Trackunit Kin

Technical User Manual

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Release Notice

This document is release 1.0 of the Trackunit Kin, Technical User Manual.

THIS MANUAL IS INTENDED FOR USE BY SYSTEM INTEGRATORS, SERVICE PROVIDERS AND APPLICATION DEVELOPERS (COLLECTIVELY, "RESELLERS"). IT IS NOT INTENDED FOR END-USERS OF THE Trackunit KIN. ANY END-USER DOCUMENTATION IS TO BE PREPARED AND FURNISHED BY THE RESELLERS.

The following Product Limited Warranty gives Resellers specific legal rights. You may have others, which vary from state/jurisdiction to state/jurisdiction.

Product Limited Warranty

Subject to the terms and conditions set forth herein, Trackunit Aps (*"Trackunit"*) makes the following warranty only to its Resellers who purchase the Trackunit KIN hardware product (*"Product"*) directly from Trackunit: for a period of one (1) year from the date of shipment from Trackunit, the Product will substantially conform to Trackunit's standard published specifications for the Product and the Product hardware will be substantially free from defects in materials and workmanship. The foregoing warranty shall not apply to embedded software/firmware components.

THIS PRODUCT LIMITED WARRANTY IS PROVIDED TO RESELLERS AND TO RESELLERS ONLY. RESELLER IS SOLELY RESPONSIBLE FOR ANY AND ALL WARRANTIES MADE TO ITS CUSTOMERS, AND Trackunit MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND SHALL HAVE NO OBLIGATIONS OR LIABILITY TO RESELLER'S CUSTOMERS OR END-USERS OF THE PRODUCT. RESELLER SHALL NOT
MAKE ANY REPRESENTATIONS OR WARRANTIES ON Trackunit'S BEHALF, AND SHALL FULLY INDEMNIFY, DEFEND AND HOLD Trackunit HARMLESS FROM ANY BREACH OF THE FOREGOING. IF RESELLER DISTRIBUTES PRODUCT TO END-USER CUSTOMERS, RESELLER SHALL BE SOLELY RESPONSIBLE FOR PREPARING AND PROVIDING PRODUCT WARRANTIES AND PRODUCT LITERATURE TO END-USERS.

Warranty Remedies

If the Product fails during the warranty period for reasons covered by this Product Limited Warranty and Reseller notifies Trackunit of such failure during the warranty period, Trackunit at is option will repair OR replace the nonconforming Product, OR refund the purchase price paid by Reseller for the Product, provided that Reseller returns the Product to Trackunit in accordance with Trackunit's standard return material authorization procedures or as otherwise instructed by Trackunit.

Warranty Exclusions and Disclaimers

The foregoing Product Limited Warranty shall only apply in the event and to the extent that (i) the Product is properly and correctly installed, configured, interfaced, maintained, stored and operated in accordance with Trackunit's specifications, and (ii) the Product is not modified or misused. This Product Limited Warranty shall not apply to, and Trackunit shall not be responsible for, defects or performance problems resulting from: (a) the combination or utilization of the Product with hardware or software products, information, data, systems, interfaces, services or devices not made, supplied or specified by Trackunit; (b) the operation of the Product under any specifications other than, or in addition to, Trackunit's standard published specifications for the Product; (c) the unauthorized installation, modification or use of the Product; (d) damage caused by: accident, lightning or other electrical discharge, water immersion or spray, or exposure to environmental conditions for which the Product is not intended; or (e) normal wear and tear on consumable parts, including by way of example and without limitation, batteries.

Trackunit DOES NOT WARRANT OR GUARANTEE THE RESULTS OBTAINED THROUGH THE USE OF THE PRODUCT. THE FOREGOING TERMS OF THE PRODUCT LIMITED WARRANTY STATE Trackunit'S ENTIRE LIABILITY, AND RESELLER'S EXCLUSIVE REMEDIES, RELATING TO THE USE AND PERFORMANCE OF THE PRODUCT EXCEPT AS OTHERWISE EXPRESSLY PROVIDED FOR IN THIS PRODUCT LIMITED WARRANTY, THE PRODUCT, ACCOMPANYING DOCUMENTATION AND MATERIALS, AND/OR ANY EMBEDDED SOFTWARE/FIRMWARE AND UPDATES THERETO ARE PROVIDED "AS-IS" AND WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND, BY EITHER Trackunit OR ANYONE WHO HAS BEEN INVOLVED IN ITS CREATION, PRODUCTION, INSTALLATION OR DISTRIBUTION, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NONINFRINGEMENT. THE STATED EXPRESS WARRANTIES ARE IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF Trackunit ARISING OUT OF, OR IN CONNECTION WITH, THE PRODUCT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING:
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Embedded Software/Firmware
The Product and associated tools, if any, may contain embedded software/firmware, which is licensed, not sold, and is only for use within the Product as an integral part thereof. Such embedded software/firmware (which includes all updates thereto) contains valuable trade secrets and is proprietary to Trackunit and its suppliers. To the greatest extent permitted by law, such embedded software/firmware may not be modified, copied, disassembled, decompiled or reverse engineered. Trackunit reserves all other rights.

Limitation of Liability
Trackunit'S ENTIRE LIABILITY REGARDING THE PRODUCT SHALL BE LIMITED TO THE AMOUNT ACTUALLY PAID BY RESELLER FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL Trackunit OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER UNDER ANY CIRCUMSTANCE OR LEGAL THEORY RELATING IN ANY WAY TO THE PRODUCTS, ACCOMPANYING DOCUMENTATION AND MATERIALS, AND ANY EMBEDDED SOFTWARE/FIRMWARE AND UPDATES THERETO (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS,
BUSINESS INTERRUPTION, LOSS OF DATA OR ANY OTHER PECUNIARY LOSS), REGARDLESS OF WHETHER Trackunit HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH LOSS AND REGARDLESS OF THE COURSE OF DEALING BETWEEN Trackunit AND RESELLER. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO EVERY RESELLER.

Notices
Class B Statement – Notice to Users. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and the receiver.
– Consult the dealer or an experienced radio/TV technician for help.
Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

Regulatory Approvals

CE
The Trackunit Kin product comply with the essential requirements of the RED Directive 2014/53/EU as stated by the Declaration of Conformity (CE). The Trackunit KIN product comply with the European Telecommunications Standards Institute Specifications EN 301 489-1, EN 301489-17, EN 300328 for Bluetooth LE.

EU/ International
• The product complies with the essential requirements of the 2011/65/EC directive and amendment 2015/863/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS 3).
• The product complies with the essential requirements of the EC 1907/2006 regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
• The product complies with the requirements of the 2012/19/EU directive on waste electrical and electronic equipment (WEEE).

FCC
The Trackunit KIN product comply with the FCC Part 2.1091, Part 15.247 and the Industry Canada requirements RSS-102, RSS-247.

The Trackunit KIN product comply with Part 15 of the FCC rules and Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.
For fixed mounted operations the Trackunit KIN must be installed to provide a separation distance of at least 20 cm from all persons.

MIC (Japan)
(Shared with Quectel BG96 module certificate):
The Trackunit KIN product complies with the Japanese radio Law: Ordinance concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment Article 2, clause 1, item19 supporting Bluetooth LE in the 2402 MHz – 2480 MHz band

US and Canada certificates:
FCC ID: ZMF-KIN
IC: 9746A-KIN

EU certificate:
CE mark by EU-Tec certificate: **xxxxxxx**

Japan certificates:
Trackunit Kin: [R] 201-xxxxxx

Bluetooth SIG registered:
Declaration ID: **D051566**
Company identifier UUID: **2159 (0x086F)**

Chile:
Exempted for radio approval:

Este equipo cumple con la Resolución No 403 de 2008, de la Subsecretaria de telecomunicaciones, relativa a radiaciones electromagnéticas

Introduction

This document contains the installation guide and regulatory information for the product Trackunit KIN. This manual describes how to set up, configure, install, operate, and troubleshoot the product. Even if you have used other assets Trackunit products before, Trackunit recommends that you spend some time reading this manual to learn about the special features of this product.

Trackunit Kin connects every tool and attachment to the same platform you already know and provides everyone with seamless connectivity – from hand tool to tier-one machinery. Trackunit Kin is integrated with our world of services and builds on our open, flexible, secure, and scalable platform, Iris, all found via https://www.trackunit.com/hardware/kin/

Trackunit Kin is engineered and designed from the ground up by Trackunit, all with the mindset of setting new industry standards for a versatile Bluetooth® 5.2 based Tag. We have exceeded the expectations on performance and durability for our Trackunit TU600, and proven to lead the industry, by paving the path towards LTE-M / NB-IoT connectivity for telematics hardware. Now we are expanding the ecosystem, by introducing Trackunit Kin.

Designed to meet the unique environmental and functional requirements for an industry having some of the toughest requirements. Trackunit Kin is one of its kind, and one of the most versatile Bluetooth® 5.2 tags on the market.

A sleek design, robust core and with multiple attachment options, designed in cooperation with real users and installers covering a range of asset types. Users can glue, screw or strap the Kin on almost anything from tools, smaller to mid-sized equipment and miscellaneous, nonpowered assets scattered across a jobsite. It´s weather, water, flame and dust resistant ratings ensure that Kin will survive every environment.

Kin is deal for effortlessly tracking of tools, smaller to mid-sized equipment and non-powered assets scattered across a jobsite, whether you are an OEM, Contractor or Rental business.

Bluetooth 5.2 & Bluetooth Low Energy (BLE)

The next generation of Bluetooth; At CES 2020 (January 2020), the Bluetooth SIG introduced the latest version of Bluetooth, version 5.2.

Trackunit Kin is a Bluetooth BLE Beacon Tag, and by design Kin picks up the major and most relevant features from Bluetooth 5.2 & BLE, and launches with a range of embedded features for enabling energy-friendly services,

Additional Bluetooth information to support this Kin data sheet is available via Bluetooth Special Interest Group, Bluetooth SIG. https://www.bluetooth.com/

To meet the latest standards, and to secure our customers to best in class performance, we have designed Trackunit Kin Bluetooth firmware and features, in close cooperation with our Bluetooth System on Chip (SoC) partner, Silicon Labs Inc.

Trackunit Kin benefits from a high-performance Bluetooth 5.2 Compliant System on Chip (SoC) containing a low-power architecture, that allows Trackunit Kin to provide battery lifetime beyond five years.

Related Information

The Trackunit web site is found at **www.trackunit.com**. This site links to the fleet management system from Trackunit Aps called Trackunit Manager. Trackunit KIN devices are integrated to Trackunit but can also be used together with third part system providers.

Safety first

Simple Guidelines

Please follow these guidelines when configuring, using, or recycling the Trackunit KIN. Violating these guidelines may be dangerous, illegal or otherwise detrimental. Further detailed information is provided in this manual.

Do Not Operate Where Prohibited

Do not allow the Trackunit KIN unit to operate wherever wireless phone use is prohibited or when doing so may cause interference or danger. The Trackunit KIN cannot be turned off after installation, so any asset using Trackunit KIN etc. must not enter areas where it is prohibited to operate wirelessdevices as the device periodically turns on the transmitter in a short period of time to perform tracking reporting.

Examples include but are not limited to operation in hospitals, aircrafts, near blasting sites or wherever operation can cause interference.

Interference

Like all wireless devices, the Trackunit KIN may encounter electrical interference that may affect its performance.

Avoid Body Contact with Device during Operation

Do not operate the Trackunit KIN in direct contact with your body. Maintain at least 8 inches (20 cm) separation between the device and any parts of your body.

Qualified Service

The Trackunit KIN contains no user serviceable or replaceable parts. Non-functioning units must be returned to an authorized service center for repair or replacement or disposed according to local rules for electronic waste and batteries.

Water-Resistance

The Trackunit KIN series is water and dust-resistant according to the IP66, IP67, IP66K and IP69K standard.

Detailed Safety Information

Exposure to Radio Frequency Signals

The Trackunit KIN unit is a low power radio transmitter and receiver. Periodically the Trackunit KIN wakes up either due to activity or by a timer. When it is ON, it receives and sends out radio frequency (RF) signals for a short period of time.

The Trackunit KIN unit is designed for assets tracking only.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against the RF signals generated by the Trackunit KIN unit.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six (6”) inches be maintained between a radio transmitter and a pacemaker to avoid potential interference with the pacemaker. The following precautions apply:

- The Trackunit KIN unit is not intended for handheld use or to be worn on the body.
- It is always recommended that a minimum separation of 8” inches (20 cm) to be maintained between the Trackunit KIN unit and any persons’ body after end installation.

Posted Facilities

The Trackunit KIN unit cannot be turned off after installation, so any assets installed with the Trackunit KIN must not enter any facility where posted notices prohibit the use of wireless devices or two-way radios.

Potentially Explosive Atmospheres

The Trackunit KIN is neither intrinsic safe nor ATEX, IECEx or Hazloc certified for Zone 1 operations.

The Trackunit Kin is completely shielded and constructed in fire retarded plastic and poses a low risk of any battery leakage or potential short circuit after installation that can cause a spark or ignition of explosive gasses or dust.
It is however recommended to examine the potential risk if used in any area with a potentially explosive atmosphere and obey all signs and instructions. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Specific Human Absorption Rates (SAR)

The Trackunit KIN unit is not intended for handheld use or to be worn on the body. A minimum separation of ten (8”) inches (20 cm) is to be maintained between the Trackunit KIN and any persons’ body. Additional information on Specific Absorption Rates (SAR) can be found on the Cellular Telecommunications & Internet Association (CTIA) Web site at www.ctia.org.

The transmitter power is very low and as such, the device is exempted for routine evaluations and body worn positions for the Trackunit Kin are not required by either the IEC 62311 or FCC part 2.1091, IEEE or ICNIRP requirements for operation in the Bluetooth LE band.

Battery Safety Information

Adhere to the following guidelines to avoid the risk of fire or explosion:

1. Dispose of the used Trackunit Kin units with batteries battery according to the instructions provided with the battery.
2. Do not drop, puncture, disassemble, mutilate, or incinerate the Trackunit Kin as it may affect the safety of the battery inside the unit.
3. The battery safety ensures that there is no risk* associated with the battery in the temperature range from -40°C to +85°C but the battery lifetime can be seriously affected or even lead to internal permanent damage of the battery for temperatures above +70°C.

* The risks are: No leakage, No venting, No disassembly, No rupture or No fire.

Delivered standard content

The delivered standard package content includes the following items:

10 x unit of the model type Trackunit KIN

1 x short installation guide.

Kin BLE Tag (Beacon)

Trackunit Kin is engineered from the ground up, to operate as a Bluetooth Low Energy Tag also known as a “Beacon”. Kin “advertises” information with a fixed interval as a Beacon.

The entire Bluetooth BLE beacon concept is built around beacons transmitting packets of data that are picked up by a compatible receiving Bluetooth devices (Gateways), in this case the **Trackunit TU600** and **Mobile Devices using the Apps and services provided Trackunit**. All data are sent to the back to Trackunit Iris, as the platform of construction powering the available services launched with Trackunit Kin.

BLE uses the same spectrum range as Bluetooth Classic (2.400–2.4835 GHz ISM band) but on a different set of channels. In order to save energy and provide higher data transfer speed, the Bluetooth BLE communication framework consists of 40 frequency channels, separated by 2MHz. 3 of these channels are the primary advertisement channels while the remaining 37 channels are secondary channels, also known as data channels.

The Bluetooth communication starts with the 3 primary advertisement channels and then offloads to the secondary channels. To prevent narrowband interference problems, BLE uses frequency hopping via digital modulation techniques or direct sequence spread spectrum to counteract.

While the beacons don’t listen for a response, the receiving device can perform actions based on the beacon’s instructions. This includes, and is not limited to, things like check-ins on social media, location-based actions, push notifications or sending data via the user’s Internet connection.

Trackunit Kin is a true industrialized “Beacon” that targets high-volume, cost-sensitive telematics applications primarily for asset location tracking. Kin is designed with robustness, IP Class, and feature flexibility in mind. Kin is not designed to be the cheapest, smallest possible Beacon in the broad market of Bluetooth Beacons. Kin has a strong Bluetooth SoC embedded, and a full flexible firmware stack to enable additional features. It contains an Arm® Cortex®-M33 core, multiple internal GPIOs and 352 kB of flash memory.

Kin Key Features

The technical features of Trackunit kin are highlighted here:

- Industrial grade Bluetooth 5.2 based ultra-low power, premium-tier Bluetooth Tag.
- Hardware and embedded Software developed by Trackunit.
- IP66K, IP67, IP69K, UV resistance, and flame-retardant industrial housing.
- Intelligent embedded sensors for movement, vibration or activity detection
- E2E security algorithm embedded, supporting AES
- Clear ID via Laser engraved QR Code and visibility via LED
- On-Board embedded high-performance Bluetooth antenna
- Global Certification and Type Approvals

Installing the unit

Use location – Children not likely to be present

This equipment design typically applies to commercial or industrial equipment expected to be installed in locations where only adults are normally present.

Wireless connectivity and product interoperability

The Trackunit Kin operates in the Bluetooth LE band for reporting positions to the Trackunit Locator APP or to the Trackunit TU600 installed in the nearby machinery.

In addition to the use case described above the TU600 can also be requested to passive scan for BLE advertisements and thereby enable assert tracking from Trackunit Kin devices.

Advertisement

Trackunit Kin Advertises every 3 seconds per default. This advertisement interval is flexible and can be configured from one second to two minutes depending on use case, see configuration section below.

The Kin advertisement messages are transmitted at regular intervals and collected by nearby TU600 devices or mobile phones equipped with the Trackunit Mobile App i.e. locator APP and send to the Trackunit server for further processing.

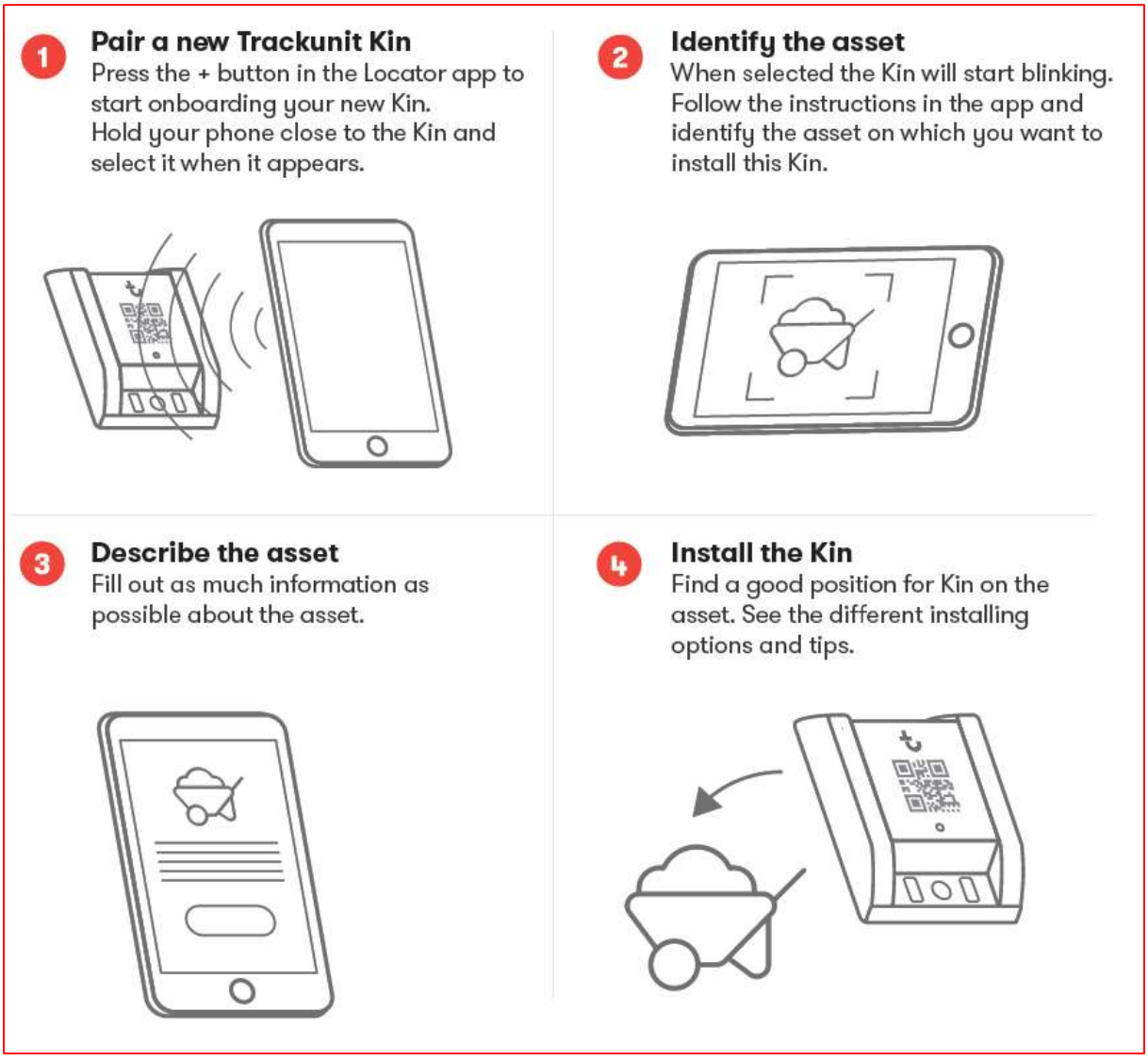
The processed data containing location and utilization information, is exposed in the Trackunit platform Services (Fleet Management) including Manager, Mobile Apps and API's.

Kin Onboarding

When coming out of the factory the Trackunit Kin tag is put in an inactive state where it is not advertising. To activate the tag the sticker, must be removed, as this will trigger the light detector and wake up the processor.
To indicate that the Kin tag have been activated the green LED will blink for 5 seconds. Please note that the activation can be delayed up to 3 seconds. The Kin tag is now activated and will advertise forever, even when its in the dark again.

The Trackunit Kin is recommended to be onboarded to the Trackunit locator APP installed in your cellphone from either Google Play or the iPhone APP store. Follow the instruction below for connection to the asset tracking device. The onboarding will register the Trackunit Kin on the server for asset tracking management and the onboarding is also useful for changing the configuration of the trackunit Kin.

An alternative way to ensure that the correct Kin tag is being used during onboarding, is to scan the QR code, which includes all information needed for the onboarding. See QR Code for further details. When using this option, the Trackunit Kin tag can even be onboarded prior to being activated.



Configuration

The following can be configured on the device:

- Advertisement Interval, from 1 to 120 seconds in steps of seconds
- Tx Power (conducted), from -3dBm to 6dBm in steps of 0.1dBm (Antenna gain not included)
- Activity Measurement Period, following the Advertisement Interval
- Activity Threshold will be included in Rev. 0.6 of the document

Configuration is only allowed after a successful challenge/response exchange, to ensure access for trusted users only. For security reasons only one connection is allowed at a time and unused connections will timeout and terminate.

Movement Detection (Advanced Sensors)

Trackunit Kin is reporting two movement related parameters when advertising. Note that these historical data are stored on Trackunit Kin, so therefore no requirement for continuous monitoring of Tag advertisement from external devices, i.e. Trackunit RAW (TU600-5) or Trackunit Mobile Apps, to have valid information available.

- Total Movement. Reporting total amount of seconds Trackunit Kin has been moving. This value can be used to e.g. determine utilization of the asset to which the Tag have been attached.
- Last Movement. Reporting time since last movement detected, measured in seconds. This value can be used to e.g. determine if the unit is on the move and therefore require special treatment when it comes to location tracking. In addition, this value could be used for a primitive proximity detection mechanism.

The threshold for move/not-move have been set after multiple tries in real environment, but if the installation requires this threshold to be adjusted it can be done by connecting to Trackunit Kin and then modify the configuration.

Sensor Specifications.

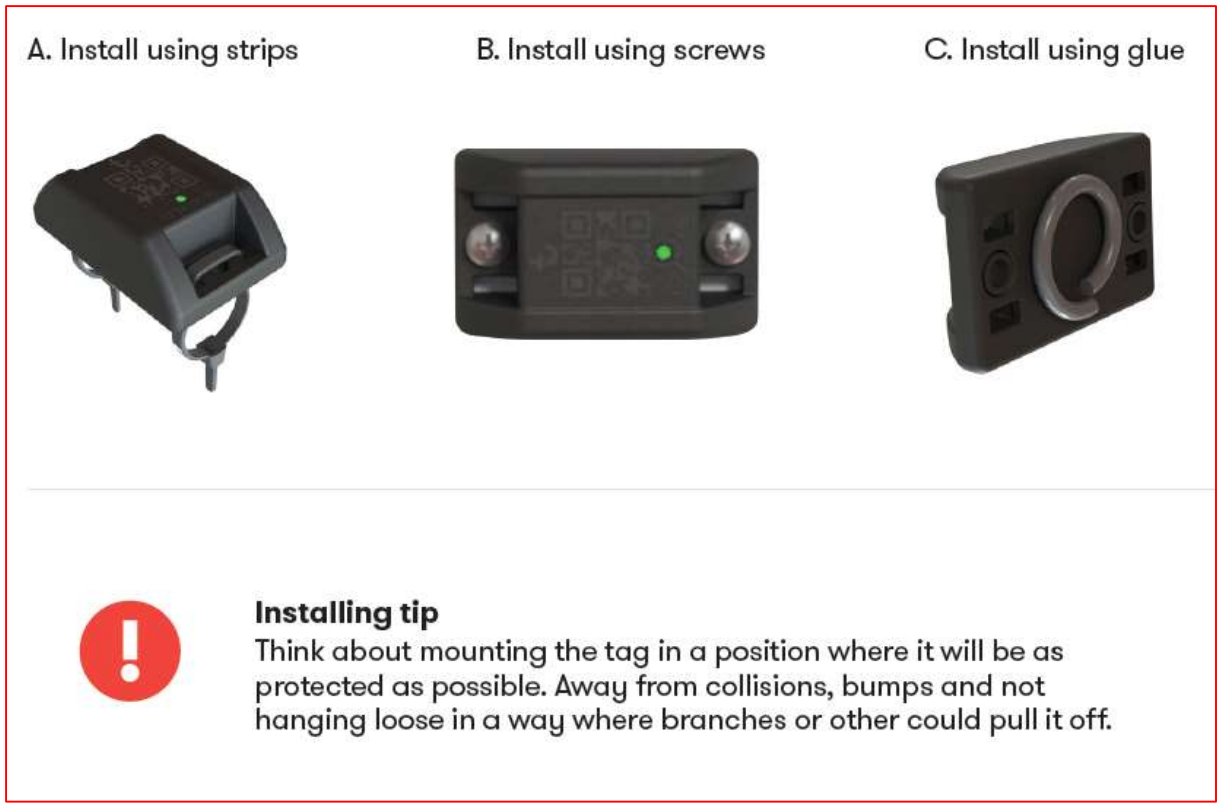
Measurement interval is following advertisement interval.
Threshold set to 100mG in average acceleration during 3 sec.

Functionality check

Check reporting in the Trackunit locator APP. If the report stamp is updated the Trackunit Kin is operational.

Installation of Trackunit Kin

The Trackunit Kin can be fixed to any assets by using any of the methods shown below:



Practical installation advice

- **It is very important to be careful when installing the unit, as incorrect installation will reduce the possible asset tracking capabilities.**

  The unit must NOT be installed beneath metal plates or inside closed metal compartments.

- The unit must be mounted in any position horizontally, vertically (sideways) etc. using either screws, strips, or glue.
  Optimize the placement of the unit to increase the aerial view as much as possible. For hiding the unit, make sure it is only mounted beneath plastic parts or similar parts (wood), but not beneath metal parts.

Installation for insurance and anti-theft purpose

For an installation of the Trackunit KIN with respect to insurance coverage of assets in your country/region please contact your nearest sales office for support as the Trackunit KIN installation must be registered and documented for the local insurance company, the associated local alarm center.

The installation position on multiple assets must be insured to be random to increase the theft protection.

It is needed to sign up a different subscription for each installed Trackunit KIN unit under insurance coverage that covers the local alarm center administration of the units.

The local sales office will be able to inform you about the obligations that you have in relation to the insurance company and how to act in relation to the alarm center while the units are covered by the insurance.

Troubleshooting

Not able to locate the asset - The Trackunit Kin is either out of range or its battery has run out.

If out of range try to get closer to the asset and try again.
If battery life has expired replace your Trackunit Kin device.

Liability

Trackunit holds no liability for any damages occurred to persons, vehicles, moving machines, construction machines etc. caused by wrong installation and/or faulty use of the device.

Warranty

Trackunit Aps products are covered by a limited manufacturer warranty. The Trackunit Aps warranty is limited to the warranty rules and legislation present in each country. The warranty only covers manufacturing faults.

The warranty does not cover misuse, wrong installation, or damage due to a faulty installation or wrong maintenance.

The invoice act as the proof of warranty, so please keep it as reference for any warranty complaints.

Technical Assistance/Support and spare parts

Trackunit Aps offers technical assistance to all our customers about the use, installation, insurance, and spare parts:

- If you have a problem and cannot find the information you need in the product documentation, please contact Trackunit Aps.
- The Trackunit Kin is glue assembled for environmental protection and safety. The battery is not changeable.
- Trackunit Kin does not contain exchangeable parts. When battery has expired the Trackunit Kin can either be returned to Trackunit or disposed according to the local rules for

electronic waste with batteries.

Trackunit Aps
Gasvaerksvej 24, 4 sal
Dk-9000 Aalborg
Tel: +45 9973 0020 E-Mail: support@trackunit.com
Fax: +45 9673 7407 Web: www.trackunit.com

When contacting technical support, please be prepared to provide the information listed below:

Minimum Information Required for Technical Assistance

If you or a user reports difficulty with a Trackunit KIN unit (i.e. not communicating, LED not working, etc.), it is helpful to retrieve directly from the unit all current configuration settings and the message log data etc., that is accessible by the technical support when they receive the following information about the unit.

2. Unit Serial number (Written on top of device)

Return Merchandise Authorization – RMA

1. If you experience defects in your product, please contact our customer support at: support@trackunit.com or phone **+45 96 73 74 00**

   Your inquiry will be processed by our support team and a support ticket number will be created in our system. You will receive your ticket number by email.

2. In case your hardware needs to be sent to us you will receive an RMA form by email from our support team that you must fill out.

   Print out the RMA and pack it together with the faulty product and send both to the following address:

   Trackunit Aps
   Gasvaerksvej 24, 4 sal
   DK-9000 Aalborg
   Denmark
   Attention: Service

Specifications

The product specifications are described below.

Product specifications

The Trackunit KIN unit is a Bluetooth tag for tracking and monitoring assets. The Trackunit Kin in traceable with the Trackunit Locator APP or via the Trackunit TU600-5 tracking device for Fleet Management.

Connections:

Operational voltage (supply voltage):	3 V DC
Current consumption ***(3 seconds advertising interval and 0 dBm Tx power setting)***	5.28 mA (peak) 5.11 µA (Sleep) 10.74 µA (Average power)
Expected lifetime of the battery (**NOTE:** The battery is not changeable)	Min 5 years (Renata $LiMnO_2$ CR2477N, 3.0V/950 mAh)
Bluetooth 5 LE (wireless radio)	Max + 9.94 dBm E.I.R.P

External temperature ranges:

Operational temperature range:	-40ºC to +85 ºC
Storage	-40ºC to +85ºC
(Warning: Battery lifetime not guaranteed for temperatures above +70ºC)	

Bluetooth LE-specifications:

Supporting 1 Mbps, 2 Mbps and LE Longe Range mode (125kbps, 500kbps) with internal on board antenna.

The Trackunit Kin embedded on-board antenna is designed for optimal performance in the Bluetooth 2.4 GHz ISM band. The Antenna is matched by design and tuned for the best possible performance and radiation pattern by Trackunit RF experts.

Power

Trackunit Kin can be configured to optimize power usage to a specific use case. This includes the possibility to set the Conducted Tx power in the range from -3dBm to 6dBm (plus antenna gain), and by adjusting the advertisement interval in the range from 1 second to 2 minutes.

Note that the selected Tx Power is included in the advertisement message, so that this can be counted into the location tracking algorithm.

LED

Trackunit kin contains an embedded visual low-power LED, to be used for different status purposes.

At first the functionality of the green and red LED is linked to the Trackunit Mobile Localization services and will be used for visual signaling during a connection, while localizing an asset.

This is just one of the use cases, and further usage of the LED will be implemented with the Trackunit web and mobile services.

LED will automatically be switched off when a device is disconnected.

QR Code technical structure

Format for the QR code is as follows:

https://id.trackunit.com/{vendor id}/{type}{kin id}/{random}, where

{vendor id} is a fixed string set to “TU” for Trackunit Kin
{type} is a fixed 2-character digit set to “01” for Trackunit Kin
{kin id} is a 9-character string containing the Kin Id
{random} is a 16-characters random URL safe string as specified in RFC 3548 section 4

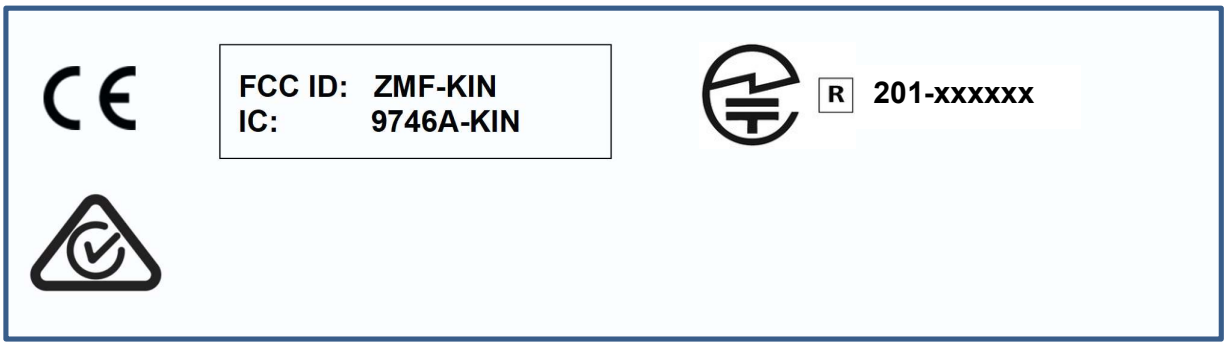
Example, with type=”01”, KinID=”001001286” and token=”cyJ2q_4293ZE7scv” :
https://id.trackunit.com/TU/01001001286/cyJ2q_4293ZE7scv

Mechanical specifications

Dimensions:	Length:	60 mm
	Width:	36 mm
	Height:	20 mm
Environmental class:		IP66, IP67, IP66K, IP69K
Enclosure material:		Non-flammable PP casing and ABS cable connector lid.
Weight:		20 g

Approvals and certificates

The Trackunit KIN product is certified according to EU (CE mark), FCC, ISED, ACMA/NZ (RCM mark), JATE/MIC ID (GITEKI mark),



"The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Trackunit Aps is under license. Other trademarks and trade names are those of their respective owners."

FCC and IC certification statements

The Trackunit KIN product contains radio transmitters that comply with CFR 47 Part 15, Part 15.247 of the FCC rules and with RSS-GEN, RSS-102 and RSS-247 of Industry Canada requirements.

Statements according to CFR 47 Part 15B/ICES-003

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of the Innovation, Science and Economic Development Canada's rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Statements according to CFR 47 Part 15.19 / RSS-GEN:

The Trackunit KIN product complies with Part 15 of the FCC rules and with the Innovation, Science and Economic Development Canada's license-exempt RSS(s) rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Déclarations selon le CFR 47 section 15.19 / RSS-GEN :

Le présent Trackunit KIN appareil est conforme aux RSS (s) exemptés de licence d'Innovation, Sciences et Développement économique Canada. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Statements according to CFR 47 Part 15.21:

Changes or modifications made to this equipment not expressly approved by Trackunit may void the FCC authorization to operate this equipment.

Statements according to CFR 47 Part 2.1091 and RSS-102:

With respect to radiofrequency radiation exposure Information it is declared that this equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Déclarations selon le CFR 47 Sections 2.1091 et RSS-102 :

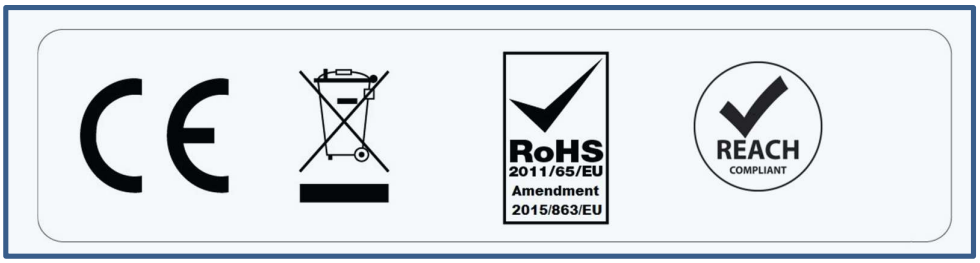
Respectant les informations relatives à l'exposition aux radiations de fréquences radio, on déclare que cet équipement respecte les limites d'exposition aux radiations de la FCC aux conditions prévues pour un environnement non contrôlé.

Cet équipement doit être installé et fonctionner à une distance minimale de 20 cm entre l'appareil irradiant et votre corps.

Cet émetteur ne doit pas être installé ou utilisé en conjonction avec d'autres antennes ou d'autres émetteurs.

EU regulations and directives

- The Trackunit KIN product complies with the essential requirements of the RED Directive 2014/53/EU directive with respect to the EMC requirements, safety, vehicles transients and radio spectrum and the council recommendation 1999/519/EC on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), when used as intended.
- *The Trackunit KIN complies with the essential requirements of the 2011/65/EC directive with the amendment 2015/863/EU directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS 3).*
- *The Trackunit KIN complies with the essential requirements of the 1999/45/EC directive as amended by EC 1907/2006 regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).*
- *The Trackunit KIN complies with the requirements of the 2012/19/EU directive on waste electrical and electronic equipment (WEEE).*



Including:

Standard	Version	Description
(EN/IEC 62368-1 + AC/3 + A11)	**2014, 2015, 2017**	Information and communication technology equipment safety
EN/IEC 60086-4 {Ed5}	**2019**	Primary batteries – Part 4: Safety of Lithium batteries

CE marking

We, Trackunit Aps hereby declare that the Trackunit KIN product complies with the essential requirements of the RED Directive 2014/53/EU as stated by the EU Declaration of Conformity.

EU Certificate and Declaration of conformity (DOC) statements can be downloaded from the Trackunit website:

https://www.trackunit.com/support/download/

Bluetooth SIG registration

The Trackunit Kin product is Bluetooth SIG registered under declaration ID: D051566 supporting core specification 5.2.

Trackunit Aps is listed with company identifier UUID: 2159 (0x086F)

Specific country approval regulations and statements

Australia and New Zealand

- The Trackunit KIN product complies with the requirements of the relevant ACMA Standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997, by the Supplier's Declaration of Conformity (SDOC). These Standards are referenced in notices made under section 182 of the Radiocommunications Act and 407 of the Telecommunications Act.
- The Trackunit KIN product complies with the requirements of the relevant standards under Section 134 (1) (g) of the New Zealand Radiocommunications Act 1989, by the Supplier's Declaration of Conformity (SDOC)

Japan

- The **Trackunit Kin** product is approved in Japan with the certificate ID n°: **[R] 003-180062** *(It contains a Bluetooth Low Energy interface)*

  This device is granted pursuant to the Japanese Radio Law (電波法)
  =当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している

- This device should not be modified (otherwise the granted designation number will become invalid)
  本製品の改造は禁止されています。（適合証明番号などが無効となります。）

> **Translated (For information only):**
> This device is granted pursuant to the Japanese Radio Law (Radio Act)
> = The equipment is equipped with specified wireless equipment that has received a certificate of conformity with technical standards based on the Radio Law.
> This device should not be modified (otherwise the granted designation number will become invalid)
> Modification of this product is prohibited (Compliance certification number etc. become invalid.)

Chile

- For Chile, a label must be applied in the user manual for compliance with the radio and EMC law:

> Este equipo cumple con la Resolución No 403 de 2008, de la Subsecretaria de telecomunicaciones, relativa a radiaciones electromagnéticas

Specific model country approval certificates

The specific country approvals are listed in the table below. For some countries an importing license apply as no certification or approval is applicable for the TU600-5.

Country	Model	Regulatory body	Certificate number
Europe-CEPT	Trackunit Kin	EU-NB	**xxxxxxxxx, CE mark**
Myanmar	Trackunit Kin	PTD	(**NOTE:** Accept EU DoC for Import if requested)
Japan	Trackunit Kin	JATE/ MIC	**[R] 201-xxxxxx**
Australia New Zealand	Trackunit Kin	ACMA/NZ	**RCM mark by signed SDOC**
US	Trackunit Kin	FCC	**FCC ID: ZMF-KIN**
Canada	Trackunit Kin	ISED	**IC: 4796A-KIN**
Chile	Trackunit Kin	-	(**NOTE:** Label required for compliance to radio law)

Environmental compliance

The Trackunit Kin are designed for compliance to the following environmental standards related to the intended use of the product:

Standard	Version	Description [A]
SAEJ1455:2012, EN/IEC 60068-2-1	**2007**	Cold
SAEJ1455:2012, EN/IEC 60068-2-2	**2007**	Dry Heat
SAEJ1455:2012, EN/IEC 60068-2-27	**2008**	Shock
SAEJ1455:2012, EN/IEC 60068-2-31	**2008**	Drop, free fall
SAEJ1455:2012, EN/IEC 60068-2-64	**2008**	Random vibration
SAEJ1455:2012, EN/IEC 60068-2-64	**2008**	Acceleration
IEC 60721-2-3	**2013**	Attitude (declared)
DIN EN 60068-2-11	**2002**	Salt mist
SAEJ1455:2012, EN/IEC 60068-2-78	**2012**	Damp heat steady state
SAEJ1455:2012, EN/IEC 60068-2-74	**1999**	Fluid contamination
EN/IEC 60068-2-5, ASTM D4329	**2010, 2013**	UV protection
SAEJ1455:2012, ISO 20653 IEC 60529 + A1 + A2 (CSV) {Ed2.4}	**2013 2013**	IP66, IP67, IP66K & IP69K

NOTE A: The Trackunit Kin is not to be mounted in areas with presence of Motor oil, Gasoline, Diesel fuel, Hydraulic fluid, Brake fluid, Transmission fluid , Glycol and water mixture etc.

Environmental protection:

	Trackunit Kin	Requirements
Temperature Soak	-40°C - +85°C, 48h	SAE J1455, IEC 60068-2-1, IEC 60068-2-2
Humidity	+45°C to -30°C, RH95%, 8h	SAE J1455, IEC 60068-2-78
Salt Spray	5%, +35°C, 96h	SAE J1455, DIN EN 60068-2-11
Immersion of water	IPX7	SAE J1455, ISO 20653, IEC 60529 IPX7
Splash of water	IPX6K	SAE J1455, ISO 20 653, IEC 60529 IPX6
Chemicals /oils (Motor oil, Motor oil, Gasoline, Diesel fuel, Hydraulic fluid, Brake fluid, Transmission fluid , Glycol and water mixture)	Wipe and clean after 5 min	SAE J1455 (Add for 5 min + clean), IEC 60068-2-74
Steam cleaning / pressure washing	IPX9K	SAE J1455, ISO 20653, IEC 60529 up to IPx9K
Fungus	-	SAE J1455
Dust/wire	IP6X, Ø1	SAE J1455, ISO 20653, IEC 60529 IP6X, Ø1
Sand and Gravel Bombardment	-	SAE J1455, ISO 5011
Altitude	-	IEC 60721-2-3 (700 hPa - 3000 meter)
Vibration (3 axis)	30 m/s^2 at 5Hz – 2kHz, 8h	SAE J1455, IEC 60068-2-64 category 1, 2a, 2b, 2c
Acceleration (3 axis)	1 m/s^2 – 7 m/s^2 , 8h	SAE J1455, IEC 60068-2-64 category 1a
Shock (3 axis)	30 m/s^2 , 8h	SAE J1455, IEC 60068-2-27
Drop	1m	SAE J1455, IEC 60068-2-31
UV	UV resistant plastic selected	IEC 60068-2-5, ASTM D4329 exposure/index (no cracking)
Application	SAE J1455	Applicable standards

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