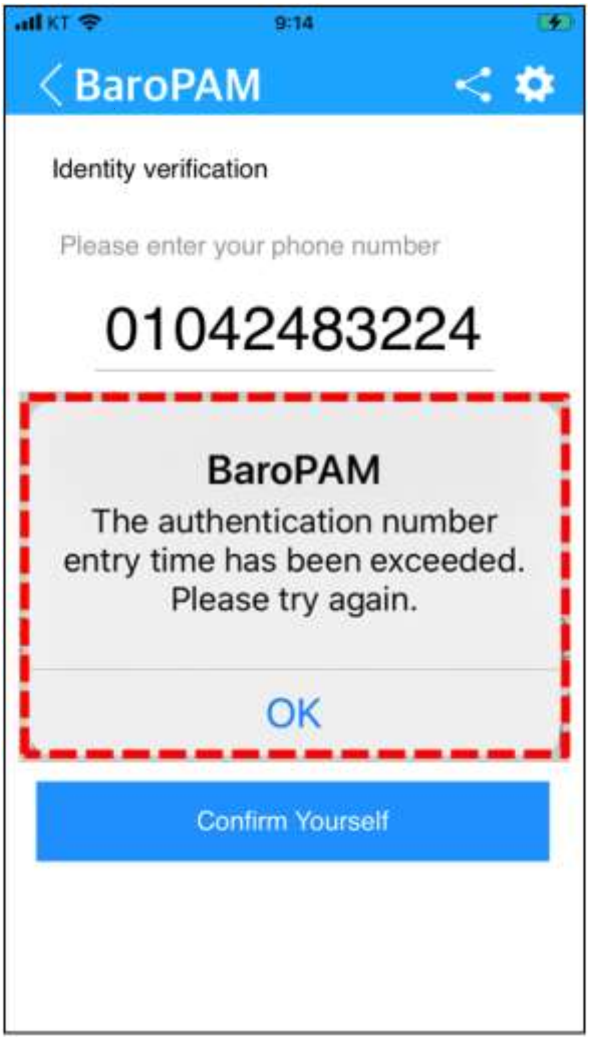
Please enter your phone number

01042483224

BaroPAM

Your identification has not been completed. Please try again.

7) If the OTA key input time exceeds 10 seconds during the identity verification process, the following message appears on the screen, and the identity verification process must be performed again.



Identity verification

Please enter your phone number

01042483224

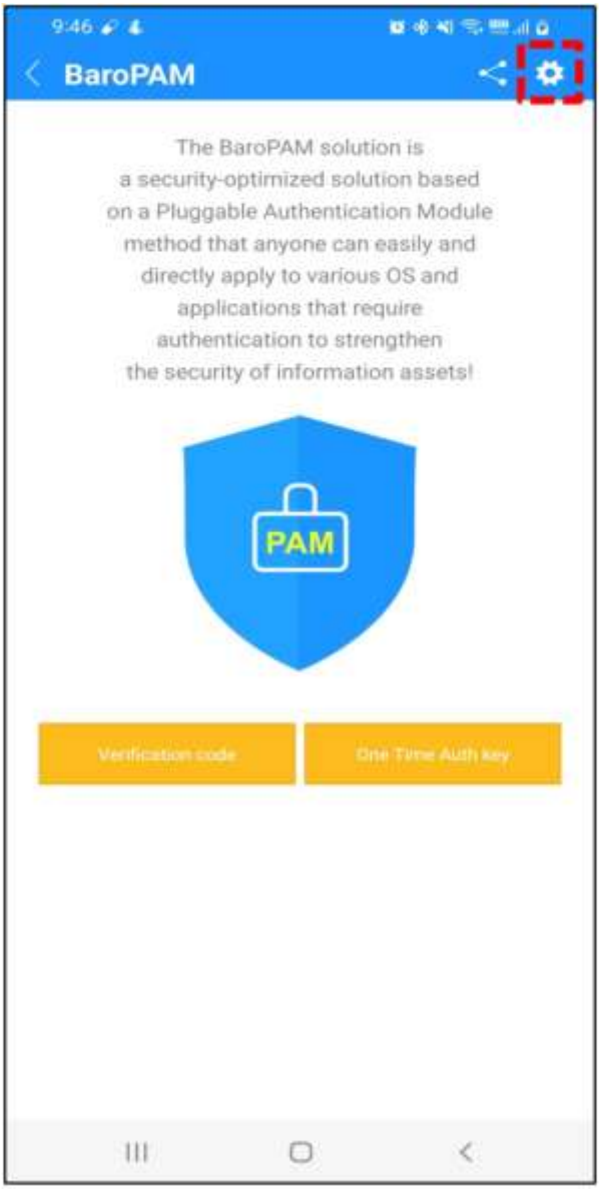
BaroPAM
The authentication number entry time has been exceeded. Please try again.

2. For Android phone

Unlike Android phones, when you select the login information item of the application to generate a secondary authentication key(OTA key) on the "**List of application information**" screen because the device information of the iPhone phone cannot be obtained, a "**One-Time Auth key**" is generated. There may be cases where it does not move to the screen.

In addition, it is necessary to apply a separate identity verification function in order to prevent unauthorized use of another person's phone number. The "BaroPAM" app applies its own algorithm and performs the identity verification procedure as follows.

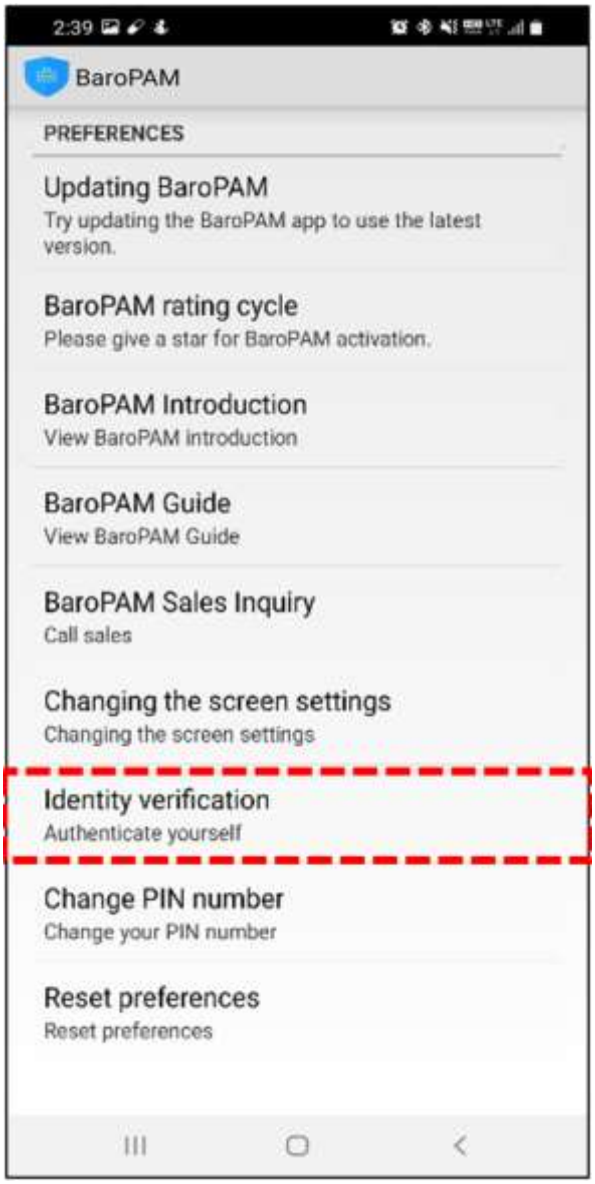
1) To configure the "BaroPAM" app, click the "Preferences" icon as follows.



BaroPAM

The BaroPAM solution is a security-optimized solution based on a Pluggable Authentication Module method that anyone can easily and directly apply to various OS and applications that require authentication to strengthen the security of information assets!

2) Then the "Preferences" screen appears as follows.



2:39

BaroPAM

PREFERENCES

Updating BaroPAM
Try updating the BaroPAM app to use the latest version.

BaroPAM rating cycle
Please give a star for BaroPAM activation.

BaroPAM Introduction
View BaroPAM introduction

BaroPAM Guide
View BaroPAM Guide

BaroPAM Sales Inquiry
Call sales

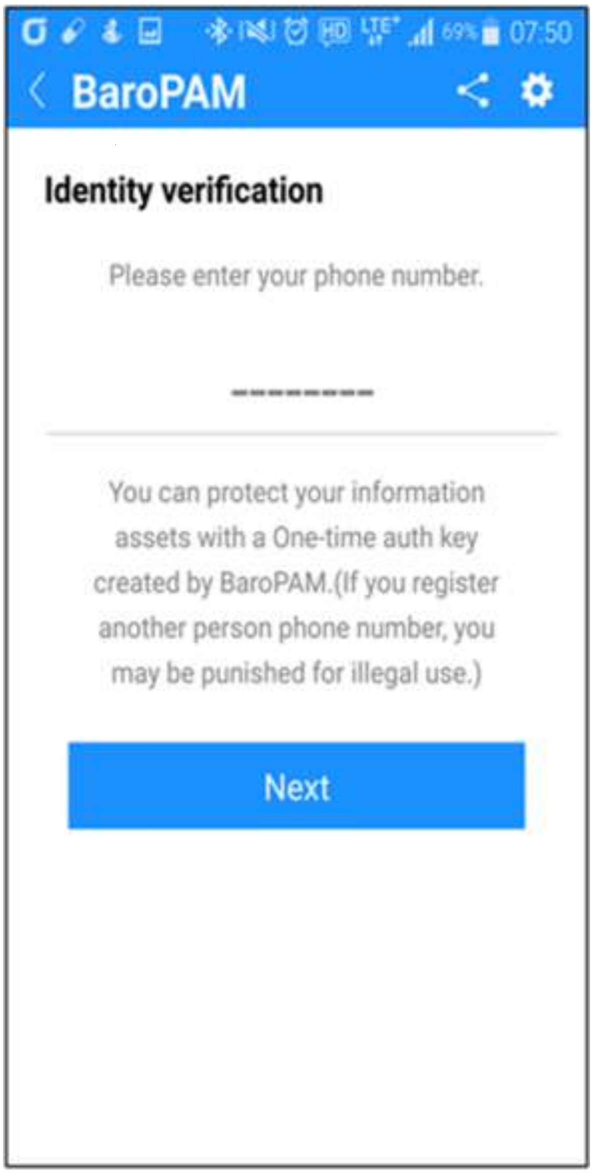
Changing the screen settings
Changing the screen settings

Identity verification
Authenticate yourself

Change PIN number
Change your PIN number

Reset preferences
Reset preferences

3) If you click the "Identity verification" item, the following "Identity verification" screen appears.

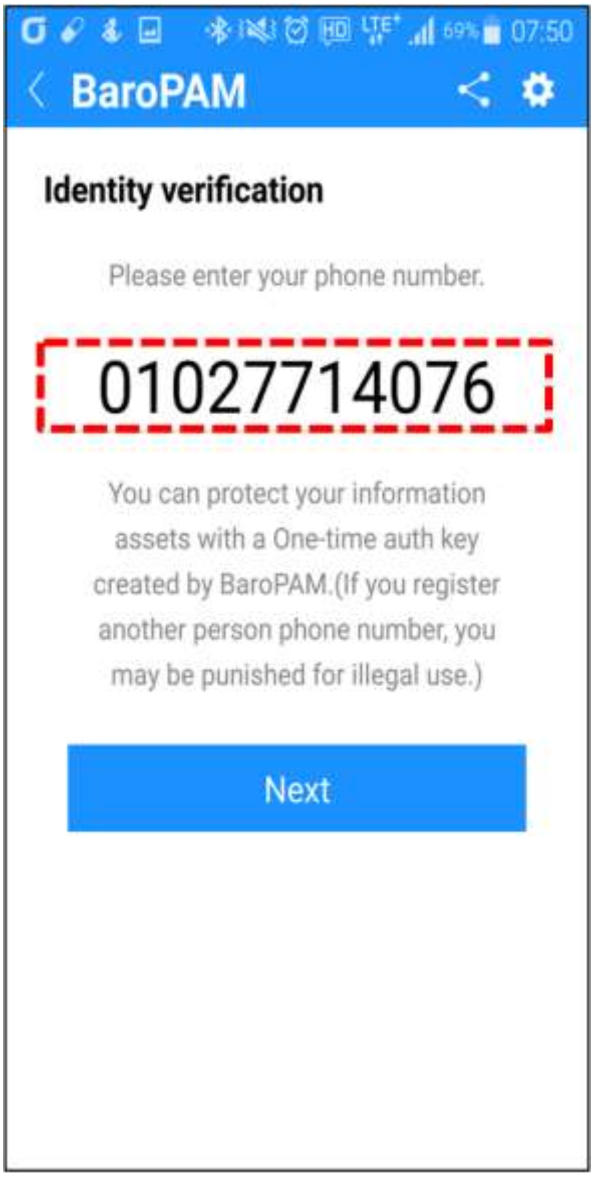


Identity verification

Please enter your phone number.

You can protect your information assets with a One-time auth key created by BaroPAM.(If you register another person phone number, you may be punished for illegal use.)

4) Enter your phone number as a number and click the "Next" button.



BaroPAM

Identity verification

Please enter your phone number.

01027714076

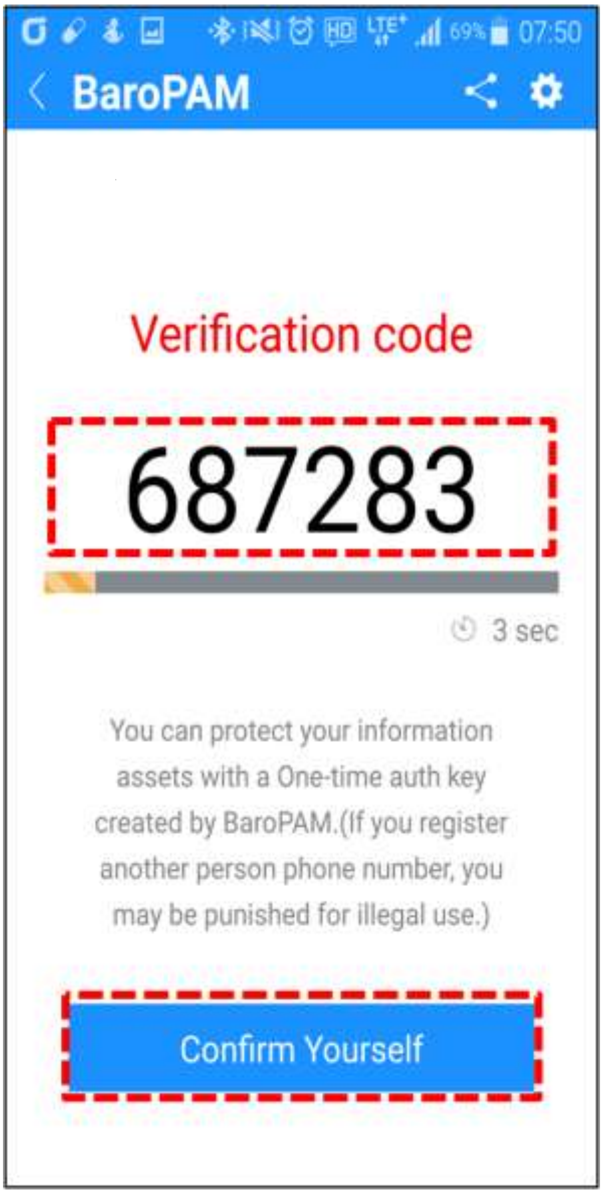
You can protect your information assets with a One-time auth key created by BaroPAM.(If you register another person phone number, you may be punished for illegal use.)

Clicking the "**Next**" button first checks the validity of the input items, and then delivers the verification code generated by the internal algorithm to the "**Identity Verification**" screen to proceed with the identity verification process.

If the phone number is less than 8 digits, the message "**Please enter more than 8 digits of phone number.**" appears on the screen.

If you enter someone else's phone number, you may be punished for illegal use.

5) After checking the received verification code, click the "Confirm Yourself" button.



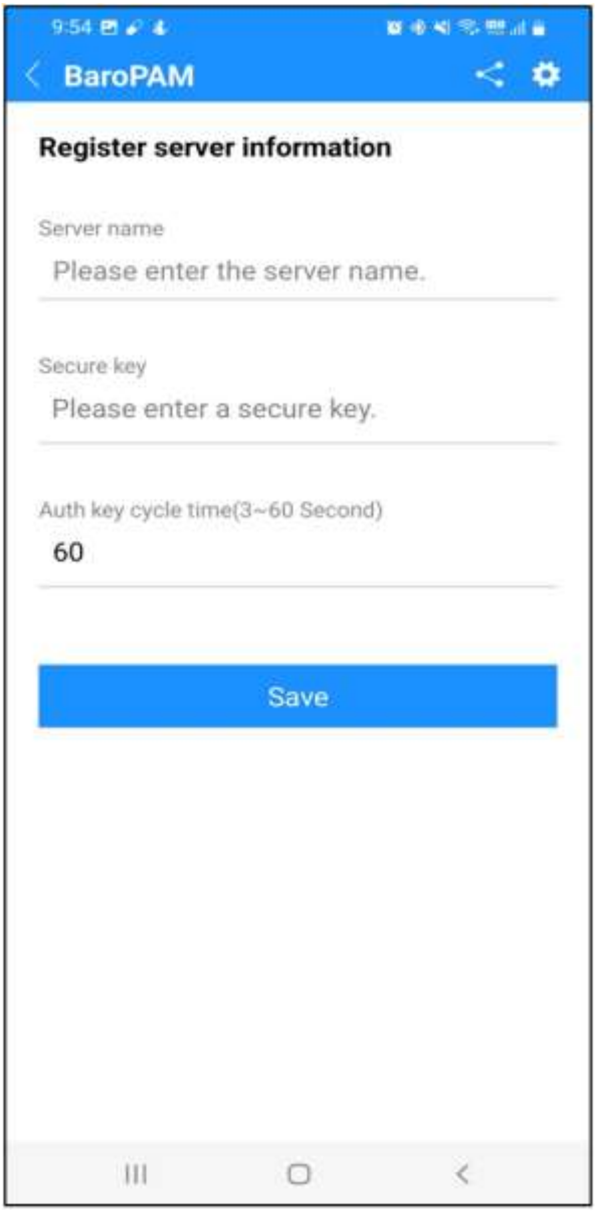
You can protect your information assets with a One-time auth key created by BaroPAM.(If you register another person phone number, you may be punished for illegal use.)

After checking the verification code, if you click the "Confirm Yourself" button, the verification code is verified by an internal algorithm and then the phone number is stored.

If the identity verification process is successful, it moves to the "Menu selection" screen, but if it fails, it moves to the "Identity verification" screen.

1.5 Using the BaroPAM app(Server infomation)

1. If the information on the information asset is not set (when using the "BaroPAM, BaroPAMs" app for the first time), the screen to register the information on the information asset appears as follows.



Register server information

Server name
Please enter the server name.

Secure key
Please enter a secure key.

Auth key cycle time(3~60 Second)
60

▣Server name

The server name on which BaroPAM will be operated is a required field and can be entered at least 1 digit or up to 30 digits.

▣Secure key

Secure key given by information asset or account is a required input item, and you must enter the one requested by the vendor.

If you enter a random "**Secure key**" that has not been granted by the vendor, an incorrect OTA key is given and you may not be able to log in to the information asset.

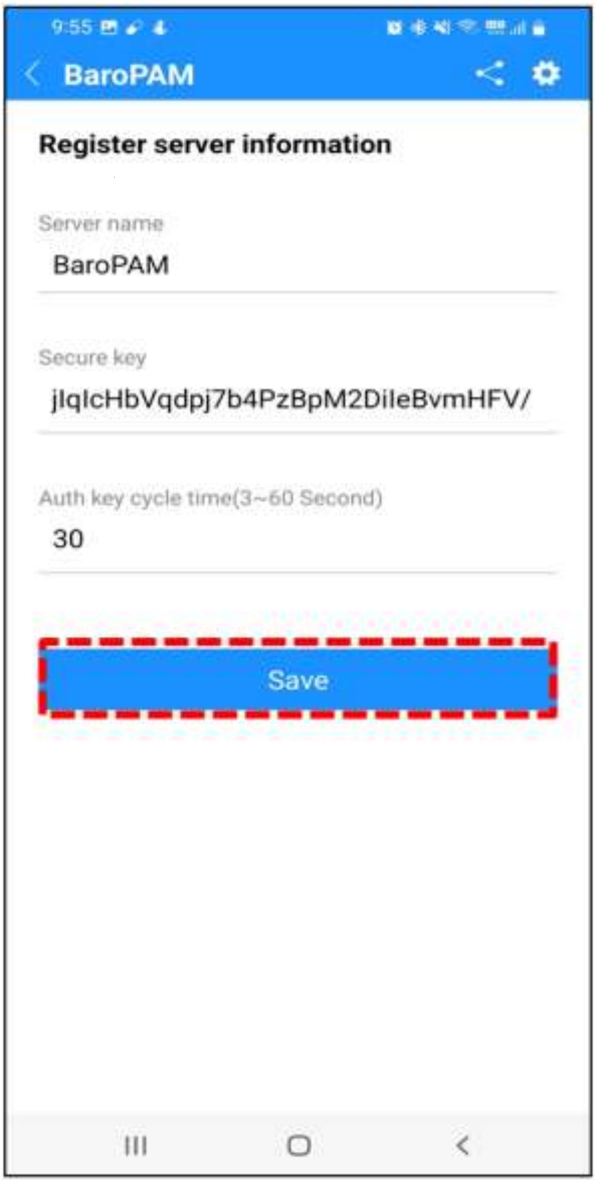
If the secure key set in the information asset and the secure key designated by the app are different, the OTA key is different and you may not be able to login.

▣Auth key cycle time(3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

If the OTA key generation cycle (Auth key cycle time) set in the information asset and the OTA key generation cycle (Auth key cycle time) specified in the app are different, the OTA key is different. So there may be cases where you cannot log in.

2. After entering information about the information asset, click the "Save" button.



BaroPAM

Register server information

Server name
BaroPAM

Secure key
jlqIcHbVqdpj7b4PzBpM2DileBvmHFV/

Auth key cycle time(3~60 Second)
30

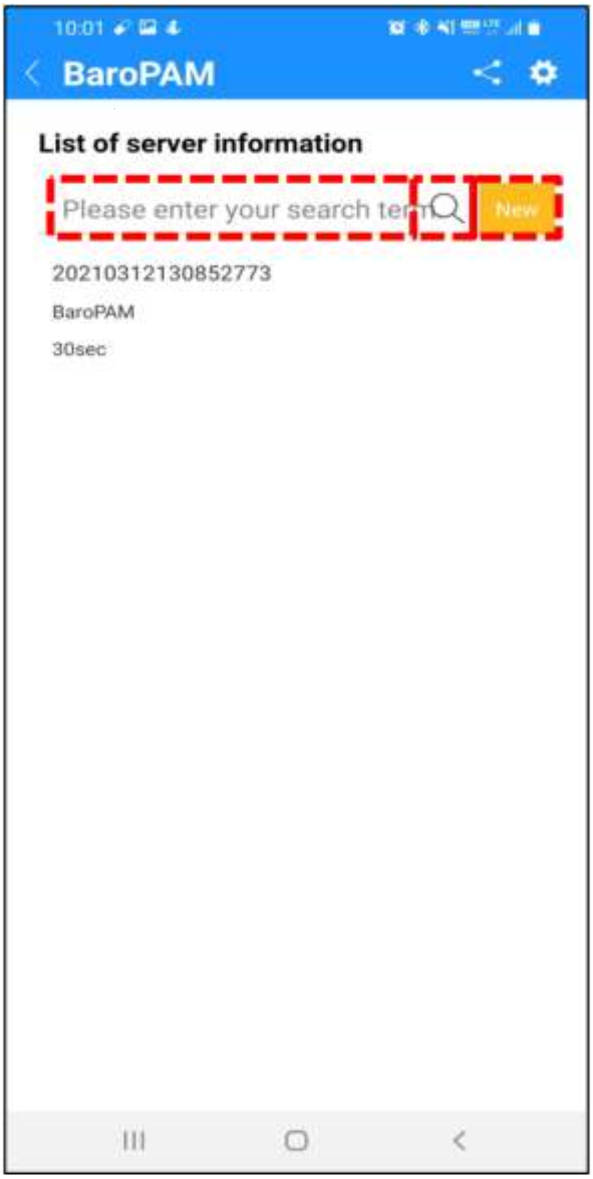
Clicking the "**Save**" button first checks the validity of the input items and then proceeds to save the information on the information asset.

If the information asset name (Server name) is not entered, the message "**Please enter the server name.**" appears on the screen.

If a secure key is not entered, the message "**Please enter a secure key**" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "**Please enter or confirm the auth key cycle**" appears on the screen.

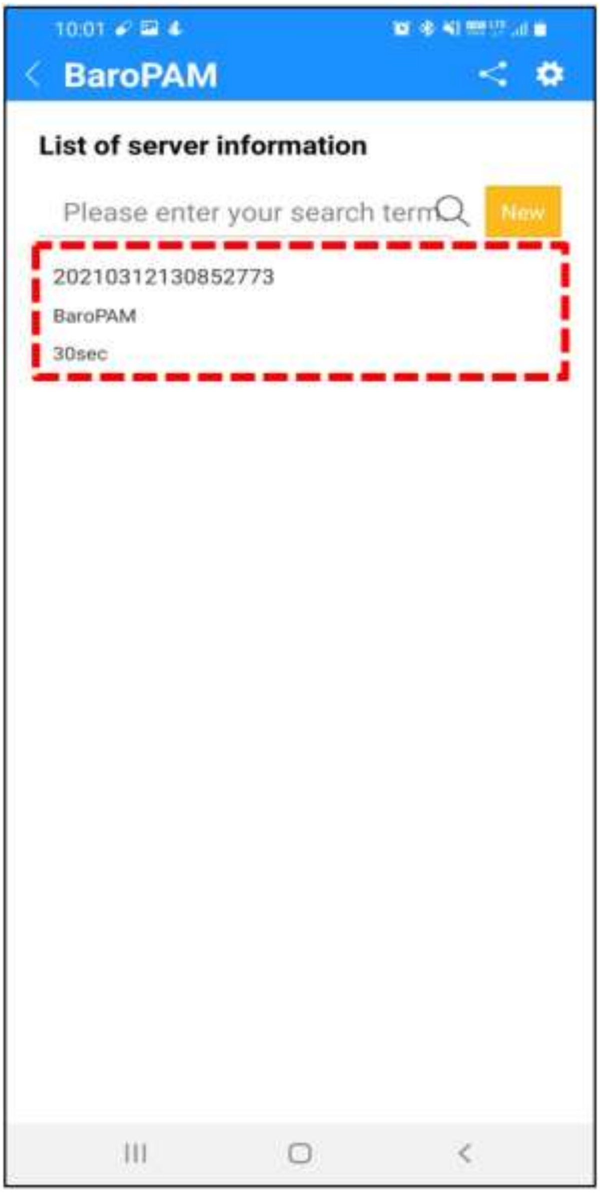
3. If the information on the information asset is not successfully saved, the "Register server information" screen continues, and when completed normally, the "List of server information" screen appears as follows.



If you want to search for information on an information asset, enter a search term and click the "**Search**" button to display the information on the searched information asset on the screen.

If you need to add new information about information assets, click the "**New**" button and a screen to register information about information assets appears.

4. If you need to generate a secondary authentication key(OTA key), click the information item for the information asset in the server information list as follows.



10:01

BaroPAM

List of server information

Please enter your search term

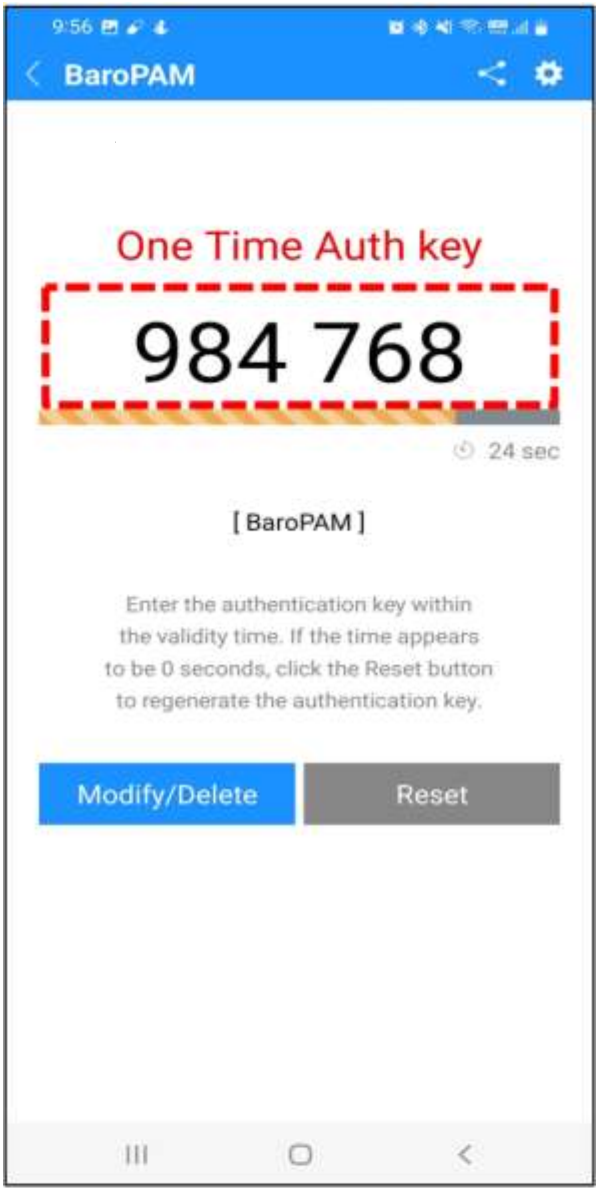
New

20210312130852773

BaroPAM

30sec

5. Then, a screen for creating a secondary authentication key (OTA key) based on the information on the information asset appears as follows.



Enter the authentication key within the validity time. If the time appears to be 0 seconds, click the Reset button to regenerate the authentication key.

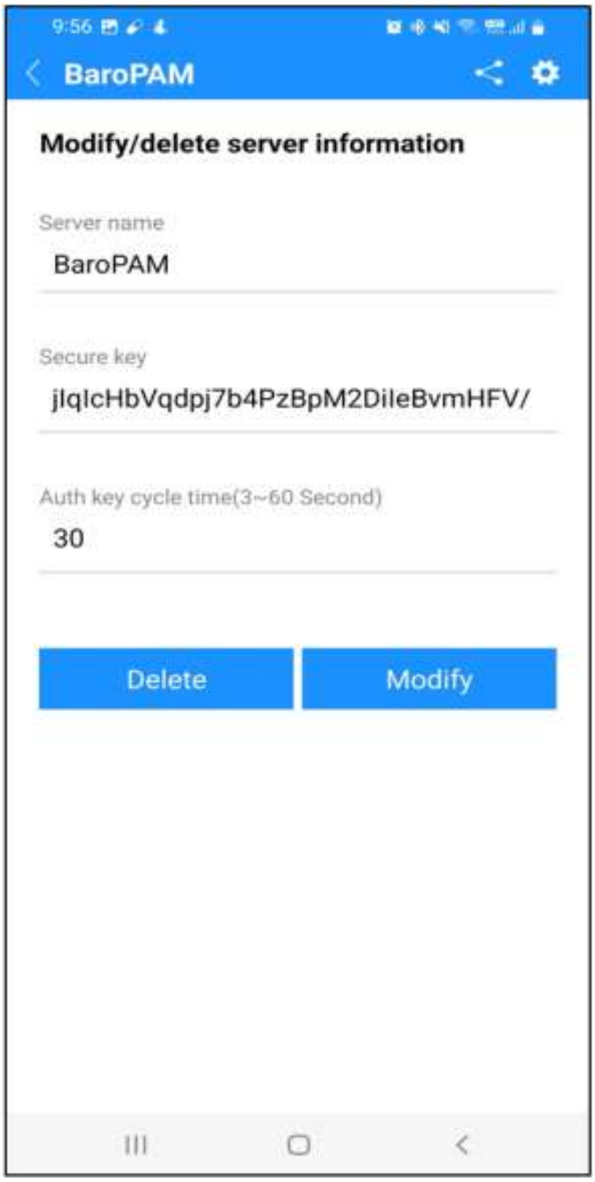
If you need to modify/delete information on information assets, click the "**Modify/Delete**" button.

During the same authentication key cycle time, the "**Reset**" button is deactivated, and when the authentication key cycle time passes, the "**Reset**" button is activated.

When the activated "**Reset**" button is clicked, a new secondary authentication key (OTA key) is generated, and the same secondary authentication key (OTA key) is generated during the one-time authentication key generation cycle (Auth key cycle time).

Note) If you click the number "**984 768**", which is the generated OTA key, the OTA key is regenerated in the same way as clicking the "**Reset**" button.

6. If you need to modify or delete information on an information asset, click the "Modify/Delete" button and the following screen will appear.



9:56

BaroPAM

Modify/delete server information

Server name: BaroPAM

Secure key: jlqlcHbVqdpj7b4PzBpM2DileBvmHFV/

Auth key cycle time(3~60 Second): 30

▣Server name

The server name on which BaroPAM will be operated is a required field and can be entered at least 1 digit or up to 30 digits.

▣Secure key

Secure key given by information asset or account is a required input item, and you must enter the one requested by the vendor.

If you enter a random "Secure key" that has not been granted by the vendor, an incorrect OTA key is given and you may not be able to log in to the information asset.

If the secure key set in the information asset and the secure key designated by the app are different, the OTA key is different and you may not be able to login.

▣Auth key cycle time(3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

If the OTA key generation cycle (Auth key cycle time) set in the information asset and the OTA key generation cycle (Auth key cycle time) specified in the app are different, the OTA key is different. So there may be cases where you cannot log in.

Click the "**Delete**" button to delete the information on the information asset.

Clicking the "**Modify**" button first checks the validity of the input items and then proceeds to modify the information on the information asset.

If the information asset name (Server name) is not entered, the message "**Please enter the server name.**" appears on the screen.

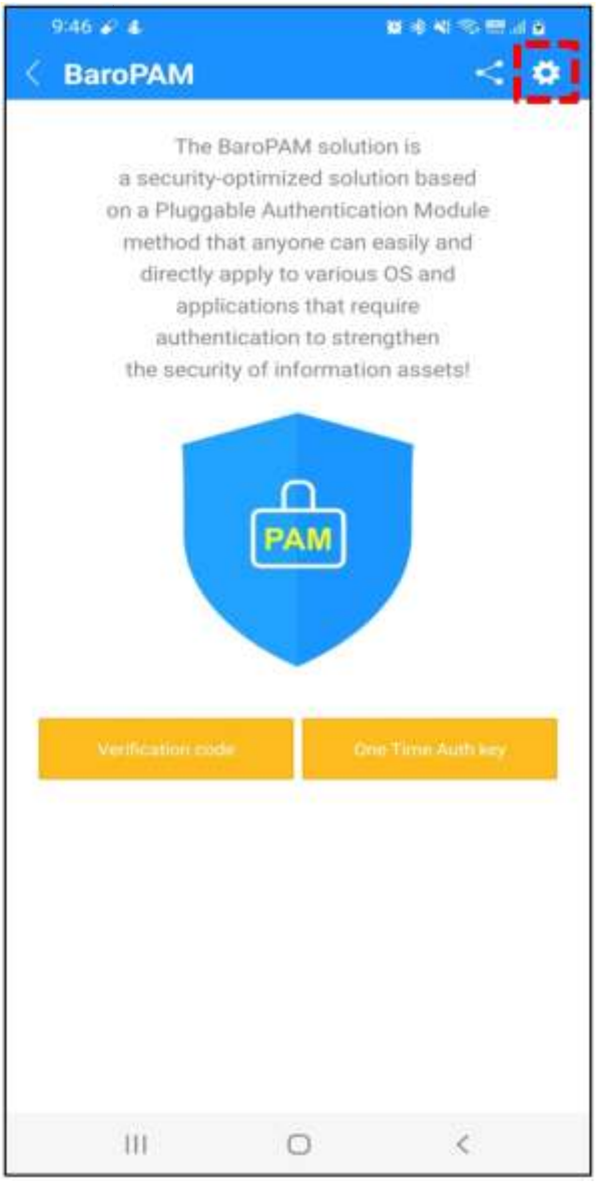
If a secure key is not entered, the message "**Please enter a secure key.**" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "**Please enter or confirm the auth key cycle.**" appears on the screen.

If the modification or deletion of information on the information asset is not completed normally, the "**Modify/Delete server information**" screen continues, and when completed normally, the "**List of server information**" screen appears.

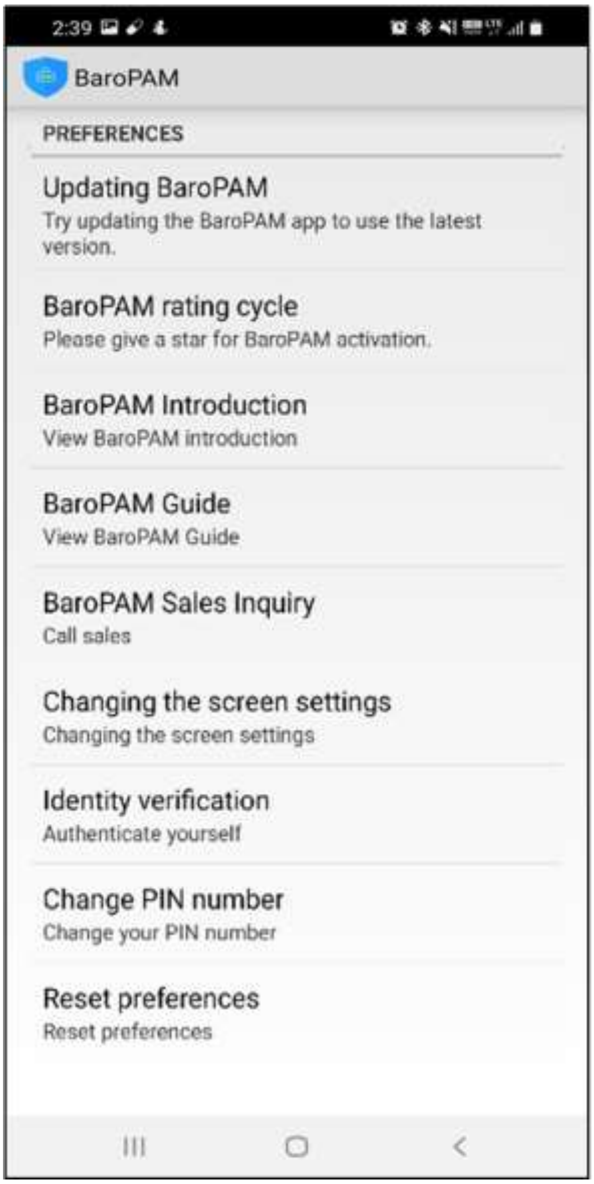
1.6 Using the BaroPAM app(Environment settings)

1. To configure the "BaroPAM" app, click the "Preferences" icon as follows.



The BaroPAM solution is a security-optimized solution based on a Pluggable Authentication Module method that anyone can easily and directly apply to various OS and applications that require authentication to strengthen the security of information assets!

2. Then the "Preferences" screen appears as follows.



PREFERENCES

Updating BaroPAM
Try updating the BaroPAM app to use the latest version.

BaroPAM rating cycle
Please give a star for BaroPAM activation.

BaroPAM Introduction
View BaroPAM introduction

BaroPAM Guide
View BaroPAM Guide

BaroPAM Sales Inquiry
Call sales

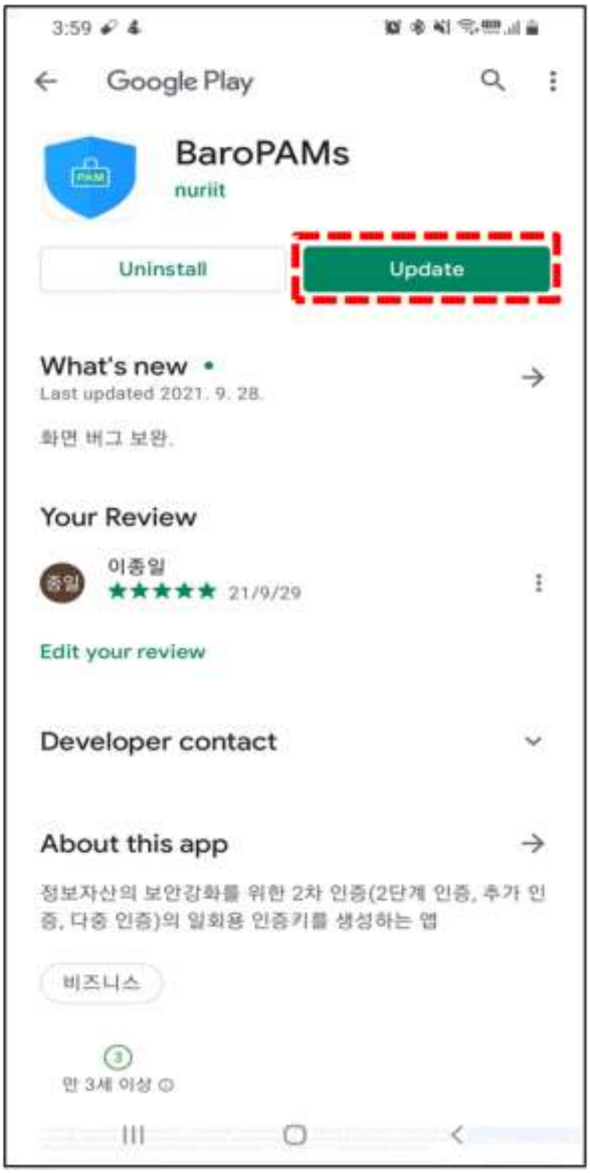
Changing the screen settings
Changing the screen settings

Identity verification
Authenticate yourself

Change PIN number
Change your PIN number

Reset preferences
Reset preferences

3. Click the "Update BaroPAM" item, and the following "Google Play Store" screen appears.



3:59

Google Play

BaroPAMs

nuriit

Uninstall

Update

What's new •

Last updated 2021. 9. 28.

화면 버그 보완.

Your Review

종일 이종일

★★★★★ 21/9/29

Edit your review

Developer contact

About this app

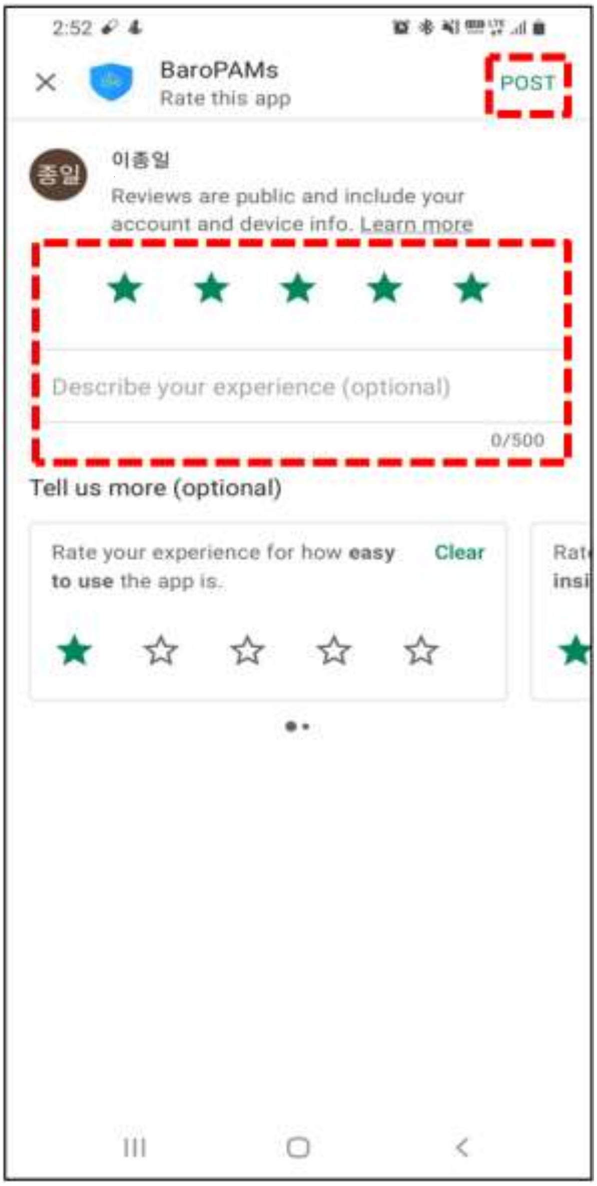
정보자산의 보안강화를 위한 2차 인증(2단계 인증, 추가 인증, 다중 인증)의 일회용 인증키를 생성하는 앱

비즈니스

만 3세 이상

Click the "Update" button to update the "BaroPAM" app. If there is no "Update" button, it means that there is no information to update.

4. Click the "BaroPAM rating cycle" item and the "Google Play Store" rating cycle screen will appear.



2:52

BaroPAMs
Rate this app

이종일

Reviews are public and include your account and device info. Learn more

★ ★ ★ ★ ★

Describe your experience (optional)

0/500

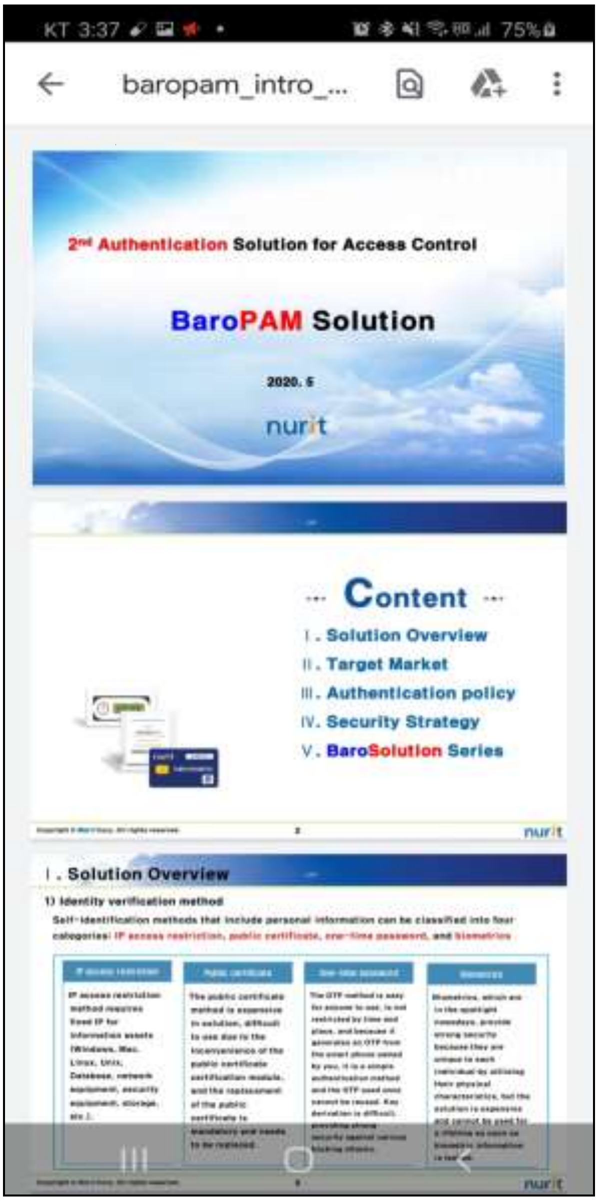
Tell us more (optional)

Rate your experience for how easy to use the app is.

★ ☆ ☆ ☆ ☆

To activate the "BaroPAM app, fill out and submit a star rating and comment to help activate the app.

5. Click the "BaroPAM Introduction" item and the following "BaroPAM Solution Introduction" screen will appear.



KT 3:37 75%

baropam_intro_...

2nd Authentication Solution for Access Control

BaroPAM Solution

2020. 5

nurit

··· Content ···

Ⅰ. Solution Overview
Ⅱ. Target Market
Ⅲ. Authentication policy
Ⅳ. Security Strategy
Ⅴ. BaroSolution Series

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Ⅰ. Solution Overview

1) Identity verification method

Self-identification methods that include personal information can be classified into four categories: IP access restriction, public certificate, one-time password, and biometrics

IP access restriction	Public certificate	One-time password	Biometrics
IP access restriction method requires fixed IP for information assets (Windows, Mac, Linux, Unix, Database, network equipment, security equipment, storage, etc.).	The public certificate method is expensive in solution, difficult to use due to the inconvenience of the public certificate certification module, and the replacement of the public certificate is mandatory and needs to be replaced.	The OTP method is easy for anyone to use, is not restricted by time and place, and because it generates an OTP from the smart phone owned by you, it is a simple authentication method and the OTP used once cannot be reused. Key derivation is difficult, providing strong security against various hacking attacks.	Biometrics, which are in the spotlight nowadays, provide strong security because they are unique to each individual by utilizing their physical characteristics, but the solution is expensive and cannot be used [illegible] as soon as biometric information is leaked.

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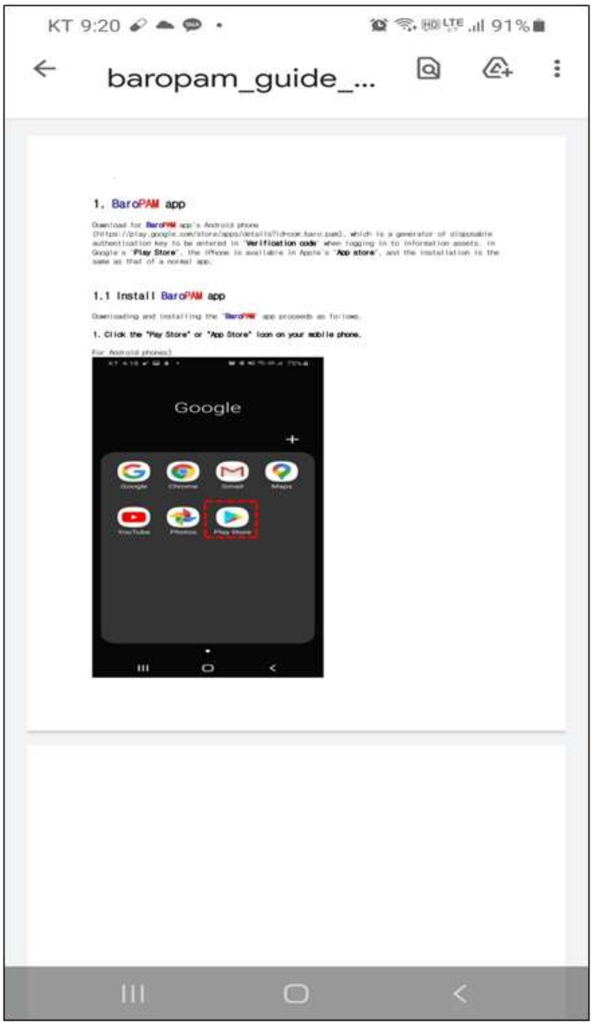
The "BaroPAM Solution Introduction" is provided in the form of a pdf file (baropam_intro_en.pdf).

6. Click the "BaroPAM Guide" item, and the following "BaroPAM App User Guide" screen appears.



1. BaroPAM app

Download for BaroPAM app's Android phone (https://play.google.com/store/apps/details?id=com.baro.pam), which is a generator of disposable authentication key to be entered in 'Verification code' when logging in to information assets. In Google's 'Play Store', the iPhone is available in Apple's 'App store', and the installation is the same as that of a normal app.

1.1 Install BaroPAM app

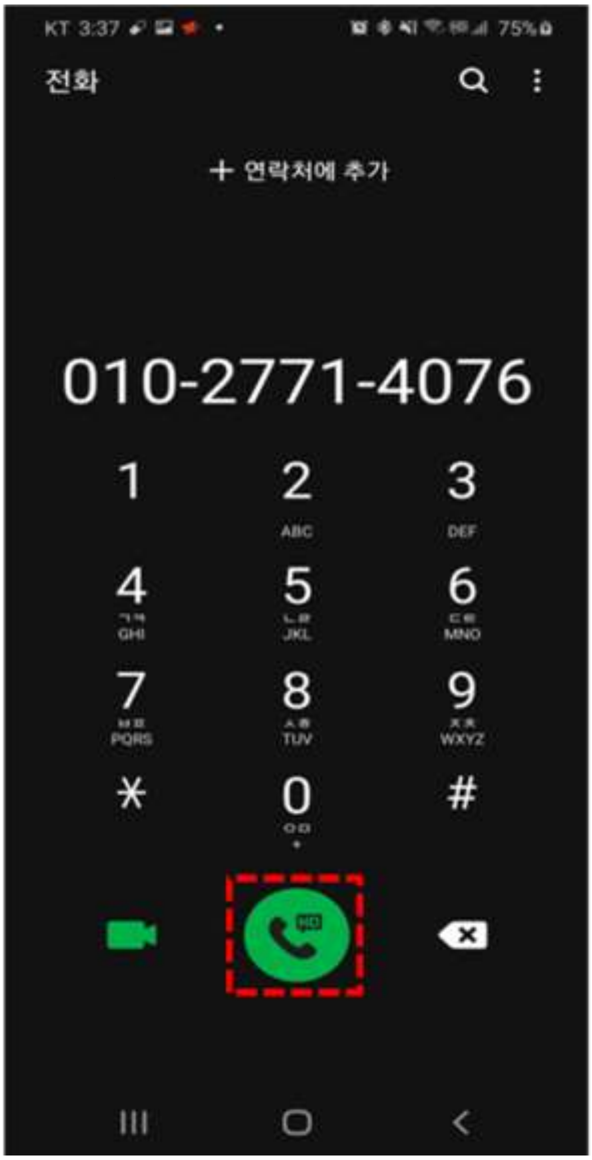
Downloading and installing the 'BaroPAM' app proceeds as follows.

1. Click the "Play Store" or "App Store" icon on your mobile phone.

(For Android phones)

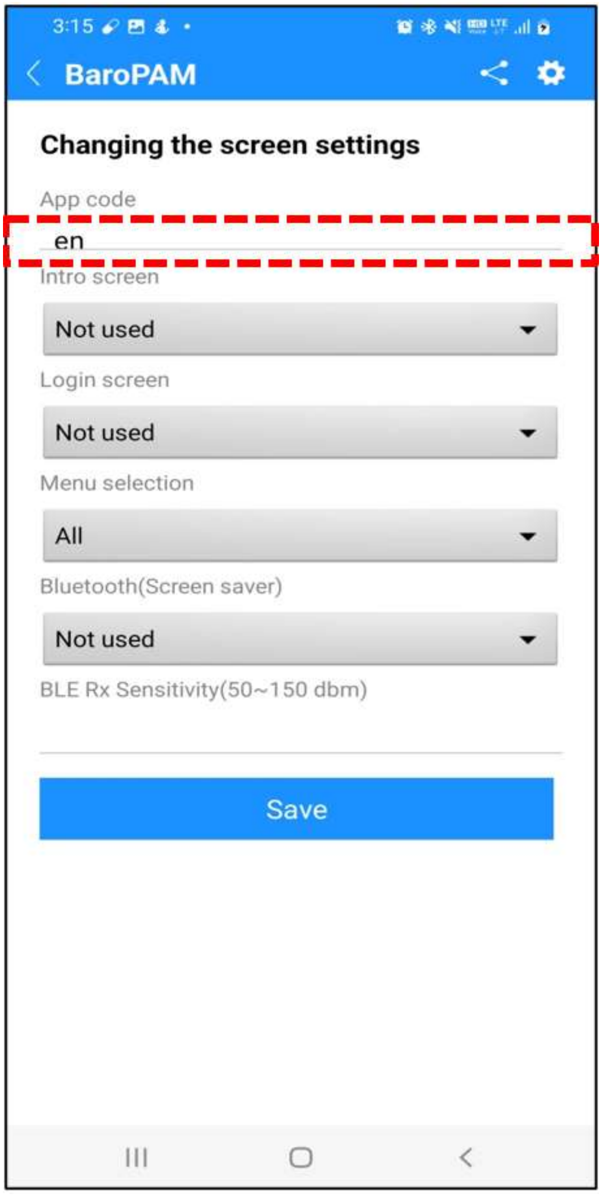
The "BaroPAM App User Guide" is provided in the form of a pdf file (baropam_guide_en.pdf).

7. Click the "BaroPAM Sales Inquiry" item and the following "Call" screen will appear.



You can inquire about sales and general information about "BaroPAM" by clicking the "Call" button.

8. Click the "Change the screen settings" item and the following "Change the screen settings" screen appears.



Changing the screen settings

App code

en

Intro screen

Not used

Login screen

Not used

Menu selection

All

Bluetooth(Screen saver)

Not used

BLE Rx Sensitivity(50~150 dbm)

▣App code

Enter the app code given by the vendor. If not entered, the Korean mode "**en**" is designated by default, and the "BaroPAM" app is switched according to the entered app code.

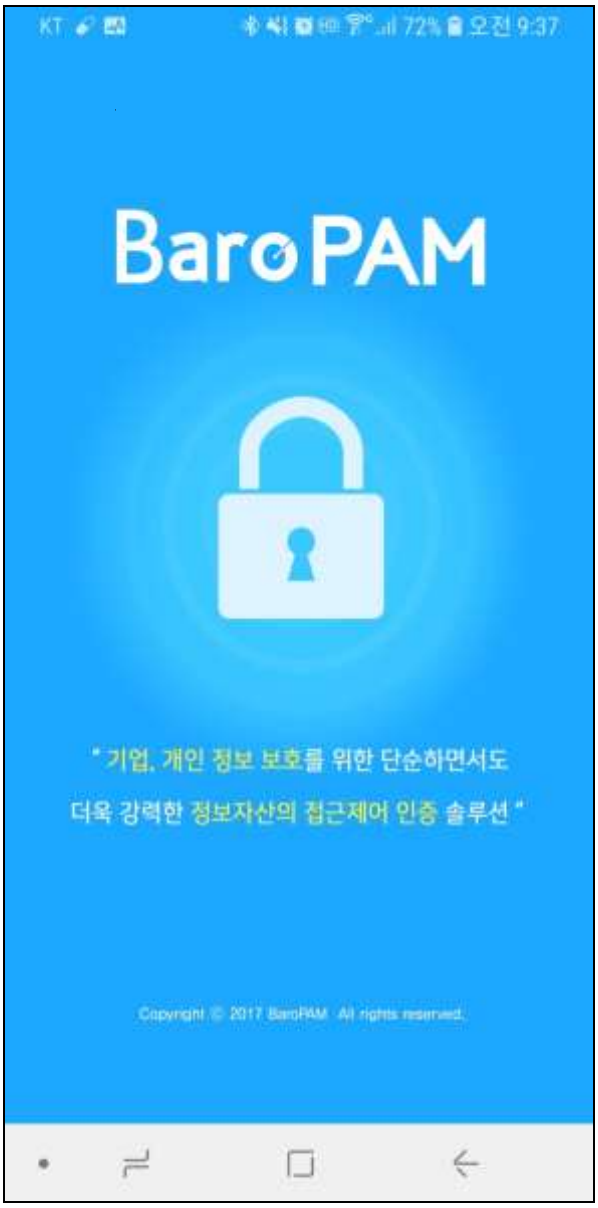
예) App code

Korean mode: kr
English mode: en
China mode: cn
Japan mode: jp

▣Intro screen

Select whether to use the intro screen. Select "**Used**" to use the intro screen or "**not used**" to not use the intro screen.

When using the intro screen When running the "BaroPAM" app, when the "BaroPAM" app is activated, the intro screen of "BaroPAM" is activated for 2 seconds and continues as follows.



"기업, 개인 정보 보호를 위한 단순하면서도
더욱 강력한 정보자산의 접근제어 인증 솔루션"

Copyright © 2017 BaroPAM All rights reserved.

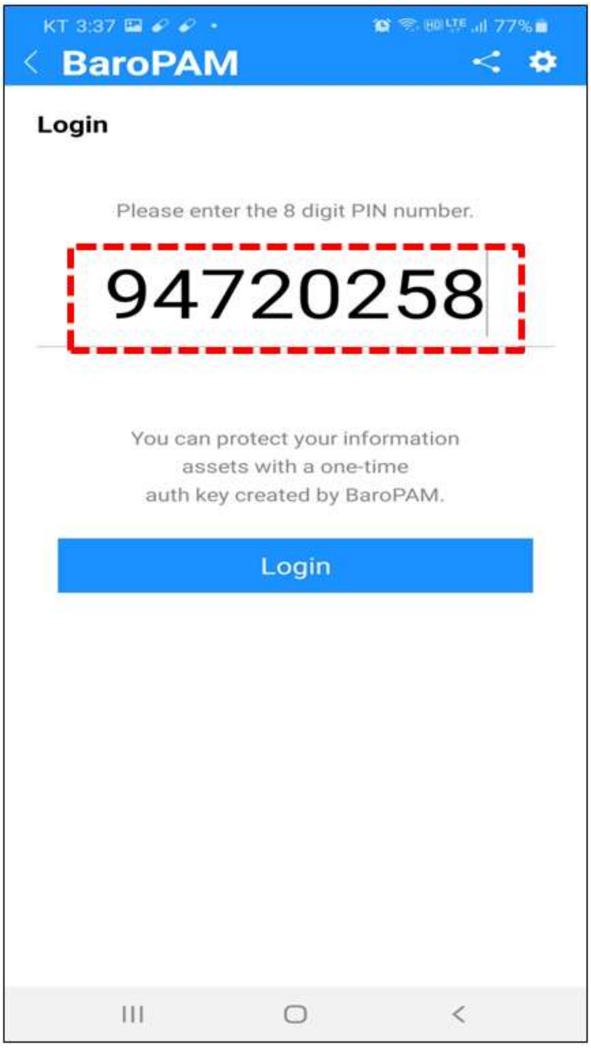
▣Login screen

Select whether to use the login screen. If you do not use the login screen, select "**Not used**". When using a PIN number, select "**PIN number is used**". When using fingerprint or face recognition, select "**Biometric auth is used**".

When using biometric authentication such as fingerprint or face recognition as the login screen, register fingerprint and face recognition first in "**Phone Settings -> Biometrics and security -> Fingerprints and Face Recognition**".

When running the "BaroPAM" app, you can log in to the "BaroPAM" app through fingerprint or face recognition.

When using a PIN number as the login screen, the "**Login**" screen appears as follows.



KT 3:37 77%

BaroPAM

Login

Please enter the 8 digit PIN number.

94720258

You can protect your information assets with a one-time auth key created by BaroPAM.

Clicking the "**Login**" button first checks the validity of the input items and then proceeds to check if the PIN number is correct.

If the PIN number is not 8 digits, the message "**Please enter 8 digits of the PIN number**" appears on the screen.

If it is different from the set PIN number, the message "**The PIN number is wrong. Please check again and enter it.**" appears on the screen.

If the PIN number fails 5 times in a row, the message "**Access denied.**" appears on the screen and the app is terminated after 3 seconds.

If the intro screen is used when running the "BaroPAM" app, the intro screen first lasts for 2 seconds and then moves to the login screen. If the login screen is used, the login screen proceeds normally and then the menu selection screen moves.

▣Menu selection

Select the menu to use. Using the screen for selecting "**Menu**", "**All**" when using both server and application login information, and when selecting, When using only server information, select "**Verification code**", and when using only application login information, select "**One Time auth key**".

▣Bluetooth(Screen saver)

Windows and Open source OS (HamoniKR OS, Gooroom OS, TMaxOS) set a screen saver for information protection on the desktop PC. Select "**Used**" to use the screen saver lock/unlock function, and select "**not used**" to not use the screen saver lock/unlock function.

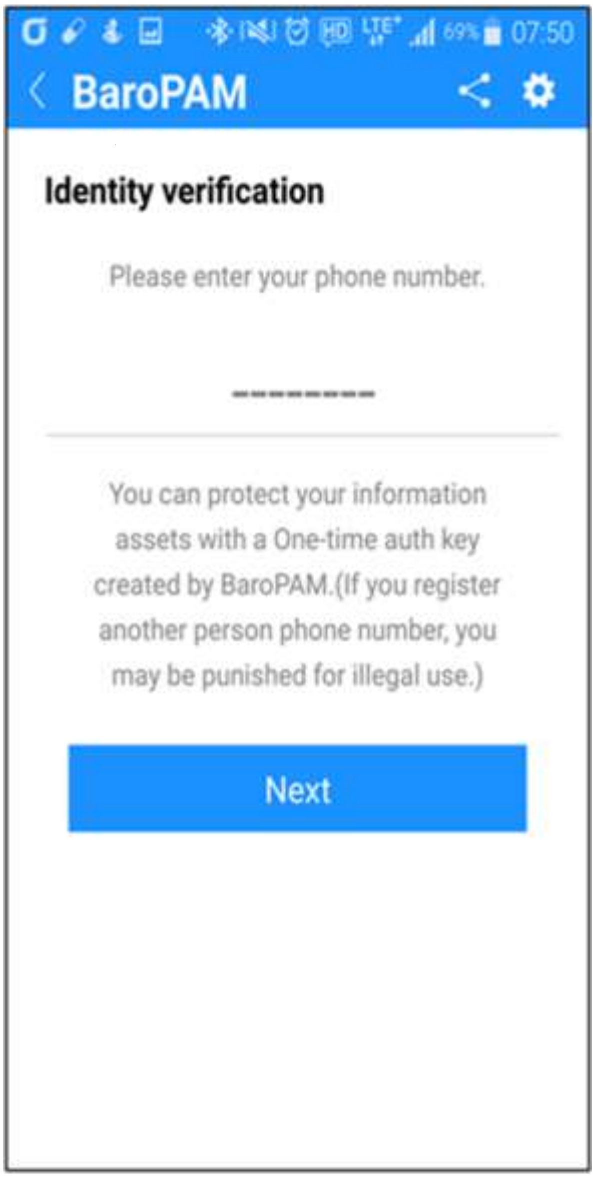
Clicking the "**Save**" button first checks the validity of the input items and then proceeds to save the screen setting information.

If the app code is entered and it is not two digits, a message "**Please enter the app code.**" appears on the screen.

If the number of BLE connections is not entered or out of range, the message "**Enter or check the number of BLE connections.**" appears on the screen.

If the saving operation is not completed normally, the "**Changing the screen settings**" screen is continued. If the intro screen is used normally, the "**Intro**" screen appears, and if not, the "**Menu selection**" screen appears.

9. If you click the "Identity verification" item, the following "Identity verification" screen appears.

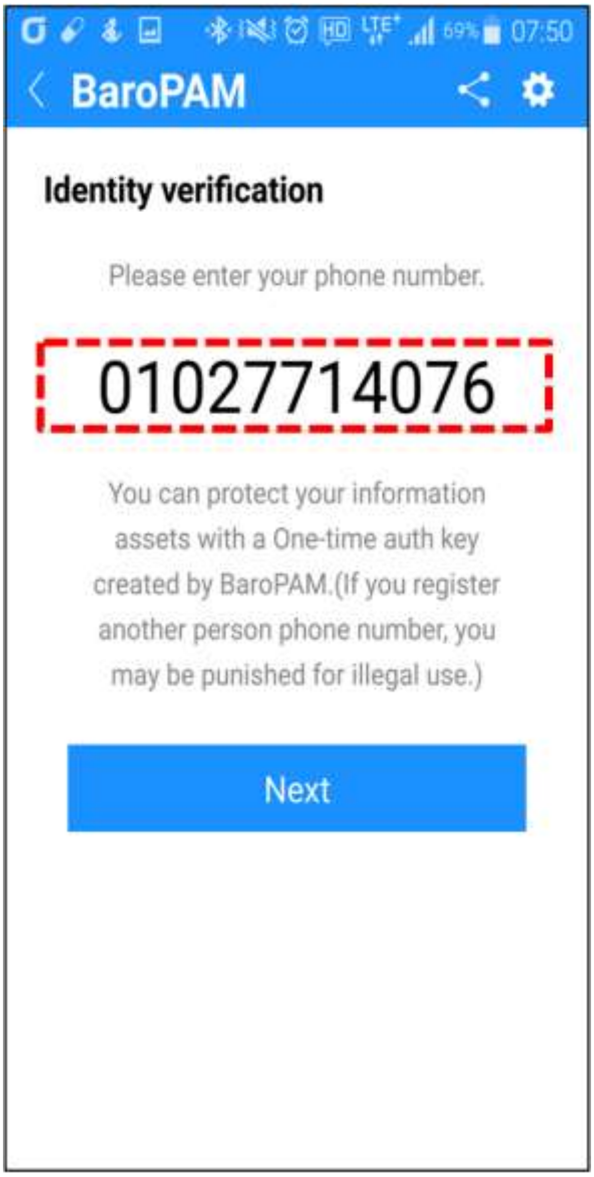


Identity verification

Please enter your phone number.

You can protect your information assets with a One-time auth key created by BaroPAM.(If you register another person phone number, you may be punished for illegal use.)

1) Enter the iPhone's phone number as a number and click the "Next" button.



BaroPAM

Identity verification

Please enter your phone number.

01027714076

You can protect your information assets with a One-time auth key created by BaroPAM.(If you register another person phone number, you may be punished for illegal use.)

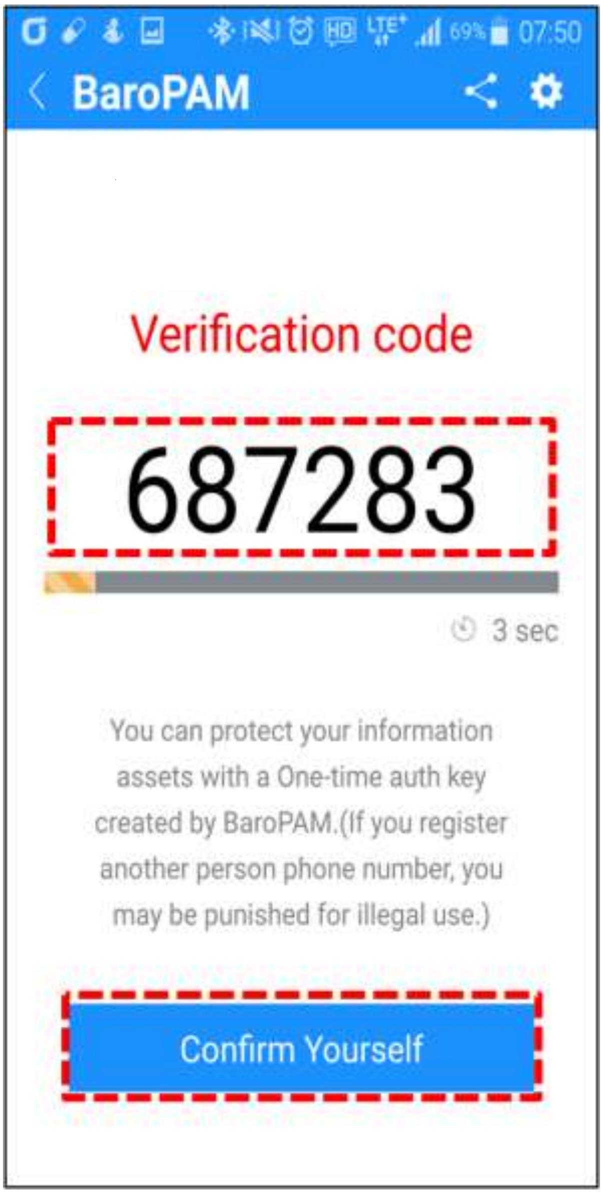
Next

Clicking the "**Next**" button first checks the validity of the input items, and then delivers the verification code generated by the internal algorithm to the "**Identity Verification**" screen to proceed with the identity verification process.

If the phone number is less than 8 digits, the message "**Please enter more than 8 digits of phone number.**" appears on the screen.

If you enter someone else's phone number, you may be punished for illegal use.

2) After checking the received verification code, click the "Confirm Yourself" button.



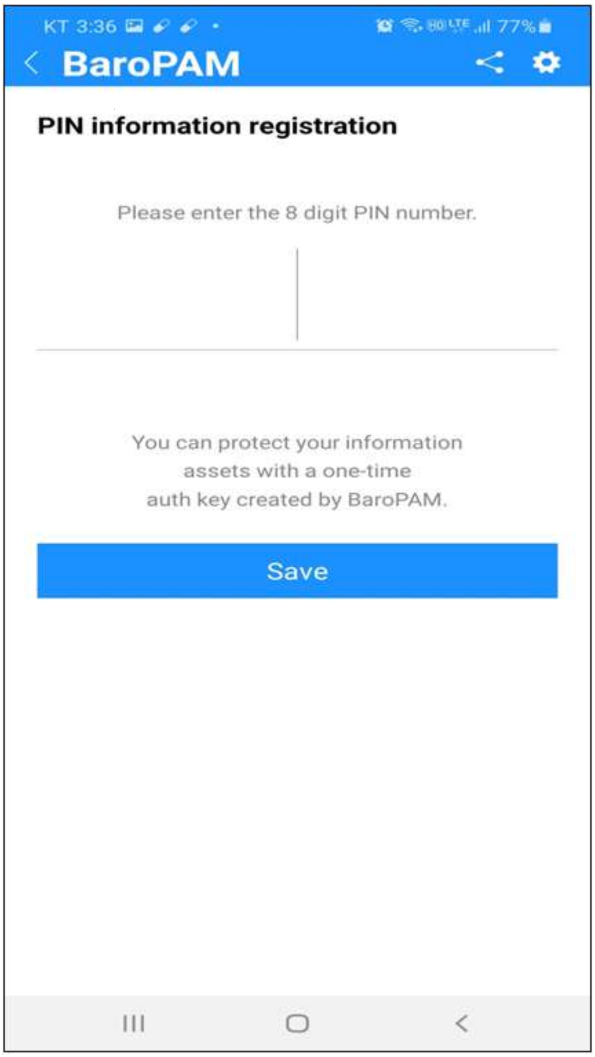
You can protect your information assets with a One-time auth key created by BaroPAM.(If you register another person phone number, you may be punished for illegal use.)

After checking the verification code, if you click the "**Confirm Yourself**" button, the verification code is verified by an internal algorithm and then the phone number is stored.

If the identity verification process is successful, it moves to the "**Menu selection**" screen, but if it fails, it moves to the "**Identity verification**" screen.

10. If you click the "Change PIN number" item, the following "Change PIN number or PIN number registration" screen appears when you select to use "Login screen" in "Changing the screen settings".

When a PIN number is not registered)


KT 3:36

77%

BaroPAM

PIN information registration

Please enter the 8 digit PIN number.

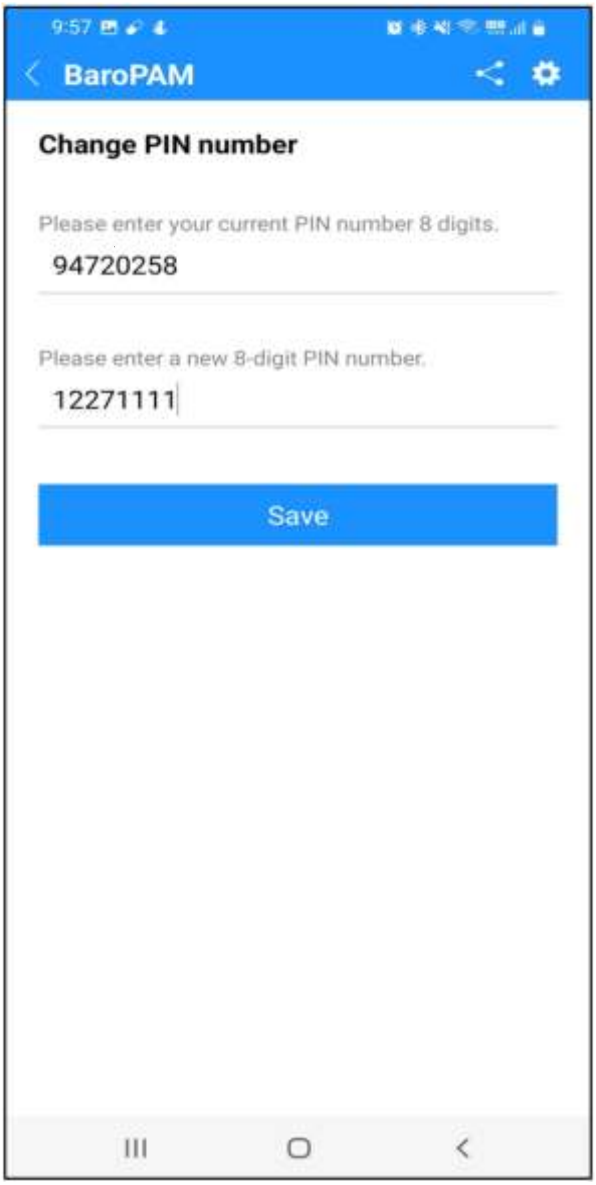
You can protect your information assets with a one-time auth key created by BaroPAM.

Clicking the "**Save**" button first checks the validity of the input items and then proceeds to save the PIN number.

If the PIN number is not 8 digits, the message "**Please enter 8 digits of the PIN number**." appears on the screen.

If the PIN number is not successfully saved, the "**PIN number registration**" screen continues. If the intro screen is normally used, the "**Intro**" screen appears, and if not, the "**Menu selection**" screen appears.

When a PIN number is registered)



9:57

BaroPAM

Change PIN number

Please enter your current PIN number 8 digits.

94720258

Please enter a new 8-digit PIN number.

12271111

▣**Enter your current PIN number 8 digits.**

Enter the currently set PIN number.

▣**Enter a new 8-digit PIN number.**

Enter the new PIN number to be set.

Clicking the "**Save**" button first checks the validity of the input items and then proceeds to save the new PIN number.

If the PIN number is not 8 digits, the message "**Please enter 8 digits of the PIN number.**" appears on the screen.

If the currently set PIN number is different from the newly entered PIN number, the message "**The current PIN number is incorrect. Please check again and enter it.**" appears on the screen.

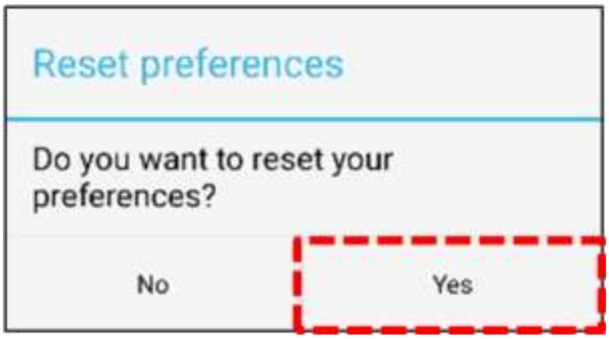
If the currently set PIN number and the new PIN number are the same, the message "**The current PIN**

number and the new PIN number are the same. Please check again and enter." appears on the screen.

If the new PIN number is not 8 digits, the message "**Please enter 8 digits for the new PIN number.**" appears on the screen.

If saving of the new PIN number is not completed normally, the "**Change PIN number**" screen continues. If the intro screen is used normally, the "**Intro**" screen appears, and if not, the "**Menu selection**" screen appears.

11. If you click the "Reset preferences" item, the following "Reset preferences" screen appears.



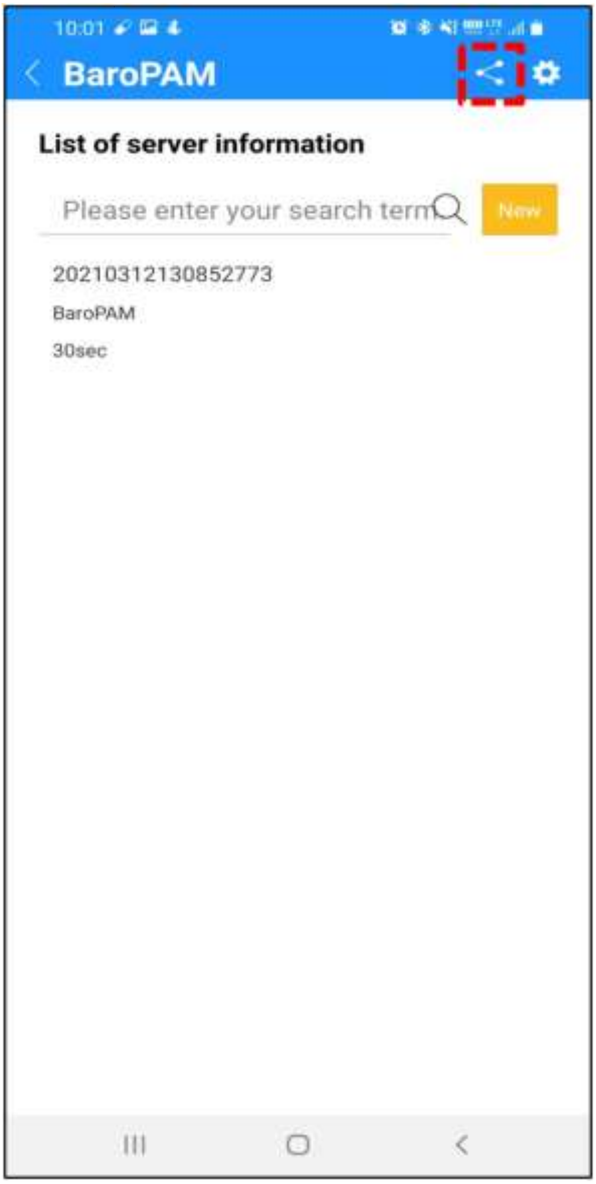
Reset preferences

Do you want to reset your preferences?

If you click the "**Yes**" button, the environment information set in the BaroPAM app will be initialized.

1.7 Using the BaroPAM app(Information sharing)

1. To share using SNS of the "BaroPAM" app, click the "Share BaroPAM" icon as follows.

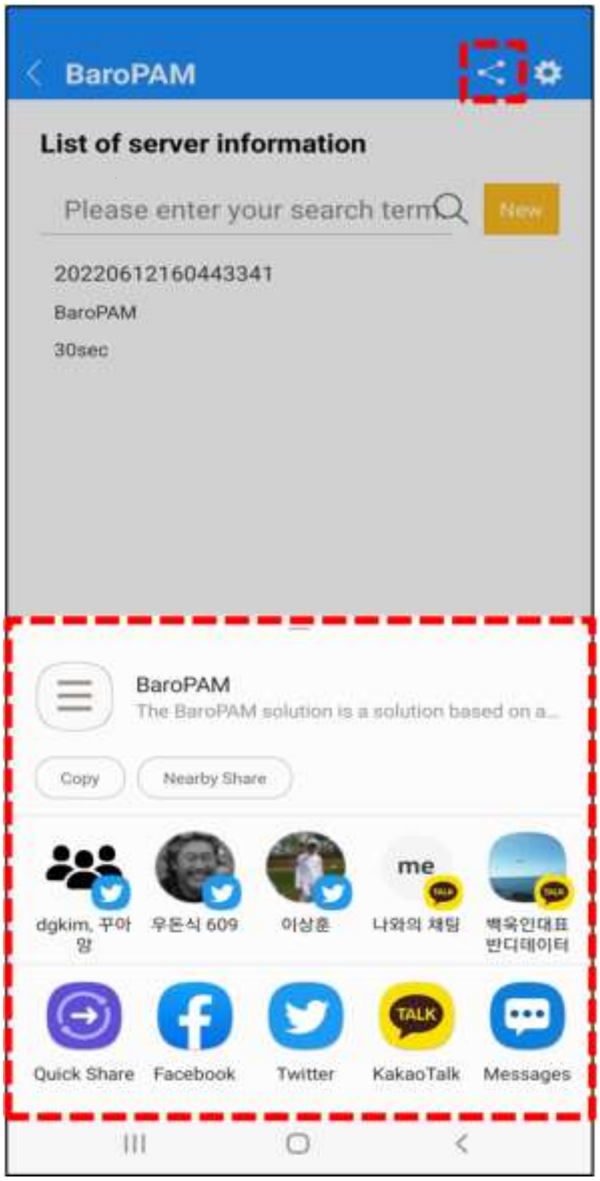


List of server information

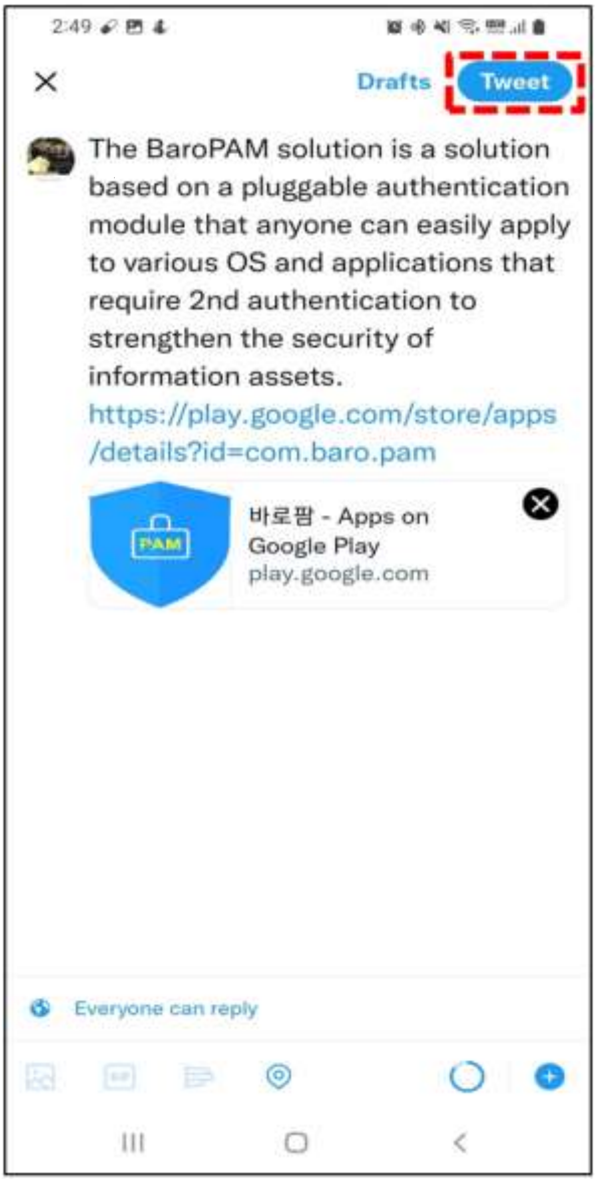
Please enter your search term

20210312130852773
BaroPAM
30sec

2. Then you will see a screen where you can "Share BaroPAM" as follows.



3. If you want to tweet on Twitter, click the "Tweet" icon and the following screen will appear.



The BaroPAM solution is a solution based on a pluggable authentication module that anyone can easily apply to various OS and applications that require 2nd authentication to strengthen the security of information assets. https://play.google.com/store/apps/details?id=com.baro.pam

If you click the "**tweet**" icon, the tweeting process will proceed to the preset Twitter account.

1.8 BaroPAM App FAQ

Message: In case of iPhone Verification code (Message₩n 123456) is not displayed on the keypad when verifying the identity after installing the "BaroPAM" app

Cause: The iPhone's "**password auto-complete**" function is not set.

Action: After installing the "BaroPAM" app, be sure to set up a more convenient password auto-completion function from iOS12.
(Go to iPhone's "**Settings**" -> "**Passwords**" -> "**AutoFill Passwords**" -> "**Allow**")

Message: If the date and time of the Android phone or iPhone is different from the current time and the "one-time authentication key" is not correct

Cause: It occurs because the date and time of the Android phone or iPhone are not using the time provided by the network.

Action: For Android phone, "**Settings**" -> "**General management**" -> "**Date & Time**" -> "**Date & Auto Set**" and "**Time Zone Auto Set**" -> "**Allow**"
For iPhone, "**Settings**" -> "**Date & Time**" -> "**Automatically set**" -> "**Allow**" of the phone.

Message: When a message is sent to a specific type of phone number, it can be sent but not received
If you can't send a message from your iPhone to your phone number

Cause: IPhone Settings Problems Related to Messages

Action: Solved after rebooting iPhone
First of all, please check the following to check if messages cannot be sent to your iPhone.

1. Settings-in the message
   - -Check if iMessage is active
   - -If iMessage is activated, check if your phone number is registered in sending and receiving
   - -Check if Send by SMS is enabled
   - -Confirm MMS message activation in SMS/MMS field
   - -Check if your phone number is registered in the blocked contacts in the SMS/MMS column, and if it is, remove it.
   - -Enabling notification in the mansion column

2. Try sending a new message to your iPhone number directly from the iPhone's Messages app.
   - -If the transmission does not work at all
   - -If transmission is possible but not reception

   If not in the above case

   If someone sends a message to your phone number and receives it normally, check the following URL for each case.

   >> If you can't send or receive messages on your iPhone, iPad, or iPod touch
   https://support.apple.com/en-us/HT204065

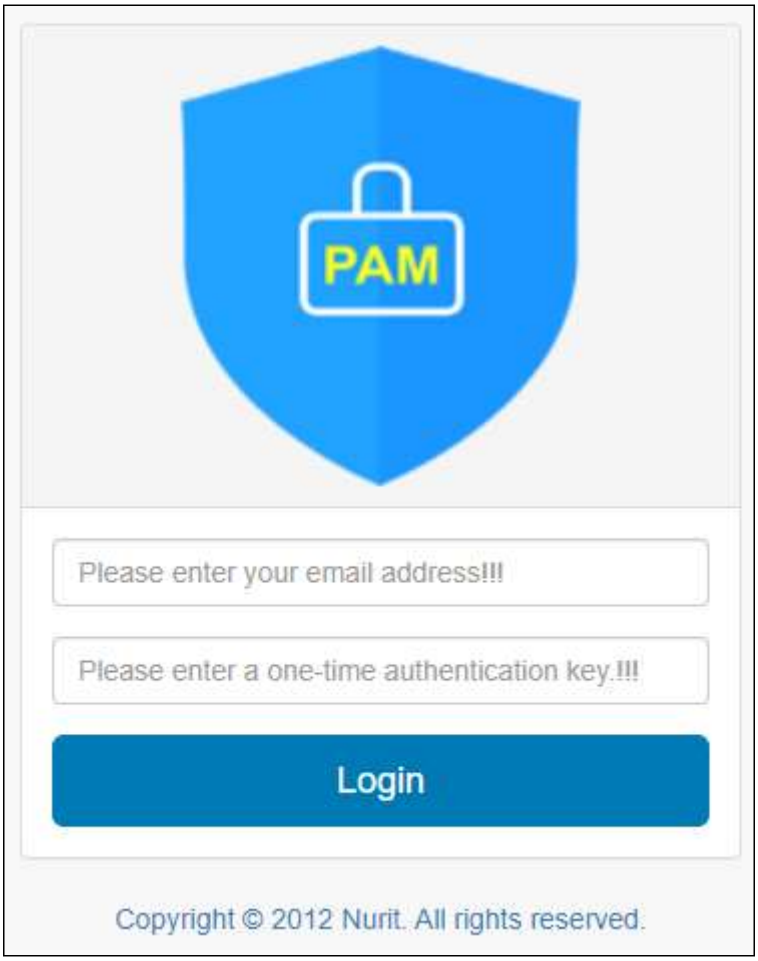
   >> 'Why is my iPhone not sending messages?': How to troubleshoot iPhone messaging issues
   https://www.businessinsider.com/why-is-my-iphone-not-sending-messages

   >> Setting up text message forwarding
   https://support.apple.com/ko-kr/HT208386

1.9 BaroPAM Integration API

1. Application login

1.1 BaroPAM login screen example)


PAM
Please enter your email address!!!
Please enter a one-time authentication key.!!!
Login
Copyright © 2012 Nurit. All rights reserved.

1.2 Authentication key verification part

The API for verifying the one-time authentication key entered in the password field when logging into the application is provided as "**barokey.jar**". You can set the lib directory "**barokey.jar**" of the WAS (Web application Server) or include the directory where "**barokey.jar**" exists in the classpath.

```
[root] /home/tomcat/webapps/ROOT/WEB-INF/lib > ls -al
합계 4908
drwxr-xr-x 2 root root    4096  5월  8 11:25 .
drwxr-xr-x 5 root root    4096  5월  9 15:12 ..
-rw------- 1 root root     116  3월 13  2015 .bash_history
-rw-r--r-- 1 root root   26074  6월 20 20:49 barokey.jar
-rw-r--r-- 1 root root   57779  5월 24  2011 commons-fileupload-1.2.1.jar
```

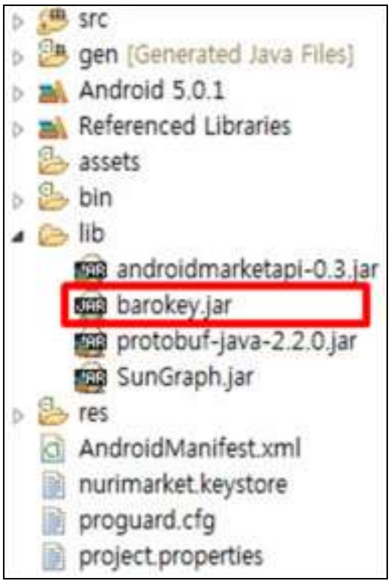
```
-rw-r--r-- 1 root root  109043  5월 24  2011 commons-io-1.4.jar
-rw-r--r-- 1 root root   60841  5월 24  2011 commons-logging-1.1.1.jar
-rw-r--r-- 1 root root   26520  5월 24  2011 commons-logging-adapters-1.1.1.jar
-rw-r--r-- 1 root root   56404  5월 24  2011 cos.jar
-rw-r--r-- 1 root root  313898  5월 24  2011 dom4j-1.6.1-goldkeby.jar
-rw-r--r-- 1 root root   19679  6월  4  2014 gcm-server.jar
-rw-r--r-- 1 root root  341207 10월  6  2008 j2ssh-common-0.2.9.jar
-rw-r--r-- 1 root root  355141 10월  6  2008 j2ssh-core-0.2.9.jar
-rw-r--r-- 1 root root  110582 10월  6  2008 j2ssh-dameon-0.2.9.jar
-rw-r--r-- 1 root root  456805  5월  6  2016 j2ssh-maverick-1.5.5.jar
-rw-r--r-- 1 root root  258160 10월 27  2011 jai_codec.jar
-rw-r--r-- 1 root root 1900631 10월 27  2011 jai_core.jar
-rw-r--r-- 1 root root  464938  3월  6  2012 jimiproclasses-sabisung.jar
-rw-r--r-- 1 root root   23737  6월  4  2014 json-simple-1.1.1.jar
-rw-r--r-- 1 root root   30202  5월 24  2011 json.jar
-rw-r--r-- 1 root root  312603  1월 25  2012 twitter4j-core-2.2.5.jar
```

The following code can be inserted into the program that verifies the one-time authentication key, which is the password entered when logging in to the application.

1.3 For Android

1) Authentication key generator part

The API for generating a one-time authentication key to be entered in the password field when logging in to the application is provided as "**barokey.jar**". When using Eclipse, "**barokey.jar**" must be located in the libs directory.



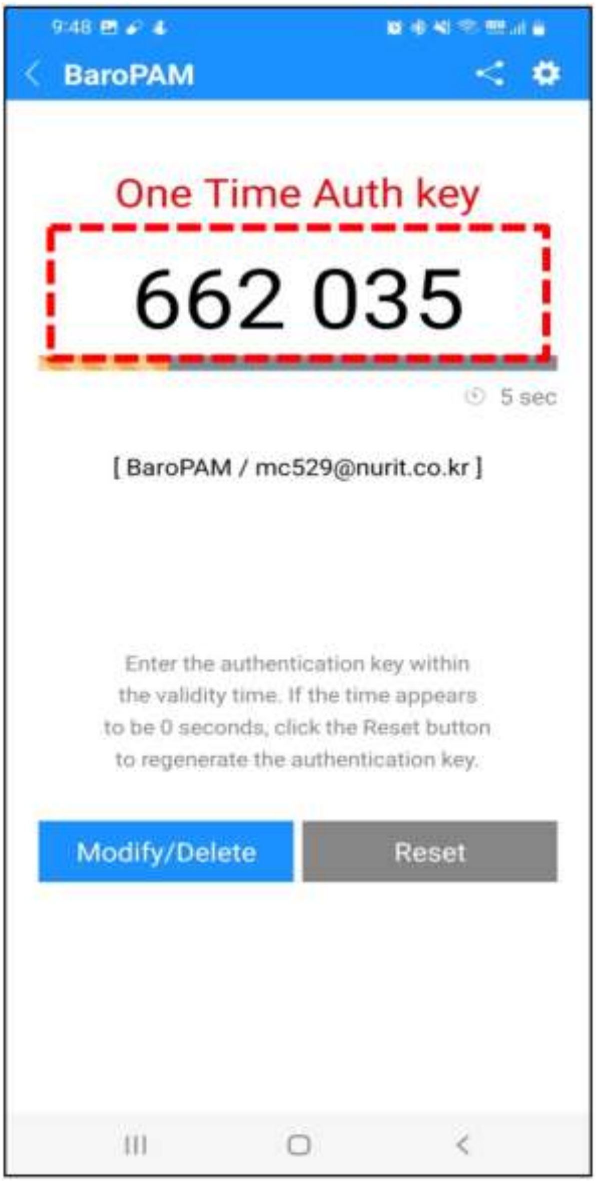
You can insert the following code in the program that generates a one-time authentication key, which is a password to be entered when logging into the application.

```
...
import com.barokey.barokey;
...
```

```
String tkey = barokey.generateKEYL(String login_id, String phone_no, String cycle_time);
...
```

Parameter	Remark	Etc
login_id	Set the ID entered in the Login ID field on the login screen.	
phone_no	Set the smartphone number obtained from inside the app using the TelephonyManager method.	
cycle_time	Set the generation cycle (3~60 seconds) of individual one-time authentication key. If the generation cycle of the one-time authentication key designated for each individual is different, the one-time authentication key may be generated differently.	

Screen example)



Enter the authentication key within the validity time. If the time appears to be 0 seconds, click the Reset button to regenerate the authentication key.

Screen Layout example)

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="@color/bg_body_default"
    android:orientation="vertical">

    <include
        android:id="@+id/inc_header"
        layout="@layout/inc_header"
        android:layout_width="fill_parent"
        android:layout_height="@dimen/head_height" />

    <ScrollView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginLeft="@dimen/body_margin_right_default"
        android:layout_marginRight="@dimen/body_margin_right_default"
        android:layout_marginTop="@dimen/head_height">

        <FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
            android:id="@+id/body_frame"
            android:layout_width="fill_parent"
            android:layout_height="fill_parent">

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="81dip"
                android:padding="10dp"
                android:text="@string/tv_key_vc"
                android:textColor="@color/text_body_default"
                android:textSize="20dip" />

            <TextView
                android:id="@+id/tv_auth_key"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="150dip"
                android:background="@android:color/transparent"
                android:ems="10"
                android:gravity="center"
                android:imeOptions="actionGo"
                android:inputType="text"
                android:maxLength="8"
                android:nextFocusDown="@+id/btn_login"
                android:singleLine="true"
                android:text=""
                android:textAppearance="?android:attr/textAppearanceLarge"
                android:textColor="@color/text_body_default"
                android:textSize="65dip" />
            <TextView
                android:layout_width="fill_parent"
                android:layout_height="1dip"
                android:layout_gravity="center_horizontal"
                android:layout_marginLeft="50dip"
                android:layout_marginRight="50dip"
                android:layout_marginTop="230dip"
                android:background="@color/line_text_under"
                android:visibility="invisible" />

            <com.beardedhen.androidbootstrap.BootstrapProgressBar
                android:id="@+id/progressBar"
                android:layout_width="fill_parent"
                android:layout_height="12dip"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="240dip"
                app:animated="true"
                app:bootstrapBrand="warning"
                app:bootstrapProgress="100"
                app:striped="true" />

            <LinearLayout
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="260dip"
                android:orientation="horizontal">

                <TextView
                    android:layout_width="fill_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1" />

                <ImageView
                    android:layout_width="15dip"
                    android:layout_height="15dip"
                    android:layout_gravity="center_vertical|right"
                    android:background="@drawable/ico_countdown" />

                <TextView
                    android:id="@+id/tv_remainTime"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="right|center_vertical"
                    android:paddingLeft="10dip"
                    android:textColor="@color/text_body_guide"
                    android:textSize="17dip" />

            </LinearLayout>

            <TextView
                android:id="@+id/tv_system_nm"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="315dip"
                android:text=""
                android:textColor="@color/text_body_default"
                android:textSize="18dip" />

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="380dip"
                android:text="@string/tv_key_msg_1"
                android:textColor="@color/text_body_guide"
                android:textSize="18dip" />

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="405dip"
                android:text="@string/tv_key_msg_2"
                android:textColor="@color/text_body_guide"
                android:textSize="18dip" />

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="430dip"
                android:text="@string/tv_key_msg_3"
                android:textColor="@color/text_body_guide"
                android:textSize="18dip" />

            <LinearLayout
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="490dip"
                android:orientation="horizontal">

                <Button
                    android:id="@+id/btn_update"
                    android:layout_width="fill_parent"
                    android:layout_height="@dimen/btn_height_default"
                    android:layout_weight="1"
                    android:background="@drawable/btn_default_drawable"
                    android:text="@string/btn_upd_del"
                    android:textColor="@color/white"
                    android:textSize="20dip" />

                <TextView
                    android:layout_width="6dip"
                    android:layout_height="1dip"
```

```
                    android:layout_gravity="center_horizontal"
                    android:background="@android:color/transparent" />

                <Button
                    android:id="@+id/btn_reset"
                    android:layout_width="fill_parent"
                    android:layout_height="@dimen/btn_height_default"
                    android:layout_weight="1"
                    android:background="@drawable/btn_default_drawable"
                    android:enabled="false"
                    android:text="@string/btn_reset"
                    android:textColor="@color/white"
                    android:textSize="20dip" />

            </LinearLayout>

        </FrameLayout>

    </ScrollView>

</FrameLayout>
```

Program example)

```
package com.baro.otp.info;

import android.Manifest;
import android.annotation.SuppressLint;
import android.content.Context;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.os.Build;
import android.os.Bundle;
import android.os.Handler;
import android.os.Message;
import android.os.Vibrator;
import android.support.v4.app.ActivityCompat;
import android.telephony.TelephonyManager;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.inputmethod.InputMethodManager;
import android.widget.Button;
import android.widget.TextView;

import com.baro.common.base.BaseActivity;
import com.baro.common.base.BaseInterface;
import com.baro.common.setting.SettingACT;
import com.baro.common.util.Util;
import com.baro.pam.R;
import com.barokey.barokey;
import com.beardedhen.androidbootstrap.BootstrapProgressBar;

import java.util.Date;
```

```
public class OTPCreateACT extends BaseActivity implements BaseInterface, OnClickListener {
    //public class OTPCreateACT extends AppCompatActivity implements BaseInterface,
OnClickListener {
    private Button  btn_setting, btn_share, btn_close, btn_reset, btn_update;
    private TextView tv_auth_key;
    private TextView tv_remainTime;
    private BootstrapProgressBar progressBar;
    private TextView tv_system_nm;
    private String    intent_reg_dt = "", intent_system_nm = "", intent_login_id = "",
intent_cycle_time = "";

    private String  PhoneNumber = "", SerialNumber = "", AndroID = "", MacAddr = "";

    private long    createdMillis, remainingSec;

    private static final int MESSAGE_REFRESH_REMAINING_SECOND = 101;
    private static final int SENDMESSAGE_INTERVAL = 250;

    private String[] permission_list = { Manifest.permission.INTERNET,
Manifest.permission.ACCESS_WIFI_STATE, Manifest.permission.ACCESS_NETWORK_STATE,
Manifest.permission.READ_EXTERNAL_STORAGE, Manifest.permission.WRITE_EXTERNAL_STORAGE,
Manifest.permission.READ_PHONE_STATE, Manifest.permission.CALL_PHONE };

    @Override
    public void onCreate(Bundle savedInstanceState) {
        try {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.act_otpcreate);
            checkPermission();

            drawView();
            getIntentData();
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    @Override
    public void onPause() {
        super.onPause();

        if (null != m_handlerProc) {
            m_handlerProc.removeMessages(MESSAGE_REFRESH_REMAINING_SECOND);
        }
    }

    @Override
    public void onResume() {
        super.onResume();

        if (null != m_handlerProc) {
            m_handlerProc.sendEmptyMessageDelayed(MESSAGE_REFRESH_REMAINING_SECOND,
SENDMESSAGE_INTERVAL);
        }
    }

    @SuppressLint("HardwareIds")
    @Override
    public void drawView() {
        try {
            vibe = (Vibrator) getSystemService(Context.VIBRATOR_SERVICE);

            findViewById(R.id.body_frame).setOnClickListener(new OnClickListener() {
                public void onClick(View v) {
                    InputMethodManager imm = (InputMethodManager)
getSystemService(Context.INPUT_METHOD_SERVICE);
                    imm.hideSoftInputFromWindow(v.getWindowToken(), 0);
                }
            });

            tv_system_nm = (TextView) findViewById(R.id.tv_system_nm);
            tv_system_nm.setOnClickListener(this);

            tv_auth_key = (TextView) findViewById(R.id.tv_auth_key);
            tv_auth_key.setFocusable(true);
            tv_auth_key.setClickable(false);

            progressBar = (BootstrapProgressBar) findViewById(R.id.progressBar);

            tv_remainTime = (TextView) findViewById(R.id.tv_remainTime);

            btn_setting = (Button) findViewById(R.id.btn_setting);
            btn_setting.setOnClickListener(this);

            btn_share = (Button) findViewById(R.id.btn_share);
            btn_share.setOnClickListener(this);

            ((Button) findViewById(R.id.btn_go_back)).setOnClickListener(this);

            btn_close = (Button) findViewById(R.id.btn_close);
            btn_close.setOnClickListener(this);

            btn_update = (Button) findViewById(R.id.btn_update);
            btn_update.setOnClickListener(this);

            btn_reset = (Button) findViewById(R.id.btn_reset);
            btn_reset.setOnClickListener(this);

            TelephonyManager systemService = (TelephonyManager)
getSystemService(Context.TELEPHONY_SERVICE);
            assert systemService != null;
            PhoneNumber = systemService.getLine1Number();
            PhoneNumber = PhoneNumber.substring(PhoneNumber.length() - 10, PhoneNumber.length());
            PhoneNumber = "0" + PhoneNumber;
        } catch (SecurityException e) {
            e.printStackTrace();
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    public void getIntentData() {
        try {
            Intent intent = getIntent();
            getDefaultIntent(intent);

            if (intent.getStringExtra("reg_dt") != null) {
                intent_reg_dt = intent.getStringExtra("reg_dt").trim();
            }
            if (intent.getStringExtra("system_nm") != null) {
                intent_system_nm = intent.getStringExtra("system_nm");
            }
            if (intent.getStringExtra("login_id") != null) {
                intent_login_id = intent.getStringExtra("login_id").trim();
            }
            if (intent.getStringExtra("cycle_time") != null) {
                intent_cycle_time = intent.getStringExtra("cycle_time").trim();
            }
            if ("".equals(intent_system_nm.trim())) {
                tv_system_nm.setText("[ " + intent_login_id + " ]");
            } else if (!"".equals(intent_system_nm) && (!"".equals(intent_login_id))) {
                tv_system_nm.setText("[ " + intent_system_nm + " / " + intent_login_id + " ]");
            }
            if        (!"".equals(intent_login_id)        &&        !"".equals(PhoneNumber)        &&
(!"".equals(intent_cycle_time))) {
                onAuthKey();
            } else {
                finish();
            }
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    @Override
    public void onClick(View v) {
        try {
            switch (v.getId()) {
                case R.id.btn_setting: // Setting
                    Intent intent = new Intent(this, SettingACT.class);
                    intent.setFlags(Intent.FLAG_ACTIVITY_CLEAR_WHEN_TASK_RESET);
                    startActivity(intent);
                    //finish();
                    break;
                case R.id.btn_share:
                    intent = new Intent(Intent.ACTION_SEND);
                    intent.addCategory(Intent.CATEGORY_DEFAULT);
                    intent.putExtra(Intent.EXTRA_TEXT , getString(R.string.app_share));
                    intent.putExtra(Intent.EXTRA_TITLE, getString(R.string.app_name ));
                    intent.setType("text/plain");
                    startActivity(Intent.createChooser(intent, getString(R.string.share_text)));
                    //finish();
                    break;

                case R.id.btn_go_back: // go back
                    finish();
                    break;

                case R.id.btn_close: // Close
                    moveTaskToBack(true);
                    finish();
                    android.os.Process.killProcess(android.os.Process.myPid());
                    break;

                case R.id.btn_update: // Update
                    intent = new Intent(OTPCreateACT.this, OTPUpdateACT.class);
                    intent.putExtra("reg_dt"    , intent_reg_dt    );
                    intent.putExtra("system_nm" , intent_system_nm );
                    intent.putExtra("login_id"  , intent_login_id  );
                    intent.putExtra("cycle_time", intent_cycle_time);
                    startActivity(intent);
                    finish();
                    break;

                case R.id.btn_reset: // Reset
                    if (!"".equals(intent_login_id) && !"".equals(PhoneNumber) &&
(!"".equals(intent_cycle_time))) {
                        onAuthKey();
                    } else {
                        finish();
                    }
                    break;
            }
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    public void onAuthKey() {
        try {
            tv_auth_key.setText("");
            createdMillis = estimateCreatedMillis(intent_cycle_time);
            tv_auth_key.setText(barokey.generateKEYL(intent_login_id, PhoneNumber,
intent_cycle_time));
            m_handlerProc.sendEmptyMessageDelayed(MESSAGE_REFRESH_REMAINING_SECOND,
SENDMESSAGE_INTERVAL);
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    private final Handler m_handlerProc = new Handler() {
        @Override
        public void handleMessage(Message message) {
            switch (message.what) {
                case MESSAGE_REFRESH_REMAINING_SECOND:
                    try {
                        long   cycleMillis     = (Long.parseLong(intent_cycle_time) * 1000L);
                        long        remainingMillis    =    estimateRemainingMillis(intent_cycle_time,
createdMillis);
                        long   remainingSecond = remainingMillis != 0 ? (remainingMillis / 1000L) :
0;

                        if (0 < remainingMillis) {
                            m_handlerProc.sendEmptyMessageDelayed(MESSAGE_REFRESH_REMAINING_SECOND,
SENDMESSAGE_INTERVAL);

                            btn_reset.setEnabled(false);
                        } else {
                            m_handlerProc.removeMessages(MESSAGE_REFRESH_REMAINING_SECOND);

                            btn_reset.setEnabled(true);
                        }
                        tv_remainTime.setText(remainingSecond        +        "        "        +
getString(R.string.remain_time_suffix));

                        if (0 != cycleMillis) {
                            progressBar.setProgress((int)   (((float)   remainingMillis   /   (float)
cycleMillis) * 100.0F));
                        }
                    } catch (Exception e) {
                        e.printStackTrace();
                    } finally {
                    }
                    break;
            }
        }
    };

    public long estimateCreatedMillis(String cycleSecondString) {
        long remainingMillis = (barokey.getRemainingTime(cycleSecondString) * 1000L) - 200;
        long cycleMillis     = (Long.parseLong(cycleSecondString) * 1000L);
        long currentMillis   = (new Date()).getTime();
        long elapsedMillis   = cycleMillis   - remainingMillis;
        long createdMillis   = currentMillis - elapsedMillis;

        return createdMillis;
    }

    public long estimateRemainingMillis(String cycleSecondString, long createdTime) {
        long cycleMillis     = (Long.parseLong(cycleSecondString) * 1000L);
        long currentMillis   = (new Date()).getTime();
        long elapsedMillis   = currentMillis - createdTime;

        long remainingMillis = barokey.getRemainingTime(cycleSecondString) * 1000L;
        remainingMillis      = cycleMillis     >  elapsedMillis ? remainingMillis : 0;
        remainingMillis      = remainingMillis >= cycleMillis ? 0 : remainingMillis;

        return remainingMillis;
    }

    public void checkPermission() {
        if (Build.VERSION.SDK_INT < Build.VERSION_CODES.M)
            return;

        for(String permission : permission_list) {
            int permssionCheck = checkCallingOrSelfPermission(permission);

            if (permssionCheck == PackageManager.PERMISSION_DENIED) {
                ActivityCompat.requestPermissions(this, permission_list, 0);
            }
        }
    }

    public void onRequestPermissionsResult(int requestCode, String[] permissions, int[]
grantResults) {
        if (requestCode == 0) {
            for(int ii = 0; ii < grantResults.length; ii++) {
                if (grantResults[ii] != PackageManager.PERMISSION_GRANTED) {
                    Util.MsgToast(OTPCreateACT.this, getString(R.string.msg_security_set), 0);
                    finish();
                }
            }
        }
    }
}
```

1.4 For iPhone

1) Authentication key generator part

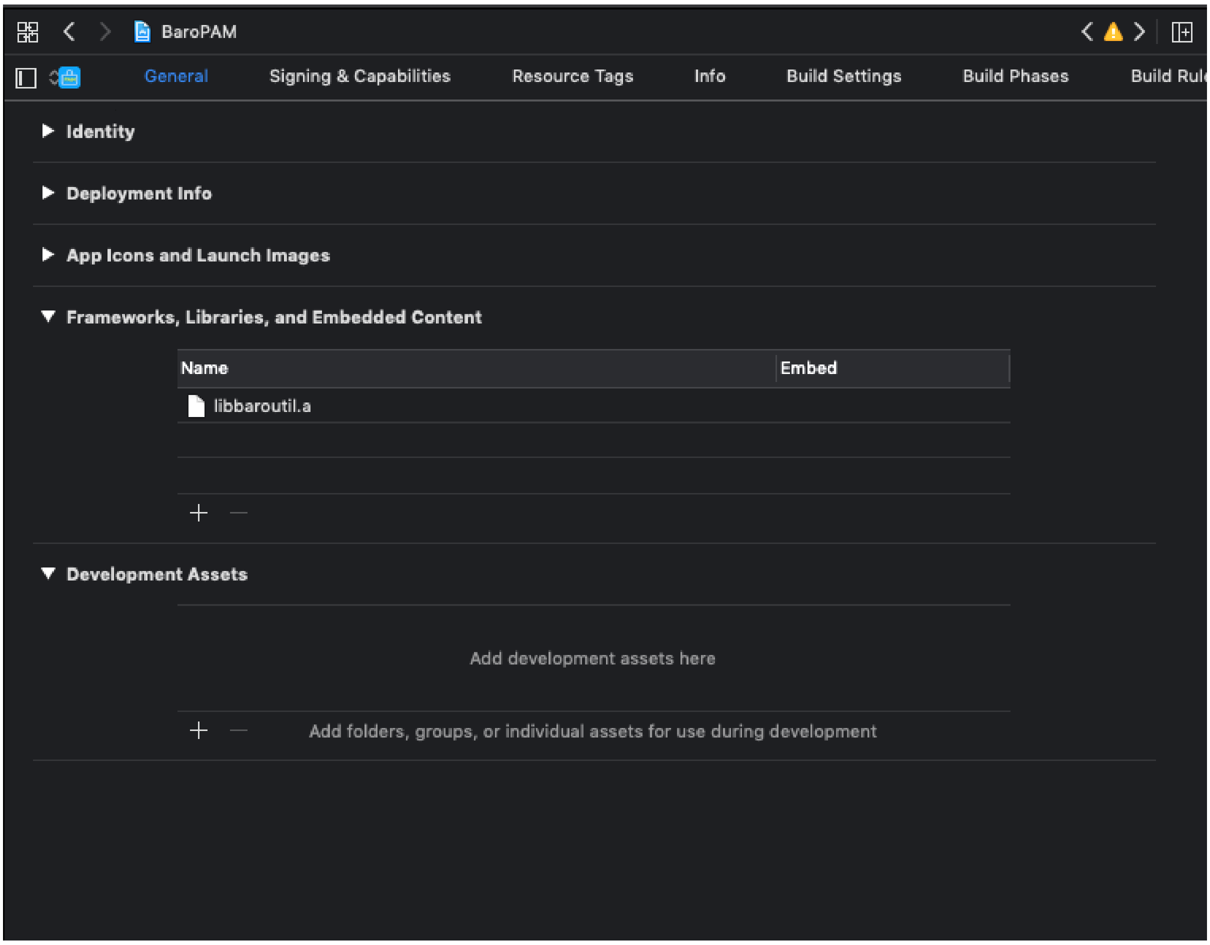
The API for generating a one-time authentication key to be entered in the password field when logging in to the application is provided as "**libbaroutil.a**", and this file is a library file for the NSObject Interface including barokey, barocrypt, and base64 related libraries.

There are two types of library files. XCode's iPhone simulator and iPhone are both changed to libbaroutil.a if necessary.

- libbaroutil.a.iphone : for iPhone

- libbaroutil.a.simul : for iPhone simulator

This file is registered and used when setting the project of XCode as below.


BaroPAM
General
Signing & Capabilities
Resource Tags
Info
Build Settings
Build Phases
Build Rul
▶ Identity
▶ Deployment Info
▶ App Icons and Launch Images
▼ Frameworks, Libraries, and Embedded Content
▼ Development Assets
Add development assets here
Add folders, groups, or individual assets for use during development

Name	Embed
libbaroutil.a	

The APIs related to BaroPAM are as follows. Since the function is composed of the C function interface, the input data type is expressed in the C function style. The source of the usage example is code written in iOS swift 5.0 or later.

generateKEYL function

This function creates a one-time authentication key used for login/authentication to the application.

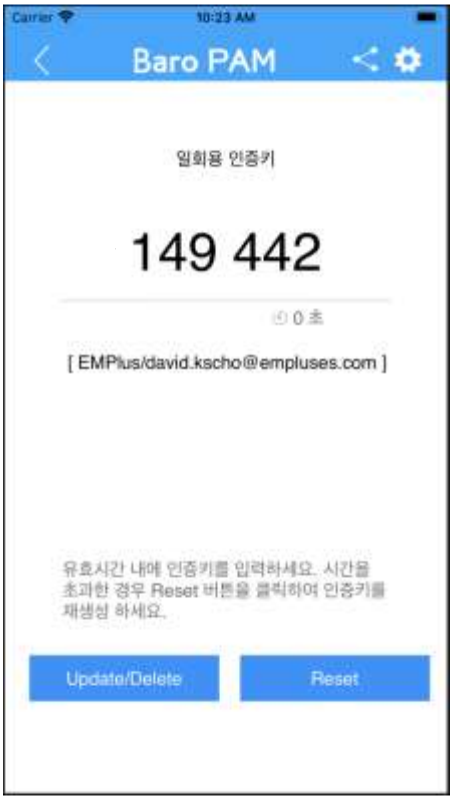
Input variable	const char *login_id	The ID entered in the Login ID field of the login screen must be set.
	const char *phone_no	User smartphone number. Unlike in the app for Android, the smartphone number of the user to be used in the authentication module of the server is directly registered and managed in the app without obtaining the user's smartphone number in iOS, and the registered smartphone number is selected and used.
	const char *cycle_time	It must be consistent with the generation cycle (3~60 seconds) of individual one-time authentication key. If the generation cycle of the one-time authentication key designated for each individual is different, the one-time authentication key may be generated differently.

	const char *key_method	"app512" is set as a method of generating a disposable authentication key (app1, app256, app384, app512: app).
Return value	auth key	Returns the generated one-time authentication key.

Example of use in swift 5.0 or higher)

```
private func makeOtpInfo() {
    let loginid = _otp?.LOGIN_ID ?? "mc529@hanmail.net"
    let tel = _otp?.PHONE_NO ?? "01027714076"
    let time = (_otp?.CYCLE_TIME ?? "30")!
    let otpnum = generateKEYL(loginid, tel, time, "app512")
    _otpInfo.text = "[ ₩(_otp?.SYSTEM_NM ?? "")/₩(_otp?.LOGIN_ID ?? "") ]"
    let otpnumStr = String(cString: otpnum!)
    let start = otpnumStr.index(otpnumStr.startIndex, offsetBy: 0)
    let end = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
    let start2 = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
    let end2 = otpnumStr.index(otpnumStr.startIndex, offsetBy: 6)

    _tfOTP.text = otpnumStr[start..<end] + " " + otpnumStr[start2..<end2]

    var step = 0
    self._progress.progress = 0
    self._btnReset.isEnabled = false
    self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0xA0AAB4)
    let remain = getRemainingTime(_otp?.CYCLE_TIME ?? "30")
    let cycle_time = Int(self._otp!.CYCLE_TIME)

    _timer = Timer.scheduledTimer(withTimeInterval: 1.0, repeats: true, block: { _timer in
        let change: Float = Float(Double(remain - step - 1) / Double(cycle_time!))
        print("---- ₩(remain),₩(change),₩(step)")

        self._progress.progress = change
        step += 1
        self._remainTime.text = String(remain - step) + " " + "TIME".localized
        if step == remain {
            self._timer?.invalidate()
            self._btnReset.isEnabled = true
            self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
        }
    })
}
```

Screen example)



[EMPlus/david.kscho@empluses.com]

유효시간 내에 인증키를 입력하세요. 시간을 초과한 경우 Reset 버튼을 클릭하여 인증키를 재생성 하세요.

Screen Layout example)

It means Storyboard. Means Storyboard. Refer to developer.apple.com for the meaning of each parameter.

```
<!—Create View Controller—>
  <scene sceneID="xJv-bd-Ejb">
    <objects>
      <viewController storyboardIdentifier="CreateOTP" id="BPh-TI-Gd5"
customClass="OTPCreateViewController" customModule="BaroPAM" customModuleProvider="target"
sceneMemberID="viewController">
        <layoutGuides>
          <viewControllerLayoutGuide type="top" id="TF9-Et-51n"/>
          <viewControllerLayoutGuide type="bottom" id="rXs-zr-mnc"/>
        </layoutGuides>
        <view key="view" contentMode="scaleToFill" id="Dbl-ks-whW">
          <rect key="frame" x="0.0" y="0.0" width="375" height="812"/>
          <autoresizingMask key="autoresizingMask" widthSizable="YES" heightSizable="YES"/>
          <subviews>
            <textView clipsSubviews="YES" multipleTouchEnabled="YES" contentMode="scaleToFill"
fixedFrame="YES" text="일회용 인증키" textAlignment="center"
translatesAutoresizingMaskIntoConstraints="NO" id="0OT-0a-9fL">
              <rect key="frame" x="0.0" y="125" width="375" height="40"/>
              <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
              <color key="textColor" white="0.0" alpha="1" colorSpace="calibratedWhite"/>
              <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
              <textInputTraits key="textInputTraits" autocapitalizationType="sentences"/>
            </textView>
            <textField opaque="NO" clipsSubviews="YES" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="left" contentVerticalAlignment="center" text="12345678"
textAlignment="center" minimumFontSize="17" translatesAutoresizingMaskIntoConstraints="NO"
id="y9V-i0-Xec">
              <rect key="frame" x="19" y="204" width="336" height="52"/>
              <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
              <color key="backgroundColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
              <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="50"/>
              <textInputTraits key="textInputTraits"/>
            </textField>
            <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center" buttonType="roundedRect"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="wn5-JQ-qp2">
              <rect key="frame" x="23" y="683" width="160" height="43"/>
              <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxX="YES"
flexibleMinY="YES"/>
              <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
              <state key="normal" title="Update/Delete">
                <color key="titleColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
              </state>
              <connections>
                <action selector="onEdit:" destination="BPh-TI-Gd5" eventType="touchUpInside"
id="Lq0-gt-fdh"/>
                <action selector="onOk:" destination="BYZ-38-t0r" eventType="touchUpInside"
id="ya1-b8-A5Q"/>
              </connections>
            </button>
            <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center" buttonType="roundedRect"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="phw-d7-Zsz">
              <rect key="frame" x="199" y="683" width="160" height="43"/>
              <autoresizingMask key="autoresizingMask" flexibleMinX="YES" widthSizable="YES"
flexibleMinY="YES"/>
              <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
              <state key="normal" title="Reset">
                <color key="titleColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
              </state>
              <connections>
                <action selector="onReset:" destination="BPh-TI-Gd5" eventType="touchUpInside"
id="2is-dP-y2P"/>
              </connections>
            </button>
            <view contentMode="scaleToFill" fixedFrame="YES"
translatesAutoresizingMaskIntoConstraints="NO" id="KTy-6U-0mm">
              <rect key="frame" x="0.0" y="0.0" width="375" height="70"/>
              <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
              <subviews>
                <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="5ZR-gQ-4P5">
```

```
                <rect key="frame" x="283" y="34" width="31" height="31"/>
                <autoresizingMask key="autoresizingMask" flexibleMinX="YES" flexibleMaxY="YES"/>
                <inset key="imageEdgeInsets" minX="3" minY="3" maxX="3" maxY="3"/>
                <state key="normal" image="btn_share.png"/>
                <connections>
                  <action selector="onShare:" destination="BPh-TI-Gd5" eventType="touchUpInside"
id="rVd-IW-j3A"/>
                </connections>
              </button>
              <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="uD6-U2-2w3">
                <rect key="frame" x="322" y="34" width="33" height="32"/>
                <autoresizingMask key="autoresizingMask" flexibleMinX="YES" flexibleMaxY="YES"/>
                <inset key="imageEdgeInsets" minX="3" minY="3" maxX="3" maxY="3"/>
                <state key="normal" image="btn_setting.png"/>
                <connections>
                  <action selector="onSetting:" destination="BPh-TI-Gd5"
eventType="touchUpInside" id="Qhc-bj-CHe"/>
                </connections>
              </button>
              <imageView userInteractionEnabled="NO" contentMode="scaleAspectFit"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
image="btn_prev.png" translatesAutoresizingMaskIntoConstraints="NO" id="cZQ-Jb-luv">
                <rect key="frame" x="19" y="35" width="31" height="31"/>
                <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" heightSizable="YES"/>
              </imageView>
              <imageView userInteractionEnabled="NO" contentMode="scaleAspectFit"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
image="logo_barootp.png" translatesAutoresizingMaskIntoConstraints="NO" id="vWu-o6-6az">
                <rect key="frame" x="115" y="38" width="145" height="25"/>
                <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
              </imageView>
            </subviews>
            <color key="backgroundColor" red="0.10588235294117647" green="0.56470588235294117"
blue="1" alpha="1" colorSpace="calibratedRGB"/>
          </view>
          <textView clipsSubviews="YES" multipleTouchEnabled="YES" contentMode="scaleToFill"
fixedFrame="YES" editable="NO" text="유효시간 내에 인증키를 입력하세요. 시간을 초과한 경우 Reset
버튼을 클릭하여 인증키를 재생성 하세요." textAlignment="natural" selectable="NO"
translatesAutoresizingMaskIntoConstraints="NO" id="s4z-fe-3rj">
            <rect key="frame" x="49" y="585" width="276" height="112"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMinY="YES"/>
            <color key="textColor" red="0.33333333333333331" green="0.33333333333333331"
blue="0.33333333333333331" alpha="1" colorSpace="calibratedRGB"/>
            <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
            <textInputTraits key="textInputTraits" autocapitalizationType="sentences"/>
          </textView>
          <progressView opaque="NO" contentMode="scaleToFill" verticalHuggingPriority="750"
fixedFrame="YES" progress="0.5" translatesAutoresizingMaskIntoConstraints="NO" id="eFk-qb-ugh">
            <rect key="frame" x="52" y="274" width="270" height="2"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES"/>
```

```
      </progressView>
      <imageView userInteractionEnabled="NO" contentMode="scaleToFill"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
image="ico_countdown.png" translatesAutoresizingMaskIntoConstraints="NO" id="UC7-dN-216">
       <rect key="frame" x="250" y="284" width="15" height="15"/>
       <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
      </imageView>
      <label opaque="NO" userInteractionEnabled="NO" contentMode="left"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES" text="0"
textAlignment="natural" lineBreakMode="tailTruncation" baselineAdjustment="alignBaselines"
adjustsFontSizeToFit="NO" translatesAutoresizingMaskIntoConstraints="NO" id="c11-3a-nD8">
       <rect key="frame" x="270" y="281" width="52" height="21"/>
       <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
       <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
       <color key="textColor" red="0.33333333333333331" green="0.33333333333333331"
blue="0.33333333333333331" alpha="1" colorSpace="calibratedRGB"/>
       <nil key="highlightedColor"/>
      </label>
      <label opaque="NO" userInteractionEnabled="NO" contentMode="left"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
text="[emplus/david.kscho@empluses.com]" textAlignment="center" lineBreakMode="tailTruncation"
baselineAdjustment="alignBaselines" adjustsFontSizeToFit="NO"
translatesAutoresizingMaskIntoConstraints="NO" id="FZ0-er-yGs">
       <rect key="frame" x="23" y="318" width="332" height="30"/>
       <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
       <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
       <nil key="highlightedColor"/>
      </label>
     </subviews>
     <color key="backgroundColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
    </view>
    <connections>
     <outlet property="_backView" destination="cZQ-Jb-luv" id="hti-Le-Rra"/>
     <outlet property="_btnReset" destination="phw-d7-Zsz" id="hVD-Q9-8Xq"/>
     <outlet property="_btnUpdate" destination="wn5-JQ-qp2" id="o6G-9e-g0S"/>
     <outlet property="_otpInfo" destination="FZ0-er-yGs" id="d1r-2i-KX2"/>
     <outlet property="_progress" destination="eFk-qb-ugh" id="csW-nT-cyw"/>
     <outlet property="_remainTime" destination="c11-3a-nD8" id="b6H-g5-IXA"/>
     <outlet property="_tfOTP" destination="y9V-i0-Xec" id="loX-6A-goi"/>
    </connections>
   </viewController>
   <placeholder placeholderIdentifier="IBFirstResponder" id="GRs-8z-hxZ" userLabel="First
Responder" sceneMemberID="firstResponder"/>
  </objects>
  <point key="canvasLocation" x="2948" y="440"/>
 </scene>
```

Program example)

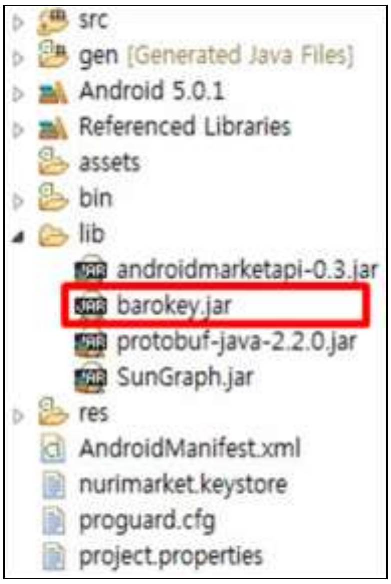
```
import UIKit
```

```
class OTPCreateViewController : UIViewController {
    @IBOutlet weak var _progress: UIProgressView!
    @IBOutlet weak var _remainTime: UILabel!
    @IBOutlet weak var _backView: UIImageView!
    @IBOutlet weak var _otpInfo: UILabel!
    @IBOutlet weak var _tfOTP: UITextField!
    @IBOutlet weak var _btnUpdate: UIButton!
    @IBOutlet weak var _btnReset: UIButton!

    @IBAction func onClose(_ sender: Any) {
        exit(0)
    }

    var _timer: Timer?
    var _otp: OTPEntity? = nil

    override func viewDidLoad() {
        super.viewDidLoad()
        //chagneBackground()
        initControls()
        makeTappedView()
        makeOtpInfo()
    }

    override func viewWillAppear(_ animated: Bool) {
        super.viewWillAppear(animated)
        if (_otp?.IS_DELETE == 1) {
            _otp?.IS_DELETE = 0
            dismiss(animated: false, completion: nil)
        }
    }
    override func viewDidAppear(_ animated: Bool) {
        super.viewDidAppear(animated)
    }

    private func initControls()  {
        _btnUpdate.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
        _btnReset.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)

        super.modalPresentationStyle = .fullScreen
    }

    private func chagneBackground() {
        // MAIN View Background Change
        let background = UIImageView(frame: UIScreen.main.bounds)
        background.image = UIImage(named: "bg_sub.png")
        self.view.insertSubview(background, at: 0)
    }

    private func makeTappedView() {
        let tap = UITapGestureRecognizer(target: self, action:
#selector(OTPCreateViewController.backTapped))
        _backView.isUserInteractionEnabled = true
        _backView.addGestureRecognizer(tap)
    }

    private func makeOtpInfo() {
        let loginid = _otp?.LOGIN_ID ?? "mc529@hanmail.net"
        let tel = _otp?.PHONE_NO ?? "01027714076"
        let time = (_otp?.CYCLE_TIME ?? "30")!
        let otpnum = generateKEYL(loginid, tel, time, "app512")
        _otpInfo.text = "[ ₩(_otp?.SYSTEM_NM ?? "")/₩(_otp?.LOGIN_ID ?? "") ]"
        let otpnumStr = String(cString: otpnum!)
        let start = otpnumStr.index(otpnumStr.startIndex, offsetBy: 0)
        let end = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
        let start2 = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
        let end2 = otpnumStr.index(otpnumStr.startIndex, offsetBy: 6)

        _tfOTP.text = otpnumStr[start..<end] + " " + otpnumStr[start2..<end2]

        var step = 0
        self._progress.progress = 0
        self._btnReset.isEnabled = false
        self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0xA0AAB4)
        let remain = getRemainingTime(_otp?.CYCLE_TIME ?? "30")
        let cycle_time = Int(self._otp!.CYCLE_TIME)

        _timer = Timer.scheduledTimer(withTimeInterval: 1.0, repeats: true, block: { _timer in
            let change: Float = Float(Double(remain - step - 1) / Double(cycle_time!))
            print("---- ₩(remain),₩(change),₩(step)")

            self._progress.progress = change
            step += 1
            self._remainTime.text = String(remain - step) + " " + "TIME".localized
            if step == remain {
                self._timer?.invalidate()
                self._btnReset.isEnabled = true
                self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
            }
        })
    }

    @objc func backTapped(tabGestureRecg: UITapGestureRecognizer) {
        dismiss(animated: false, completion: nil) //
    }

    @IBAction func onEdit(_ sender: Any) {
        switchScreen("SystemOTP",          {          _          =          ($0          as!
OTPInfoSaveViewController).changeMode(.EDIT).setOtp(_otp!).setParent(self) })
    }

    @IBAction func onReset(_ sender: Any) {
        makeOtpInfo()
    }

    func setOtp(_ otp: OTPEntity) {
        _otp = otp
        print("--------> ₩(otp.REG_DT), ₩(otp.LOGIN_ID), ₩(otp.SYSTEM_NM), ₩(otp.CYCLE_TIME)")
    }

    @IBAction func onSetting(_ sender: Any) {
        switchScreen("Settings")
    }

    @IBAction func onShare(_ sender: Any) {
    }
}
```

2. Server login (using Secure key)

2.1 For Android

The API that generates a one-time authentication key to be entered in the "**Verification code**" when logging into the server from the BaroPAM app is provided as "**barokey.jar**". When using Eclipse, "**barokey.jar**" must be located in the libs directory.



```
▷ src
▷ gen [Generated Java Files]
▷ Android 5.0.1
▷ Referenced Libraries
  assets
▷ bin
◢ lib
    androidmarketapi-0.3.jar
    barokey.jar
    protobuf-java-2.2.0.jar
    SunGraph.jar
▷ res
  AndroidManifest.xml
  nurimarket.keystore
  proguard.cfg
  project.properties
```

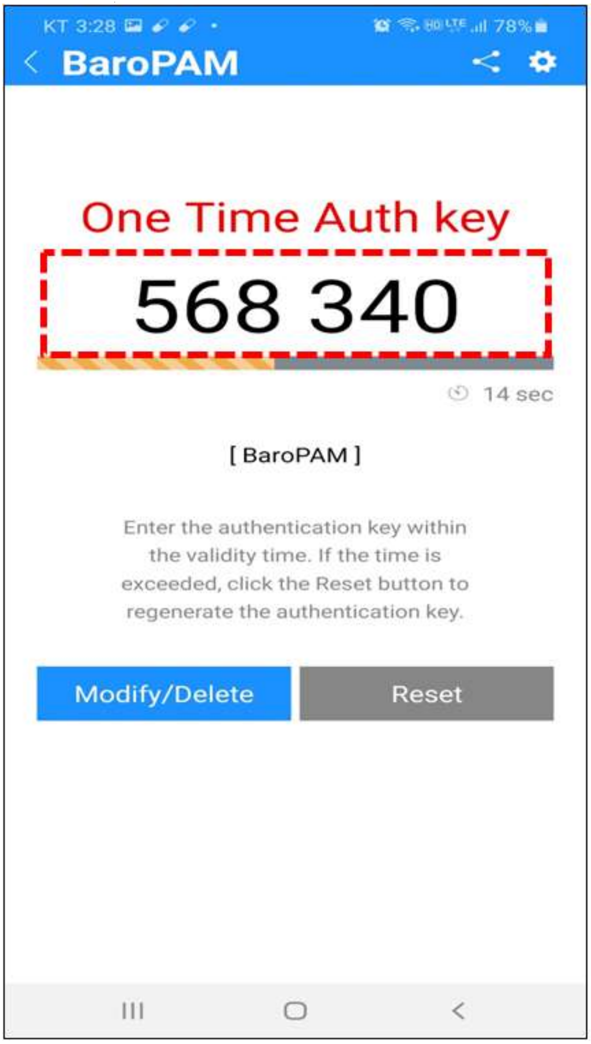
The following code can be inserted into a program that generates a secondary authentication key (one-time authentication key), which is a "**Verification code**".

```
...
import com.barokey.barokey;
...
String auth_key = barokey.generateKEYP(secure_key, cycle_time);
...
```

Parameter	Remark	Etc
secure_key	The key provided by requesting the vendor can be assigned to each server and account. Be sure to set the key specified when setting the BaroPAM server environment.	
cycle_time	Set the generation cycle (3-60 seconds) of the one-time authentication key	

	specified when configuring the BaroPAM server. If the configuration value is different from the BaroPAM server configuration value, a one-time authentication key that is a "Verification code" may be generated differently.	

Screen example)



Enter the authentication key within the validity time. If the time is exceeded, click the Reset button to regenerate the authentication key.

Screen Layout example)

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="@color/bg_body_default"
    android:orientation="vertical">

    <include
        android:id="@+id/inc_header"
        layout="@layout/inc_header"
        android:layout_width="fill_parent"
        android:layout_height="@dimen/head_height" />
```

```
<ScrollView
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginLeft="@dimen/body_margin_right_default"
    android:layout_marginRight="@dimen/body_margin_right_default"
    android:layout_marginTop="@dimen/head_height">

    <FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
        android:id="@+id/body_frame"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="81dip"
            android:padding="10dp"
            android:text="@string/tv_key_vc"
            android:textColor="@color/text_body_default"
            android:textSize="20dip" />

        <TextView
            android:id="@+id/tv_auth_key"
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="150dip"
            android:background="@android:color/transparent"
            android:ems="10"
            android:gravity="center"
            android:imeOptions="actionGo"
            android:inputType="text"
            android:maxLength="8"
            android:nextFocusDown="@+id/btn_login"
            android:singleLine="true"
            android:text=""
            android:textAppearance="?android:attr/textAppearanceLarge"
            android:textColor="@color/text_body_default"
            android:textSize="65dip" />

        <TextView
            android:layout_width="fill_parent"
            android:layout_height="1dip"
            android:layout_gravity="center_horizontal"
            android:layout_marginLeft="50dip"
            android:layout_marginRight="50dip"
            android:layout_marginTop="230dip"
            android:background="@color/line_text_under"
            android:visibility="invisible" />

        <com.beardedhen.androidbootstrap.BootstrapProgressBar
            android:id="@+id/progressBar"
            android:layout_width="fill_parent"
            android:layout_height="12dip"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="240dip"
            app:animated="true"
            app:bootstrapBrand="warning"
            app:bootstrapProgress="100"
            app:striped="true" />

        <LinearLayout
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="260dip"
            android:orientation="horizontal">

            <TextView
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1" />

            <ImageView
                android:layout_width="15dip"
                android:layout_height="15dip"
                android:layout_gravity="center_vertical|right"
                android:background="@drawable/ico_countdown" />

            <TextView
                android:id="@+id/tv_remainTime"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="right|center_vertical"
                android:paddingLeft="10dip"
                android:textColor="@color/text_body_guide"
                android:textSize="17dip" />

        </LinearLayout>

        <TextView
            android:id="@+id/tv_server_name"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="315dip"
            android:text=""
            android:textColor="@color/text_body_default"
            android:textSize="18dip" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="380dip"
            android:text="@string/tv_key_msg_1"
            android:textColor="@color/text_body_guide"
            android:textSize="18dip" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="405dip"
            android:text="@string/tv_key_msg_2"
            android:textColor="@color/text_body_guide"
            android:textSize="18dip" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="430dip"
            android:text="@string/tv_key_msg_3"
            android:textColor="@color/text_body_guide"
            android:textSize="18dip" />

        <LinearLayout
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="490dip"
            android:orientation="horizontal">

            <Button
                android:id="@+id/btn_Modify"
                android:layout_width="fill_parent"
                android:layout_height="@dimen/btn_height_default"
                android:layout_weight="1"
                android:background="@drawable/btn_default_drawable"
                android:text="@string/btn_upd_del"
                android:textColor="@color/white"
                android:textSize="20dip" />

            <TextView
                android:layout_width="6dip"
                android:layout_height="1dip"
                android:layout_gravity="center_horizontal"
                android:background="@android:color/transparent" />

            <Button
                android:id="@+id/btn_reset"
                android:layout_width="fill_parent"
                android:layout_height="@dimen/btn_height_default"
                android:layout_weight="1"
                android:background="@drawable/btn_default_drawable"
                android:enabled="false"
                android:text="@string/btn_reset"
                android:textColor="@color/white"
```

```
                android:textSize="20dip" />

          </LinearLayout>

       </FrameLayout>

    </ScrollView>

</FrameLayout>
```

Program example)

```
package com.baro.pam.info;

import com.baro.common.base.BaseActivity;
import com.baro.common.base.BaseInterface;
import com.baro.common.setting.SettingACT;
import com.baro.pam.R;

import com.barokey.barokey;
import com.beardedhen.androidbootstrap.BootstrapProgressBar;

import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.os.Message;
import android.os.Vibrator;
import android.os.Handler;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.inputmethod.InputMethodManager;
import android.widget.Button;
import android.widget.TextView;

import java.util.Date;

public class PAMCreateACT extends BaseActivity implements BaseInterface, OnClickListener {
    private Button btn_setting, btn_share, btn_close, btn_Modify, btn_reset;
    private TextView tv_auth_key;
    private TextView tv_server_name;
    private TextView tv_remainTime;
    private BootstrapProgressBar progressBar;
    private String intent_reg_dt = "", intent_server_name = "", intent_hostname = "",
intent_secure_key = "", intent_cycle_time = "";
    Intent  intent;

    private long createdMillis, remainingSec;

    private static final int MESSAGE_REFRESH_REMAINING_SECOND = 101;
    private static final int SENDMESSAGE_INTERVAL = 250;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        try {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.act_pamcreate);

            drawView();
            getIntentData();
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    @Override
    public void onPause() {
        super.onPause();

        if (null != m_handlerProc) {
            m_handlerProc.removeMessages(MESSAGE_REFRESH_REMAINING_SECOND);
        }
    }

    @Override
    public void onResume() {
        super.onResume();

        if (null != m_handlerProc) {
            m_handlerProc.sendEmptyMessageDelayed(MESSAGE_REFRESH_REMAINING_SECOND,
SENDMESSAGE_INTERVAL);
        }
    }

    @Override
    public void drawView() {
        try {
            vibe = (Vibrator) getSystemService(Context.VIBRATOR_SERVICE);

            findViewById(R.id.body_frame).setOnClickListener(new OnClickListener() {
                public void onClick(View v) {
                    InputMethodManager          imm          =          (InputMethodManager)
getSystemService(Context.INPUT_METHOD_SERVICE);
                    imm.hideSoftInputFromWindow(v.getWindowToken(), 0);
                }
            });

            tv_server_name = (TextView) findViewById(R.id.tv_server_name);
            tv_server_name.setOnClickListener(this);

            tv_auth_key = (TextView) findViewById(R.id.tv_auth_key);
            tv_auth_key.setFocusable(true);
            tv_auth_key.setClickable(false);

            progressBar = (BootstrapProgressBar) findViewById(R.id.progressBar);
            tv_remainTime = (TextView) findViewById(R.id.tv_remainTime);

            btn_setting = (Button) findViewById(R.id.btn_setting);
            btn_setting.setOnClickListener(this);

            btn_share = (Button) findViewById(R.id.btn_share);
            btn_share.setOnClickListener(this);

            ((Button) findViewById(R.id.btn_go_back)).setOnClickListener(this);

            btn_close = (Button) findViewById(R.id.btn_close);
            btn_close.setOnClickListener(this);

            btn_Modify = (Button) findViewById(R.id.btn_Modify);
            btn_Modify.setOnClickListener(this);

            btn_reset = (Button) findViewById(R.id.btn_reset);
            btn_reset.setOnClickListener(this);
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    public void getIntentData() {
        try {
            Intent intent = getIntent();
            getDefaultIntent(intent);

            if (intent.getStringExtra("reg_dt") != null) {
                intent_reg_dt = intent.getStringExtra("reg_dt").trim();
            }
            if (intent.getStringExtra("server_name") != null) {
                String[] a_server_name = intent.getStringExtra("server_name").split("/");
                for(int ii = 0; ii < a_server_name.length; ii++) {
                    if (ii == 0) {
                        intent_server_name = a_server_name[ii];
                    } else {
                        intent_hostname    = a_server_name[ii];
                    }
                }
            }
            if (intent.getStringExtra("secure_key") != null) {
                intent_secure_key = intent.getStringExtra("secure_key").trim();
            }
            if (intent.getStringExtra("cycle_time") != null) {
                intent_cycle_time = intent.getStringExtra("cycle_time").trim();
            }
            if                    ("".equals(intent_server_name.trim())                  &&
("".equals(intent_hostname.trim()))) {
                tv_server_name.setText("");
            } else if ("".equals(intent_server_name.trim())) {
                tv_server_name.setText("[ " + intent_hostname + " ]");
            } else if ("".equals(intent_hostname.trim())) {
                tv_server_name.setText("[ " + intent_server_name + " ]");
            } else {
                tv_server_name.setText("[ " + intent_server_name + " / " + intent_hostname
+ " ]");
            }
            if (!"".equals(intent_secure_key) && (!"".equals(intent_cycle_time))) {
                onAuthKey();
            } else {
                finish();
            }
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    @Override
    public void onClick(View v) {
        try {
            switch (v.getId()) {
                case R.id.btn_setting: // Setting
                     Intent intent = new Intent(this, SettingACT.class);
                     intent.setFlags(Intent.FLAG_ACTIVITY_CLEAR_WHEN_TASK_RESET);
                     startActivity(intent);
                     //finish();
                     break;

                case R.id.btn_share:
                     intent = new Intent(Intent.ACTION_SEND);
                     intent.addCategory(Intent.CATEGORY_DEFAULT);
                     intent.putExtra(Intent.EXTRA_TEXT , getString(R.string.app_share));
                     intent.putExtra(Intent.EXTRA_TITLE, getString(R.string.app_name ));
                     intent.setType("text/plain");
                     startActivity(Intent.createChooser(intent,
getString(R.string.share_text)));
                     //finish();
                     break;

                case R.id.btn_go_back: // go back
                     finish();
                     break;

                case R.id.btn_close: // Close
                     moveTaskToBack(true);
                     finish();
                     android.os.Process.killProcess(android.os.Process.myPid());
                     break;

                case R.id.btn_Modify: // Modify/Delete
                     intent = new Intent(PAMCreateACT.this, PAMModifyACT.class);
                     intent.putExtra("reg_dt"     , intent_reg_dt     );
                     intent.putExtra("server_name", intent_server_name);
                     intent.putExtra("hostname"    , intent_hostname    );
                     intent.putExtra("secure_key" , intent_secure_key );
                     intent.putExtra("cycle_time" , intent_cycle_time );
                     startActivity(intent);
                     finish();
                     break;

                case R.id.btn_reset: // Reset
                     if (!"".equals(intent_secure_key) && (!"".equals(intent_cycle_time)))
{
                         onAuthKey();
                     } else {
                        finish();
                     }
                     break;
            }
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    public void onAuthKey() {
        try {
            tv_auth_key.setText("");
            createdMillis = estimateCreatedMillis(intent_cycle_time);
            tv_auth_key.setText(barokey.generateKEYP(intent_secure_key,
intent_cycle_time));
            m_handlerProc.sendEmptyMessageDelayed(MESSAGE_REFRESH_REMAINING_SECOND,
SENDMESSAGE_INTERVAL);
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    private final Handler m_handlerProc = new Handler() {
        @Override
        public void handleMessage(Message message) {
            switch (message.what) {
                case MESSAGE_REFRESH_REMAINING_SECOND: {
                    try {
                        long     cycleMillis       = (Long.parseLong(intent_cycle_time)  *
1000L);
                        long                                remainingMillis           =
estimateRemainingMillis(intent_cycle_time, createdMillis);
                        long   remainingSecond = remainingMillis != 0 ? (remainingMillis /
1000L) : 0;

                        if (0 < remainingMillis) {

m_handlerProc.sendEmptyMessageDelayed(MESSAGE_REFRESH_REMAINING_SECOND,
SENDMESSAGE_INTERVAL);

                            btn_reset.setEnabled(false);
                        } else {

m_handlerProc.removeMessages(MESSAGE_REFRESH_REMAINING_SECOND);

                            btn_reset.setEnabled(true);
                        }
                        tv_remainTime.setText(remainingSecond    +    "    "    +
getString(R.string.remain_time_suffix));

                        if (0 != cycleMillis) {
                            progressBar.setProgress((int)  (((float)  remainingMillis  /
(float) cycleMillis) * 100.0F));
                        }
                    } catch (Exception e) {
                        e.printStackTrace();
                    } finally {
                    }
                }
                break;
            }
        }
    };

    public long estimateCreatedMillis(String cycleSecondString) {
        long  remainingMillis  =  (barokey.getRemainingTime(cycleSecondString)  *  1000L)  -
200;
        long cycleMillis     = (Long.parseLong(cycleSecondString) * 1000L);
        long currentMillis   = (new Date()).getTime();
        long elapsedMillis   = cycleMillis   - remainingMillis;
        long createdMillis   = currentMillis - elapsedMillis;

        return createdMillis;
    }

    public long estimateRemainingMillis(String cycleSecondString, long createdTime) {
        long cycleMillis     = (Long.parseLong(cycleSecondString) * 1000L);
        long currentMillis   = (new Date()).getTime();
        long elapsedMillis   = currentMillis - createdTime;

        long remainingMillis = barokey.getRemainingTime(cycleSecondString) * 1000L;
        remainingMillis      = cycleMillis     >  elapsedMillis ? remainingMillis : 0;
        remainingMillis      = remainingMillis >= cycleMillis ? 0 : remainingMillis;

        return remainingMillis;
    }
}
```

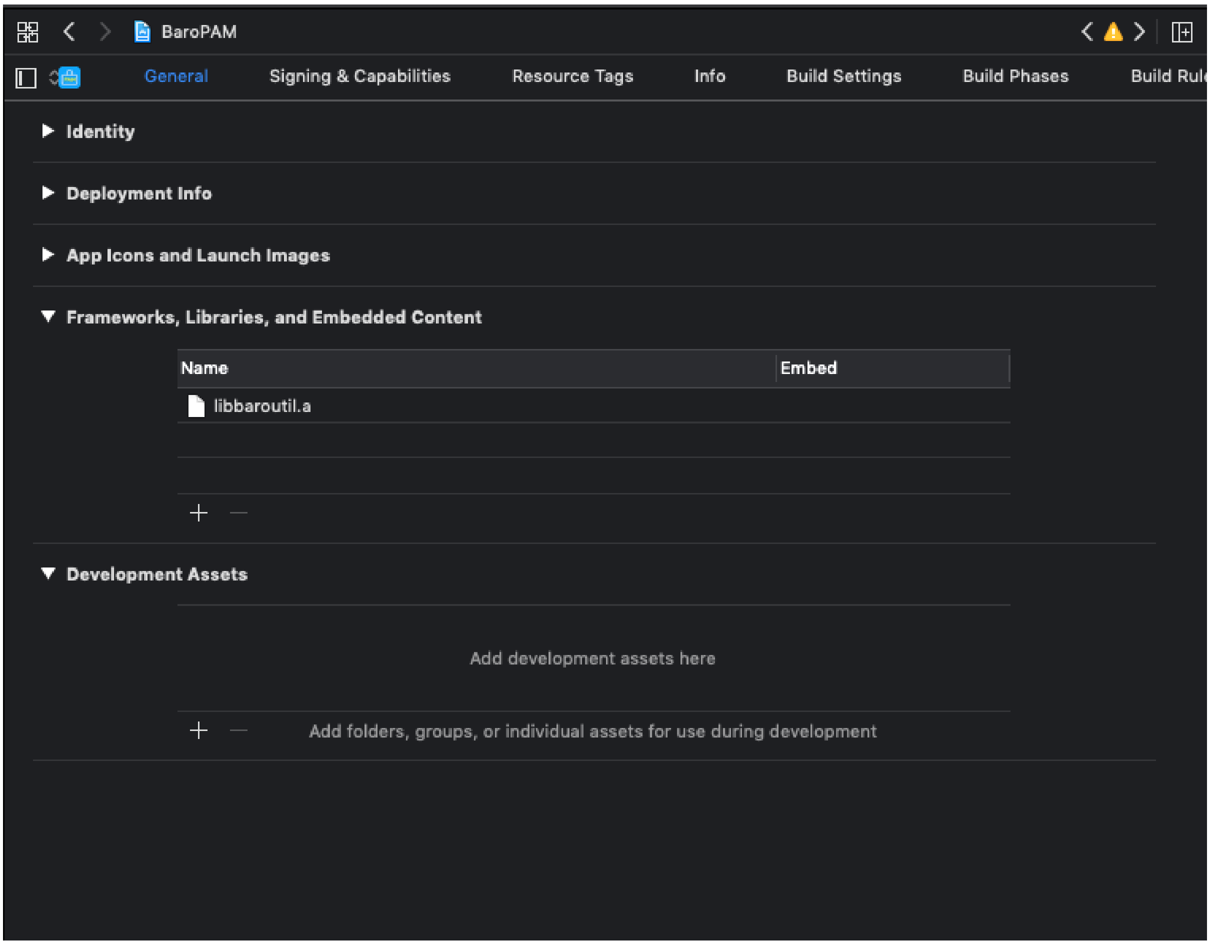
2.2 For iPhone

The API that creates a one-time authentication key to be entered in the "Verification code" when logging into the server from the BaroPAM app is provided as "libbaroutil.a". This file is a library file for NSObject Interface, which includes barokey, barocrypt, and base64 related libraries.

There are two types of library files. XCode's iPhone simulator and iPhone are both changed to libbaroutil.a if necessary.

- libbaroutil.a.iphone : for iPhone
- libbaroutil.a.simul : for iPhone simulator

This file is registered and used when setting the project of XCode as below.



BaroPAM

General | Signing & Capabilities | Resource Tags | Info | Build Settings | Build Phases | Build Rul

▶ Identity

▶ Deployment Info

▶ App Icons and Launch Images

▼ Frameworks, Libraries, and Embedded Content

Name	Embed
libbaroutil.a	

▼ Development Assets

Add development assets here

Add folders, groups, or individual assets for use during development

The APIs related to BaroPAM are as follows. Since the function is composed of the C function interface, the input data type is expressed in the C function style. The source of the usage example is code written in iOS swift 5.0 or later.

generateKEYP function

The one-time authentication key used to log in to the server is a function that is generated.

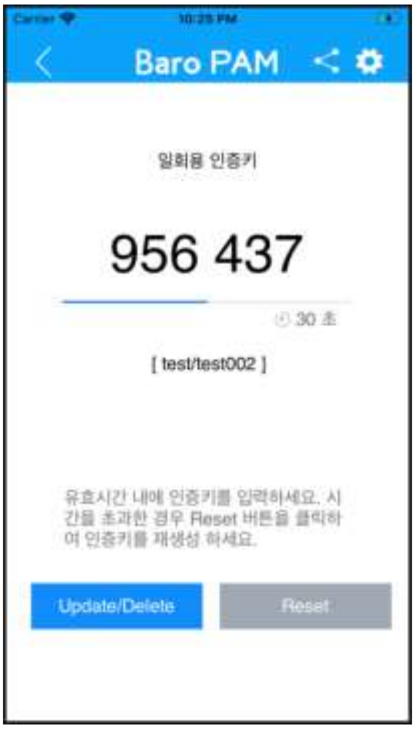
Input variable	const char *secure_key	The key provided by requesting the vendor can be assigned to each server and account. Be sure to set the key specified when setting the BaroPAM server environment.
	const char	When configuring the BaroPAM server environment, it must match the one-

	*cycle_time	time authentication key generation cycle (3-60 seconds). If the generation cycle of the one-time authentication key designated for each server is different, the one-time authentication key may be generated differently.
	const char *key_method	"app512" is set as a method of generating a disposable authentication key (app1, app256, app384, app512: app).
Return value	auth key	Returns the generated one-time authentication key.

Example of use in Swift 5.0 or higher)

```
private func makePamInfo() {
    let secureKey = _pam?.SECURE_KEY
    let time      = (_pam?.CYCLE_TIME ?? "30")!
    let otpnum    = generateKEYP(secureKey, time, "app512")

    _pamInfo.text = "[ ₩(_pam?.SERVER_NM ?? "")/₩(_pam?.HOSTNAME ?? "") ]"
    let otpnumStr = String(cString: otpnum!)
    let start     = otpnumStr.index(otpnumStr.startIndex, offsetBy: 0)
    let end       = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
    let start2    = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
    let end2      = otpnumStr.index(otpnumStr.startIndex, offsetBy: 6)

    _tfOTP.text = otpnumStr[start..<end] + " " + otpnumStr[start2..<end2]

    var step = 0
    self._progress.progress        = 0
    self._btnReset.isEnabled       = false
    self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0xA0AAB4)
    let remain     = getRemainingTime(_pam?.CYCLE_TIME ?? "30")
    let cycle_time = Int(self._pam!.CYCLE_TIME)

    _timer = Timer.scheduledTimer(withTimeInterval: 1.0, repeats: true, block: { _timer in
        let change: Float = Float(Double(remain - step - 1) / Double(cycle_time!))
        self._progress.progress = change
        step += 1
        self._remainTime.text = String(remain - step) + " " + "TIME".localized
        if  step == remain {
            self._timer?.invalidate()
            self._btnReset.isEnabled = true
            self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
        }
    })
}
```

Screen example)



유효시간 내에 인증키를 입력하세요. 시간을 초과한 경우 Reset 버튼을 클릭하여 인증키를 재생성 하세요.

Screen Layout example)

Means Storyboard. Refer to developer.apple.com for the meaning of each parameter.

```
<!—Create View Controller—>
<scene sceneID="sVy-j4-Rtq">
  <objects>
    <viewController storyboardIdentifier="CreatePAM" id="z9w-lb-ka0"
customClass="PAMCreateViewController" customModule="BaroPAM" customModuleProvider="target"
sceneMemberID="viewController">
      <layoutGuides>
        <viewControllerLayoutGuide type="top" id="03y-ma-Ukk"/>
        <viewControllerLayoutGuide type="bottom" id="WKP-o0-5Tt"/>
      </layoutGuides>
      <view key="view" contentMode="scaleToFill" id="ZXo-9u-j0g">
        <rect key="frame" x="0.0" y="0.0" width="375" height="812"/>
        <autoresizingMask key="autoresizingMask" widthSizable="YES" heightSizable="YES"/>
        <subviews>
          <view contentMode="scaleToFill" fixedFrame="YES"
translatesAutoresizingMaskIntoConstraints="NO" id="VzL-Hy-Qth">
            <rect key="frame" x="0.0" y="0.0" width="375" height="70"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
            <subviews>
              <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="PTg-Bp-4P9">
                <rect key="frame" x="283" y="35" width="31" height="31"/>
                <autoresizingMask key="autoresizingMask" flexibleMinX="YES" flexibleMaxY="YES"/>
                <inset key="imageEdgeInsets" minX="3" minY="3" maxX="3" maxY="3"/>
                <state key="normal" image="btn_share.png"/>
                <connections>
```

```
                  <action selector="onShare:" destination="VZn-Wm-75J" eventType="touchUpInside"
id="2al-2K-VMV"/>
                  <action selector="onShare:" destination="z9w-Ib-ka0" eventType="touchUpInside"
id="Hvz-hY-Yno"/>
                </connections>
              </button>
              <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="eey-kg-kh0">
                <rect key="frame" x="322" y="34" width="33" height="32"/>
                <autoresizingMask key="autoresizingMask" flexibleMinX="YES" flexibleMaxY="YES"/>
                <inset key="imageEdgeInsets" minX="3" minY="3" maxX="3" maxY="3"/>
                <state key="normal" image="btn_setting.png"/>
                <connections>
                  <action selector="onSetting:" destination="z9w-Ib-ka0" eventType="touchUpInside"
id="UHA-w0-txo"/>
                  <action selector="onSetting:" destination="VZn-Wm-75J" eventType="touchUpInside"
id="qN9-C1-NKq"/>
                </connections>
              </button>
              <imageView contentMode="scaleAspectFit" horizontalHuggingPriority="251"
verticalHuggingPriority="251" fixedFrame="YES" image="btn_prev.png"
translatesAutoresizingMaskIntoConstraints="NO" id="FyA-Yo-4LD">
                <rect key="frame" x="19" y="35" width="31" height="31"/>
                <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" heightSizable="YES"/>
              </imageView>
              <imageView userInteractionEnabled="NO" contentMode="scaleAspectFit"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
image="logo_barootp.png" translatesAutoresizingMaskIntoConstraints="NO" id="AWz-gv-3pq">
                <rect key="frame" x="115" y="38" width="145" height="25"/>
                <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
              </imageView>
            </subviews>
            <color key="backgroundColor" red="0.1058823529" green="0.56470588239999997" blue="1"
alpha="1" colorSpace="calibratedRGB"/>
          </view>
          <textView clipsSubviews="YES" multipleTouchEnabled="YES" contentMode="scaleToFill"
fixedFrame="YES" text="TITLE MESSAGE" textAlignment="center"
translatesAutoresizingMaskIntoConstraints="NO" id="6al-WL-0dK">
            <rect key="frame" x="0.0" y="125" width="375" height="40"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
            <color key="textColor" white="0.0" alpha="1" colorSpace="calibratedWhite"/>
            <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
            <textInputTraits key="textInputTraits" autocapitalizationType="sentences"/>
          </textView>
          <textField opaque="NO" clipsSubviews="YES" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="left" contentVerticalAlignment="center" text="12345678"
textAlignment="center" minimumFontSize="17" translatesAutoresizingMaskIntoConstraints="NO"
id="N6N-XM-0BH">
            <rect key="frame" x="19" y="204" width="336" height="52"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
            <color key="backgroundColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
            <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="50"/>
            <textInputTraits key="textInputTraits"/>
          </textField>
          <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center" buttonType="roundedRect"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="jvU-oe-4pE">
            <rect key="frame" x="23" y="683" width="160" height="43"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxX="YES"
flexibleMinY="YES"/>
            <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
            <state key="normal" title="Modify/Delete">
              <color key="titleColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
            </state>
            <connections>
              <action selector="onEdit:" destination="BPh-Tl-Gd5" eventType="touchUpInside"
id="0YZ-mm-tgY"/>
              <action selector="onEdit:" destination="z9w-lb-ka0" eventType="touchUpInside"
id="5bi-1P-cae"/>
              <action selector="onOk:" destination="BYZ-38-t0r" eventType="touchUpInside" id="K5T-
jU-wz5"/>
            </connections>
          </button>
          <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES"
contentHorizontalAlignment="center" contentVerticalAlignment="center" buttonType="roundedRect"
lineBreakMode="middleTruncation" translatesAutoresizingMaskIntoConstraints="NO" id="0Ma-U8-E40">
            <rect key="frame" x="199" y="683" width="160" height="43"/>
            <autoresizingMask key="autoresizingMask" flexibleMinX="YES" widthSizable="YES"
flexibleMinY="YES"/>
            <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
            <state key="normal" title="Reset">
              <color key="titleColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
            </state>
            <connections>
              <action selector="onReset:" destination="BPh-Tl-Gd5" eventType="touchUpInside"
id="5pN-uP-iTd"/>
              <action selector="onReset:" destination="z9w-lb-ka0" eventType="touchUpInside"
id="bFb-Wq-VEE"/>
            </connections>
          </button>
          <textView clipsSubviews="YES" multipleTouchEnabled="YES" contentMode="scaleToFill"
fixedFrame="YES" editable="NO" text="USER DEFINED MESSAGE." textAlignment="natural"
selectable="NO" translatesAutoresizingMaskIntoConstraints="NO" id="tvu-My-d27">
            <rect key="frame" x="48" y="585" width="276" height="112"/>
            <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMinY="YES"/>
            <color key="textColor" red="0.33333333333333331" green="0.33333333333333331"
blue="0.33333333333333331" alpha="1" colorSpace="calibratedRGB"/>
            <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
            <textInputTraits key="textInputTraits" autocapitalizationType="sentences"/>
          </textView>
```

```
     <progressView opaque="NO" contentMode="scaleToFill" verticalHuggingPriority="750"
fixedFrame="YES" progress="0.5" translatesAutoresizingMaskIntoConstraints="NO" id="0PH-FY-y7l">
      <rect key="frame" x="52" y="274" width="270" height="2"/>
      <autoresizingMask key="autoresizingMask" widthSizable="YES"/>
     </progressView>
     <imageView userInteractionEnabled="NO" contentMode="scaleToFill"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
image="ico_countdown.png" translatesAutoresizingMaskIntoConstraints="NO" id="NCT-hK-zKs">
      <rect key="frame" x="250" y="284" width="15" height="15"/>
      <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
     </imageView>
     <label opaque="NO" userInteractionEnabled="NO" contentMode="left"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES" text="0"
textAlignment="natural" lineBreakMode="tailTruncation" baselineAdjustment="alignBaselines"
adjustsFontSizeToFit="NO" translatesAutoresizingMaskIntoConstraints="NO" id="csq-gk-Jba">
      <rect key="frame" x="270" y="281" width="52" height="21"/>
      <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
      <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
      <color key="textColor" red="0.33333333333333331" green="0.33333333333333331"
blue="0.33333333333333331" alpha="1" colorSpace="calibratedRGB"/>
      <nil key="highlightedColor"/>
     </label>
     <label opaque="NO" userInteractionEnabled="NO" contentMode="left"
horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES"
text="[david.kscho@emplUses.com]" textAlignment="center" lineBreakMode="tailTruncation"
baselineAdjustment="alignBaselines" adjustsFontSizeToFit="NO"
translatesAutoresizingMaskIntoConstraints="NO" id="jeL-QQ-baB">
      <rect key="frame" x="23" y="318" width="332" height="30"/>
      <autoresizingMask key="autoresizingMask" widthSizable="YES" flexibleMaxY="YES"/>
      <fontDescription key="fontDescription" name="SpoqaHanSans-Regular"
family="SpoqaHanSans" pointSize="17"/>
      <nil key="highlightedColor"/>
     </label>
    </subviews>
    <color key="backgroundColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
   </view>
   <connections>
    <outlet property="_backView" destination="FyA-Yo-4LD" id="blF-3v-gYz"/>
    <outlet property="_btnReset" destination="0Ma-U8-E40" id="clb-IR-Fiy"/>
    <outlet property="_btnModify" destination="jvU-oe-4pE" id="6lc-hF-FDd"/>
    <outlet property="_pamInfo" destination="jeL-QQ-baB" id="sz4-CU-yOh"/>
    <outlet property="_progress" destination="0PH-FY-y7l" id="5Uc-Je-MGC"/>
    <outlet property="_remainTime" destination="csq-gk-Jba" id="AX4-sQ-kSL"/>
    <outlet property="_tfOTP" destination="N6N-XM-OBH" id="0G3-0E-Faf"/>
   </connections>
  </viewController>
  <placeholder placeholderIdentifier="IBFirstResponder" id="5TR-YP-Zsu" userLabel="First
Responder" sceneMemberID="firstResponder"/>
 </objects>
 <point key="canvasLocation" x="2948" y="-243.10344827586209"/>
</scene>
```

Program example)

```
import UIKit

class PAMCreateViewController: UIViewController {
    @IBOutlet weak var _backView: UIImageView!
    @IBOutlet weak var _progress: UIProgressView!
    @IBOutlet weak var _remainTime: UILabel!
    @IBOutlet weak var _pamInfo: UILabel!
    @IBOutlet weak var _tfOTP: UITextField!
    @IBOutlet weak var _btnModify: UIButton!
    @IBOutlet weak var _btnReset: UIButton!

    var _timer: Timer?
    var _pam: PAMEntity? = nil

    override func viewDidLoad() {
        super.viewDidLoad()
        initControls()
        makeTappedView()
        makePamInfo()
    }

    override func viewWillAppear(_ animated: Bool) {
        super.viewWillAppear(animated)
        if (_pam?.IS_DELETE == 1) {
            _pam?.IS_DELETE = 0
            dismiss(animated: false, completion: nil)
        }
    }

    override func viewDidAppear(_ animated: Bool) {
        super.viewDidAppear(animated)

    }

    private func initControls() {
        _btnModify.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
        _btnReset.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
    }

    private func makeTappedView() {
        let tap = UITapGestureRecognizer(target: self, action:
#selector(PAMCreateViewController.backTapped))
        _backView.isUserInteractionEnabled = true
        _backView.addGestureRecognizer(tap)
    }

    @objc func backTapped(tabGestureRecg: UITapGestureRecognizer) {
        dismiss(animated: false, completion: nil) //
    }

    private func makePamInfo() {
        let secureKey = _pam?.SECURE_KEY
        let time      = (_pam?.CYCLE_TIME ?? "30")!
        let otpnum    = generateKEYP(secureKey, time, "app512")
        //print( "generateTOTPP ===> ₩(String(describing: secureKey)), ₩(String(cString:
otpnum!)) " )

        _pamInfo.text = "[ ₩(_pam?.SERVER_NM ?? "")/₩(_pam?.HOSTNAME ?? "") ]"

        let otpnumStr = String(cString: otpnum!)
        let start     = otpnumStr.index(otpnumStr.startIndex, offsetBy: 0)
        let end       = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
        let start2    = otpnumStr.index(otpnumStr.startIndex, offsetBy: 3)
        let end2      = otpnumStr.index(otpnumStr.startIndex, offsetBy: 6)

        _tfOTP.text   = otpnumStr[start..<end] + " " + otpnumStr[start2..<end2]

        var step = 0
        self._progress.progress        = 0
        self._btnReset.isEnabled       = false
        self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0xA0AAB4)
        let remain = getRemainingTime(_pam?.CYCLE_TIME ?? "30")
        let cycle_time = Int(self._pam!.CYCLE_TIME)

        _timer = Timer.scheduledTimer(withTimeInterval: 1.0, repeats: true, block: { _timer in
            let change: Float = Float(Double(remain - step - 1) / Double(cycle_time!))
            //print("---- ₩(remain),₩(change),₩(step)")
            self._progress.progress = change
            step += 1
            self._remainTime.text = String(remain - step) + " " + "TIME".localized
            if  step == remain {
                self._timer?.invalidate()
                self._btnReset.isEnabled = true
                self._btnReset.backgroundColor = uicolorFromHex(rgbValue: 0x1B90FF)
            }
        })
    }

    func setPam(_ pam: PAMEntity) {
        _pam = pam
    }

    @IBAction func onEdit(_ sender: Any) {
        switchScreen("SystemPAM", { _ = ($0 as!
PAMInfoSaveViewController).changeMode(.EDIT).setPam(_pam!).setParent(self) })
    }

    @IBAction func onReset(_ sender: Any) {
        makePamInfo()
    }

    @IBAction func onShare(_ sender: Any) {
    }
    @IBAction func onSetting(_ sender: Any) {
        switchScreen("Settings")
    }
}
```

2. BaroPAM Website

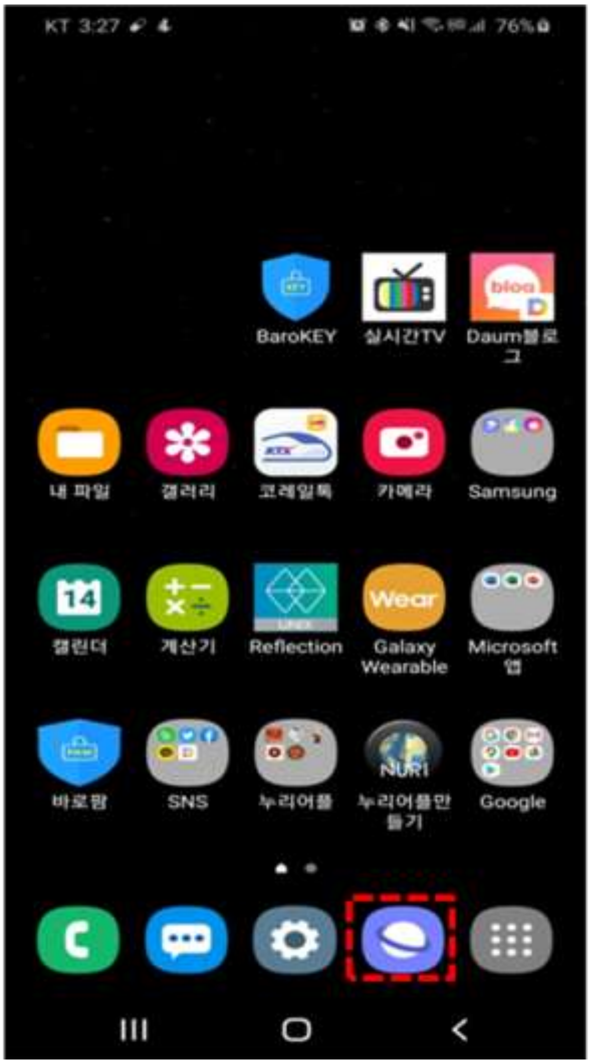
Also, through the BaroPAM website (www.baropam.com), so that the service is not interrupted when there is a problem with the BaroPAM app (for Android phones and iPhones), which is a generator of disposable authentication keys to be entered in the verification code when logging into information assets. Provide services.

The "BaroPAM" web screen is largely composed of **membership registration**, **login**, **server information management**, **application information management**, **PIN information management**, **Access log management**, **Abort**, and **Logout**.

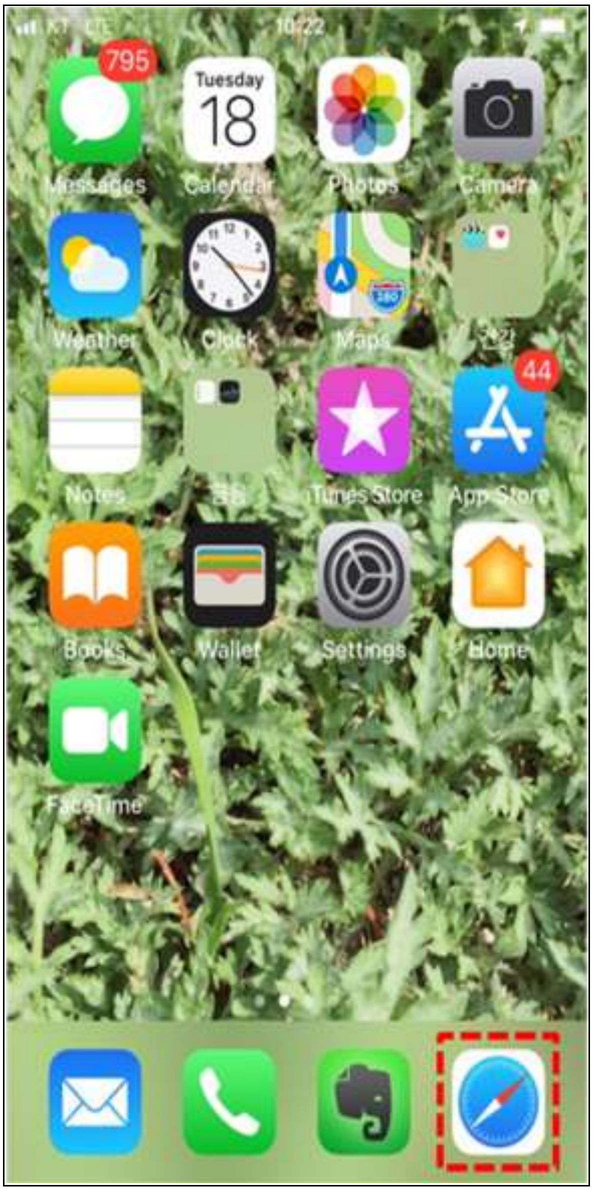
2.1 Using the BaroPAM Web(Membership registration)

1. Activate the app by clicking the icon of the "web browser" app on your smartphone, and then enter the URL of BaroPAM's website, www.baropam.com, in the "Enter search term or URL" field at the top of the app.

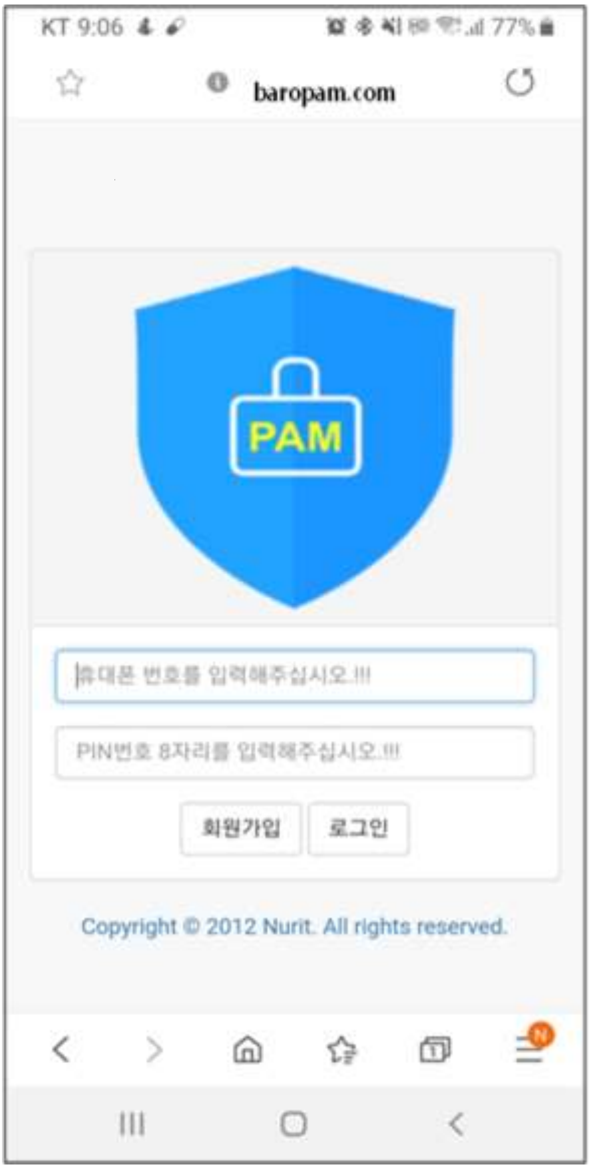
For Android phones)



For iPhones)


10:22
795
Tuesday 18
Messages
Calendar
Photos
Camera
Weather
Clock
Maps
44
Notes
iTunes Store
App Store
Books
Wallet
Settings
Home
FaceTime

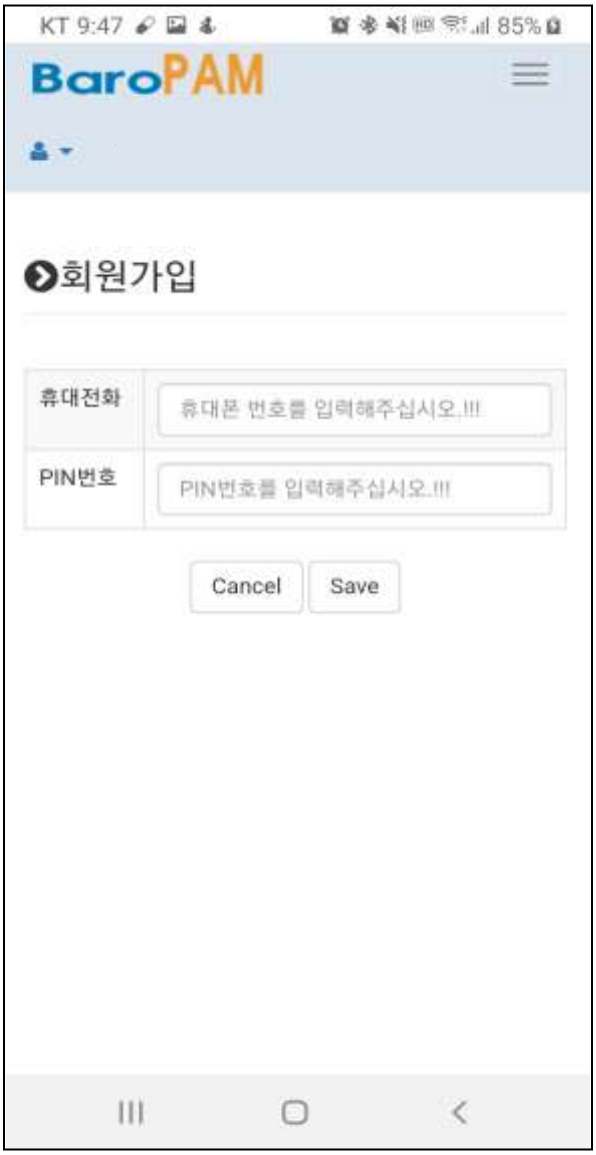
2. When the BaroPAM website is activated, the following "BaroPAM" login screen appears.



KT 9:06
77%
baropam.com
PAM
휴대폰 번호를 입력해주십시오.!!!
PIN번호 8자리를 입력해주십시오.!!!
회원가입
로그인
Copyright © 2012 Nurit. All rights reserved.

If you are using the "BaroPAM" website (**www.baropam.com**) for the first time, enter the "**회원가입(Sign Up)**" button, or if you have already used it, enter your 11-digit smartphone number and 8-digit PIN number and click the "**로그인(Login)**" button.

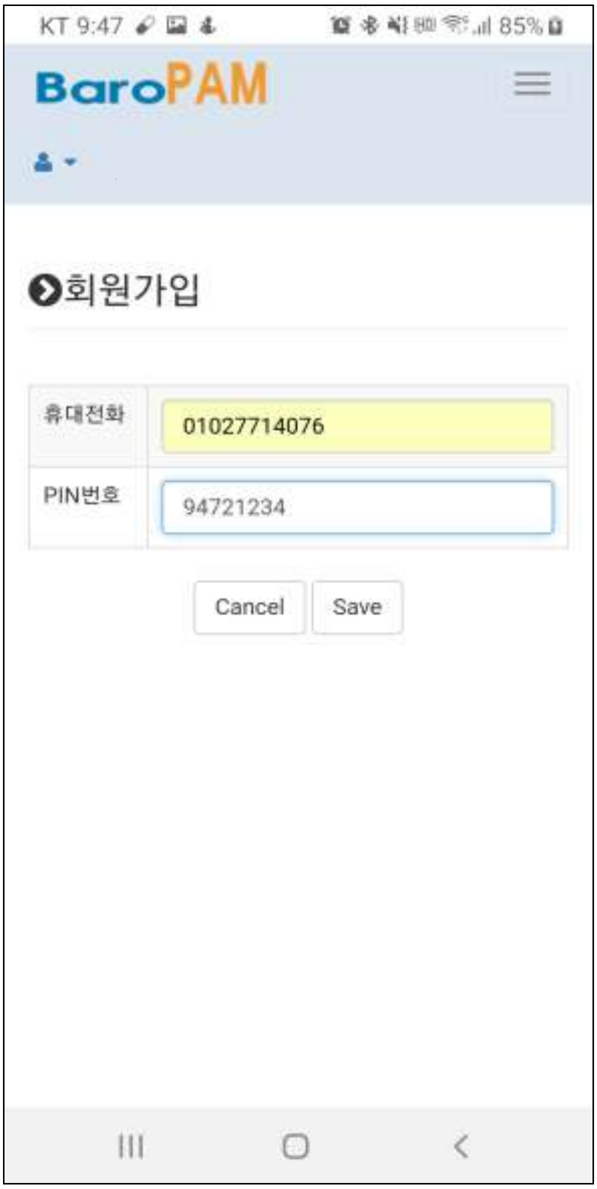
3. If you are not registered as a member (for the first time using the "BaroPAM" website), click the "회원가입(Sign Up)" button and the following screen will appear.



휴대전화	휴대폰 번호를 입력해주십시오.!!!
PIN번호	PIN번호를 입력해주십시오.!!!

The PIN number is used to prevent the leakage of authentication key information by others when the smartphone is lost.

4. Enter the 11-digit number and 8-digit PIN number of your smartphone and click the "Save" button.



회원가입

휴대전화	01027714076
PIN번호	94721234

Clicking the "**Save**" button first checks the validity of the input items and then saves the membership information.

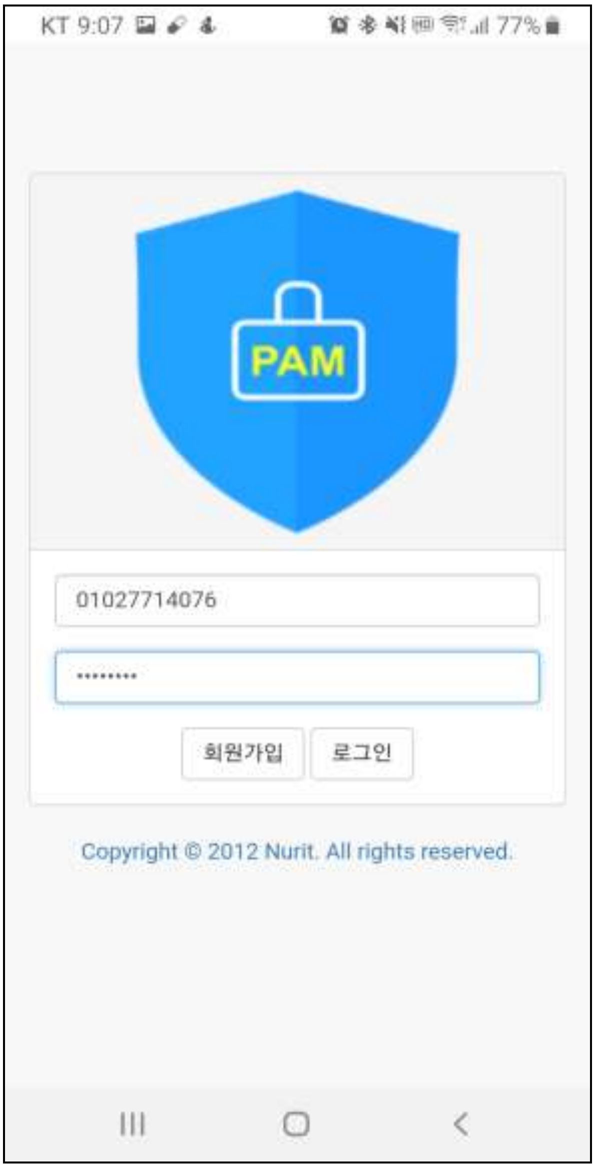
If the smartphone number is not 11 digits, the message "**휴대번호를 입력해주십시요.(Please enter your mobile number)**" will appear on the screen. Similarly, if the PIN number is not 8 digits, the message "**PIN 번호를 입력해주십시오.(Please enter the PIN number)**" appears on the screen.

If the member registration information is not completed normally, the "**회원가입(Sign Up)**" screen will continue, and if it is completed normally, the above "**로그인(Login)**" screen will appear.

Click the "**Cancel**" button to exit the current screen and the above "**로그인(Login)**" screen will appear.

2.2 Using the BaroPAM Web(Login)

1. Enter the 11-digit mobile number and 8-digit PIN number you set on the login screen, then click the "로그인(Login)" button.

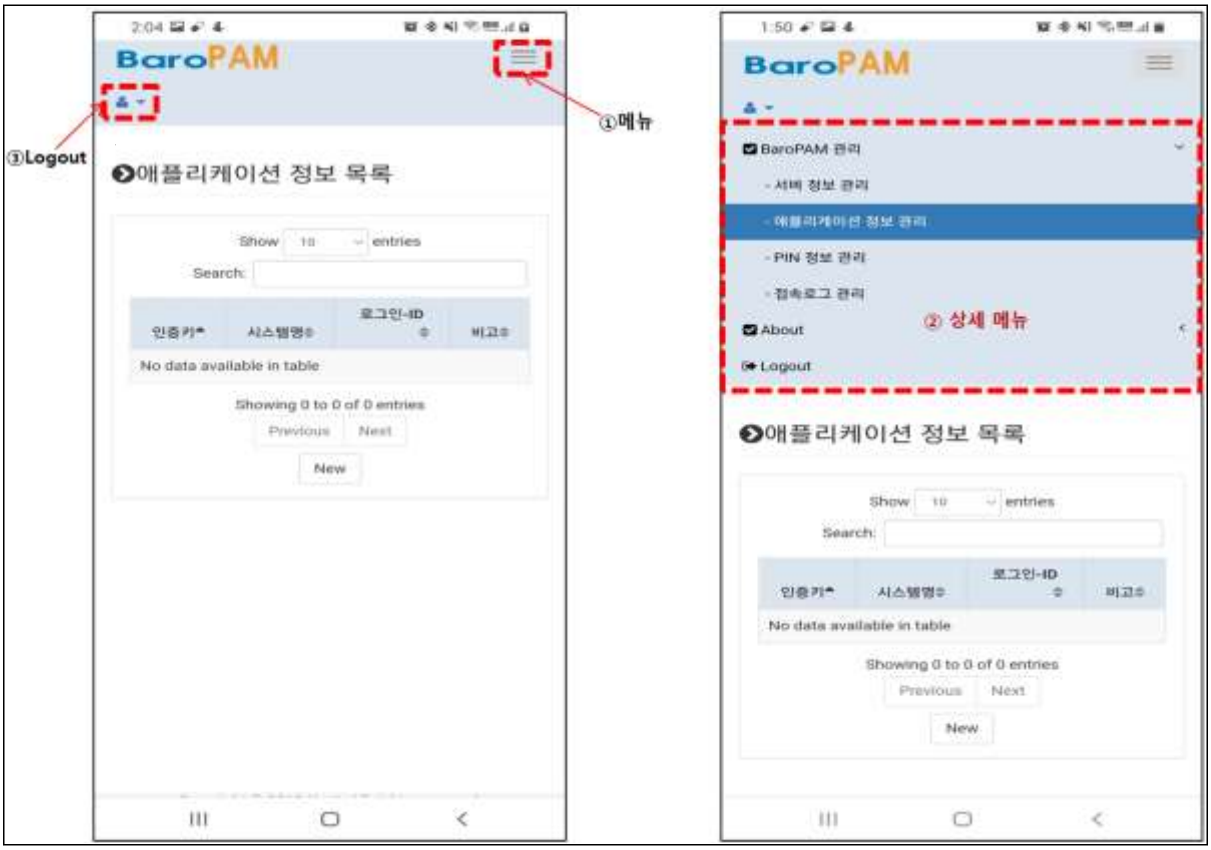


When you click the "로그인(Login)" button, the first step is to check the validity of the input items.

If the smartphone number is not 11 digits, the message "휴대번호를 입력해주십시오.(Please enter your mobile number)" appears on the message screen. if the PIN number is not 8 digits, the message "PIN 번호를 입력해주십시오.(Please enter the PIN number)" appears on the screen.

If the entered smartphone number is wrong, the message "휴대폰 번호를 확인해주세요.(Please check your smartphone number)" and the "PIN 번호를 확인해주세요.(Please check your PIN number)" message will appear on the screen if the PIN number is incorrect.

2. When login is confirmed, the "애플리케이션 정보 관리(Application information management)" screen appears as follows.

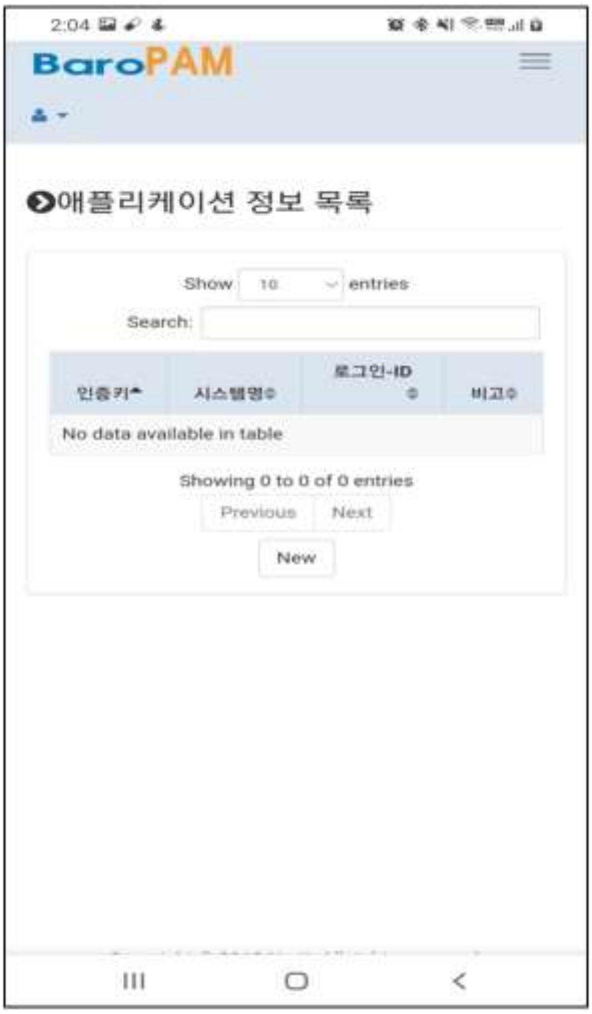


The "애플리케이션 정보 관리(Application information management" screen manages information for generating a "OTA key" to replace the password when logging in to the application.

Click the "① 메뉴(Menu)" button to display the "② 상세 메뉴(Detailed Menu)" that you can select as shown on the right screen. Click the "③ Logout" button to exit the "BaroPAM" website (www.baropam.com) screen and click " The "Login" screen appears.

2.3 Using the BaroPAM Web(Application information management)

1. Click the "메뉴(Menu)" button at the top right and then click the "애플리케이션 정보 관리(Application information management)" menu in the detailed menu, and the "애플레이션 정보 목록(List of application information)" screen appears as follows.



애플리케이션 정보 목록

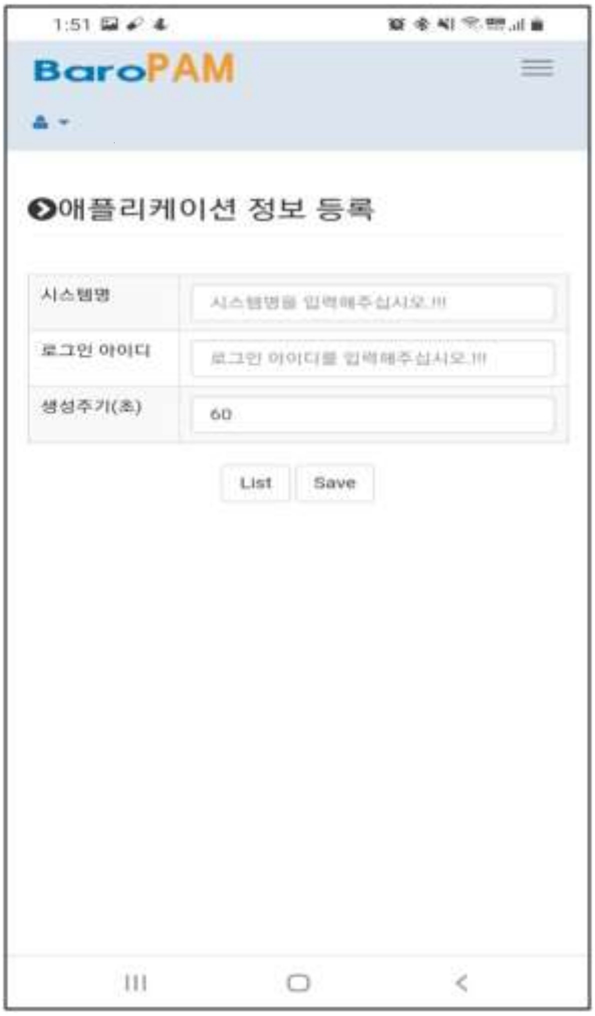
Show 10 entries

Search:

인증키	시스템명	로그인-ID	비고
No data available in table			

Showing 0 to 0 of 0 entries

2. Click the "New" button on the "애플리케이션 정보 목록(List of application information)" screen to display the screen for registering information on application login as follows.



⊙애플리케이션 정보 등록

시스템명	시스템명을 입력해주십시오.!!!
로그인 아이디	로그인 아이디를 입력해주십시오.!!!
생성주기(초)	60

▣시스템명(System name)

The system name to log in is a required field. You can enter at least 1 digit and up to 60 digits.

▣로그인-ID(Login-ID)

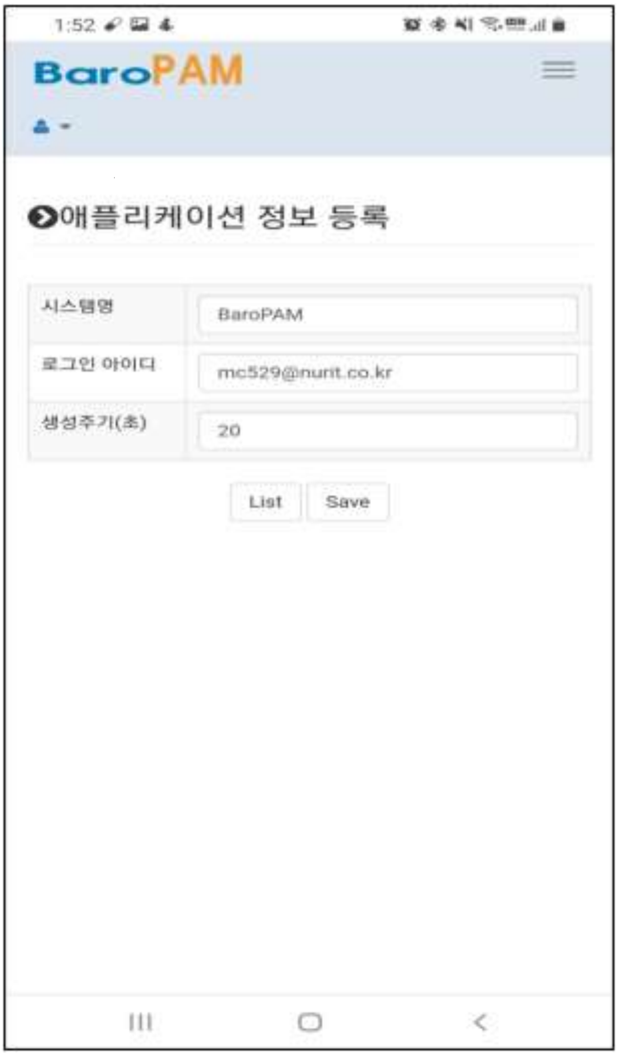
Login-ID is a required field and you can enter at least 1 digit and up to 50 digits.

▣생성주기(Auth key cycle time, 3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

It may not be possible if the OTA key generation cycle (Auth key cycle time) of the BaroPAM verification module and the OTA key generation cycle (Auth key cycle time) specified on the web are different. There may be cases where you cannot log in because the OTA key is different.

3. After entering the application login information, click the "Save" button.



애플리케이션 정보 등록

시스템명	BaroPAM
로그인 아이디	mc529@nurit.co.kr
생성주기(초)	20

When the "Save" button is clicked, the first thing to check the validity of the input items is to save the login information of the application.

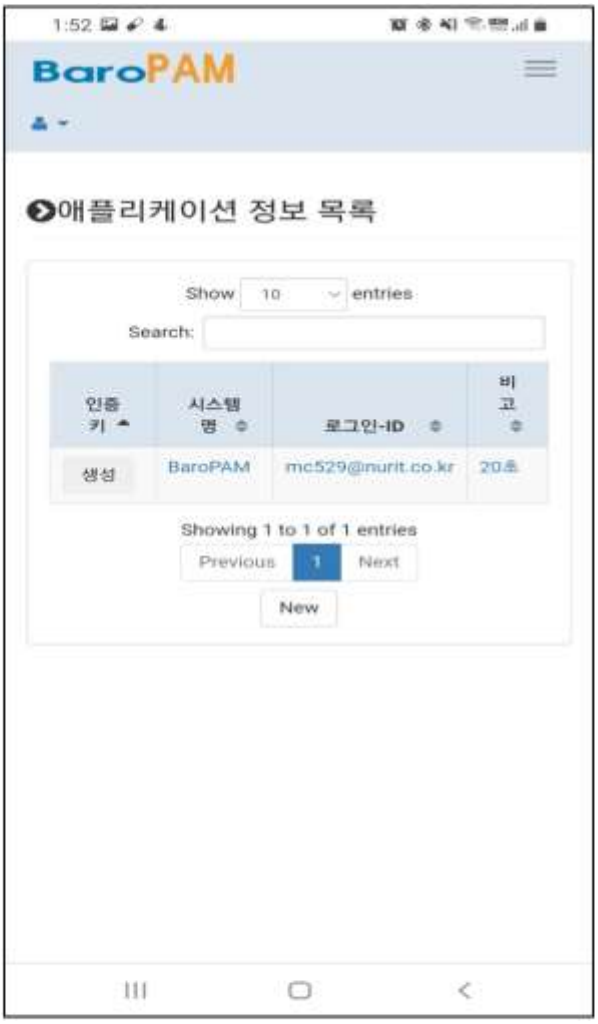
If the system name is not entered, the message "시스템명을 입력해주십시오.(Please enter the system name)" appears on the screen.

If Login-ID is not entered, the message "로그인-ID를 입력해주십시오.(Please enter Login-ID)" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "인증키 생성주기를 입력 또는 확인해주십시오.(Please enter or confirm the auth key cycle)" appears on the screen.

Clicking the "List" button exits the current screen and displays the "애플리케이션 정보 목록(List of application information)" screen.

4. If the information saving for the application login is not completed normally, the "애플리케이션 정보 등록(Register application information)" screen continues, and if it is completed normally, the "애플리케이션 정보 목록(List of application information)" screen appears as follows.



애플리케이션 정보 목록

Show 10 entries

Search:

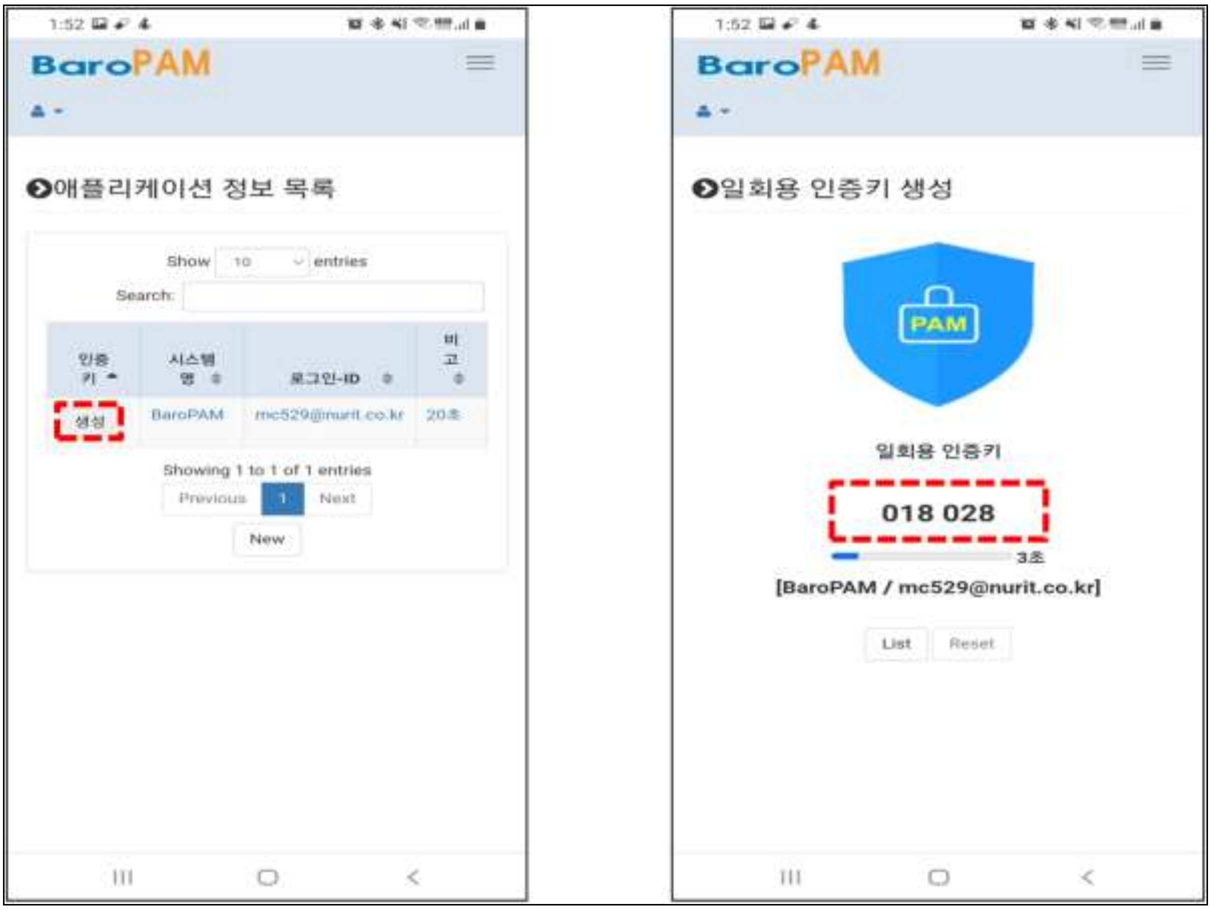
인증키 ▲	시스템명 ⇕	로그인-ID ⇕	비고 ⇕
생성	BaroPAM	mc529@nurit.co.kr	20초

Showing 1 to 1 of 1 entries

If you want to search the login information of the application, enter a search term and click the "**Search**" button, then the login information of the searched application will appear on the screen.

If you need to add new login information for the application, click the "**New**" button to display the application login information registration screen.

5. "생성(Generate)" button in the application information list, a new secondary authentication key(OTA key) is generated. During the OTA key generation cycle (Auth key cycle time), the same secondary authentication key(OTA key) occurs, and the newly created OTA key appears on the "일회용 인증키 생성(Generate OTA key)" screen as follows.



애플리케이션 정보 목록

인증키	시스템명	로그인-ID	비고
생성	BaroPAM	mc529@nurit.co.kr	20초

Showing 1 to 1 of 1 entries

일회용 인증키 생성

일회용 인증키

018 028

3초

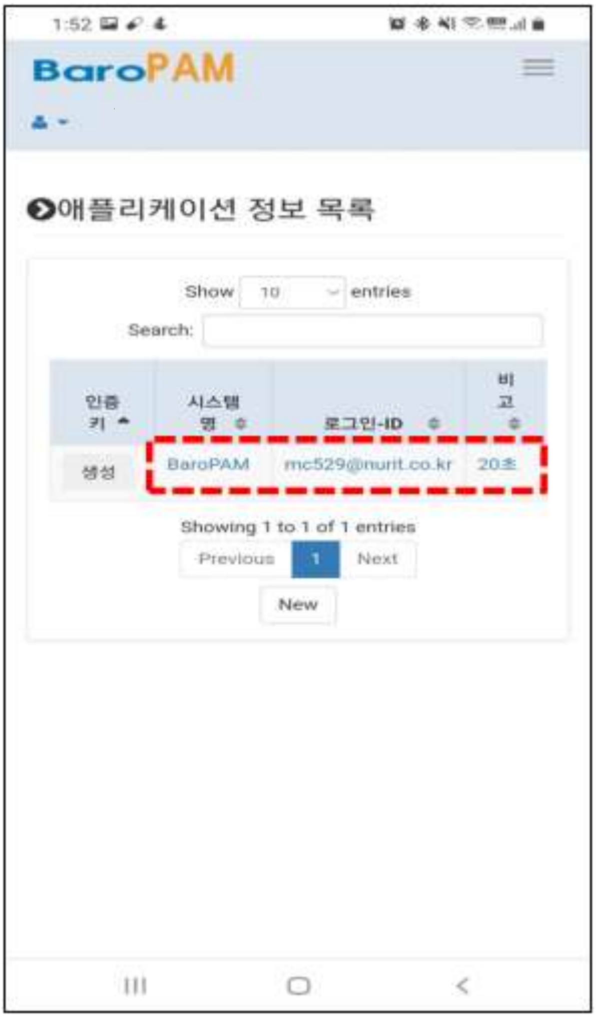
[BaroPAM / mc529@nurit.co.kr]

Clicking the "List" button exits the current screen and displays the "애플리케이션 정보 목록(List of application information List)" screen.

During the same authentication key cycle time, the "Reset" button is deactivated, and when the authentication key generation cycle (Auth key cycle time) passes, the "Reset" button is activated.

When the activated "Reset" button is clicked, a new OTA key is created on the "일회용 인증키 생성(Generate OTA key)" screen.

6. If you need to create a secondary authentication key(OTA key) and modify/delete application information, click the application login information item in the application information list as follows.

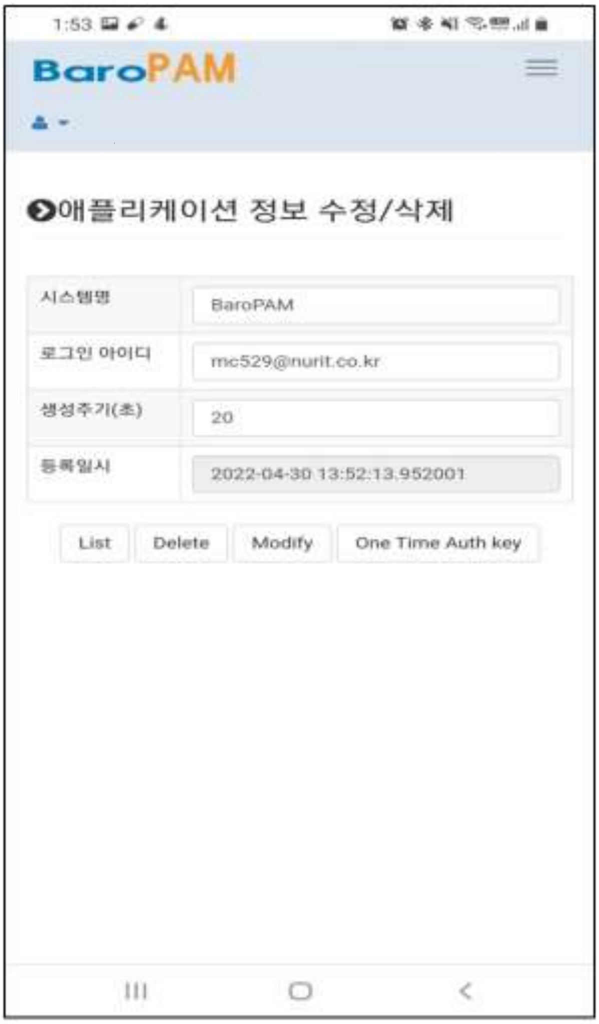


애플리케이션 정보 목록

인증키	시스템명	로그인-ID	비고
생성	BaroPAM	mc529@nurit.co.kr	20초

Showing 1 to 1 of 1 entries

7. Then, a screen for creating, modify/deleting a secondary authentication key(OTA key) based on the application login information appears as follows.



애플리케이션 정보 수정/삭제

시스템명	BaroPAM
로그인 아이디	mc529@nurit.co.kr
생성주기(초)	20
등록일시	2022-04-30 13:52:13.952001

▣시스템명(System name)

The system name to log in is a required field. You can enter at least 1 digit and up to 60 digits.

▣로그인-id(Login-ID)

Login-ID is a required field. You can enter at least 1 digit and up to 50 digits.

▣생성주기(Auth key cycle time, 3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

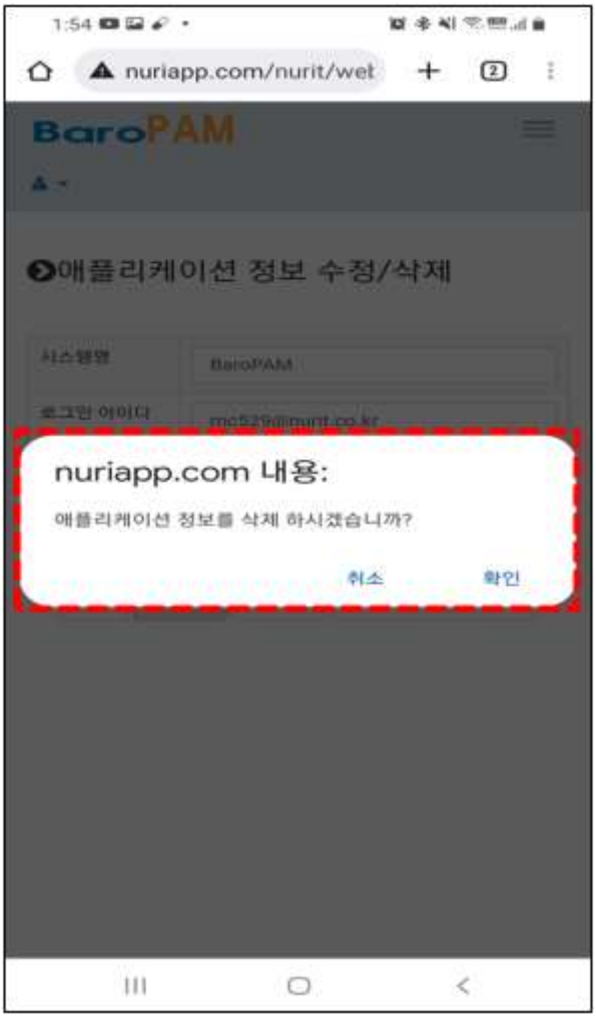
If the OTA key generation cycle (Auth key cycle time) of the Barofarm authentication module is different from the OTA key generation cycle (Auth key cycle time) specified on the web, you may not be able to log in. Log in may not be possible because the OTA key is different.

If the system name is not entered, the message "시스템명을 입력해주십시오.(Please enter the system name)" appears on the screen.

If Login-ID is not entered, the message "**로그인-ID를 입력해주십시오.(Please enter Login-ID)**" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "**인증키 생성주기를 입력 또는 확인해주십시오.(Please enter or confirm the auth key cycle)**" appears on the screen.

If the application's login information modification(Modify) or deletion(Delete) is not completed normally, the "**애플리케이션 정보 수정/삭제(Modify/Delete application information)**" screen continues, and when it is completed normally, the "**List of application information**" screen appears.



1:54

nuriapp.com/nurit/wet

BaroPAM

애플리케이션 정보 수정/삭제

시스템명: BaroPAM

로그인 아이디: mc529@nurit.co.kr

nuriapp.com 내용:

애플리케이션 정보를 삭제 하시겠습니까?

취소 확인

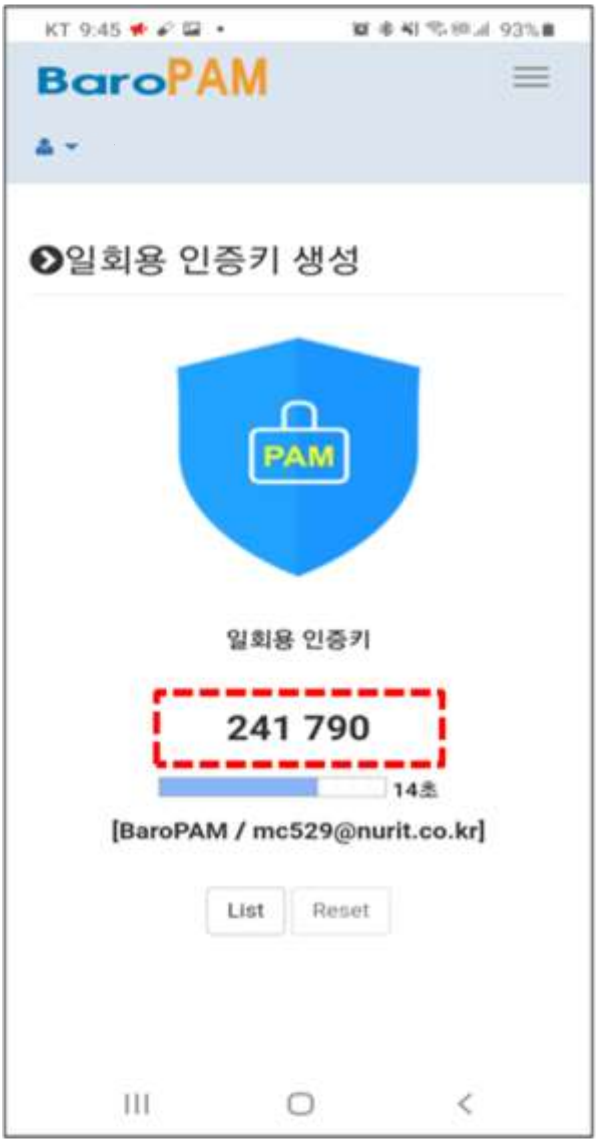
When the "**Modify**" button is clicked, the validity of the input items is checked first, and then the information on application login is corrected.

When you click the "**Delete**" button, a message box appears, "**애플리케이션 정보를 삭제 하시겠습니까?(Are you sure you want to delete the applicationinformation?)**" If you click the "**확인(OK)**" button, the operation of deleting the information for the application log-in is performed. If you click the "**취소(Cancel)**" button, the deletion is performed. The job is canceled.

Clicking the "List" button exits the current screen and displays the "**애플리케이션 정보 목록(List of application information List)**" screen.

Clicking the "**One Time Auth key**" button creates a new secondary authentication key(OTA key). During the authentication key cycle time, the same secondary authentication key(OTA key) is generated.

The newly created OTA key appears on the "**일회용 인증키 생성(Generate one-time authentication key)**" screen as follows.



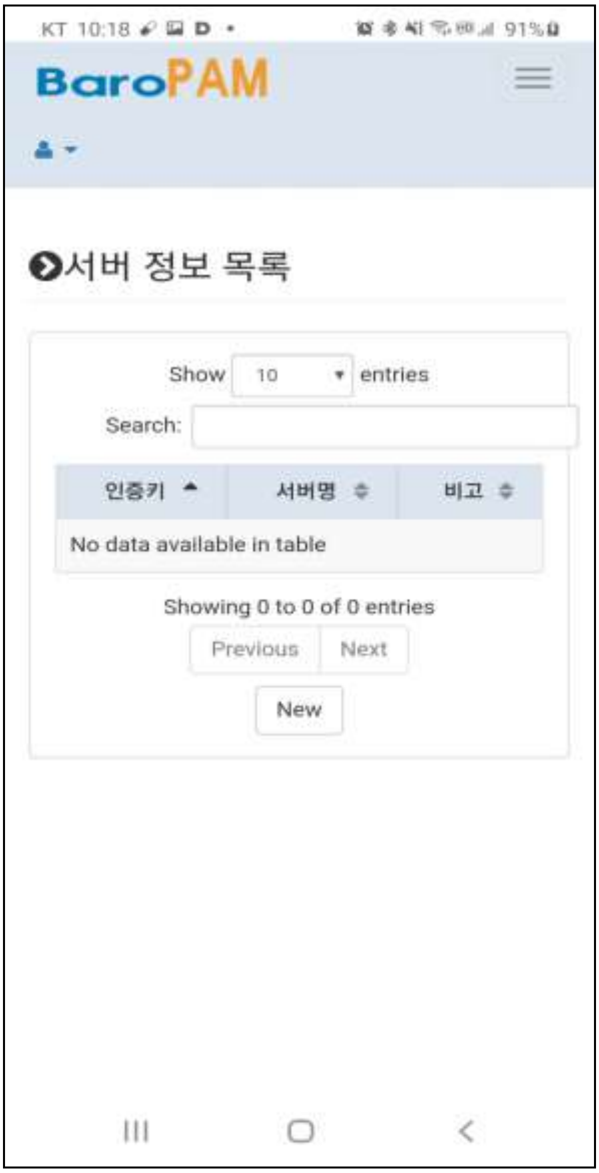
Clicking the "**List**" button exits the current screen and displays the "**애플리케이션 정보 목록(List of application information)**" screen.

During the same authentication key cycle time, the "**Reset**" button is deactivated, and when the authentication key generation cycle (Auth key cycle time) passes, the "**Reset**" button is activated.

When the activated "**Reset**" button is clicked, a new OTA key is created on the "**일회용 인증키 생성(Generate one-time authentication key)**" screen.

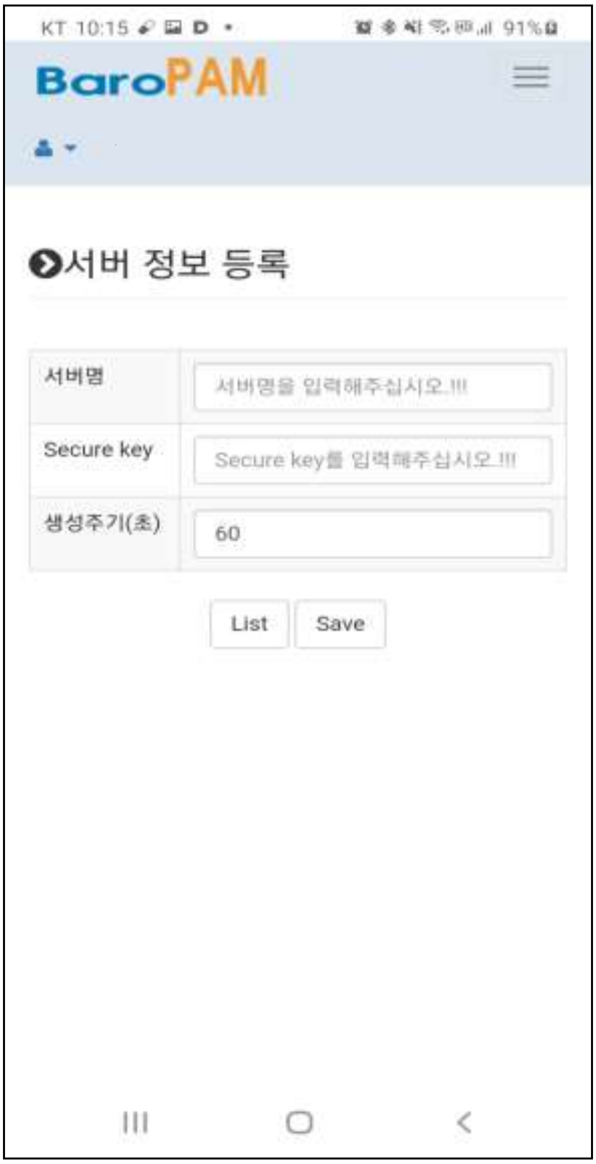
2.4 Using the BaroPAM Web(Server information management)

1. Click the "메뉴(Menu)" button at the top right and then click the "서버 정보 관리(Server Information Management)" menu in the detailed menu, and the "서버 정보 목록(List of server information)" screen appears as shown below.



인증키	서버명	비고
No data available in table		

2. If you click the "New" button in the "서버 정보 목록(List of server information)" screen, a screen to register information for the server appears as follows.



서버 정보 등록

서버명	서버명을 입력해주십시오.!!!
Secure key	Secure key를 입력해주십시오.!!!
생성주기(초)	60

■Server name

The server name on which BaroPAM will be operated is a required field and can be entered at least 1 digit or up to 30 digits.

■Secure key

Secure key given by information asset or account is a required input item, and you must enter the one requested by the vendor.

If you enter a random "Secure key" that has not been granted by the vendor, an incorrect OTA key is given and you may not be able to log in to the information asset.

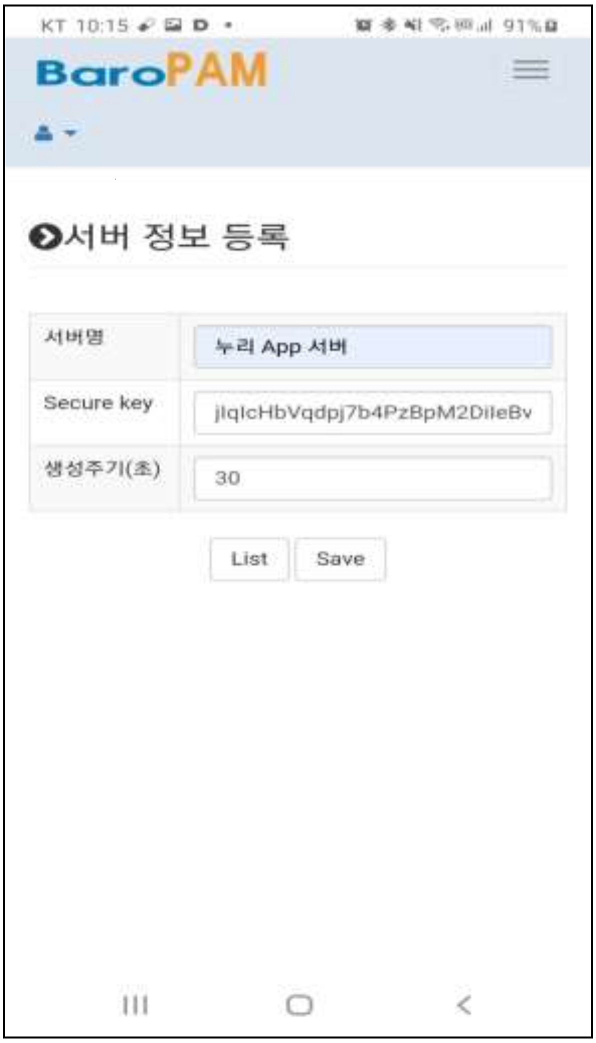
If the secure key set in the information asset and the secure key designated by the app are different, the OTA key is different and you may not be able to login.

▣Auth key cycle time(3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

If the OTA key generation cycle (Auth key cycle time) set in the information asset and the OTA key generation cycle (Auth key cycle time) specified in the app are different, the OTA key is different. So there may be cases where you cannot log in.

3. After entering the server information, click the "Save" button.



서버 정보 등록

서버명	누리 App 서버
Secure key	jIqIcHbVqdpj7b4PzBpM2DileBv
생성주기(초)	30

Clicking the "Save" button first checks the validity of the input items and then proceeds to save the information on the information asset.

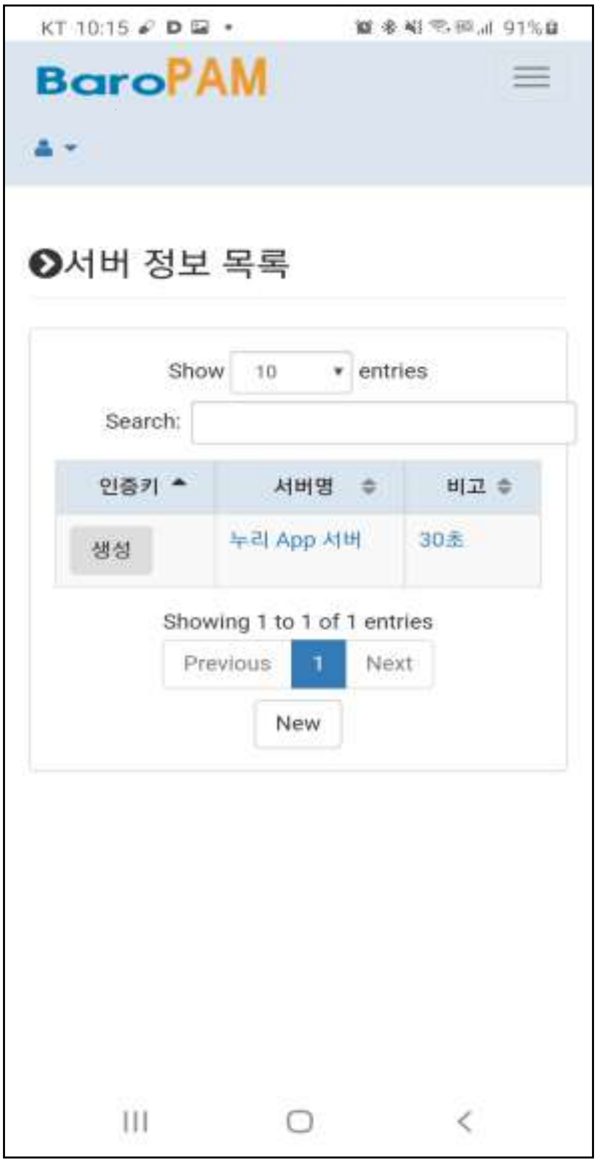
If the information asset name (Server name) is not entered, the message "서버명을 입력해주십시오.(Please enter the server name)" will appear on the screen.

If a secure key is not entered, the message "Secure key를 입력해주십시오.(Please enter a secure key)" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "인증키 생성주기를 입력 또는 확인해주십시오.(Please enter or confirm the auth key cycle)" appears on the screen.

Clicking the "List" button exits the current screen and displays the "서버 정보 목록(List of server information)" screen.

4. If the information storage for the server is not completed normally, the "서버 정보 등록(Register server information)" screen continues, and if it is completed normally, the "서버 정보 목록(List of server information)" screen appears as follows.



KT 10:15 91%

BaroPAM

서버 정보 목록

Show 10 entries

Search:

인증키	서버명	비고
생성	누리 App 서버	30초

Showing 1 to 1 of 1 entries

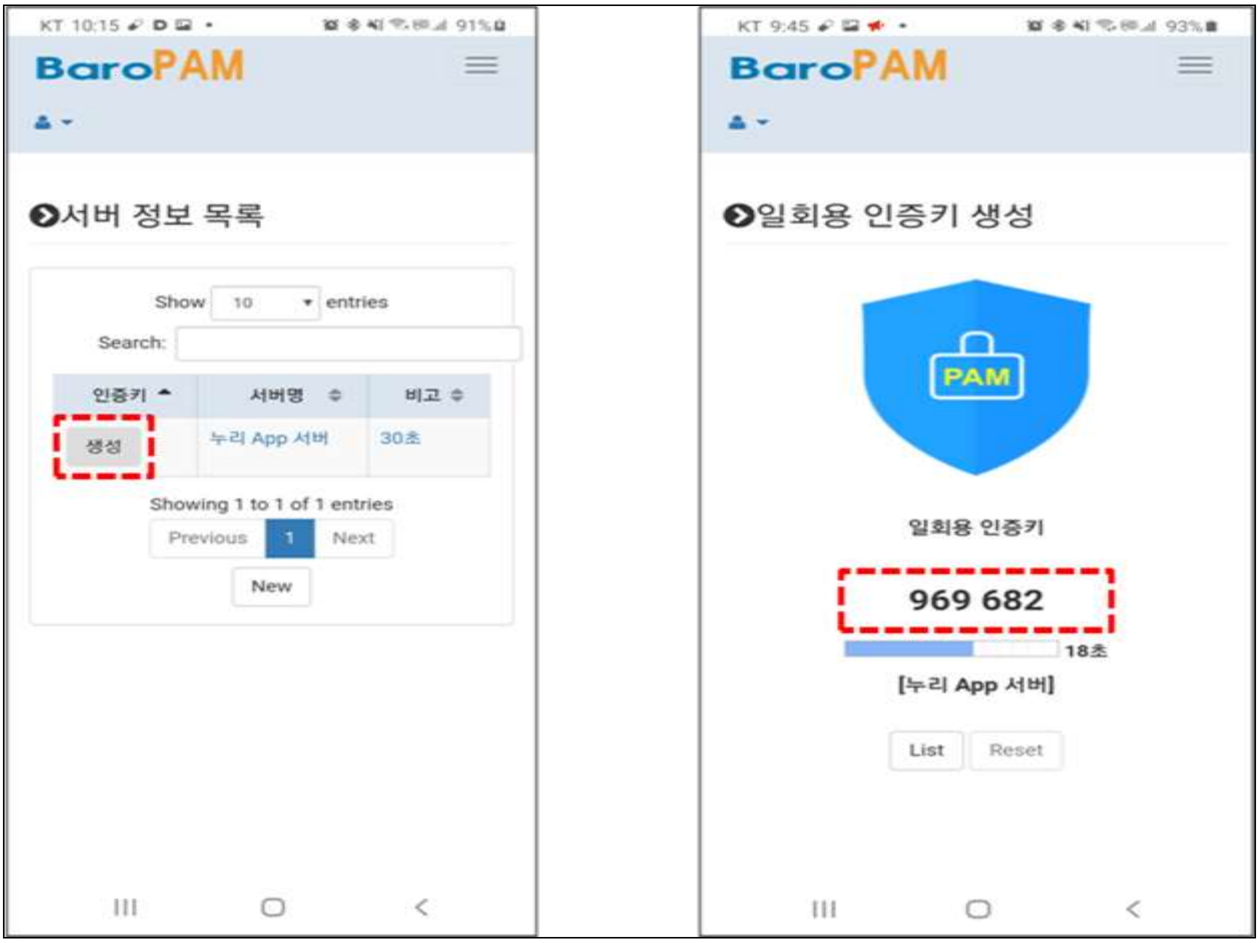
Previous 1 Next

New

If you want to search for server information, enter a search term and click the "**Search**" button to display the searched server information on the screen.

If you need to add new server information, click the "**New**" button and a screen to register server information appears.

5. When you click the "생성(Generate)" button in the server information list, a new secondary authentication key(OTA key) is generated. During the authentication key cycle time, the same secondary authentication key(OTA key) is generated. Occurs, and the newly created OTA key appears on the "일회영 인증키 생성(Generate one-time authentication key" screen as follows.



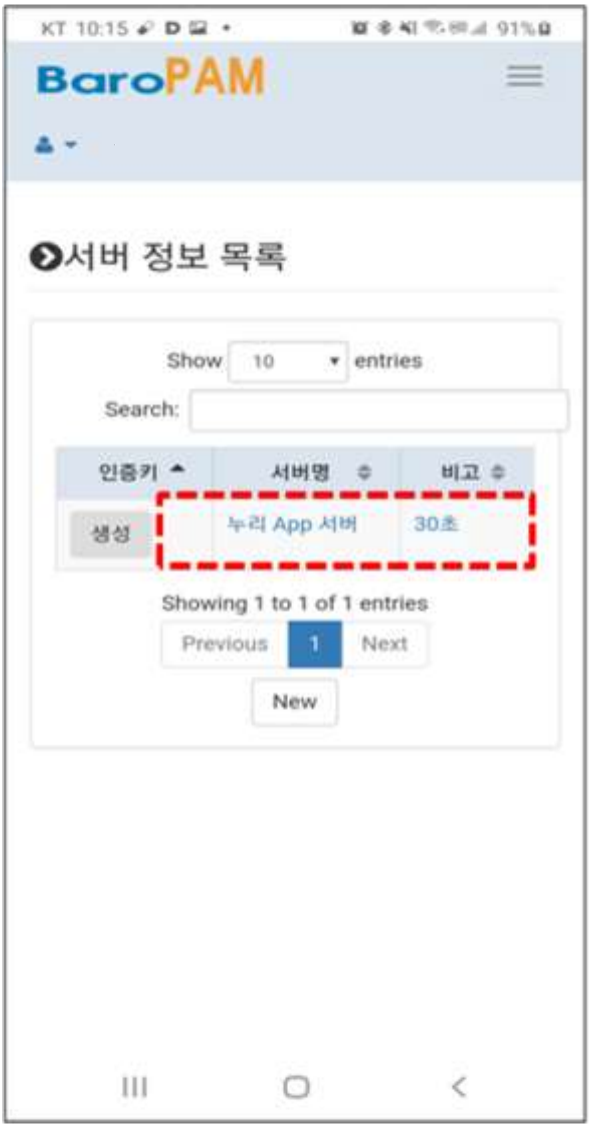
인증키	서버명	비고
생성	누리 App 서버	30초

Clicking the "List" button exits the current screen and displays the "서버 정보 목록(List of server information)" screen.

During the same authentication key cycle time, the "Reset" button is deactivated, and when the authentication key generation cycle (Auth key cycle time) passes, the "Reset" button is activated.

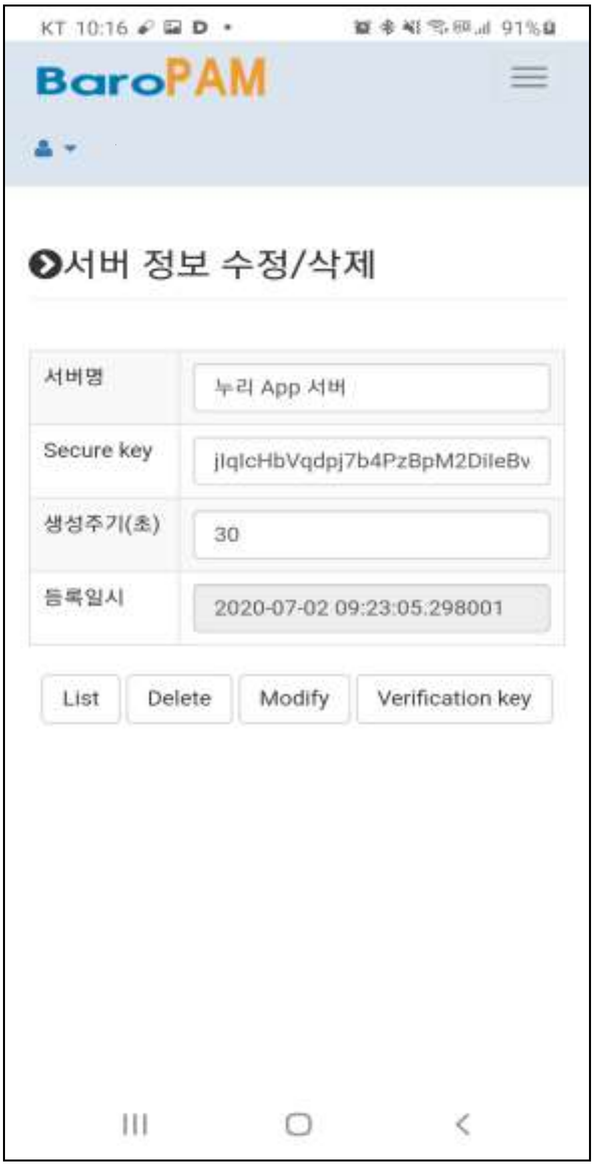
When the activated "Reset" button is clicked, a new OTA key is created on the "일회용 인증키 생성(Generate one-time authentication key)" screen.

6. If you need to generate a second authentication key(OTA key) and modify/delete server information, click the information item for the server in the server information list as follows.



인증키	서버명	비고
생성	누리 App 서버	30초

7. Then, the following screen appears to create, modify/delete a secondary authentication key(OTA key) based on information about the server.



서버 정보 수정/삭제

서버명	누리 App 서버
Secure key	jIqIcHbVqdpj7b4PzBpM2DileBv
생성주기(초)	30
등록일시	2020-07-02 09:23:05.298001

■서버명(Server name)

The server name on which BaroPAM will be operated is a required field and can be entered at least 1 digit or up to 30 digits.

■Secure key

Secure key given by information asset or account is a required input item, and you must enter the one requested by the vendor.

If you enter a random "Secure key" that has not been granted by the vendor, an incorrect OTA key is given and you may not be able to log in to the information asset.

If the secure key set in the information asset and the secure key designated by the app are different, the OTA key is different and you may not be able to login.

▣생성주기(Auth key cycle time, 3~60 second)

Auth key cycle time is a mandatory input item and can be specified for a minimum of 3 seconds and a maximum of 60 seconds.

If the OTA key generation cycle (Auth key cycle time) set in the information asset and the OTA key generation cycle (Auth key cycle time) specified in the app are different, the OTA key is different. So there may be cases where you cannot log in.

Click the "**Delete**" button to delete the information on the information asset.

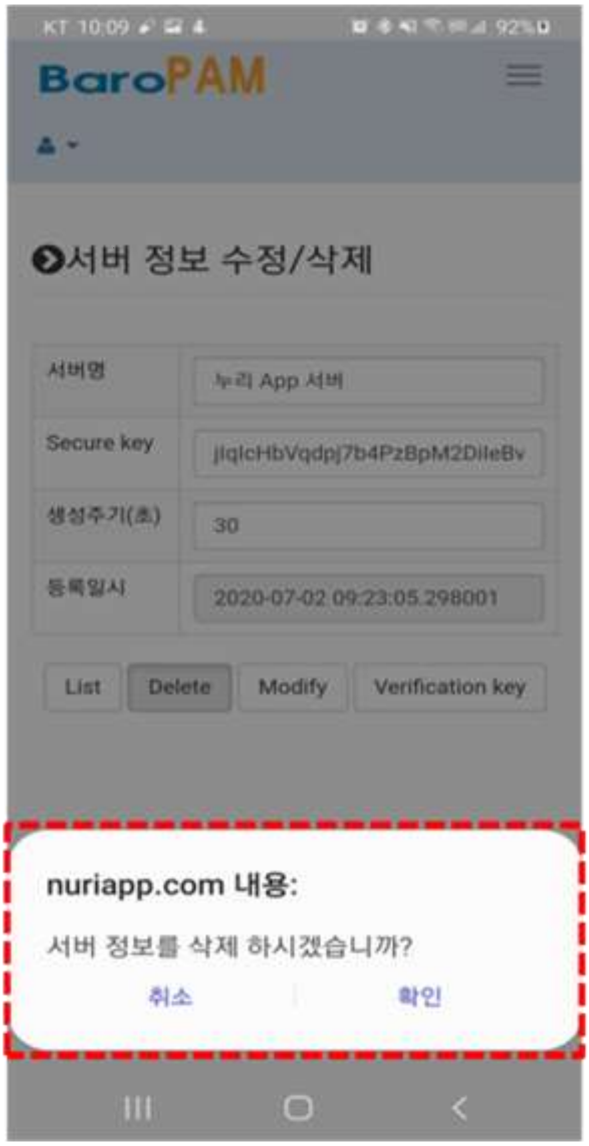
Clicking the "**Modify**" button first checks the validity of the input items and then proceeds to modify the information on the information asset.

If the information asset name (Server name) is not entered, the message "**서버명을 입력해주십시오.(Please enter the server name)**" will appear on the screen.

If a secure key is not entered, the message "**Secure key를 입력해주십시오.(Please enter a secure key)**" appears on the screen.

If the auth key cycle time is not entered or is out of range, the message "**인증키 생성주기를 입력 또는 확인해주십시오.(Please enter or confirm the auth key cycle)**" appears on the screen.

If the modification or deletion of information on the information asset is not completed normally, the "**서버 정보 수정/삭제(Modify/delete server information)**" screen will continue. The "**서버 정보 목록(List of server information)**" screen as shown in the figure appears.



➋서버 정보 수정/삭제

서버명	누리 App 서버
Secure key	jIqlcHbVqdpj7b4PzBpM2DileBv
생성주기(초)	30
등록일시	2020-07-02 09:23:05.298001

nuriapp.com 내용:

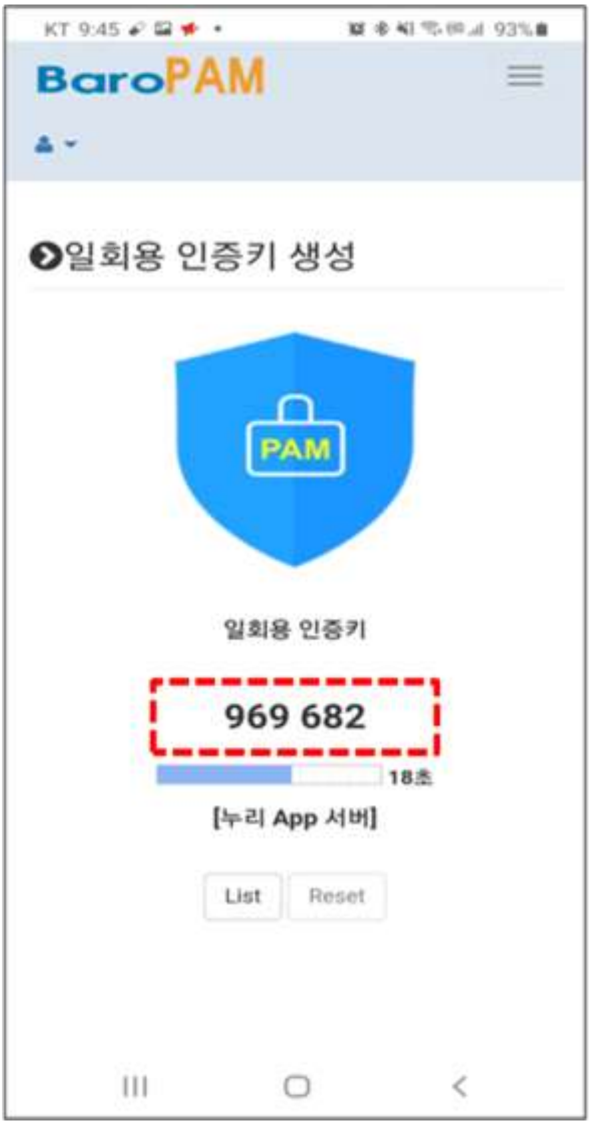
서버 정보를 삭제 하시겠습니까?

If you click the "Modify" button, the first step is to check the validity of the input items and then modify the information on the server.

Click the "Delete" button to display the message box "서버 정보를 삭제 하시겠습니까?(Are you sure you want to delete the server information?)" Click the "확인(OK)" button to proceed to delete the information for the server. Click the "취소(Cancel)" button to delete it. It is canceled.

Clicking the "List" button exits the current screen and displays the "서버 정보 목록(List of server information)" screen.

Clicking the "One Time Auth key" button creates a new secondary authentication key(OTA key). During the authentication key cycle time, the same secondary authentication key(OTA key) is generated. The newly created OTA key appears on the "일회용 인증키 생성(Generate one-time authentication key)" screen as follows.



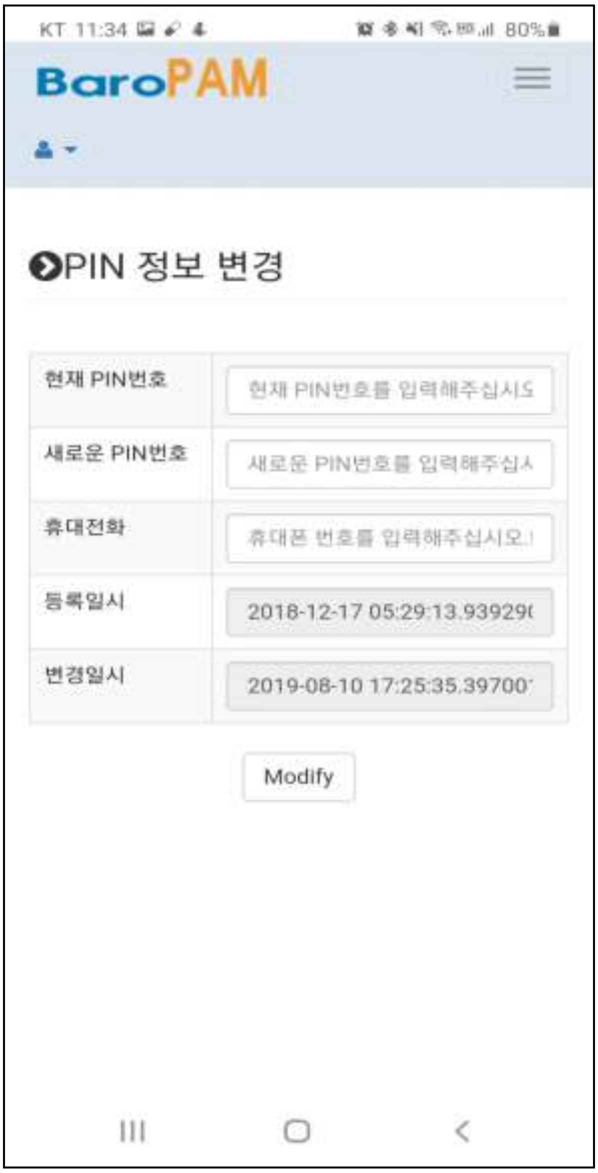
Clicking the "**List**" button exits the current screen and displays the "**서버 정보 목록(List of server information)**" screen.

During the same authentication key cycle time, the "**Reset**" button is deactivated, and when the authentication key generation cycle (Auth key cycle time) passes, the "**Reset**" button is activated.

When the activated "**Reset**" button is clicked, a new OTA key is created on the "**일회용 인증키 생성(Generate one-time authentication key)**" screen.

2.5 Using the BaroPAM Web(PIN information management)

1. Click the "메뉴(Menu)" button at the top right and then click the "PIN 정보 관리(Manage PIN Information)" menu in the detailed menu, and the "PIN 정보 변경(Modify PIN Information)" screen appears as follows.



PIN 정보 변경

현재 PIN번호	현재 PIN번호를 입력해주십시오
새로운 PIN번호	새로운 PIN번호를 입력해주십시
휴대전화	휴대폰 번호를 입력해주십시오.
등록일시	2018-12-17 05:29:13.93929
변경일시	2019-08-10 17:25:35.39700

Modify

▣현재 PIN 번호(Current PIN number)

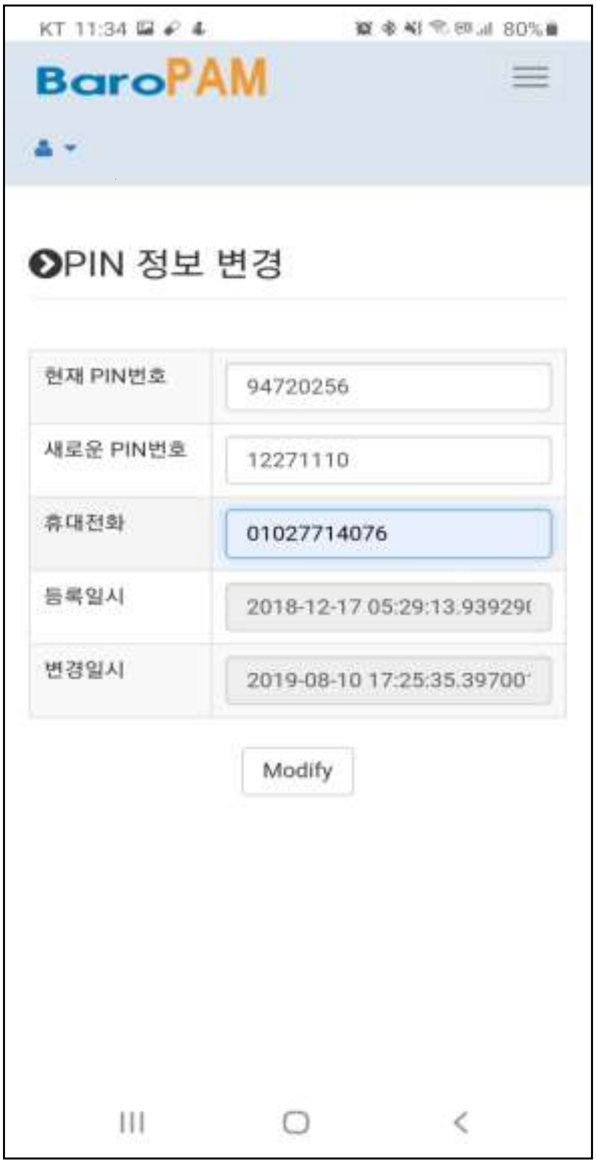
Enter 8 digits of the currently set PIN number.

▣새로운 PIN 번호(New PIN number)

Enter the 8-digit PIN number to be set.

▣휴대전화(Cell Phone)

Enter 11 digits for the number of your smartphone.



PIN 정보 변경

현재 PIN번호	94720256
새로운 PIN번호	12271110
휴대전화	01027714076
등록일시	2018-12-17 05:29:13.93929(
변경일시	2019-08-10 17:25:35.39700'

If you click the "**Modify**" button, the first step is to check the validity of the input items and then save the new PIN number.

If the PIN number is not 8 digits, the message "**현재 PIN번호를 확인해주십시오.(Please confirm the current PIN number)**" appears on the screen.

If the currently set PIN number is different from the newly entered PIN number, the message "**현재 PIN번호가 틀립니다.(The current PIN number is incorrect)**" appears on the screen.

If the currently set PIN number and the new PIN number are the same, the message "**현재, 새로운 PIN 번호가 동일합니다.(Currently, the new PIN number is the same)**" appears on the screen.

If the new PIN number is not 8 digits, the message "**새로운 PIN번호를 확인해주십시오.(Please confirm the new PIN number)**" appears on the screen.

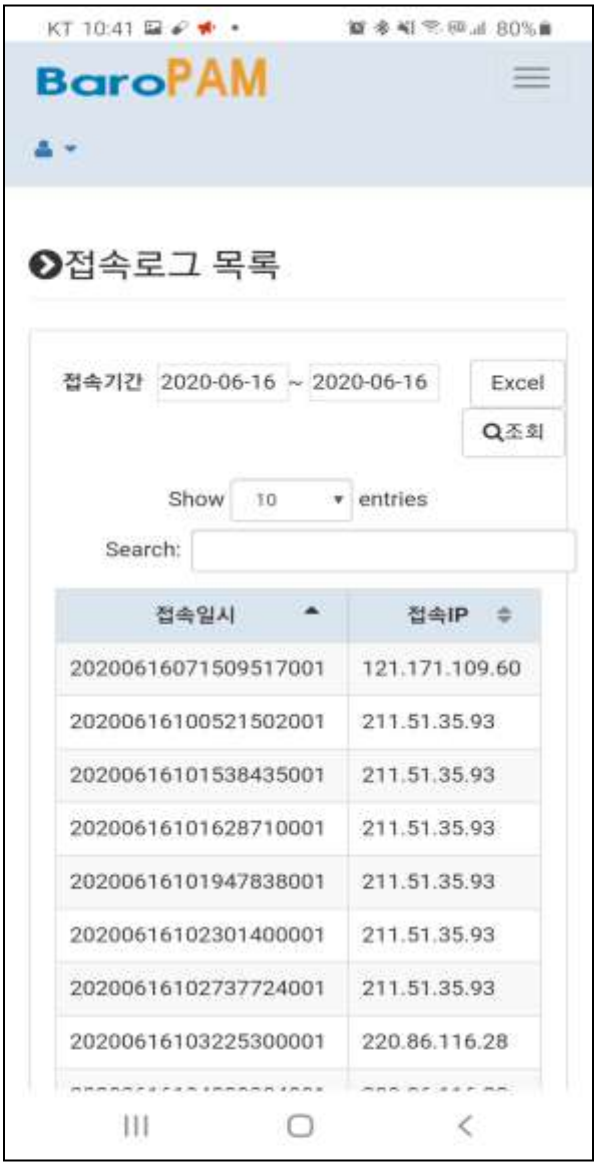
If the smartphone number is not 11 digits, the message "**휴대폰 번호를 확인해주십시오.(Please check your smartphone number)**" appears on the screen.

If the currently set smartphone number and the entered smartphone number are different, the message "**휴대폰 번호가 틀립니다.(The smartphone number is incorrect)**" appears on the screen.

If saving of the new PIN number is not completed normally, the "**PIN 정보 변경(Modify PIN Information)**" screen continues, and when it is completed normally, the "**로그인(Login)**" screen appears.

2.6 Using the BaroPAM Web(Access log management)

1. Click on the "메뉴(Menu)" button on the top right and then click on the "접속로그 관리(Access Log Management)" menu in the detailed menu to display the "접속로그 목록(List of access log)" screen as shown below.



접속로그 목록

접속기간 2020-06-16 ~ 2020-06-16

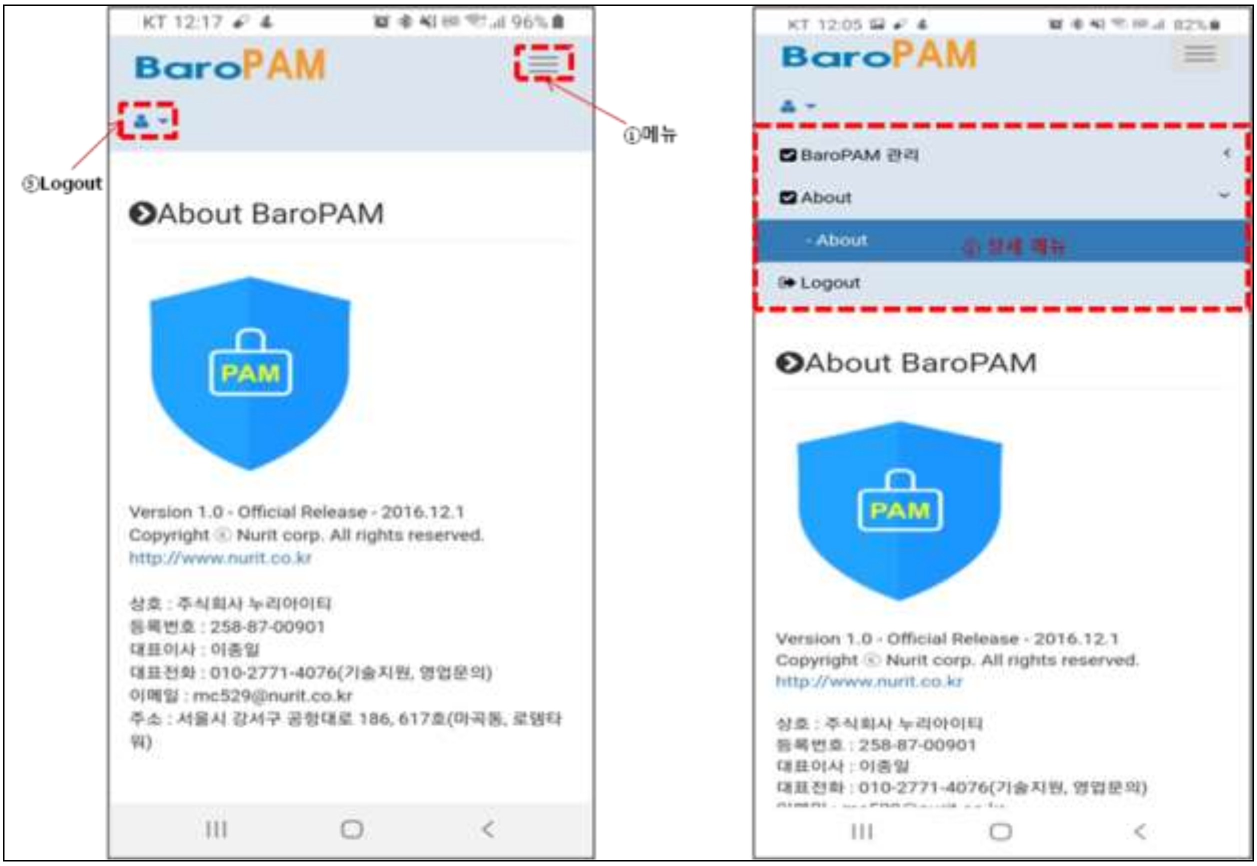
Show 10 entries

Search:

접속일시	접속IP
20200616071509517001	121.171.109.60
20200616100521502001	211.51.35.93
20200616101538435001	211.51.35.93
20200616101628710001	211.51.35.93
20200616101947838001	211.51.35.93
20200616102301400001	211.51.35.93
20200616102737724001	211.51.35.93
20200616103225300001	220.86.116.28

2.7 Using the BaroPAM Web(Abort & Logout)

1. Click the "메뉴(Menu)" button at the top right and then click the "About" menu in the detail menu. The "About" screen appears as follows.



About BaroPAM

Version 1.0 - Official Release - 2016.12.1
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http://www.nurit.co.kr

상호 : 주식회사 누리아이티
등록번호 : 258-87-00901
대표이사 : 이종일
대표전화 : 010-2771-4076(기술지원, 영업문의)
이메일 : mc529@nurit.co.kr
주소 : 서울시 강서구 공항대로 186, 617호(마곡동, 로뎀타워)

About BaroPAM

Version 1.0 - Official Release - 2016.12.1
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상호 : 주식회사 누리아이티
등록번호 : 258-87-00901
대표이사 : 이종일
대표전화 : 010-2771-4076(기술지원, 영업문의)

"About" provides an overview of BaroPAM.

Click the "① 메뉴(Menu)" button to display the "② 상세 메뉴(Detailed Menu)" that you can select as shown on the right screen. Click the "③ Logout" button to exit the "BaroPAM" website (www.baropam.com) screen and click. The "Login" screen appears.

3. About BaroPAM

Version 1.0 - Official Release - 2016.12.1

http://www.nurit.co.kr

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Registration Number: 258-87-00901
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