

HI-KUMO: COMMISSIONING STEPS

1. Gateway installation
2. Hi-Kumo application installation on the smartphone
3. Account creation (includes pairing procedure)
4. First access to the account: add other units if necessary
5. Installation set-up: Indoor units control, Weekly timer, leave home

The most “sensitive” step is the 3rd one:

- Pairing procedure rely on the WIFI network of the installation. SSID and password of this WIFI are necessary for this procedure.
- WIFI strength and characteristics may lead to some issues...
- Email and password to create account are input by the user (typing mistakes)
- Actions to be done simultaneously on the app and on the gateway (if the first try is not successful).

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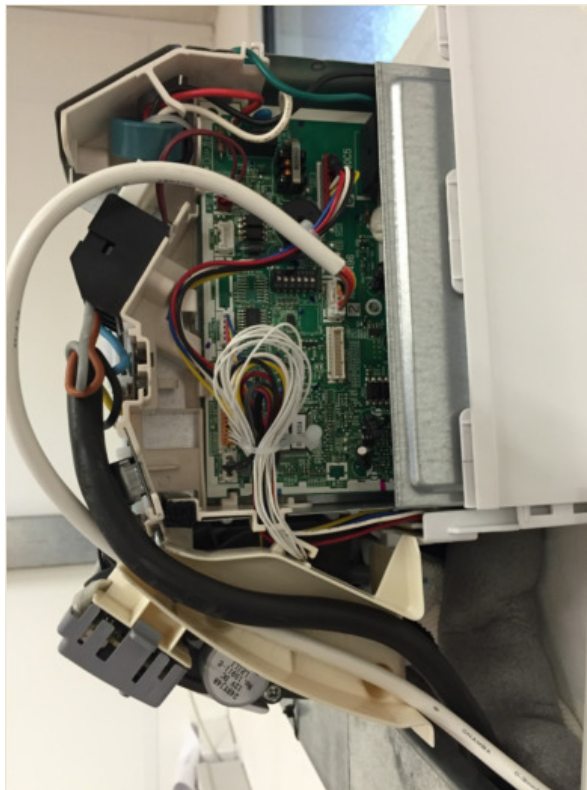
1. Gateway installation

- Power off the indoor unit
- Connect the gateway to the HLINK port of the indoor unit main PCB: CN7 connector (RAK-PEC, RPB, QPB, QXB units).
- Simultaneous connection of SPX-WFG01 with SPX-WKT2 is possible (connected to CN20 or CN21).
- Simultaneous connection of SPX-WFG01 with PSC-6RAD is NOT possible (both are using HLINK port).
- Connection wire can be installed through the same way as power wire, into the indoor unit electric box. Outside of the electric box, please try to separate the wires as much as possible.
- Final position of the gateway on indoor unit: affixed on the right side on the unit with double-sided adhesive tape (official recommendation).
- It is also possible to put the gateway below the front panel (between the panel and the air-filter), in order to hide it completely. HITACHI factories are not recommending this position.

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1. Gateway installation



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2. Hi-Kumo installation

- Check the Apple store or Google play store to get the application.
- On IOS, it is not necessary to remove the previous version installed before getting the new one.
- On Android, it seems better to remove the previous version installed before getting the new one.



Version 8.0 and above



Version 4.1 and above

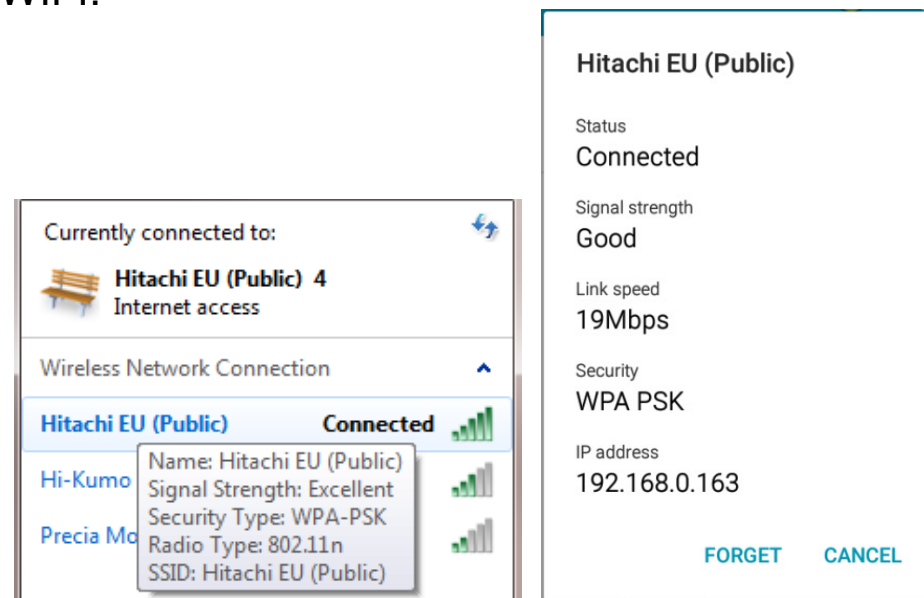


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3. Account creation

- This operation is done in 2 steps: gateway pairing to the local WIFI to get connected to the server, then user's account set-up.
- Before starting the procedure, it is necessary to check the WIFI connection status and properties. The easiest way to do that is to request to the customer / local IT manager the WIFI SSID and password and to try to connect your laptop or your smartphone to this network.
- Information to be collected about the WIFI:
 - Password (max 32 characters)
 - SSID (WIFI name)
 - Protection type : WPA/WPA2 or WEP

CAUTION: 5GHz WIFI connection ("WIFI plus" or "WIFI n") may lead to some issues in Smart config mode. Please switch the router to normal WIFI (2,4 GHz, b/g types)



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3. Account creation

- Connect your smartphone to the local WIFI
- Check the gateway status: connected to the indoor unit, powered ON (LINK LED shall be green fixed, with some flashes every 5 seconds)
- Check the PROG LED status: at first power ON, the gateway is in SmartConfig mode, PROG LED should be orange flashing rapidly.
- In case the PROG LED has another status: press the PROG button during 15s (until PROG LED becomes orange)

- What is the “SmartConfig™” mode ?

The SPX-WFG01 gateway is using a WIFI chip manufactured by Texas Instrument. This chip is a network processor that is able to get connected to any compatible WIFI Network with a minimum operation and information requested to the user. Benefits are:

- One step connection of the device to the WIFI
- Multiple devices connection at the same time
- Secured / encrypted configuration protocol
- Available through 3rd party application on IOS / Android devices

This is
SmartConfig !



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3. Account creation – SPX-WFG01 Gateway operation details

LED	PROG LED STATUS	GATEWAY STATUS	DESCRIPTION	HOW TO SET ?
	Rapid orange flashing	SmartConfig Mode	The product is awaiting pairing via a smartphone.	Press PROG button during 15s
	Slow orange flashing		The product is attempting to connect to the WiFi network.	
	Slow green flashing		The product is connected to the WiFi network and attempting to connect to the server.	
	Fixed green	Connected mode	The product is connected to the WiFi network and the server.	
	Rapid green flashing	Non connected mode	The product is connected to the WiFi network and awaiting an order from the smartphone.	Pending
	Flashing red	Direct / Ad-hoc Mode	The product is awaiting direct connection to the smartphone.	Press PROG button during 7s
	Fixed red		The product is directly connected to the smartphone.	

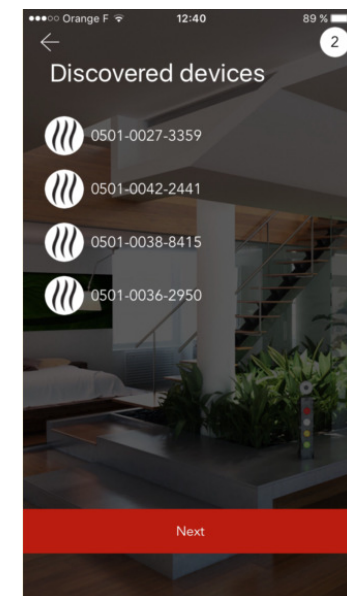
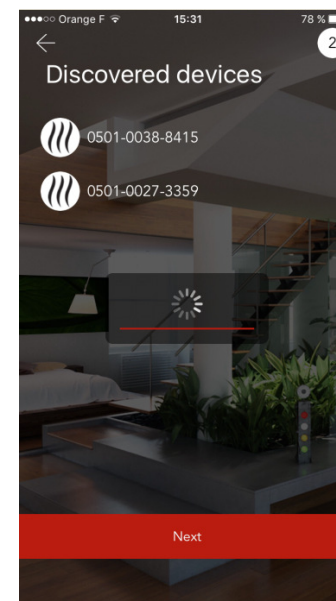
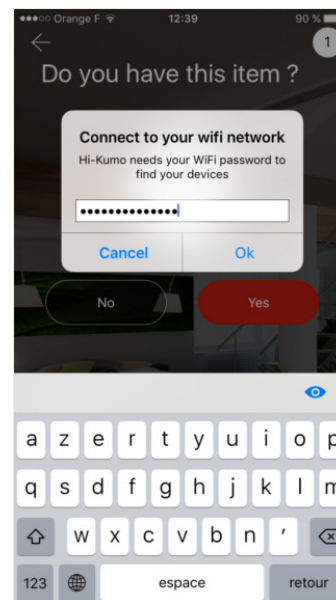
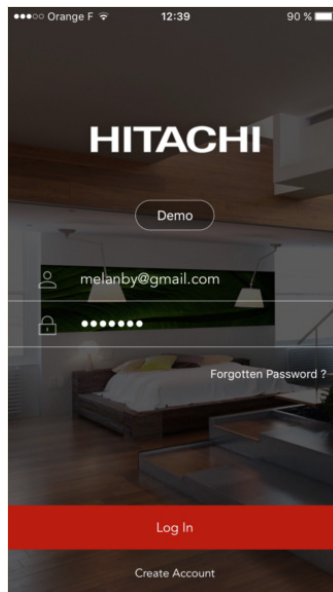
There are 2 ways to get the SPX-WFG gateway connected to the WIFI:

1. SmartConfig procedure
2. Second pairing procedure using the direct / ad-hoc mode (back-up procedure)

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3. Account creation

- Your smartphone is connected to the WIFI and the gateway is in SmartConfig mode.
- Start the app and press “create account” at the bottom of the screen
- Follow the steps:



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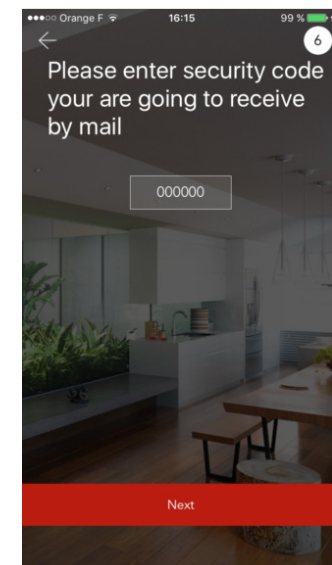
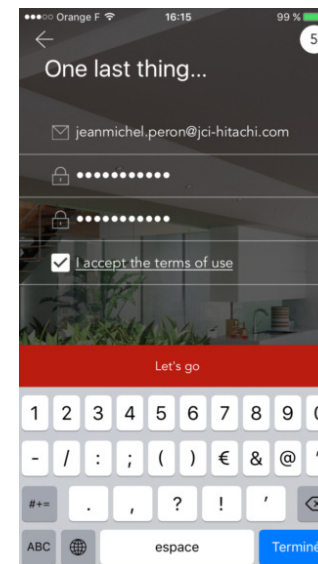
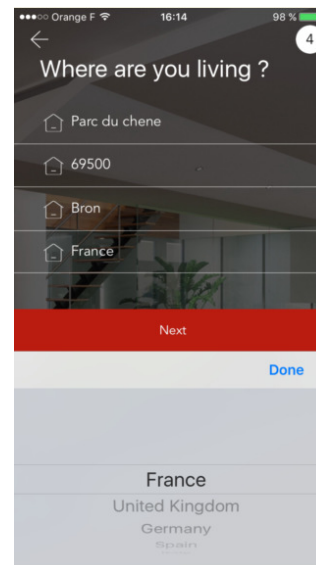
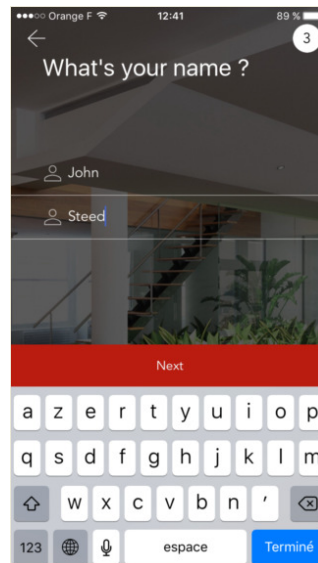
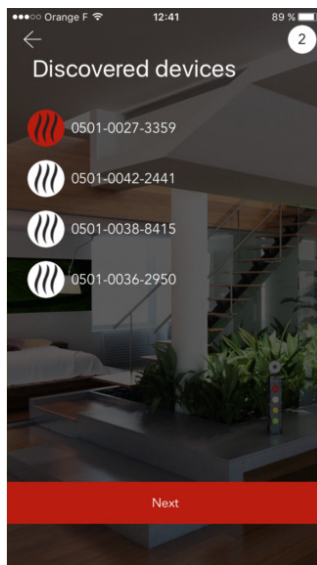
3. Account creation

- Question “Do you have this item?”
- This item is the Hi-Box that will be used with YUTAKI units and “old” RAC units (ERP series 2013 and 2104). When this device is not available on site, press “NO”.
- Input password of the WIFI connection: be careful with typing mistakes, use the “eye” icon to show and check the password before pressing on “OK”
- The app will then start scanning the WIFI to detect the gateways.
- The gateways that are in SmartConfig mode will try to get connected to the WIFI once they are detected by the app (check the PROG LED status, from orange flashing quickly to orange flashing slowly, then green flashing slowly and green fixed).
- Gateways that are already connected to the WIFI will be shown as well.
- The detection / pairing sequence duration is 75s.
- IOS version will show the detected gateways as soon as they are detected, but you have to wait until the end of the sequence to carry on.

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3. Account creation

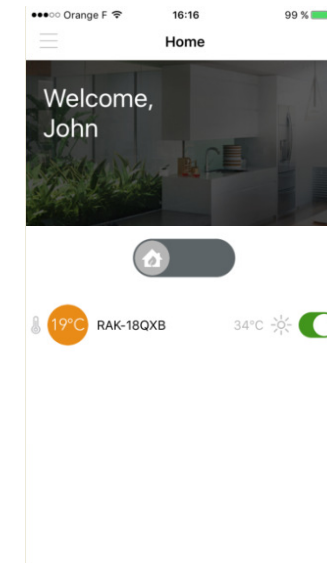
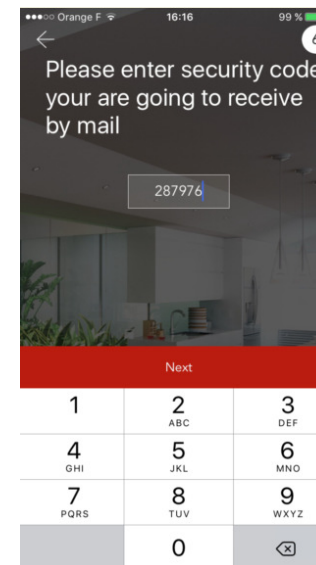
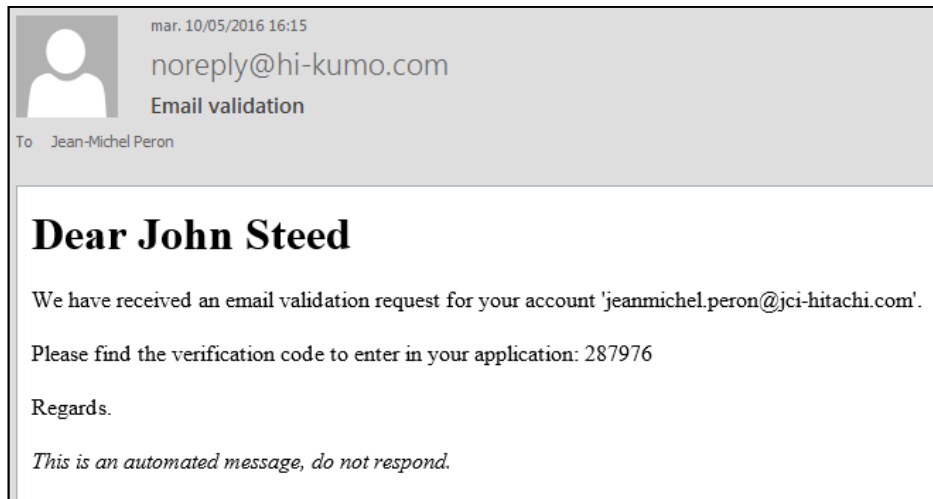
- One or several devices were detected in SmartConfig mode.
- Select one device to carry on:



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3. Account creation

- Security code received by email (check carefully the email address)
- Email delivery is normally very fast. Depending on the load on the server and on your email box, it can be delayed by 3 to 5 minutes maximum.




If everything is fine, you shall get access to the account after having input the security code received (and answered to the 3 questions from the timer wizard) !

**WHAT ABOUT A
LIVE DEMONSTRATION ?**

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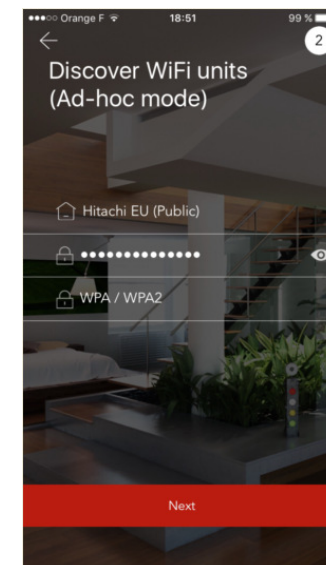
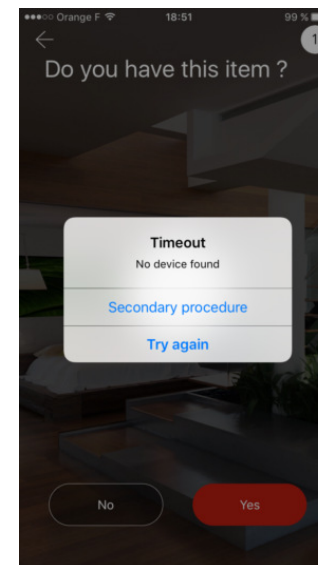
3. Account creation - Additional comments:

- The account was created with the selected unit.
- To add units to the account, go the menu > Add devices and press the  button
- Country selection during the account creation: once an account is created for a gateway, this device will be linked with the user's account AND with the selected country.
- A gateway can then be connected to any indoor unit, but the account and the country code affected will remain unchanged.
- Only one user account per gateway.
- User account can be managed trough the maintenance interface (lock, unlock, delete, add).
- The country code can be reset only by the manufacturer (not a normal procedure).
- This country code is used for maintenance purpose: one user admin will only see the gateways connected in the countries he is responsible for.
- One user account can be shared by several people. Simultaneous connections to the same account is possible (tested up to 6 connections, last order sent has priority, possible disconnections if too many orders are sent simultaneously).

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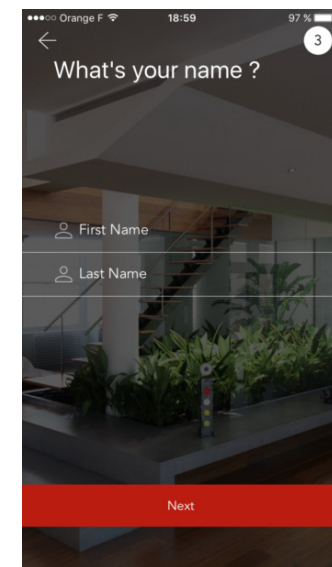
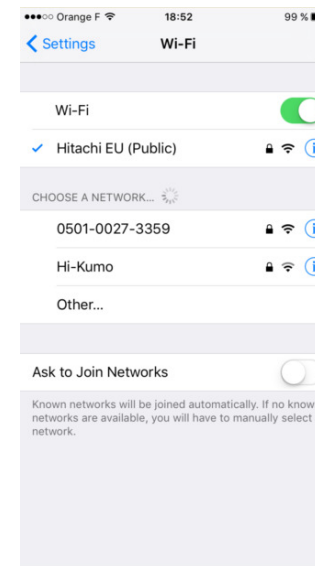
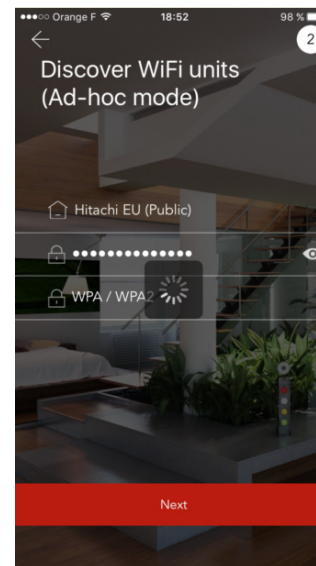
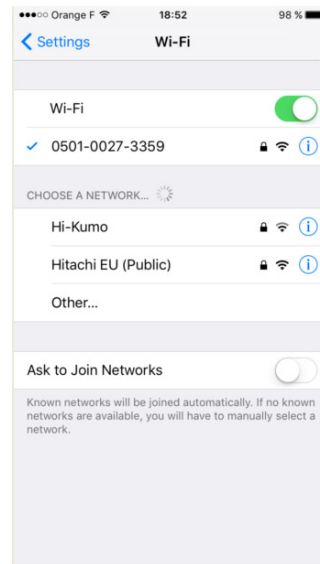
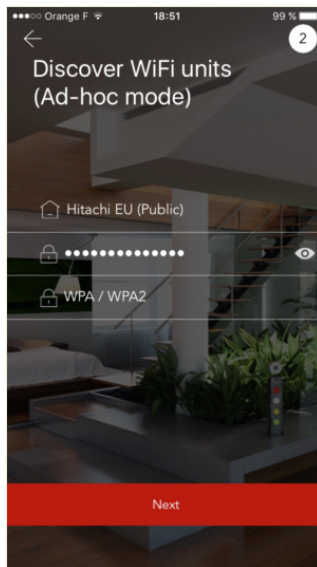
3. Account creation – second pairing procedure :

- During the units detection, your device may not be detected
- The app will then propose you to try again or to switch to the second pairing procedure.
- Before trying again, check the basic troubleshooting information given in the product manual (reset the gateway by pressing PROG button during 15s, activate the “flight safe” mode on your smartphone during 30s, then reconnect it to the available WIFI, checking password and WIFI properties).
- You can also select the secondary procedure.
- The purpose of this procedure is to jump the possible issues with the available WIFI and to send directly the connection PRESENTATION to the gateway through its own WIFI
- WIFI generated by the gateway:
 - SSID = PIN code
 - Password = Service Code



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3. Account creation – second pairing procedure :



Comments:

- You can see the change of WIFI connection
- This sequence needs one manual action on the gateway and one operation on the smartphone to change the WIFI connection, but in the end, this second procedure can be as fast as the SmartConfig procedure

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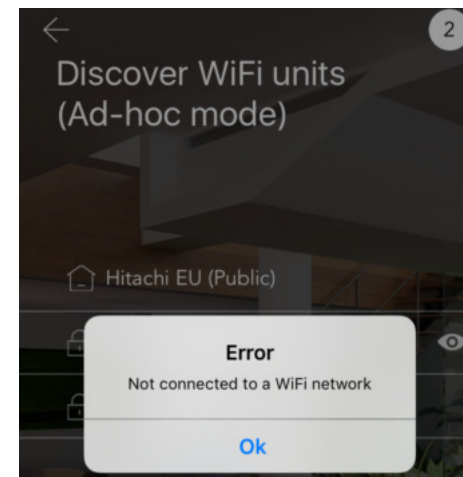
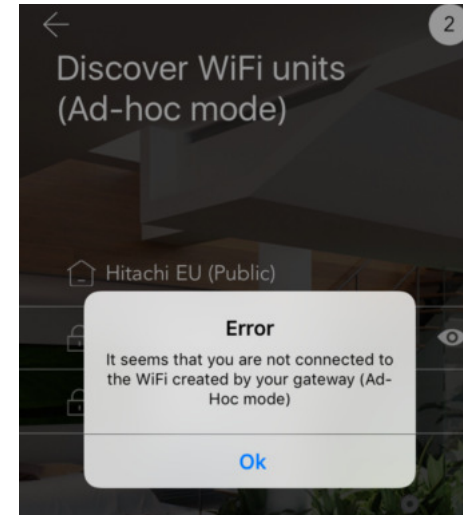
3. Account creation – second pairing procedure:

Possible error messages

To start this second pairing procedure, your smartphone must be connected to the WIFI generated by the gateway. If it is not the case, the app will let you know:

During the gateway detection, if your smartphone is not reconnecting to the “normal” WIFI”, you may have the error message shown on the right side. In that case:

- Check that the house WIFI is alive and that your smartphone can get connected on it. Multiple WIFI networks available on site may create some issues.
- Set back the gateway to ad-hoc mode and retry the procedure.
- As your gateway may be connected to the server (PROG LED = green fixed), you can come back to the previous screen and start a SmartConfig procedure to create the account.

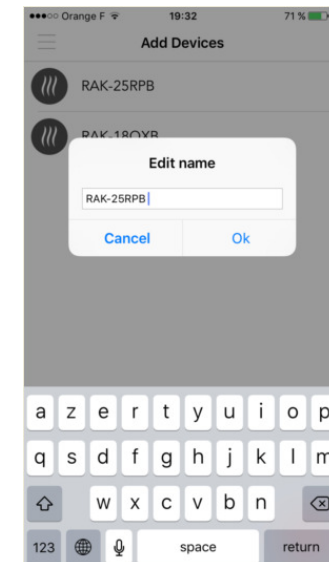
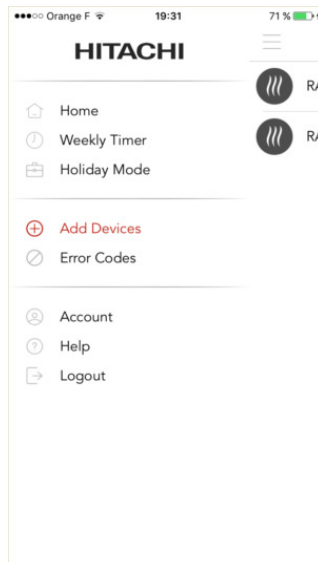


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4. Access to your account

- The user account is now created and you can control your unit
- The default name shown on the unit is the indoor unit reference
- The first task to be done may be to :
 - Rename the device
 - Add one device (in case several indoor units are available on site)
 - Remove one device from your account if it was added by mistake

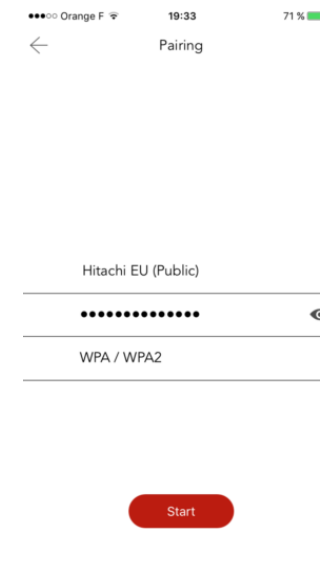
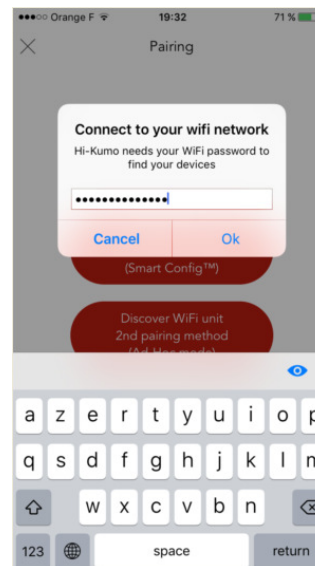
Menu
“Add Devices”



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4. Access to your account – add some new devices

- SmartConfig mode: check that the gateway is in SmartConfig mode and input the WIFI password. The concept is the same as the during the account creation.
- Ad-hoc mode: set the gateway to ad-hoc mode (press PROG button during 7s), connect your smartphone to the WIFI of the gateway, start the procedure. The same data about the WIFI have to be input and the sequence is the same as during the account creation.



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4. Access to your account – add some new devices

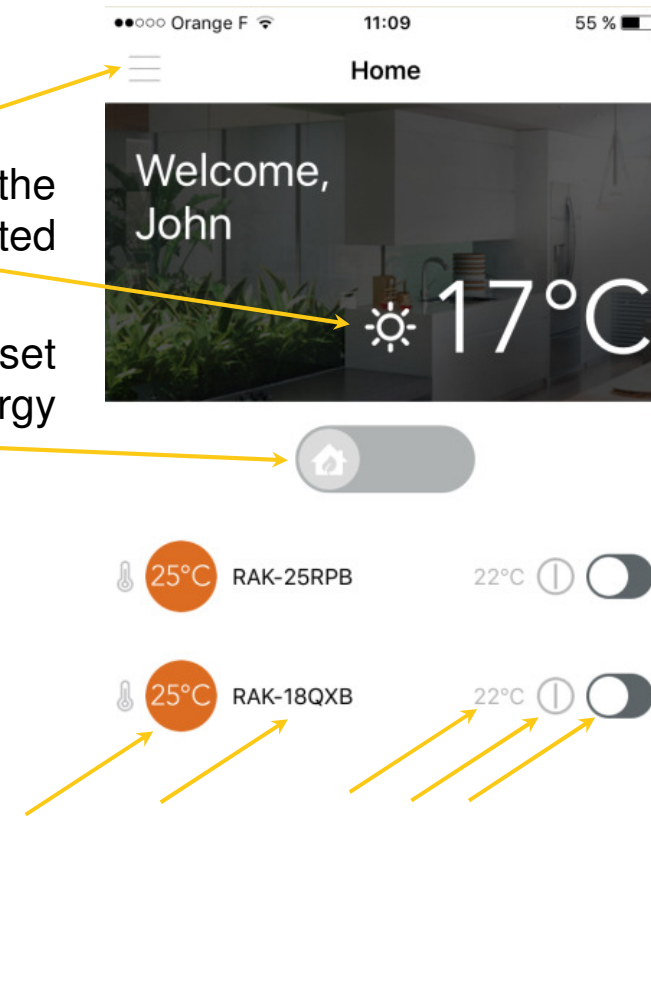
- Detected units are automatically added to your account. Timer wizard will appear to ask you the questions for the added devices once you are back to the home page.
- Last step: you may have to log out and connect again to your account to get access to the new devices, if they will appear as off-line in a first step.

- Important notice: to rename or delete a device, the gateways must be connected to the server.
- The only action that can be done on non-connected gateways is to add them to the existing account.

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5. Installation set-up: Indoor units control

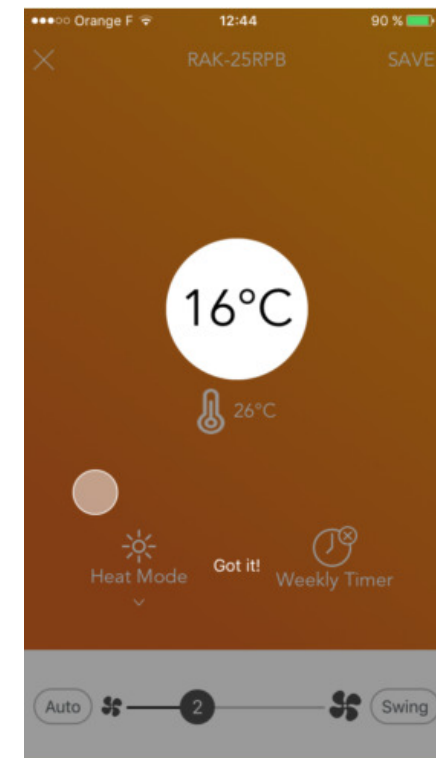
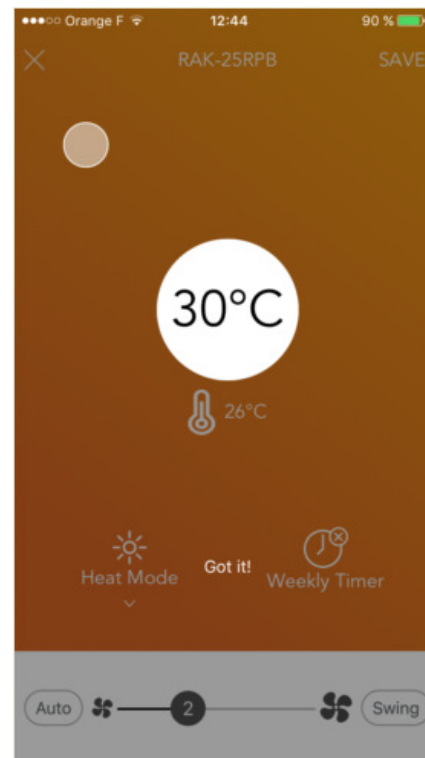
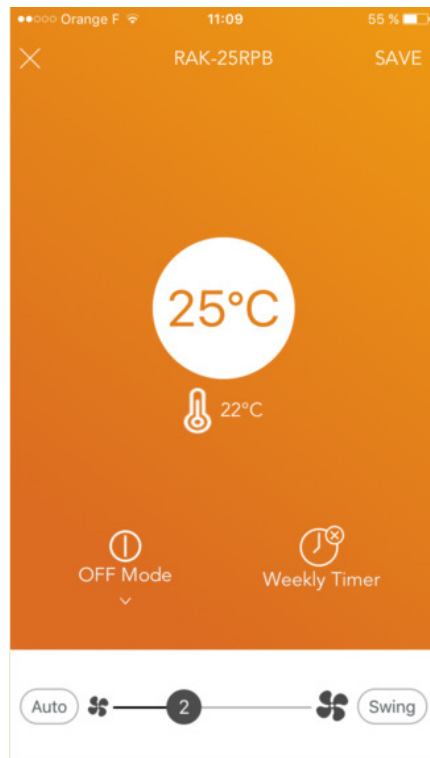
- Home page:
- Upper right menu: to access to all the options
- Weather conditions: Internet data giving the current weather situation based on the selected country + post code
- Smart tip button: when activated it modifies the set point of the units by +/- 1°C to reduce energy consumption (heating -1 °C, cooling +1 °C)
- Indoor unit display:
 - Temperature set point + mode
 - Indoor unit name
 - Room temp. (indoor unit inlet sensor)
 - Status icon
 - ON / OFF shortcut



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5. Installation set-up: Indoor units control

- Indoor unit Focus: how to change the temp. setting ?

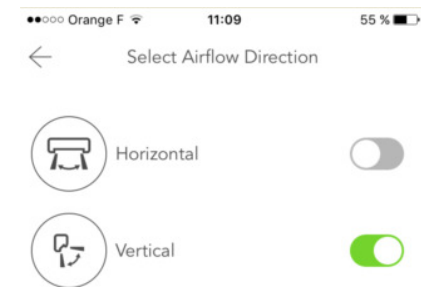
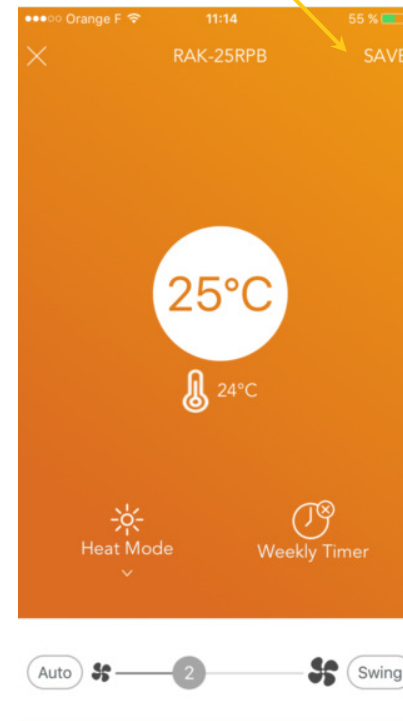
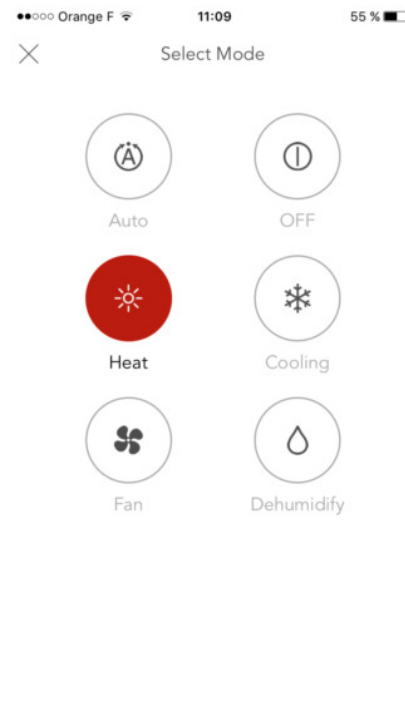
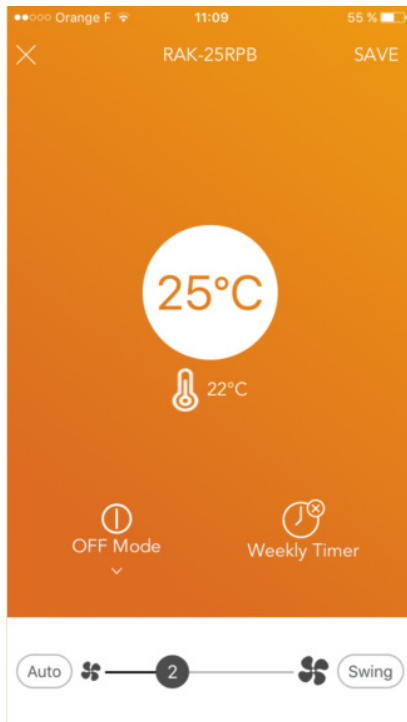


Demo mode available only at first connection on the account
Press « Got it ! » to close this mode

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5. Installation set-up: Indoor units control

- Indoor unit Focus

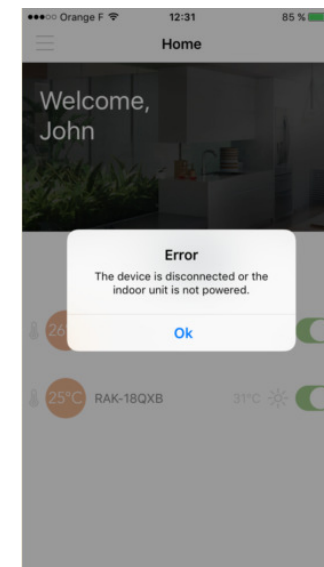
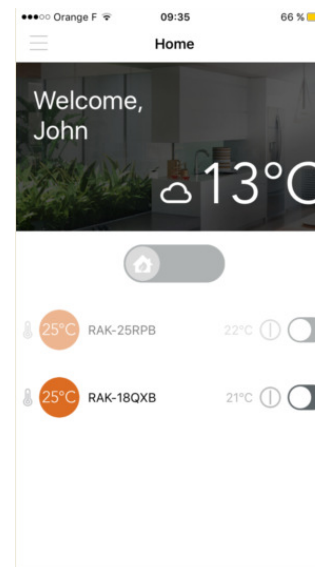


Press SAVE button to apply your settings !

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5. Installation set-up: Indoor units control

- The app is based on the remote control specifications and limits:
 - AUTO mode: temp. setting is fixed at 25°C
 - FAN mode: Auto fan speed and temp. settings are not available
 - DESHU mode: fan speed limited to silent and low
- In case of Multi system, if 2 different modes are set on indoor units, some units will stay in standby mode (no special information on the app)
- In case operation mode is locked by DSW setting, if the wrong operation mode is set from the app, indoor unit will start in the allowed AUTO mode (different from wireless remote control setting)
- If the gateway is offline (indoor unit or gateway powered OFF, gateway no longer connected to the WIFI or to the server), the unit will appear as offline:

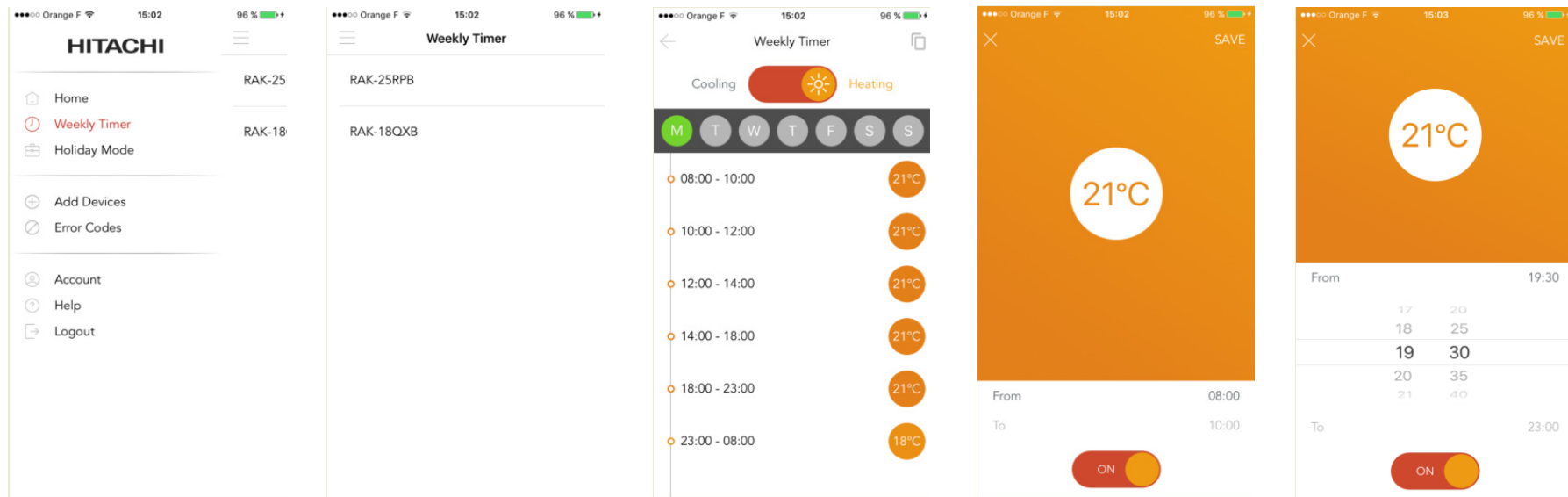


Conditioning

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5. Installation set-up : Weekly Timer

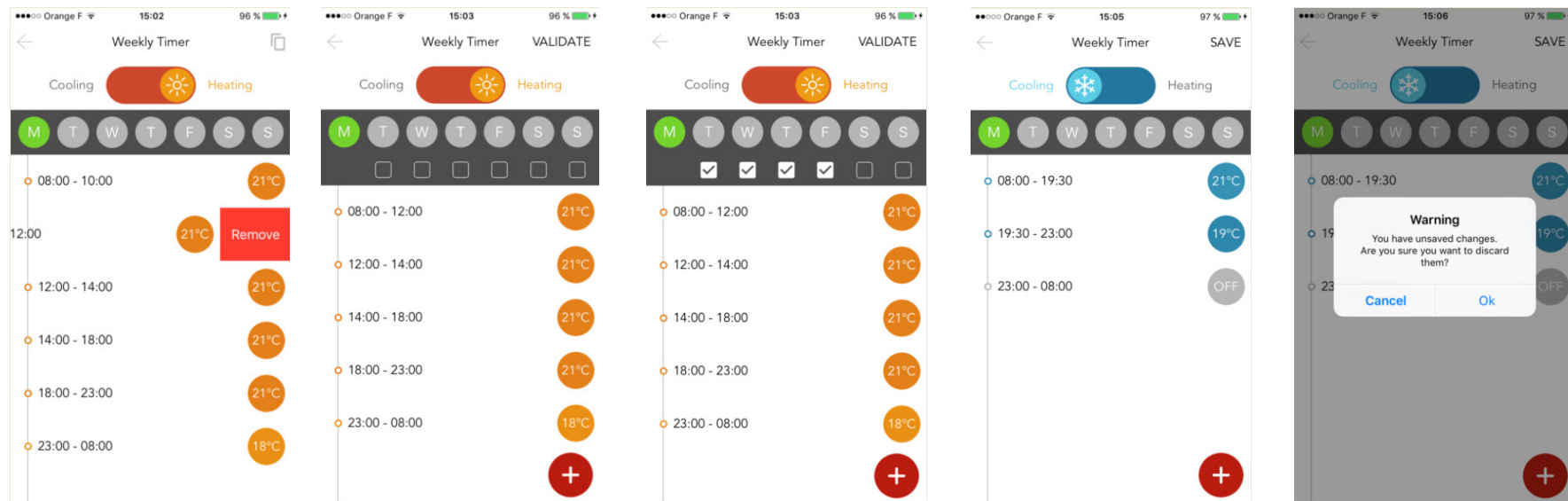
- Access to the weekly timer from the main menu
- One timer per indoor unit, up to 6 schedules per day (default settings set by the wizard questions)
- Cooling mode or heating mode selection by a button
- Only the From time can be set. End time is always the From time of the next schedule.
- First start time of the D-day = last end time of the D-1 day.



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5. Installation set-up : Weekly Timer

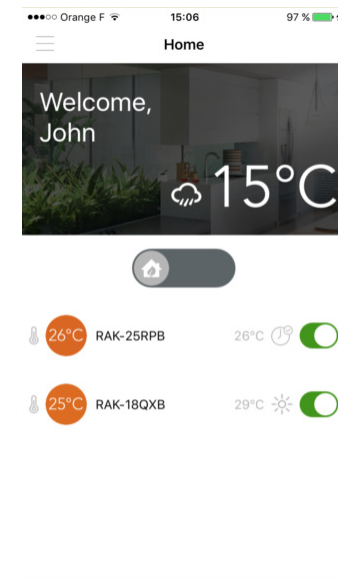
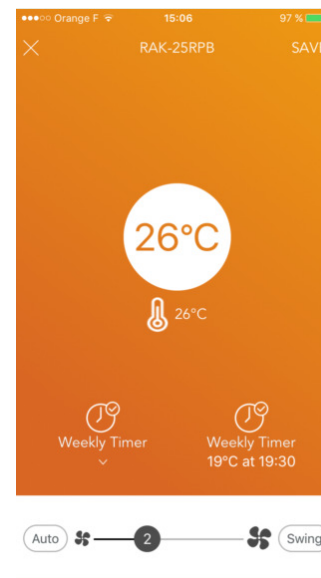
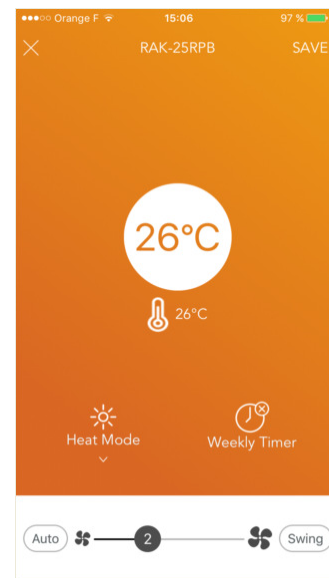
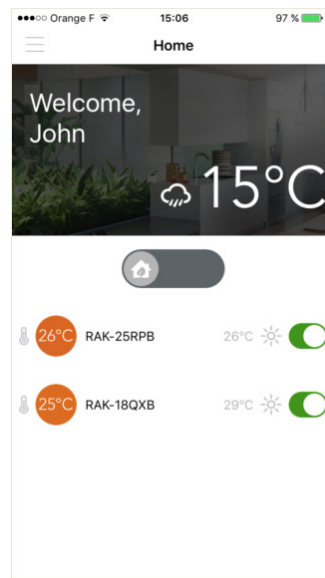
- Delete one schedule: slide the schedule towards the left side (IOS) or press it during 3s (Android)
- Add one schedule: press the  button at the lower right side
- Copy paste icon available once your changes are saved: press SAVE button then copy/paste icon will be available at the upper right side. Select the destination days by the tick box and press VALIDATE.
- Cooling / Heating button is only changing the operation mode. Set points must be updated manually.
- Save your changes before leaving, otherwise a warning message will be displayed. Press OK to discard your changes and exit, press Cancel to stay on the weekly timer page.



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5. Installation set-up : Weekly Timer

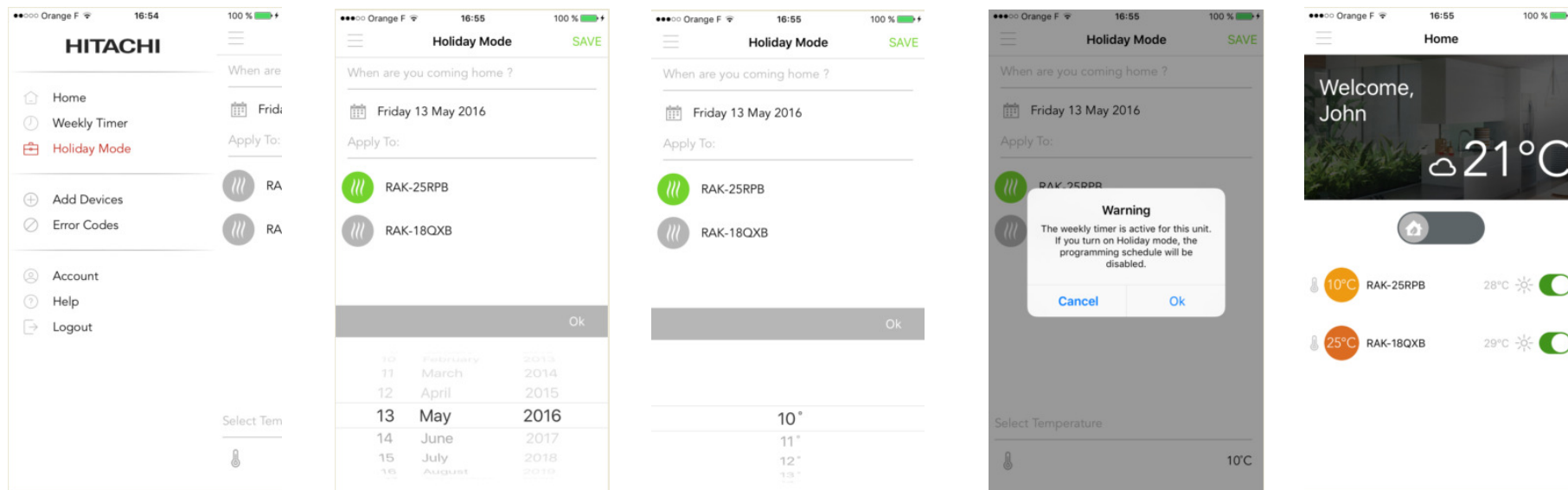
- Once your settings are done, go back to the home page
- Activation of the weekly timer is done on the indoor unit focus
- Press the Weekly timer button to activate it: the next schedule is shown at the lower right corner
- When weekly timer is activated, set point is no longer available
- A bip sound is heard from the unit when one scheduled order is played
- Weekly timer data are stored on the server (connected mode): if gateways are offline, schedules will not be executed !



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5. Installation set-up : Holiday Mode

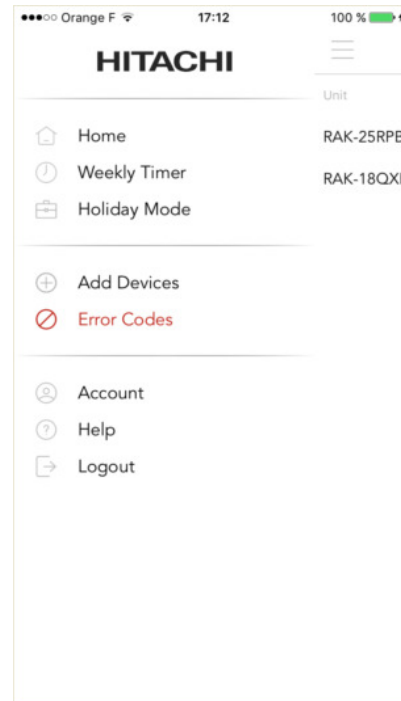
- Holiday mode setting available from the main menu
- Concept: set your indoor unit to heating mode operation with a low set point, to ensure a minimum room temperature. This special operation will last until the date set up by the user.
- Room set point from 10 to 16°C
- End of leave home: at 00h00 (+ a few seconds) at the scheduled date.
- If weekly timer and leave home option cannot be used together. Activating leave home when timer is set up will disable the timer (warning message).



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5. Installation set-up : Alarm history – error codes

- Alarm codes faced on outdoor unit and indoor unit are listed on that page
- Concept: 3 days alarm history, the history cannot be reset
- No limitation on the number of alarm shown
- Code 0000 means no alarm (unit reset)
- Currently, alarm codes are not shown on the unit on the home page. In case of alarm, unit will be shown as OFF.



The screenshot shows the "Historique des alarmes" (Alarm History) screen. It displays a table with three columns: "Unité", "Code défaut", and "Date". The table contains the following data:

Unité	Code défaut	Date
RAK-50PEC	0016	04/05 18:40
RAK-15QPB	0000	04/05 17:32
RAK-15QPB	0000	04/05 17:01
RAK-50PEC	0000	03/05 18:15
RAK-50PEC	0009	03/05 18:00
RAK-50PEC	0000	03/05 16:52
RAK-50PEC	0000	03/05 10:34

HI-KUMO: COMMISSIONING STEPS

5. Installation set-up : Alarm history – error codes

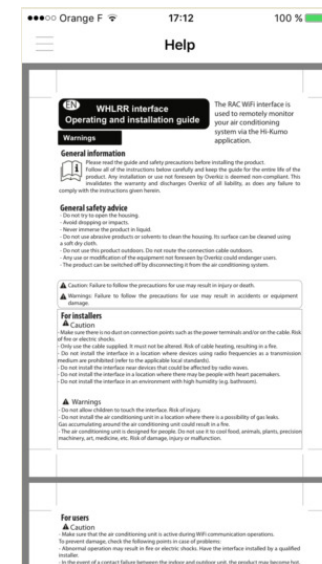
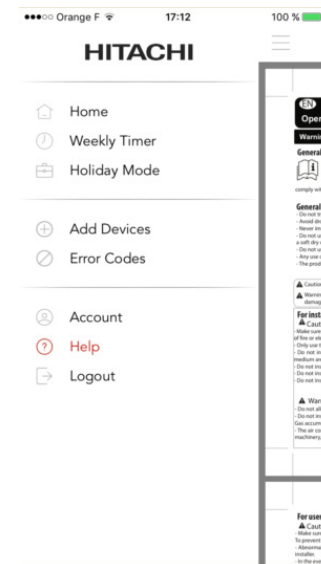
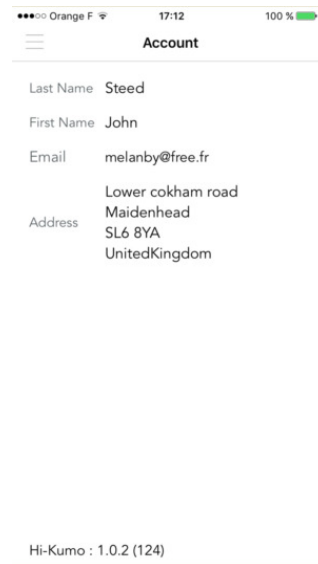
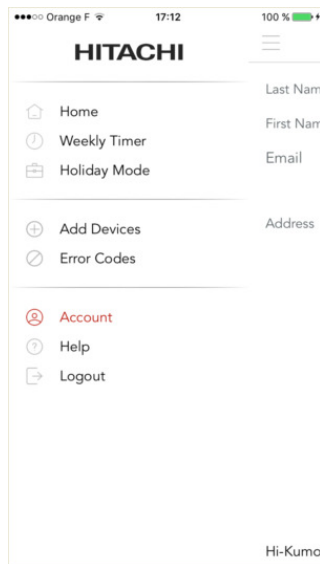
- Alarms codes on HI-Kumo are following the HLINK protocol data given below:

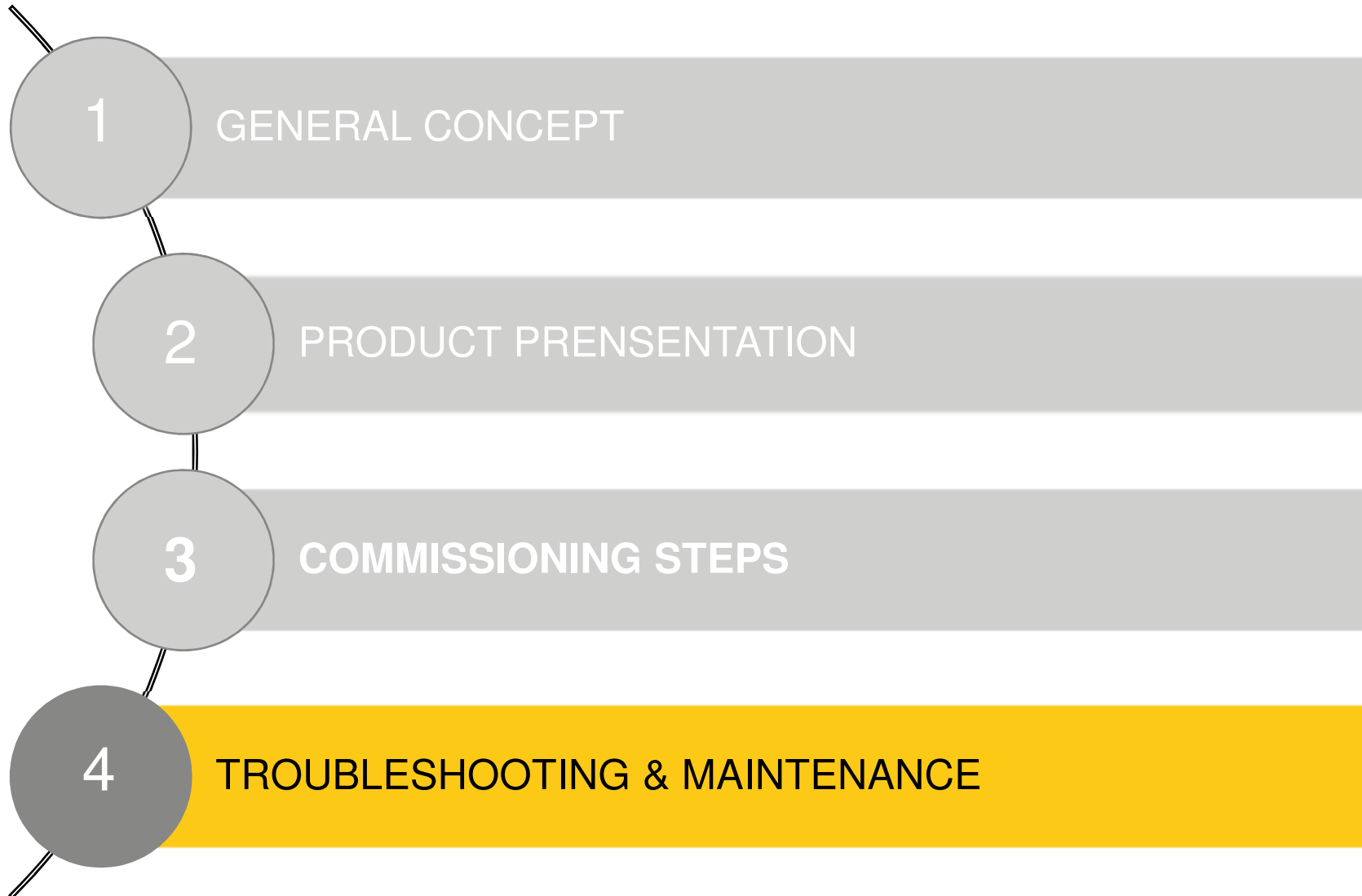
	Item	Indoor unit LED blinks		Remote controller		H-LINK protocol (sending data)
		Normal	Failure diagnosis	INFO button	Failure diagnosis	
Indoor Unit (IU)	Refrigeration cycle problem	once	once	001-00	001-00	F=0001
	IU/OU communication error	3 times	3 times	003-00	003-00	F=0003
	Abnormal water level detection	6 times	6 times	006-00	006-00	F=0006
	Sensor disconnection / short circuit	9 times	9 times	009-00	009-00	F=0009
	IU fan problem	10 times	10 times	010-00	010-00	F=0010
	OU communication error (3wired)	12 times	12 times	012-00	012-00	F=0012
	OU communication error (DC transmission)					
	EEPROM reading error	13 times	13 times	013-00	013-00	F=0013
	Minus ion unit problem	-	11 times	-	011-00	F=0000
	Clean unit problem	-	18 times	-	018-00	F=0000
	Peltier problem	-	19 times	-	019-00	F=0000
Human sensor problem	-	20 times	-	020-00	F=0000	
Outdoor Unit (OU)	Peak current cut	4 times	4 times	002-01	002-01	F=0102
	Compressor abnormally slow	4 times	4 times	003-01	003-01	F=0103
	Compressor switching failure	4 times	4 times	004-01	004-01	F=0104
	Compressor overload bottom cut	4 times	4 times	005-01	005-01	F=0105
	OH thermistor temperature increase	-	4 times	-	006-01	F=0000
	Thermistor broken / short circuit	4 times	4 times	007-01	007-01	F=0107
	Compressor acceleration failure	4 times	4 times	008-01	008-01	F=0108
	IU/OU communication error	4 times	4 times	009-01	009-01	F=0109
	Power supply voltage error	-	4 times	-	010-01	F=0000
	OU fan stop 1 (due to strong wind)	-	4 times	-	011-01	F=0000
	OU fan stop 2 (OU fan locked)	4 times	4 times	012-01	012-01	F=0112
	ACT voltage problem	4 times	4 times	014-01	014-01	F=0114
	Circuit problem	4 times	4 times	015-01	015-01	F=0115
	Soft lp cut	-	4 times	-	016-01	-
	Peak current cut (MULTI)	4 times	4 times	052-01	052-01	F=0102
	Thermistor broken / short circuit (MULTI)	4 times	4 times	071-083-01	071-083-01	F=0107
EEPROM reading error	4 times	4 times	013-01	013-01	F=0113	

HI-KUMO: COMMISSIONING STEPS

5. Installation set-up : Account data and help page

- Account data can be checked on the account page
- So far this is read only data
- The application version is also indicated there
- Help page: displays the gateway installation manual in the local language selected on the phone





HI-KUMO: Troubleshooting work

- What if...
- The gateway cannot get connected to the WIFI in SmartConfig procedure ?
 - Check the PROG LED status: orange flashing quickly all the time (not switching to orange flashing slowly) ?
 - Press PROG button during 15s until PROG LED becomes orange (power reset of the gateway is not mandatory, but it can be done)
 - Reset your smartphone: set it to airplane mode (empty cache data) during 10s
 - Check the WIFI signal: connect your smartphone or laptop to confirm the password and SSID
 - Check on the router if 5GHz WIFI signal is used. If so, deactivate it and come back to the normal WIFI (2,4 GHz signal). Once the gateway is paired, try to activate it again.
 - Check the WIFI encryption type: WPA or WPA2 (personal) are fully compatible with the gateway. WPA/WPA2-ent (enterprise) are not compatible modes.
 - Automatic setting WPA/WPA2 on the router may lead to some issues. Try to switch to a fixed setting (WPA2 or WPA).
 - In case several WIFI signals are available in the house, try to keep only one WIFI (the one to be used by the gateways). Deactivate the other WIFI signals on the router setting panel. Once the gateway are connected to the server, try to activate them again.
 - Try again in SmartConfig or switch to the second pairing procedure (Ad-hoc mode).

HI-KUMO: Troubleshooting work

- What if...
- The gateway cannot get connected to the WIFI in SmartConfig procedure ?
 - Check the PROG LED status: it is switching to orange flashing slowly, but it is not turning green ?
 - Check the WIFI password. You may have done a typing mistake.
 - Check the WIFI password length: not more than 32 characters !
- The gateway cannot get connected to the WIFI with the second procedure ?
 - Check the PROG Led status: it must be red.
 - Set the gateway to Ad-hoc mode by pressing the PROG button during 7s.
 - Connect your smartphone to the WIFI created by the gateway (SSID = PIN, password = SC)
 - Error message: “not connected to a WIFI”. It means your smartphone is facing issues to get connected to the selected WIFI (SSID, password and protection type data given to the gateway). Check the WIFI status, deactivate any additional WIFI.
 - Error message ‘no unit detected”. Check if the gateway got connected to the server (PROG LED green fixed). If so, try again in SmartConfig mode (to go to account creation).
 - Reset your smartphone: set it to airplane mode (empty cache data) during 10s and try again.

HI-KUMO: Troubleshooting work

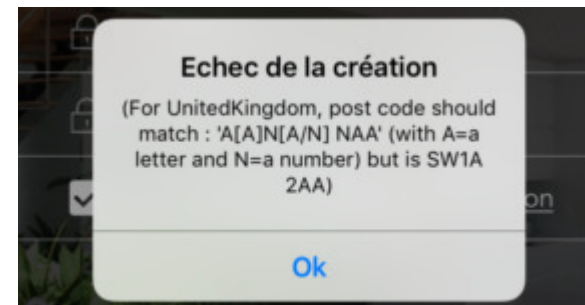
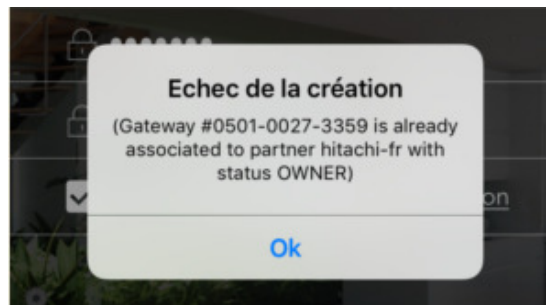
- What if...
- Account creation errors !
 - Error message in English about the account password: check password creation rules.
 - Password should be at least 6 characters (max 64). It should not contain any common word with the email address or account name. Do not use illegal words listed below/

Guidelines	Enforcable by application
Use a longer password. 6 characters is weak, 8 is good, 9+ is strong	yes
Use characters from different alphabets: lowercase only is weak, lowercase+uppercase+digits is good, lowercase+uppercase+digits+symbols is even better	yes
Do not use your name, part of it, or a variation	yes
Do not use your email, username, part of it, or a variation	yes
Do not use ID numbers : box serial number, phone PIN, credit card PIN, phone number, birthdate, ...	Partially, do not allow digits only passwords
Do not use first names, proper nouns, common words	Partially, using a common words dictionary
Do not use brand names, car models, ...	Partially, using a common words dictionary
Do not use slightly modified common words (sounds-like, l33t speak, ...)	Partially, using conversion algorithms
Do not use predictable sequences : 123.. abc...	yes

```
somfy
tahoma
overkiz
kizbox
home
house
maison
automation
password
gateway
s2ih
showroom
test
pass
secure
store
rolladen
secret
sesam
user
```

HI-KUMO: Troubleshooting work

- What if...
- Account creation errors are displayed !
 - Error message in English about the gateway: “gateway #xxx is already attached to a SETUP” or “Gateway #xxxx is already associated to partner hitachi-xx...”: that means your gateway is already linked to a user account or to another country. Please contact the User Admin to check your gateway (indicate the PIN number concerned).
 - Error message about the post code: post code shall match the rules used in the selected country. Check your input or contact the User Admin for details.
 - Confirmation code is not received in your email box !
 - Wait for a few minutes, the server may be busy, as well as your email service
 - If not received after 5 minutes, check the email address input during the account creation by going one step back on the app. Once done, validate again to generate another email.
 - If still not received, contact the User Admin with the PIN number of your device to check its status on the server.



HI-KUMO: Troubleshooting work

- What if...
- When accessing to my account, the timer wizard with the 3 questions is always shown!
 - This can be linked to some errors on the calendar rules on the server. Contact the User Admin indicating the PIN number of your gateway to check its status.
- When I try to control my indoor unit, there is one error message stating it is offline or powered OFF.
 - Your gateway is no longer connected to the server. Please check the PROG LED status to confirm this point.
 - Check if your indoor unit is powered ON.
 - Check the gateway connection to the indoor unit PCB
- The indoor unit is not starting when I send the order
 - Check if any alarm code is shown on the indoor unit or in the alarm history
- The operation mode is not the one I selected: I am sending heating mode operation, and the units starts in cooling (or auto) mode.
 - Check if the operation mode of your indoor unit is blocked by DSW setting.
 - If so, either unlock the operation mode or set you unit to the correct mode.

HI-KUMO: Introduction to Maintenance work

- Server access is available via Internet for maintenance purposes
- Possible operations from the server (examples)
 - Check the account status: creation, country code, lock, unlock, delete
 - Check the gateways status (online, offline)
 - Check the indoor units parameters
 - Check the calendar rules status
 - Check the weekly timer activation
 - Check the holiday mode status
 - Check the orders executed
 - Send orders to one unit
 - Delete one or several calendar rules
 - And much more...
- Accounts on the server will be created for each country. 1 key person shall be assigned to that job per country.