eKeypad
Mobile Solutions

Push/Email Notification
Setup Guide

version 1.4

Table of Contents

Overview

eKeypad's Notification support lets you send push notifications to an unlimited number of iOS devices. It offers a robust push notification and email message solution that can send messages based up events that happen on your automation system. There are no limits on the number of events you can monitor or the number people that can be notified.

The cost to setup Push Notifications for eKeypad includes a one time, hardware component and a recurring service component. The hardware component is for a device to act as a Monitoring device for your equipment. The recurring service component is for the notification delivery system.

Push Notification Installation Costs

Recurring	One Time		
Yearly	Apple Wifi iPad	$349	Link
$39.99 / year	Belkin USB-C to Ethernet + Charge Adapter	$35	Link

Note: Some older iPads and iPhone models with lightning connectors are also supported, but require an additional adapter. Contact eKeypad support for help with the correct hardware.

The remainder of this document describes the steps to properly setup the hardware and various software components of an eKeypad Notification system.

Please follow all steps in this document. It includes several important steps **required** to achieve a dependable and reliable Notification setup.

Please contact eKeypad Support if you have additional questions or need assistance.

Web Site: https://www.ekeypad.net/	**Email Support**: support@ekeypad.net
Help Articles: https://www.ekeypad.net/help/	**PhoneSupport**: +1 (214) 497-4232
Document Downloads: https://www.ekeypad.net/downloads/	M-F 8am - 6pm (CST) Sa By Appointment Su Closed

1. Hardware and Licensing Requirements

Hardware

This document refers to two devices: a Monitor and a Receiver. These terms describe the roles of the iOS devices in the setup. The most important role is the monitoring device which will watch the equipment and send push and email notifications as needed. The receiver is a device carried by the end user and receives push notifications.

In most installs, there will only be a single monitoring device, but in more advanced configurations, it is possible to have more than one. Contact eKeypad Support for more help with advanced installations.
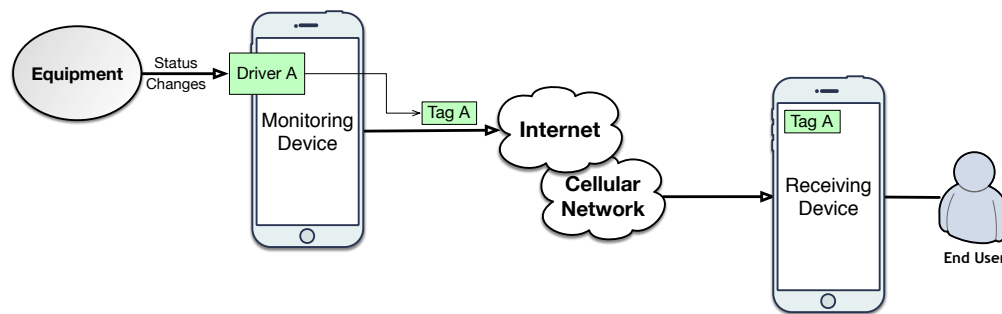

Diagram 1 : Simple Push Notification Setup

Monitoring Device

A Monitoring Device is a dedicated iOS device responsible for monitoring equipment and sending Notifications. Interaction with this device should be limited to only device setup and maintenance. This device **must** remain connected to the local network via ethernet and run the eKeypad Pro software continuously.

We recommend using an Apple iPad for this device, but an iPhone will meet the technical requirements. This device must be capable of running a minimum iOS version of 12, but iOS version 18 or higher is recommended.

- **Device Power.** The monitoring device **must** remain powered at all times. We recommend using a UPS for additional protection from power surges and power outages.

- **Network Connection.** The default network connection for iOS devices is Wi-Fi, which will cause reliability issues. All installations **must** use a wired ethernet connection.

- **Application Locking.** Long term reliability requires routine maintenance. eKeypad requires the "Guided Access" function of iOS to perform this maintenance.

It is recommended to perform a full reset of the iOS device before starting the setup of the Monitoring device. To do this, open the iOS Settings application on the device and navigate to the "General" -> "Transfer or Reset iPhone/IPad" screen. Tap on "Reset" and select the "Reset All Settings" option.

Receiving Device

A Receiving Device is typically the iOS device end-users carry with them and use daily and is the device that will receive the Push and Email Notifications.

The only configuration change, beyond the normal eKeypad setup, will be to add the push notification tags that define which messages the device should receive.

Devices receiving Email Notifications do not require any additional setup in the eKeypad application. Everything will be handled by their email application.
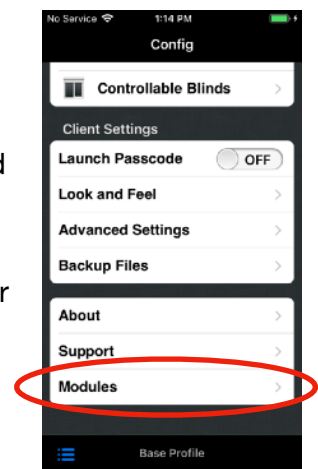
Licensing

Support for receiving Push Notifications is only available in the eKeypad and eKeypad Pro applications.

An upgrade bundle in the Apple App Store allows older eKeypad branded applications to upgrade to eKeypad Pro for a discount. Search for the term "eKeypad Pro Upgrade Bundle" in the Apple App Store.

Support for receiving Push Notifications is included in the base license for the eKeypad and eKeypad Pro applications.

Support for monitoring and sending Push Notifications is available in the eKeypad Pro application by purchasing the "**Yearly Push Sub**" Subscription module.

This module is on the "Modules" screen at the bottom of the main "Config" screen in eKeypad.

	- Ability to receive notifications is included in the base license - Subscription Module required to function as a Push Monitor
	- Ability to receive notifications is included in the base license

2. Monitoring Device Configuration

iOS Configuration

All iOS settings are in the iOS Settings application. This document details the location of these settings on iOS 16, but they can be different locations in other iOS versions. You can find the settings screen by searching for the title used in this document. Pull down the main iOS settings screen to expose the search function.
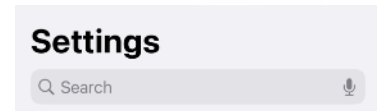
Software Updates

Turn **OFF** automatic iOS software updates. Open the "Software Update" screen under the "General" link on the main settings screen. Tap on the "Automatic Updates" link and turn OFF all switches on this screen.

Automatic Downloads

Turn **OFF** automatic application updates. Open the "App Store" link on the main settings screen. Turn off all switches in the "Automatic Downloads "sections.

iCloud Services

An Apple ID is required to set up the Monitoring device, but most unused services should be disabled. Open the iOS Settings app. Tap on the Apple ID account link at the top of the main settings screen, then tap the "iCloud" link. Turn **OFF** all entries in the "Apps Using iCloud" section, and all items under the "Show All" link.

Bluetooth

The Monitoring device requires the Bluetooth function. Make sure Bluetooth is turned **ON** under the "Bluetooth" link found on the main iOS Settings screen.

Wi-Fi

The Monitoring device requires a wired ethernet connection to maintain reliable operation. Open the iOS Settings application and tap on the "Wi-Fi" link on the main settings screen.
Turn **OFF** Wi-Fi.

Auto-Lock

The Monitoring device must remain running to work correctly. The auto-lock function of iOS must be disabled. Open the iOS Settings application and tap on the "Display & Brightness" link on the main settings screen. Turn **OFF** this functionality.

Configure Guided Access

The Monitoring device must remain running at all times. If eKeypad is not visible on the screen, it is not running. The "Guided Access" functionality if iOS must be used.

Before using Guided Access, it must be enabled and configured. Open the iOS Settings application and tap on the "Accessibility" link. Scroll to the bottom of the screen and tap on the "Guided Access" link.

The accessibility screen is located in different places depending on the version of iOS you are using.

> If you have trouble locating the accessibility screen, scroll to the top of the main iOS Settings screen and search for "Accessibility".

- On iOS 13 and higher, the accessibility screen is locate on the main settings screen.
- Prior to iOS 13 the accessibility screen was located under the General link.

Once you have located the the Accessibility screen, touch on the "Guided Access" row.

1. Turn the "Guided Access" switch to ON
2. Setup a Guided Access Passcode
3. Leave all of the Time Limits settings OFF
4. Leave the the Accessibility Shortcut setting OFF
5. Disable the "Display Auto-Lock" setting.

    - On iOS 13 and later, change the setting to Never.
    - Prior to iOS 13, turn"Mirror Display Auto-Lock" ON
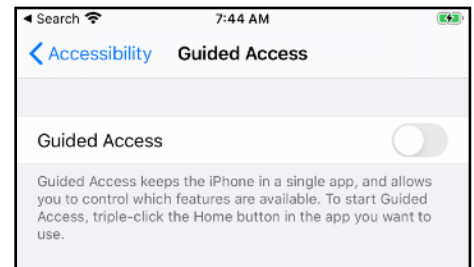
eKeypad Configuration

Start by following the "Best Practices" document for your equipment from the keypad web site. This document will only describe all of the special settings and changes unique to a Monitoring device.

All of the eKeypad documentation is available on the Downloads page of eKeypad web site: https://www.ekeypad.net/downloads/

The unique way in which the Monitoring Device is used will change a few of the best practice recommendations. The following topics should be bypassed to simplify the setup and reduce the possible sources of issues:

- **Failover configurations.**
  Monitoring devices should only be run from the local network and have no need for failover functionality. Leave this functionality disabled.

- **Dynamic DNS hostname.**
  DDNS hostnames are only needed for remote access. Only use the internal IP Address of the equipment.

- **Encrypted Equipment Ports.**
  Encrypted ports are only needed to secure connections. The Monitoring device does not need this protection as it is located on the local network. Using unencrypted port is strongly advised and will improve responsiveness and allow for faster communications.

- **Ignore Errors.**
  In the event of network issues, the Monitoring device should always try to reconnect to equipment and never stop trying. On the eKeypad Config -> Advanced screen, the "Ignore Errors" switch should be set to ON.

- **Allow Sleep.**
  The Monitoring device should run continuously. On the eKeypad Config -> Advanced screen, prevent iOS from putting device to sleep by setting the "Allow Sleep" switch to ON.

Turning on Monitor Mode

For eKeypad Pro, if a Notification subscription is not active the configuration screens described below will not be available. These screens are always available on the eKeypad application.

- Open the Config screen in eKeypad
- Touch on the Push Monitor link
- Turn the "Enable Push Server" switch to ON

Optionally, on this screen you may also enter a "Security Tag" for an additional level of security and privacy. The "Security Tag" field is a case sensitive string.

> **Troubleshooting:**
> If you do not see a "Push Monitor" row, a Push Notification subscription is not active.
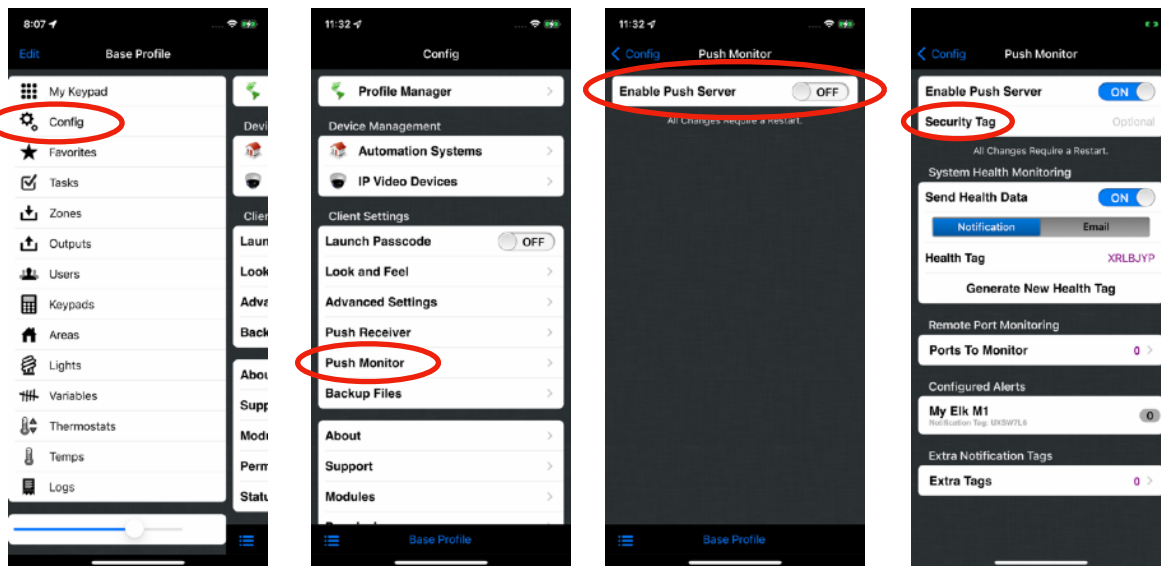
Additional Monitor functionality can also be enabled on this screen.

- **Send Health Data**. This feature will cause the monitor device to send push or email notifications with information about potential issues the monitor has detected that may be affecting end-user access to the equipment.

- **Ports to Monitor**. This feature will monitor ports forwarded through the local firewall to ensure that they are accessible remotely. This function can not monitor ports at remote locations.

- **Extra Tags**. This feature allows additional push notification tags to be defined.Each configured equipment driver in eKeypad is automatically assigned a unique push notification tag. Additional tags enables the ability to route notifications to multiple recipients.

> **Important:**
> A restart is required after making changes to the Notification Configuration

Setup Notification Alerts

Currently push notification alerts can be setup on the the following capabilities:

- Alarm Zones
- Alarm Areas
- Relay Inputs
- Relay Outputs
- Lights
- Variables

> For simplicity, this document will only outline the process of setting up a Push Notification for an Alarm Zone. The process for setting up Email Notifications and notifications for other capabilities is very similar.

To access the Alert Management on a Monitoring Device.

- Open the Zone list in eKeypad.
- Touch a Zone to display its detail screen.
- Find the "Customizations" section. Tap the triangle or title to toggle visibility.
- Touch on "Manage Alerts" link.

The screen displayed will be a list of the Alerts currently defined for this Alarm Zone.

> **Important Note**
>
> The "Customizations" section is **only** visible if editing is enabled. To enable editing, tap the "Look and Feel" link on the main eKeypad Configuration screen. The setting is labeled, "Edit Interface" and must be set ON.
>
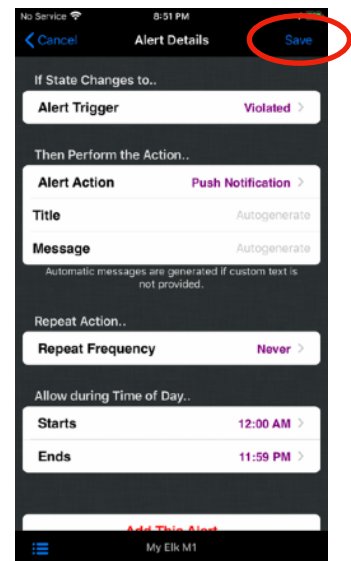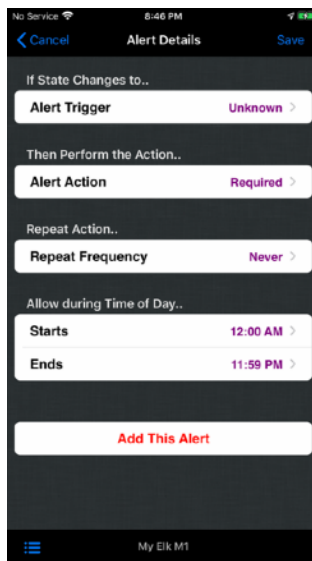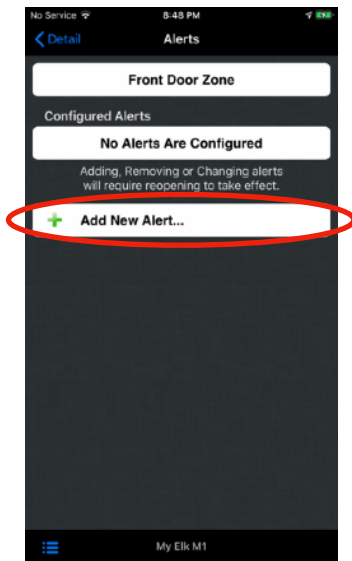> See the Security Considerations section later in this document for more detail.
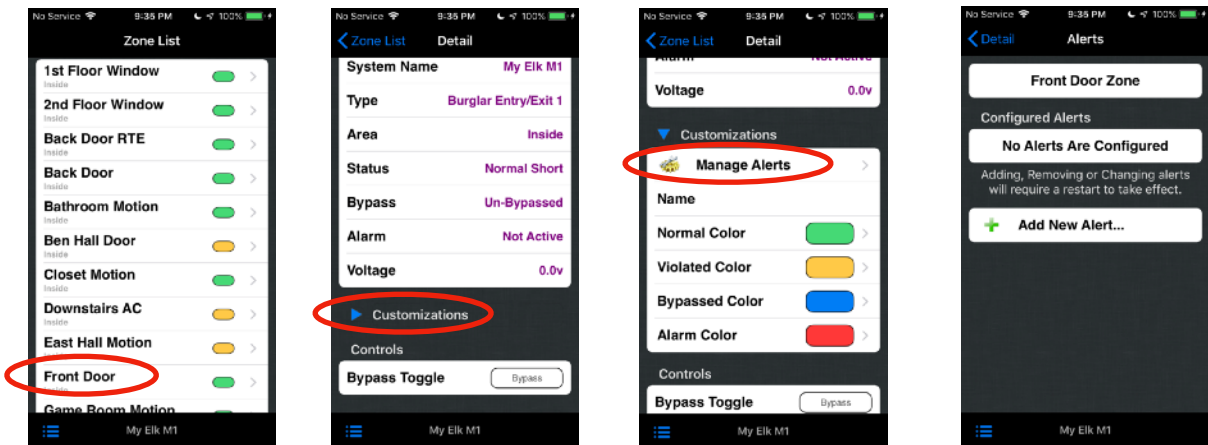
To add a new Push Notification Alert to a Monitoring Device tap the "Add New Alert…" button.

- **"Alert Trigger"** is the state that will trigger the Alert and send the Notification.

- **"Alert Action"** should be set to the "Push Notification" or "Email Message" value. The remaining options are for local only alerts.

- **"Repeat Frequency"** is an optional feature allowing a Notification to be sent repeatedly for as long as the item remains in the triggering state.

> **Note**
> Alerts are only triggered when the monitoring device observes the state of item changing to the specified state.
>
> Alerts are **not** triggered when the item leaves the state or if the item is already in the state when eKeypad is launched.

- **"Time of Day"** is an optional feature allowing a period of time during which notifications will be sent. Outside this window of time, notification messages that are triggered will be discarded. They **will not** be sent later.

- **"Extra Tags"** this option will only appear if extra push notification tags were defined on the Push Notification screen in the eKeypad Configuration. It will allow you to select the additional tags this message should be sent to.

- Use the Save button in the top right corner of the screen to save the Alert.

After saving the alert, the alert list will reappear and display a summary of the configured alerts for this capability item.

From this view, swiping left on the row will expose the option to delete the alert. Tapping on the row will allow you to update the alert details.

Pay special attention to the description of the alert. It contains a reference to the Push Notification Tag this alert message will be sent to. Write down this Tag code. This Tag will be required later during the setup of any device that needs to receive this push notification.
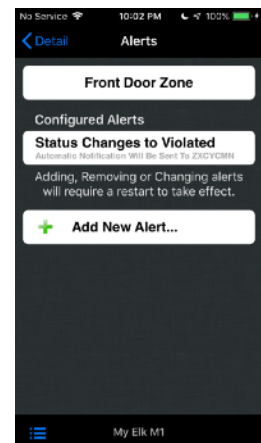
> **Important:**
> A restart is required after Adding, Removing or Changing Alerts

Monitoring Device Security

The last activity to be performed on a Monitoring Device is to secure the configuration to prevent unauthorized access to the notification messages it sends.

Please see the Security Considerations section below for more detail and a walkthrough of the recommended security settings for Monitoring Devices.

3. Receiving Device Configuration

The setup of the Receiving Devices is a much simpler than the Monitoring Device.

Important:
A restart is required after making changes to the Notification Configuration

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eKeypad Configuration

Start by completing the normal setup process for eKeypad and validate that it can connect to the equipment both locally and remotely. It is recommended to follow the "Best Practices" document for your equipment. This document will describe all of the required steps for a working and reliable install.

All of the eKeypad documentation is available on the Downloads page of eKeypad web site: https://www.ekeypad.net/downloads/

Enabling Receiver Mode

For eKeypad Pro, if a Notification subscription is not active the configuration screens described below will not be available. These screens are always available on the eKeypad application.

- Open the Config screen in eKeypad
- Touch on the Push Notifications link
- Turn the "Enable Push Client" switch to ON
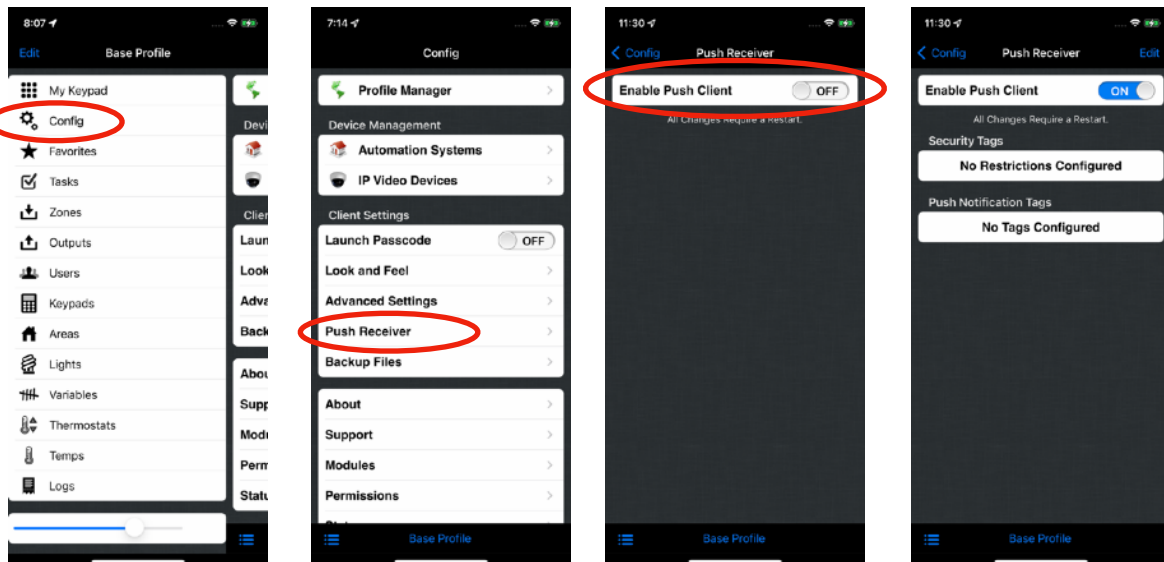
Add Security Tags

Optional Security Tags can be setup on Monitoring Devices to increase the privacy and security. If used, these tags must also be configured on Receiving Devices. A missing Security Tag will prevent notifications from being received. Multiple Security Tags can be added. Tags including tags for different Monitoring Devices.

- Enter editing mode by pressing the Edit button.
- Touch the "Add New Security Tag" button to add a new Tag row.
- Touch on the newly added row to enter the tag. Tags are case sensitive.
- When done adding tags, exit editing mode by pressing the Done button.
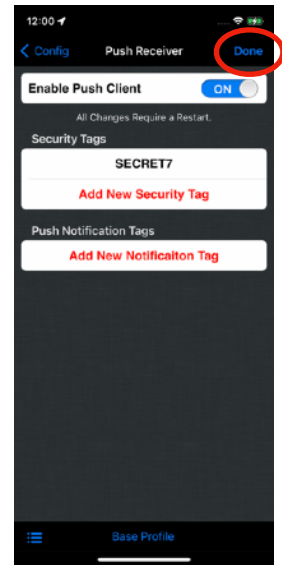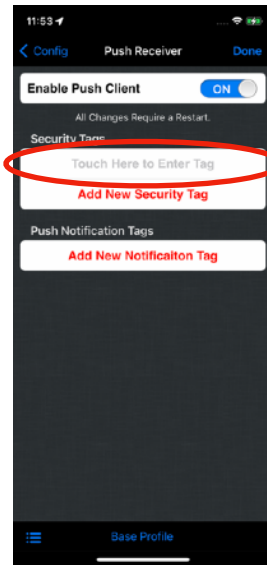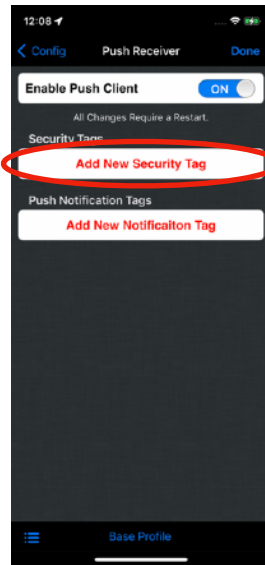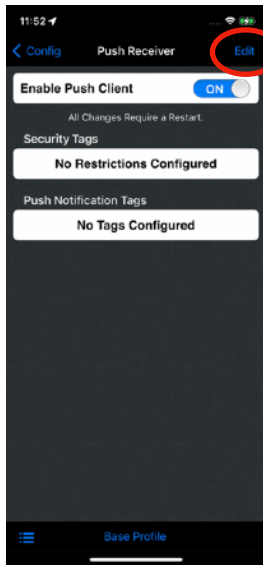
Add Notification Tags

Notification Tags control the push notifications that will be received and displayed by this Device. Multiple Notification Tags can be added including tags from different Monitoring Devices, Extra Tags setup on Monitoring Devices and Health Notification Tags.

- Enter editing mode by pressing the Edit button.
- Touch the "Add New Notification Tag" button to add a new Tag row.
- Touch on the new row to enter the tag . Tags are case sensitive.
- When done adding tags, exit editing mode by pressing the Done button.
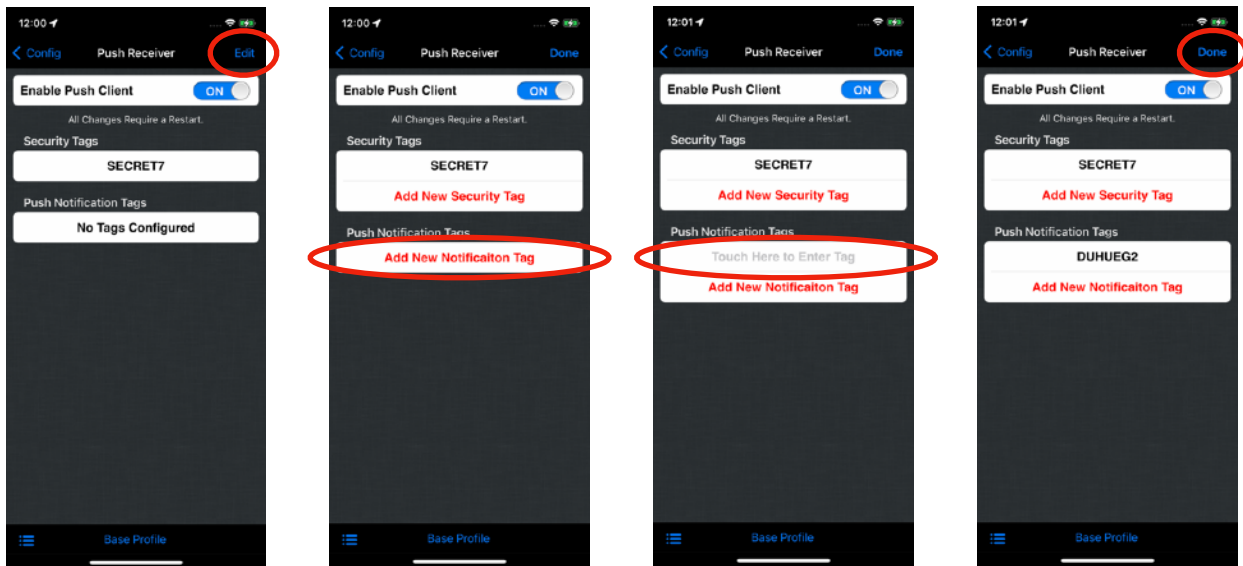
4. Security Considerations

It is important to apply basic safeguards to the Push Notification Tags being used. While these Tags are randomly generated they do uniquely identify the systems being monitored.

Additionally, for Monitoring Devices configured with a Security Tag this setting should be treated the same as any password.

Important Note
If a Receiving Device is **not** configured with a Push Notification Tag, the messages sent with this Tag will **not** appear on that device.

Access to both a valid Push Notification Tag and the optional Security Tag for the Monitoring Device that sent the notification are necessary to receive and see a Push Notification message. Please note that it is **not possible** to query or control equipment using these Tags.

To prevent unauthorized viewing of push notification messages, there are several configuration settings in eKeypad that can be used to restrict access to various customization and configuration settings. These settings can be used to restrict access to the equipment configuration, push notification tags and security tags.

For monitoring devices we recommend:

- <u>Disable Edits</u>. Removes the ability to change Alerts used to trigger Push Notifications.

- <u>Configuration Passcode</u>. Restricts access to the configuration screens.

For receiving devices we recommend:

- <u>Configuration Passcode</u>. Restricts access to the configuration screens.

By using these recommended security settings in eKeypad a passcode will be created that is required to view and/or change the Push Notification Tags, the Security Tags or the Alerts that trigger the sending of Push Notification messages.

Disabling Changes to Push Notifications

This feature will hide the Customizations section on detail screens of capability items. Access to this section is necessary to make changes to the Alerts responsible for sending push notification messages.

To disable editing in eKeypad.

- Open the Config screen in eKeypad
- Touch on the Look and Feel link
- Turn the "Edit Interface switch to OFF

Changes to this setting take effect immediately.
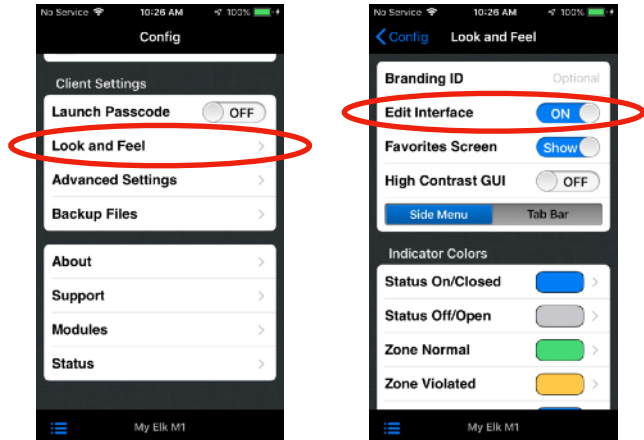
Restricting Access to Configuration

This feature allows a passcode to be setup which restricts access to all configuration screens in eKeypad.

To setup a passcode in eKeypad.

- Open the Config screen in eKeypad
- Touch on the "Advanced Settings" link
- Turn the "Secure Config" switch to ON

When you enable this setting a wizard will be displayed to guide you through the process of defining and verifying a passcode plus an optional hint to help in the recovery of forgotten passcodes.

Place this passcode in a safe place. It is **not possible** to recover lost passcodes.

Setting up a configuration passcode will take effect immediately.
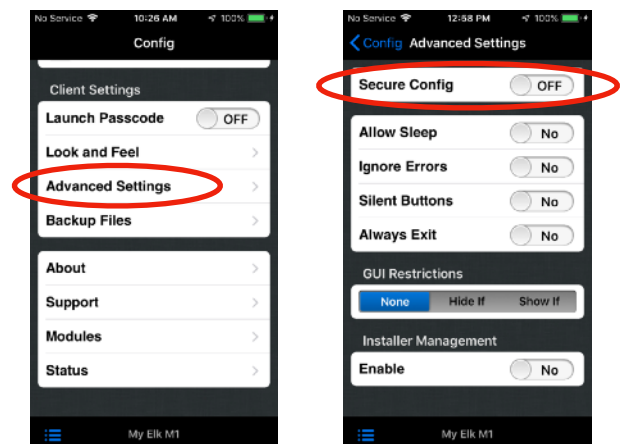
5. Push Notification Reliability

Push Notifications uses a "best effort" mechanism for delivery. There are numerous data networks and servers that participate in the notification delivery process that are outside the control of eKeypad. Because of this, we can not promise timely delivery of all message or that a message will be displayed by the target device.

You should **NOT** rely on Push Notifications exclusively. They are not a replacement for critical communications such as alarm system monitoring, medial personnel, law enforcement and/or other appropriate authorities.

Push Notifications do not display real-time information. They only show the state of equipment when the notification was sent. You must launch eKeypad and connect to the equipment to see real-time status.

<div style="border:1px solid black; background:#eee; padding:1em;">

Disclaimer

Push Notification support in eKeypad is provided as a supplemental communication method and should not be relied upon exclusively. This functionality uses a "best effort" mechanism for delivery and makes no claims of reliability or timely delivery of notifications.

eKeypad makes no warranties about the accuracy, completeness, or delivery of any message transmitted through Push Notifications. There is no guarantee that notification messages will: (a) be received in a timely manner; (b) ever reach their destination; or (c) be displayed by the device.

eKeypad is not responsible for any actions based on information provided in a Push Notification message; or for receiving a delayed message; or for messages that fail to arrive.

</div>

Several factors can delay or prevent the delivery of Push Notification Messages from being received or displayed on the receiving device. Following is a list of the most common reasons.

- **Guided Access is Not Running**

  Proper operation of a Push Notification Monitor requires that guided access is enabled and turned ON at all times.

  Always verify that Guided Access is enabled after working with the Push Monitor device.

- **Mobile Device is Offline**

  Apple servers must send the notification to the receiving device. Delivery of a Push Notification requires an active cellular or Wifi connection. Apple servers will not cache multiple Push Notifications.

  If multiple notifications are received while the receiving device is offline, all but the last Push Notification will be lost.

- **eKeypad is in the Foreground**

  Push Notifications will notify you when new information is available in eKeypad. It is not designed to inform you of status changes.

  If eKeypad is running in the foreground, there is no need to display notifications that the receiving device may receive. iOS will discard any messages received in this scenario. There are no iOS settings available to change this behavior.

- **Push Notifications are One-Way**

  Apple currently provides no mechanism to verify if a device has received a notification message. There is no way to verify that Push Notifications are received.

- **The Internet**

  Push Notification messages are sent from eKeypad to Apple using the internet. In some cases, Apple communications with the receiving device will also use the internet.

  If internet availability is down, there is no way for eKeypad to send the notification.
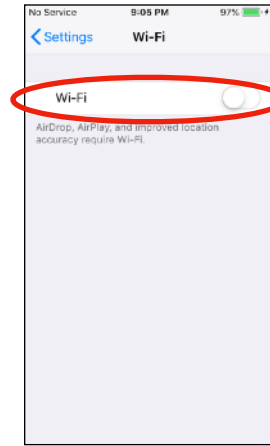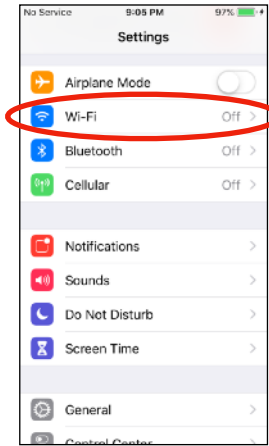
- **Device Configuration**

  Independent of eKeypad, end-users have complete control over Push Notifications. They have access to iOS configuration settings that can mute or disable messages received from eKeypad.
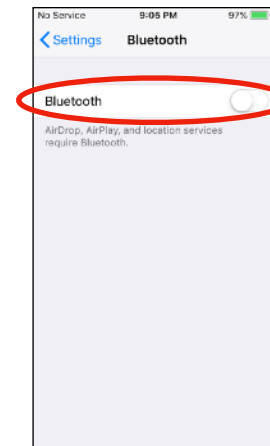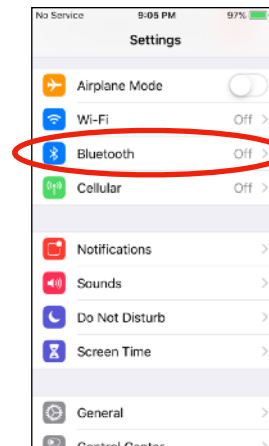
6. Appendix

Turn Off Wi-fi in iOS

- Open the iOS Settings Application.
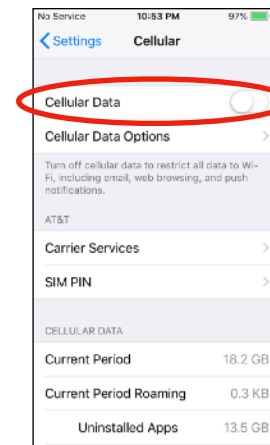- Touch on the "Wifi" row.
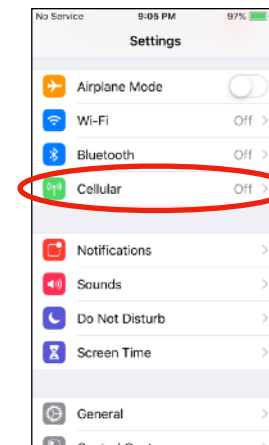- Turn the Wi-Fi switch to OFF

Turn Off Bluetooth in iOS

- Open the iOS Settings Application.
- Touch the "Bluetooth" row.
- Turn the Bluetooth switch to OFF.

Turn Off Cellular Data in iOS

- Open the iOS Settings Application.
- Touch the "Cellular" row.
- Turn the "Cellular Data" switch to OFF.

Guided Access

This is the preferred method. The "Guided Access" method can be configured and setup on the iOS device itself. There is no additional software, 3rd party services or internet connection requirements.

Details of how to setup Guided Access is detailed by Apple here:
https://support.apple.com/en-us/HT202612

Several iOS Settings are necessary for proper operation of guided access. All of these settings are located under the iOS Settings app.

Display Auto-Lock Setting

This setting determines if or when the iOS device automatically locks and the display enters sleep mode. For the purpose of using guided access with eKeypad this function should be disabled.

- Open the iOS Settings Application.
- Touch on the "Display & Brightness" row.
- Change the Auto-Lock setting to Never.
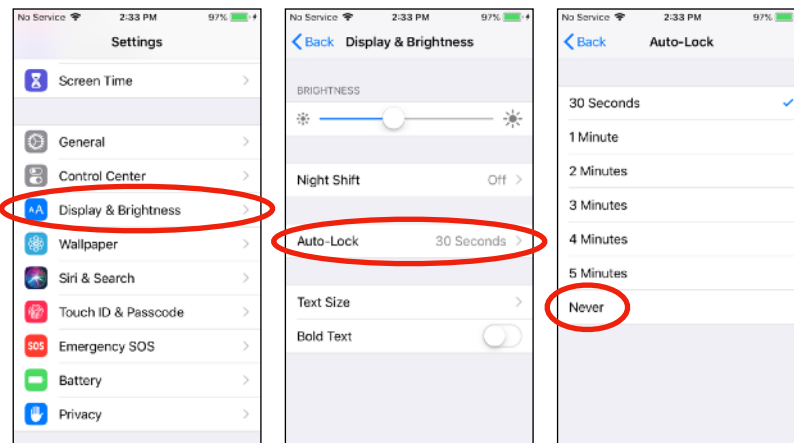
Guided Access Auto-Lock Setting

This setting determines whether guided access uses its own internal timeout for Auto-Lock or if it should use the Display value. For the purpose of using guided access with eKeypad guided access should use the Display value.

For iOS versions prior to iOS 13, Accessibility settings are located under the General section:
• Open the iOS Settings Application.
• Touch on the General row.
• Touch on the Accessibility row.
• Touch on the "Guided Access" row.
• Switch the "Mirror Display Auto-Lock" setting to ON.
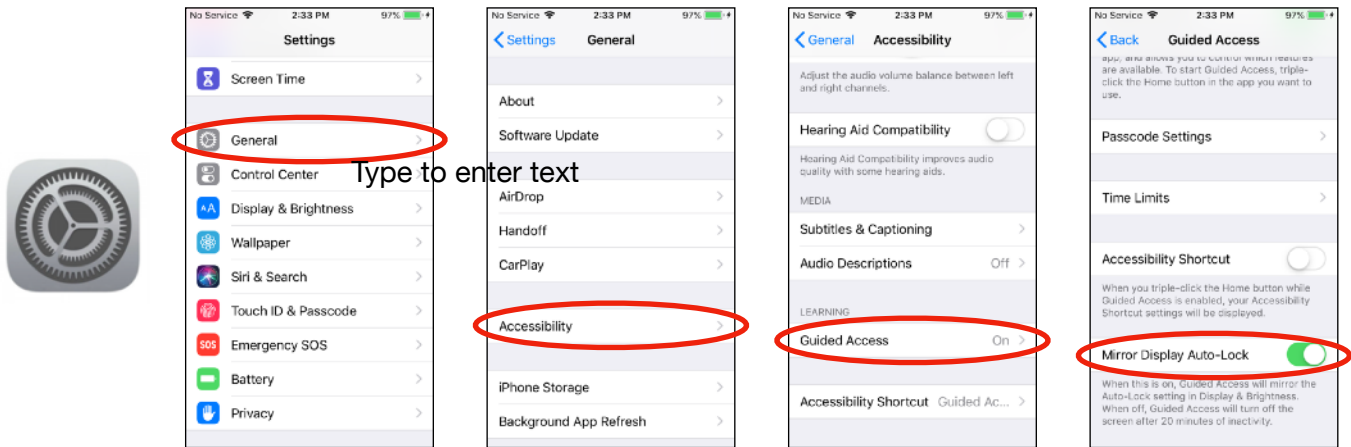
Starting in iOS 13, the Accessibility settings have been moved to the main Settings screen. If you have trouble locating the Accessibility screen you can use the Search field at the top of the main iOS Settings screen.

or
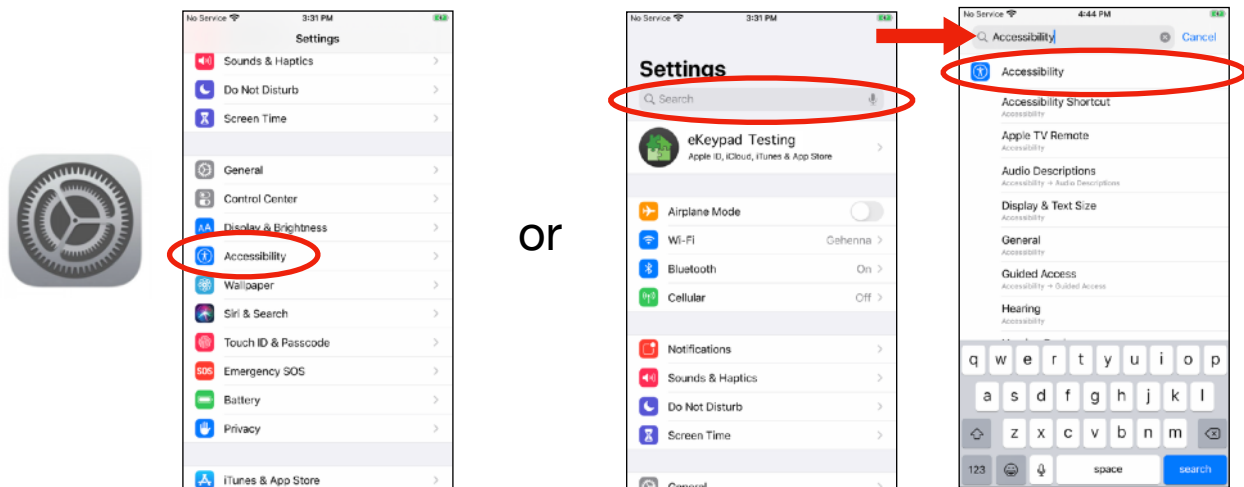
Common Issues

Some of the more common issues you may encounter.

Push Notifications not Received

Successfully receiving push notifications is dependent on matching the notification and security tags. Additionally, changes to the tags requires a restart to take effect.

We recommend using the following checklist to troubleshoot this situation.

Troubleshooting Step	Why this can Help
1. Restart eKeypad on the Monitoring Device.	Notification and Security Tags are only registered at launch. Changes require a restart.
2. Restart eKeypad on the Receiving Device.	
3. Verify Tags on Monitor and Receiver match.	Tags are case sensitive and can look similar.
4. Verify Security Tag Configuration.	A Security Tag applies to **ALL** notifications.
5. Verify Receiver Device Allows Notifications	iOS can block notifications. See below for detail.

Apple provides a data privacy option that allows an end-user to hide Push Notification messages received for individual applications.

To change this behavior for eKeypad Push Notifications:
- Open the iOS Settings Application.
- Scroll down and tap on the "eK Pro" entry.
- Touch on the "Notifications" entry.
- Make sure the "Allow Notifications" switch is set to ON.
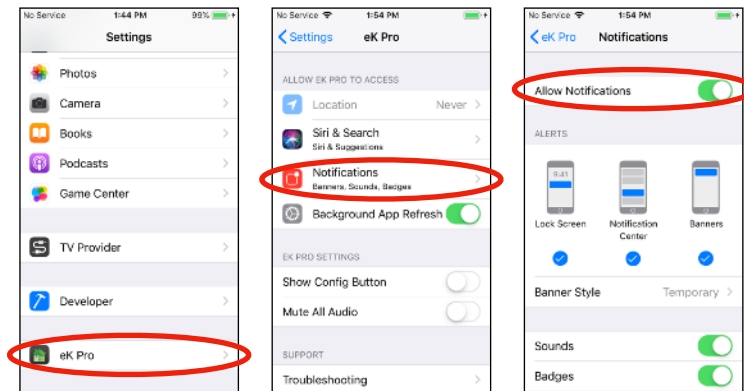
Notification Only Says, "Notification"

Apple provides a data privacy option that allows an end-user to hide Push Notification messages that may contain sensitive information. This configuration options will mask the message with the text, "Notification" in scenarios where the end-user has not been authorized.

To change this behavior for eKeypad Push Notifications:
- Open the iOS Settings Application.
- Scroll down and tap on the "eK Pro" entry.
- Touch on the "Notifications" entry.
- Make sure the "Allow Notifications" switch is set to ON.
- Change the "Show Previews" option to "Always".
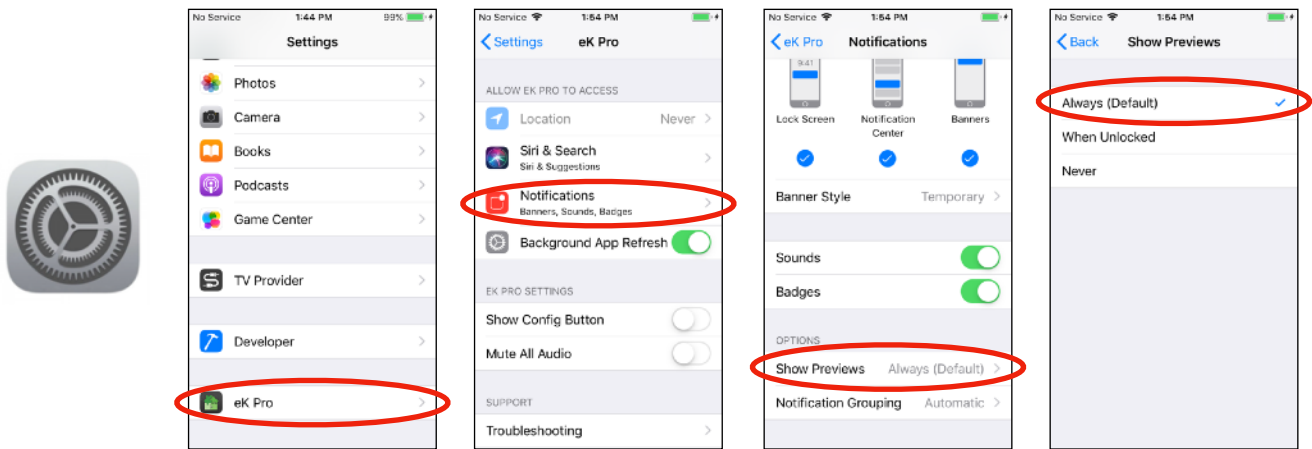
Push Notifications do not Appear when eKeypad Is Running

Push Notifications are designed to inform you when new information is available in eKeypad.

These messages do not appear if eKeypad running in the foreground. Under normal conditions, the eKeypad real-time connection will update the interface before any related notification message could possibly be received.

Document Change Log

Version	Notes
1.0	- Initial Version
1.1	- Added information about new Email Notification option - Changed best practice from Single Application Mode to Guided Access
1.2	- Updated screen shots for Configuration screens - Updated Push Monitor setup process - Updated Push Receiver setup process
1.3	- Updated with updated screen layouts - Updated with updated setup procedures - Removed Single Application Mode information
1.4	- Updates to address changes in Apple hardware. - Improvements to make document easier to understand. - Moved complex configuration examples to separate document.