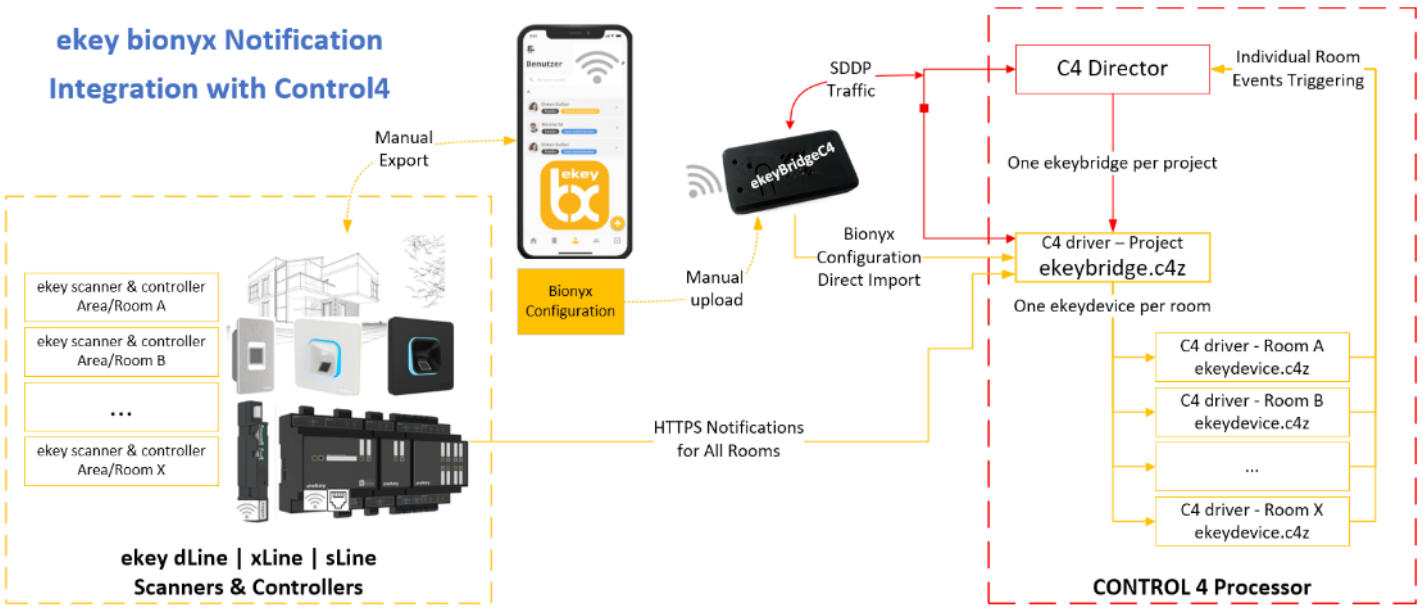
ekey bionyx integration guide for Control4 (v103)

The ekey bionyx (xLine | sLine | dLine) notification integration with control 4 consists of two drivers that set up variables and trigger one of fourteen predefined events per room for customized automation within Control4. What an event executes or performs after being triggered depends on the system integrator own programming such as checking time of the day to execute a scene adjusting light/temperature/shades in a room, arming/disarming security system, unlocking a door, etc. The integration is one-way notification (receive-only) and does not send commands or requests from control 4 back to the ekey bionyx app.

The ekey integration with Control4 supports SDDP and consists of interrelated hardware and software components, as illustrated below:

Function	ekey Hardware	Control4 Software Drivers
Bridge	ekeyBridgeC4 (also referred to as "ekey WiFi Bridge") is a wireless device that acts as a bridge between ekey biometric devices and the Control4 processor.	• `ekeybridge.c4z` (one per project) • Handles SDDP requirements • Routes notifications from biometric devices to the appropriate room driver
Biometric Devices	ekey xLine, sLine, and dLine biometric scanners and control units with relays and digital inputs.	• `ekeydevice.c4z` (one per biometric scanner/controller set and typical per room/area) • Processes incoming notifications and triggers predefined events



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Key Features:

1. Fingerprint Notification:
    - During setup, users can be assigned to one of three groups A, B, C. Each gorup represents users with common functionality such gorup A is family, gorup B is service, gorup C is friends and visitors. Group A is the default group for all users. Each group designates one finger as duress
    - Event firing and execution. Each gorup has three predefined events,
        - Matched fingerprint - No Duress: event is fired when a fingerprint is recognized without any restrictions
        - Matched fingerprint – Duress: event is fired when a valid fingerprint is recognized, but that specifc finger is designed as duress for that gorup
        - Matched fingerprint – All others: event is fired when finger is recognized with some restrictions
    - Unmatched fingerprint: event is fired when no fingeprint is recognized. This is common for all groups

2. Digital Activation Notification:
    - When a valid digital input notification is received, the system triggers as associated event based on the controller ID and input number.
    - Events for input 1 and 2 are predefined.
    - If an input number is unrecognized, a general "unknown input" event per device is triggered.

3. All fingerprint and digital activation notifications are handled through 14 predefined events per room, as shown in the table below. What each event performs after being triggered depends entirely on the system integrator's programming. For example, an event may be configured to check the time of day and execute a scene that adjusts lighting, temperature, or shades in a room, arm or disarm the security system, unlock a door, and more.

Event ID	*Event Description*	*Group/Input*
01	Fingerprint Match	Group A
02	Fingerprint Match	Group B
03	Fingerprint Match	Group C
04	Fingerprint Duress	Group A
05	Fingerprint Duress	Group B
06	Fingerprint Duress	Group C
07	Fingerprint Other Conditions	Group A
08	Fingerprint Other Conditions	Group B
09	Fingerprint Other Conditions	Group C
10	Fingerprint Not Recognized	n/a
11	Digital Activation	Input 1
12	Digital Activation	Input 2
13	Digital Activation	Other Inputs
14	Digital Activation	Other Conditions

Benefits of Integration:

ekey bionyx integration enhances Control4's powerful event and scene customization by bringing an Adaptive Experience to each user through the secure triggering of events. This transforms Control4 from static automation into a dynamic, intelligent system that personalizes the smart home experience based on:

- **Who** is triggering the event
- **Which finger** they scanned

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- **Time of day** they scanned their finger
- **Location** within the home where they scanned their finger

Imagine how ekey bionyx integration enhances everyday life for a family using Control4:

- **Dad's Control 4 Adaptive Experience**
  When Dad arrives home, Control4 announces, "Dad is home," while adjusting the AV and AC in his office to his personal settings.
- **Mom's Control 4 Adaptive Experience**
  As Mom enters, Control4 welcomes her with a custom announcement and activates her preferred lighting and music.
- **Kids' Control 4 Adaptive Experience**
  When the kids unlock the door, Control4 recognizes them and automatically sends a notification to Mom and Dad—letting them know their kids are home or alerting them if they're late.
- **Enhanced Security with Control 4 Adaptive Intelligence**
  If anyone in the family feels threatened, they can scan an unusual finger (e.g., their middle finger), triggering a silent alarm—adding an extra layer of security beyond standard automation.

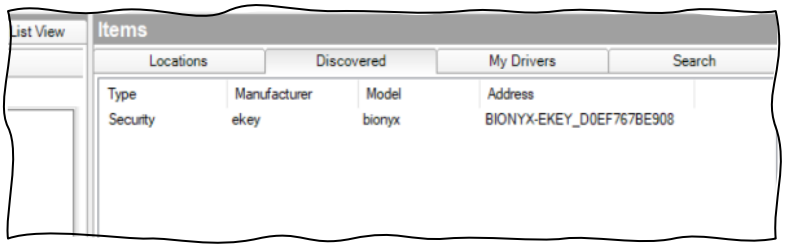
ekey bionyx integration transforms Control4 into a system that doesn't just automate—it understands. Whether it's recognizing family members, service personnel, or unexpected actions, it delivers an intelligent, secure, and personalized experience like never before.

Integration Scope and Requirements

A Control4 controller and Composer Pro access are required. The ekey integration consists of two drivers—ekeybridge and ekeydevice—and a WiFi device that acts as a bridge.

Installation of the ekeybridge Driver

The ekeybridge.c4z driver supports SDDP via the ekeyBridgeC4. Once the ekeyBridgeC4 and Control4 controller are on the same network, the bridge will appear under the "Discovered" tab in Composer Pro. Double-clicking the discovered device will open the ekeyBridgeC4 home page. Double-clicking the entry again will add the ekeybridge.c4z driver to the project tree.



The driver can run in Demo Mode for testing purposes. Demo Mode lasts for 5 days and supports up to 5 active users and 2 input-output (IO) extensions per controller. In Demo Mode, the ekeyBridgeC4 is not required—the ekeybridge.c4z driver can be added manually to the project.

After the demo period, a valid User License is required to continue using the driver. Licenses are available as new or upgrade options. User Licenses cover 20 to 100 users, in increments of 10. Each User License includes 2 IO extensions per controller. If additional IO extensions are required, an IO Extension License must be purchased. These are available for 2 to 18 extensions, in increments of 2.

To purchase a User License or IO Extension License, contact License@ekeyUSA.com with your contact details, Control4 MAC address, and the number of users and IO extensions needed.

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Installation of the ekeydevice Drive

Each set of ekey fingerprint scanner and controller requires an ekeydevice.c4z driver. This driver is automatically added to the project during the configuration process. Details on this process are covered later in this document.

ekey Hardware

The ekeyBridgeC4 (also referred to as "ekey WiFi Bridge") handles SDDP discovery and serves the Bionyx configuration interface. In Demo Mode, this device and a license are not required. See STEP A for more details on WiFi Bridge installation.

Integration Preparation and Driver Setup

ekey integration with control4 involves preparation steps outside Control4 and configuration steps inside Control4. Some of these steps are required and others are optional. The driver Action Section lists each step with adequate description of its scope and objectives.

- Required Preparation Steps Outside Control4
  1. STEP A (REQUIRED): Setup ekey WiFi Bridge Device
  2. STEP B (REQUIRED): Export Bionyx Configuration from Bionyx App
  3. STEP C (REQUIRED): Upload Bionyx Configuration to ekey WiFi Bridge Device

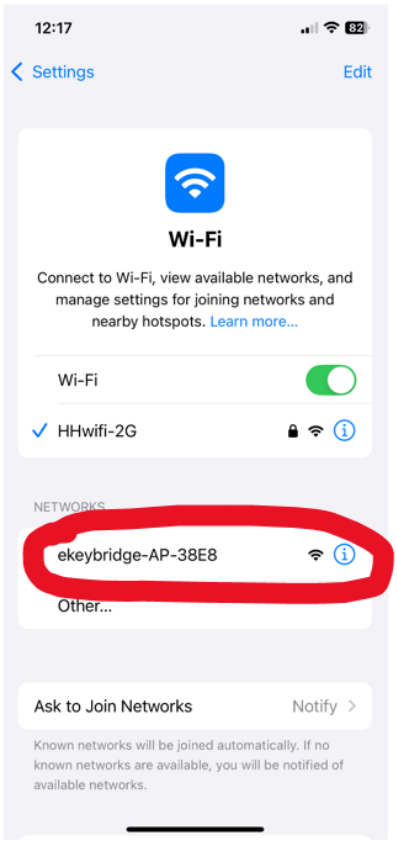
- Required Driver Setup Steps Inside Control4
  4. STEP 0 (REQUIRED): Show Access Token Properties to Update
  5. STEP 1 (REQUIRED): Import Bionyx Configuration from the Bridge or Enter It Manually
  6. STEP 2 (Optional): Repeat for Each User – Assign to Group A, B, or C (Default: A)
  7. STEP 3 (Optional): Set Duress Finger for Group A, B, or C (Default: None)
  8. STEP 4 (REQUIRED): Add an ekey Driver to a Room (Repeat for Each ekey System)
  9. STEP 5(REMINDER): Program events in ekeydevice (per room; not in ekeybridge)

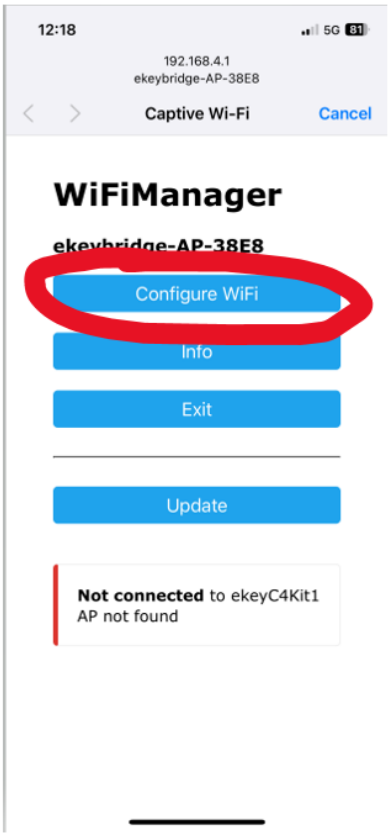
1 STEP A (REQUIRED): Setup ekeyBridgeC4 Device

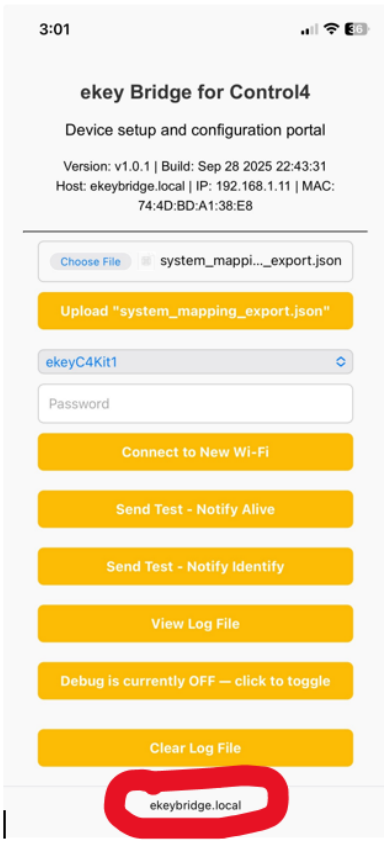
The ekeyBridgeC4 (also referred to as "ekey WiFi Bridge") handles SDDP discovery and hosts the Bionyx configuration interface. *Note: In Demo Mode, the bridge and license are not required.*

a) **Power on the ekeyBridgeC4.**
   The board will broadcast a Wi-Fi access point named **ekeybridge-AP-xxxx**
   xxxx = last 4 characters of the board's MAC address. If the access point does not appear after 5-10 minutes, power cycle the board by unplugging and reconnecting the USB cable.
b) **Connect your device to the ekeybridge-AP-xxxx** Access point**.**
c) **Follow the on-screen instructions** to connect the bridge to your local Wi-Fi by:
   a. Selecting your local Wi-Fi SSID
   b. Entering the network password
d) **Allow 5–10 minutes** for the bridge to complete setup and switch from access point mode to your local network.
e) **Once connected**, open a browser and visit: http://ekeybridge.local to access the configuration homepage.

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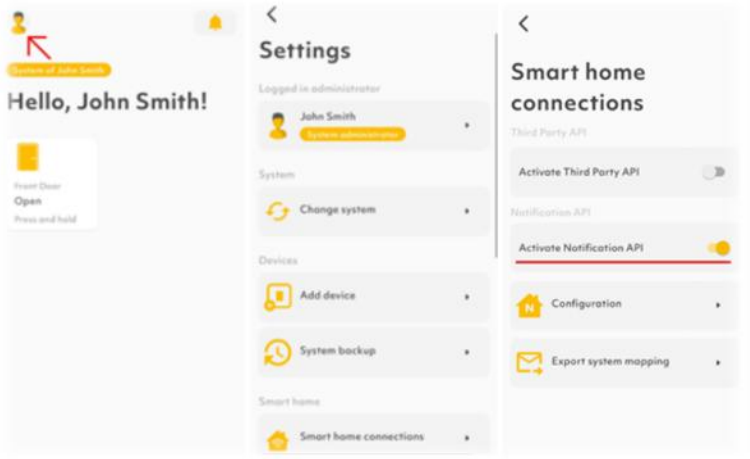


2 STEP B (REQUIRED): Export Bionyx Configuration from Bionyx App

Exporting the bionyx configuration is accomplished through the ekey bionyx app. An ekey bionyx account with System Administrator rights and firmware version 5.2 or higher is required.

2.1 Activate the Notification API in the bionyx app

Go to Home >Settings > Smart Home Connections, then activate the Notification API.

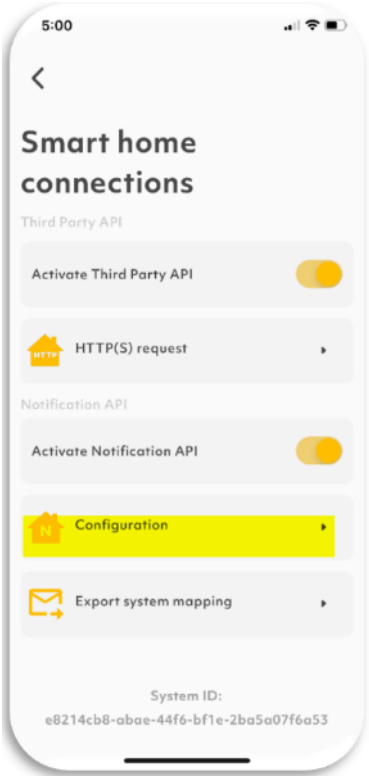


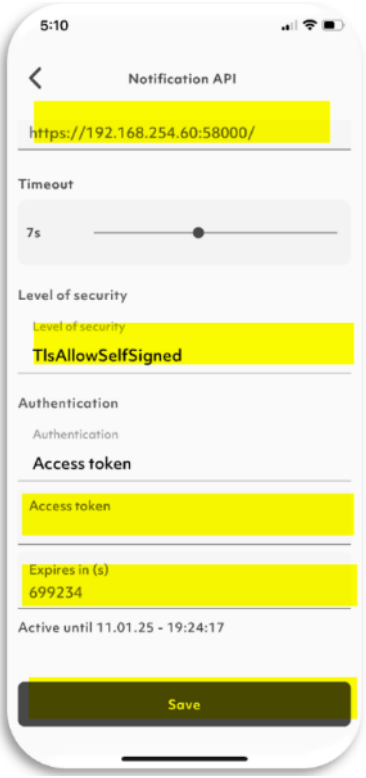
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2.2 Notification Webhook API configuration

Go to Home > Settings > Smart Home Connections > Configuration, then update shown fields as follows:

a. URL: Type Control4 URL following this format: https://Control4_IP_Address:Port_Number/ for example https://192.168.254.200:58000/
b. Timeout: leave it on 7s (default).
c. Level of Security: click and select "TlsAllowSelfSigned" from the list.
d. Authentication: click and select “Access Token” from the list. Then, type the same code entered in the Control4 driver properties “Access Token” field.
e. Expires in (s): type 700,000 seconds.
f. Saving the Notification Webhook API configuration: Press on “Save” to save the HTTPS request.

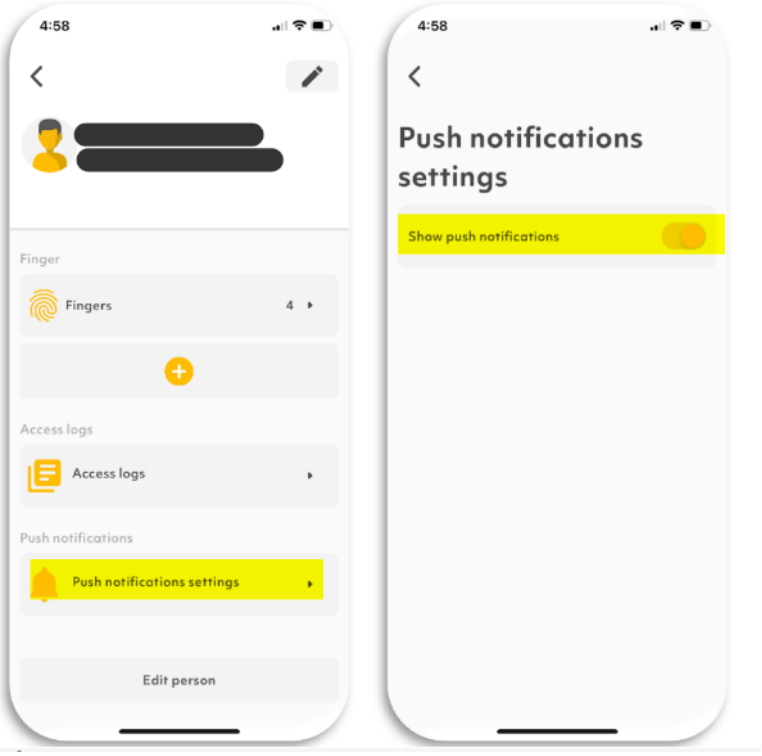




2.3 Activating Push Notification

Go to Home > Settings > Logged in administrator>Push notifications setting> then activate Show Push Notification

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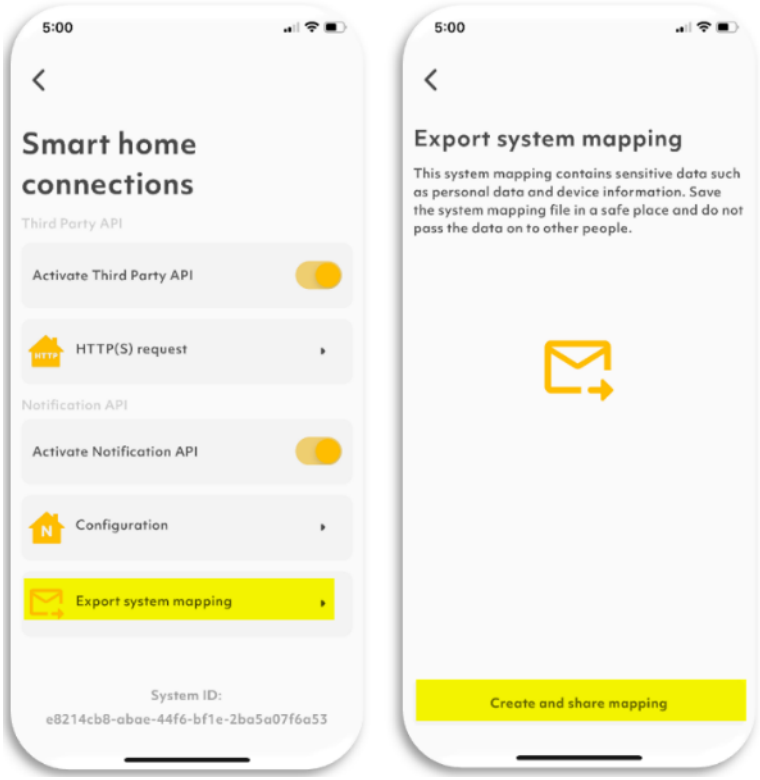


2.4 Export Bionyx Configuration

The bionyx app allows you to export current users and devices details using a JSON file named "`system_mapping_export.json`" as follows

a. Open the bionyx app on your smart device.
b. Navigate to Settings > Smart Home Connections > Export System Mapping.
c. Select Create and Share Mapping and follow the prompts to either email the generated "`system_mapping_export.json`" file to yourself or save it directly to your smart phone or computer.

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3 STEP C (REQUIRED): Upload Bionyx Configuration to ekey WiFi Bridge Device

a. On your computer or smart device where you saved the "`system_mapping_export.json`" file
b. Open your browser and go to `http://ekeybridge.local` (or enter the bridge IP address) or simply scan the QR code.

http://ekeybridge.local

c. Follow instructions on the screen to navigate where you saved the "`system_mapping_export.json`" file to select and then click on `uploaded`.

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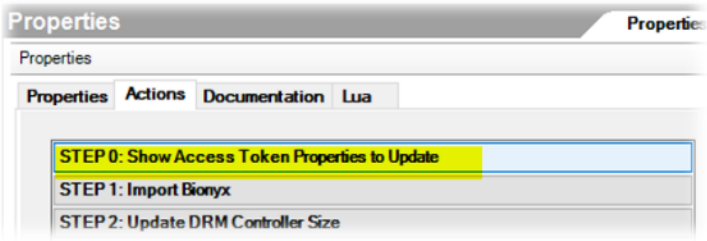
d. To view uploaded files
http://ekeybridge.local/system_mapping_export.json

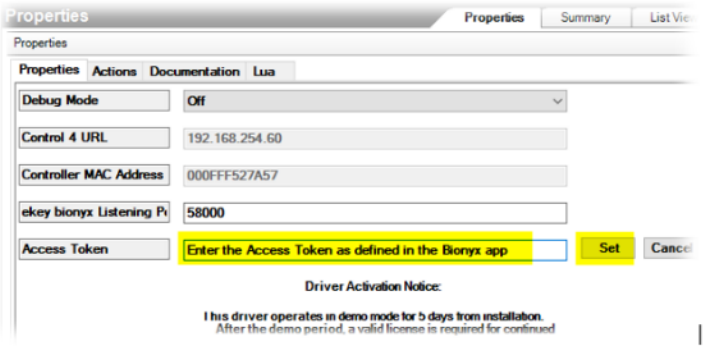


4 STEP 0 (REQUIRED): Show Access Token Properties to Update

The driver uses the Access Token code to authenticate HTTPS messages origin. The same access token entered in the ekey bionyx App Settings (Smart Home Connections > Configuration) should be entered here. This is a required step upon initial setup and when the Access Token in the bionyx App and the driver needs to be changed.
Follow these STEPs to setup the Access Token code:

a. Click on Actions on the tope menu of the Composer Pro and select STEP 0: Show Access Token Properties to Update. This will show Access Token on the Property screen and enable it for editing.
b. Click on Properties on the top menu and type in the Access Token code used in the ekey bionyx App Settings (Home >Settings > Smart Home Connections > Configuration)
c. Click on Set to update the Property value.
d. Once saved, the driver will hide the Access Token value Property.





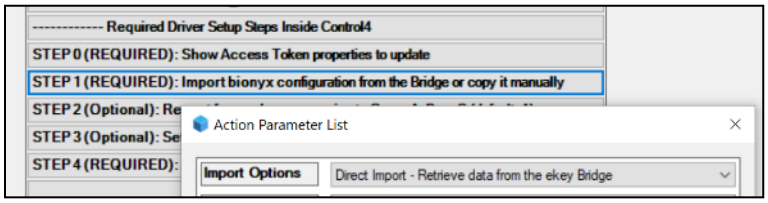
5 STEP 1 (REQUIRED): Import Bionyx Configuration from the Bridge or Enter It Manually

There are two ways to import the "`system_mapping_export.json`":

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5.1 Production Mode – Direct Import

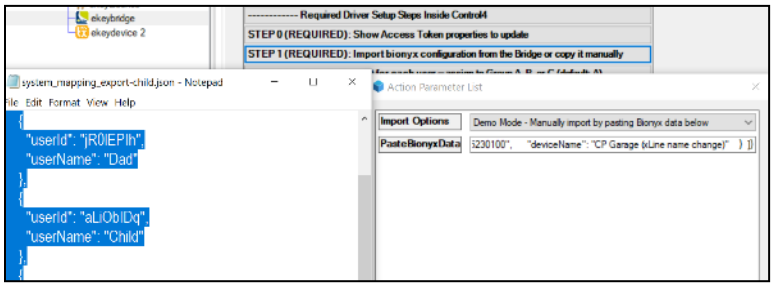
Automatically import the file directly from the ekeyBridgeC4 device by selecting the Direct Import option



5.2 Demo Mode – Manually past the file contents into the drive.

To ensure compatibility, use **Windows Notepad** for opening the JSON file. Avoid using other text editors to prevent formatting issues. Follow these STEPs to open Notepad:

a. Locate Notepad: Click the Start Menu (Windows icon in the bottom-left corner). Type Notepad in the search bar and select it from the results.
b. Alternatively, press Win + R to open the Run dialog, type notepad, and press Enter.
c. Open the JSON File:
d. In Notepad, go to File > Open.
e. Navigate to where the "`system_mapping_export.json`" file is saved and open it.
f. Click anywhere in the open file, then press Ctrl + A and then Ctrl + C to select all and copy text.
g. Paste the copied JSON data into the Copy-Paste bionyx field.
h. Check the Import Status and verify the completion status or error details in the Lua Output window.



Note:

Depending on how the JSON file is imported, copying and pasting the data may not display everything correctly due to how carriage returns, and line feeds are handled.
If some data is missing after pasting, open the attached LFonly.txt in Notepad, paste the JSON data into the file, then copy all the content and paste it into the Composer Bionyx field.

6 STEP 2 (Optional): Repeat for Each User – Assign to Group A, B, or C (Default: A)

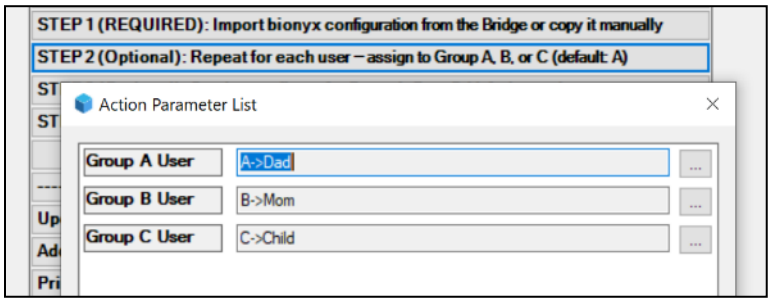
Users can be assigned to one of three predefined groups: **Group A**, **Group B**, or **Group C**. These groups represent user categories with common functionality:

- Group A **– Family (Default group for all users)**
- Group B **– Service personnel**

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- Group C **– Friends and visitors**

Upon importing the configuration from Bionyx, the **`ekeybridge.c4z`** driver displays all users categorized by group. By default, all users are initially placed in **Group A**.



For visual clarity, each user's name is prefixed with their assigned group. The user lists are updated as users are moved between groups. **Note:** The user list is displayed and managed **per group**, and changes are only visible within the selected group context.

Due to limitations in the Control4 **Actions** interface, the user assignment process has the following constraints:

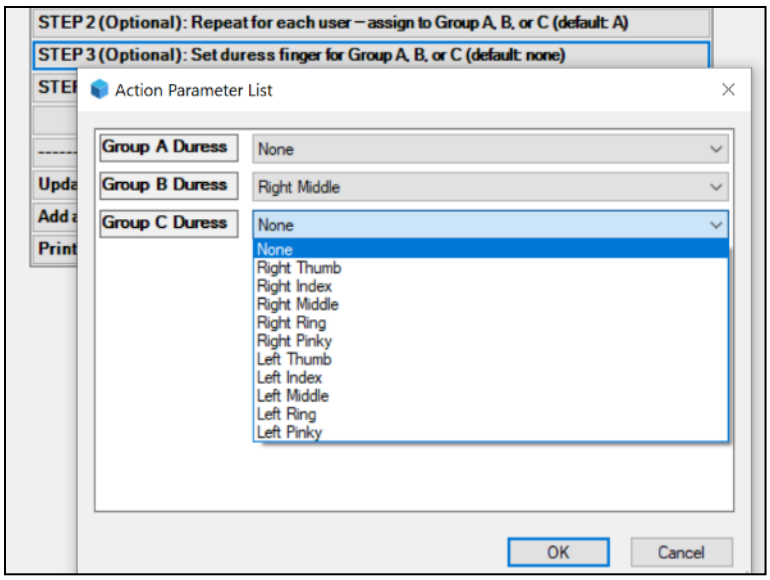
- Manual Assignment Required**: When assigning multiple users within the same group, each user must be selected and saved individually.**
- Display Not Auto-Refreshed**: The default display does not automatically refresh after changes. When a user is reassigned to a different group, the updated assignment will not appear until the Actions menu is reloaded.**
- Workaround**: To confirm or view updated assignments:**
    1. **Close the current Actions interface.**
    2. **Reopen it to reload the user group assignments.**
    3. **Select the desired group to view the updated user list.**

7 STEP 3 (Optional): Set Duress Finger for Group A, B, or C (Default: None)

Each of the three user groups—**Group A**, **Group B**, and **Group C**—can have a designated **duress finger**. When this specific finger is recognized during authentication, it triggers the **Duress Event** for that group.

For each group, the driver displays a list of all available fingers. The dealer can select one finger to act as the duress trigger for that group or select **None** if no duress finger is desired.

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Due to limitations in the **Actions** display refresh mechanism, changes made to the duress finger assignment are **not immediately reflected** in the interface:

a. When a new duress finger is selected and saved, the dropdown list **does not automatically update**.
b. The updated selection will only appear after the Actions interface is **closed and reopened**, and the group is reselected.

To verify or view updated duress finger assignments:

a. Close the current **Actions** interface.
b. Reopen it to reload the updated assignments.
c. Select the desired group again to view the refreshed values.

8 STEP 4 (REQUIRED): Add an ekey Driver to a Room (Repeat for Each ekey System)

Each ekey biometric fingerprint scanner and its corresponding controller must be paired with a dedicated **`ekeydevice.c4z`** driver.

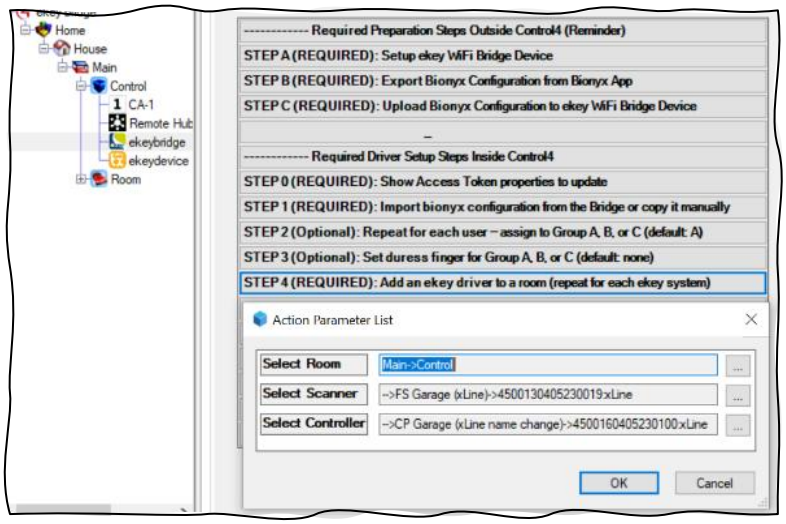
- One `ekeydevice.c4z` driver = One scanner + One controller (as a set)
- **Typically, each room or area contains one scanner-controller set.**
- **If a room has multiple sets, additional `ekeydevice.c4z` drivers must be added—one for each set.**

The setup process enables the dealer to map physical ekey devices to logical rooms within the Control4 project.

a. **Room Selection**
   The driver automatically generates and displays the project's room structure, allowing the dealer to select the correct room or area.
b. **Device Listing**
   Based on the imported configuration from Bionyx, the driver displays two lists:
   a. **Available Scanners**
   b. **Available Controllers**

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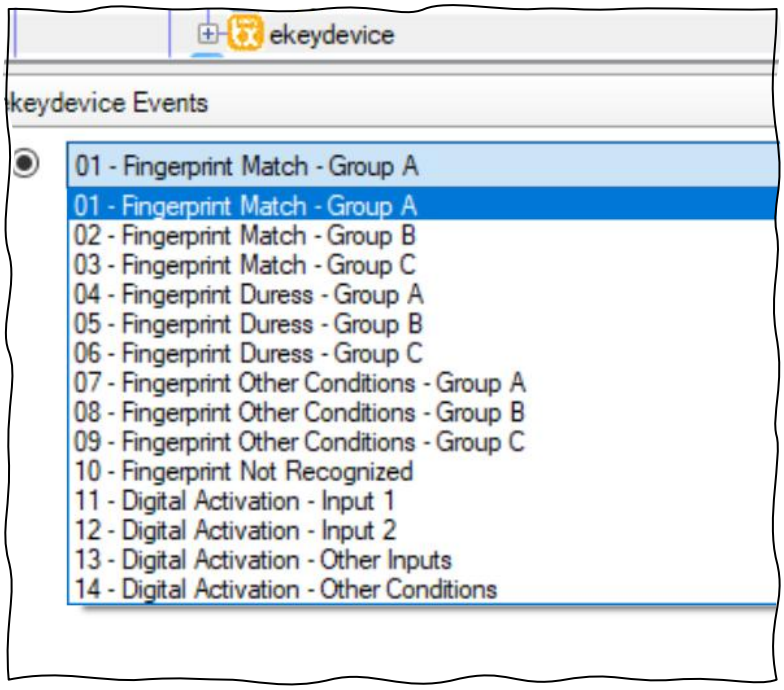
By clicking **OK**, the selected scanner and controller from the lists are assigned to the selected room. This action causes the **`ekeybridge.c4z`** driver to automatically add an **`ekeydevice.c4z`** driver instance to that room, effectively linking the physical devices to their logical location within the Control4 project.



8.1 STEP 5 (REMINDER): Program events in ekeydevice (per room; not in ekeybridge)

This final step completes the driver configuration and is performed in the **Programming** section of each **`ekeydevice.c4z`** instance. Here, you can link **predefined group events** to Control4 actions, enabling personalized automation triggered by fingerprint recognition.

- Events are configured **per group** (A, B, C).
- For **individualized behavior**, use the **driver's room variables** to create custom logic for specific users within a group.



This step is where the true power of ekey-Control4 integration is realized. Examples of personalized automation include:

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- **Access Control**: Unlock Wi-Fi, Z-Wave, Zigbee, or Bluetooth locks when a fingerprint is recognized.
- **Scenes**: Trigger "Welcome Home" or "Goodbye Mode" to adjust lighting, temperature, and security.
- **Notifications**: Send alerts when kids arrive home or when a duress finger is used.
- **Security Actions**: Trigger panic modes, lockdowns, or emergency lighting.
- **Entertainment**: Launch "Movie Night" with preset lighting and AV settings.

The integration between **ekey** and **Control4** ensures a seamless, secure, and deeply personalized smart home experience.

Limitation

In the ekeydevice driver, the Ekey_Notification Fingerprint and Ekey_Notification Digital Input connections are not used and require no installer configuration or connection.

9 Technical Support

For technical support, please send an email to info@ekeyUSA.com. Be sure to include and attach the following details:

- License key(s)
- Control-4 controller details!
- A brief description of the issue. Include the Lua output in the Lua tab
- Your contact information
- Screenshots, files, and any other relevant information that might assist in resolving the issue.

Providing this information will enable us to assist you most effectively and efficiently. Thank you.

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9.1 Change Log

Version	Release Date	Description

103	September 20, 2026	• ekeybridge:
		  ○ TLS Certificate Update
		  ○ Replaced expired self-signed TLS certificate/key with a new generic 10-year pair for bionyx HTTPS notifications
		  ○ No change to normal driver functionality or webhook configuration.
		• ekeydevice:
		  ○ version update only; no functional changes

102	September 29, 2025	• Rename: ekey WiFi Bridge → ekeyBridgeC4 • Docs: Updated ekeyBridgeC4 setup and configuration • Driver: XML time format 12h → 24h
100	Jun 10, 2025	• Introduced ekey WiFi Bridge device to support SSDP discovery and centralized configuration. • Split functionality into two separate drivers: ekeybridge.c4z for system-level management and ekeydevice.c4z for representing individual scanner-controller sets per room. • Added support for grouping users into Groups A, B, and C, each with predefined events to simplify and organize event programming. • Added Support for duress finger per group
4	February 24, 2025	• Separated licensing into User License and IO Extension License. • Enhanced recovery, error handling, and history logging.
3		Increase debug time and correction
2	January 21, 2025	Documentation correction and updated for improved clarity.
1	Dec 2024	Initial public availability of the driver.

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