CHEP Pallet Tracker User Guide

CHEP Pallet Tracker

Global location tracking device with the longest battery life

Key benefits

Helps track the pallets and goods loaded on pallets by providing real time location and environment sensing data.

Customer can use the data generated to get more insight into their supply chain flow and take actions to improve the efficiency of operation.

Device can be controlled and configured using BRIX platform and APIs provided. Customer need to get license to BRIX platform to access data from the devices.

Customer can visualize the device and hence position of their asset on BXB Enterprise application call BRIX.

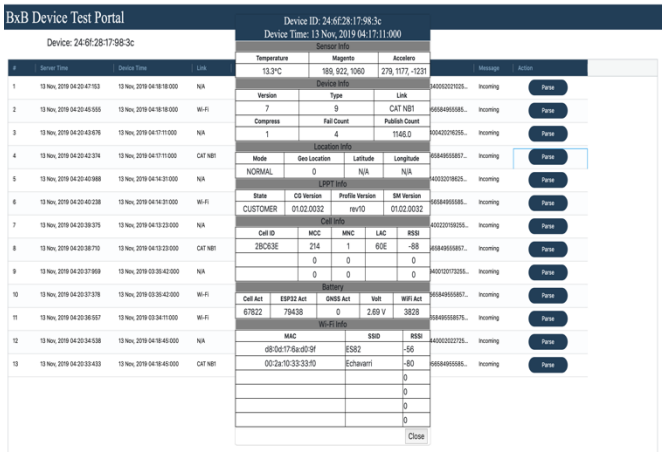
Customizable User Interface and interface data visualization tool on BRIX can be used by customer to generate information as relevant to their specific use case.

Each Ultra device fitted with replaceable battery and last for >5yrs with 12 standard AA Alkaline batteries.

How is it used

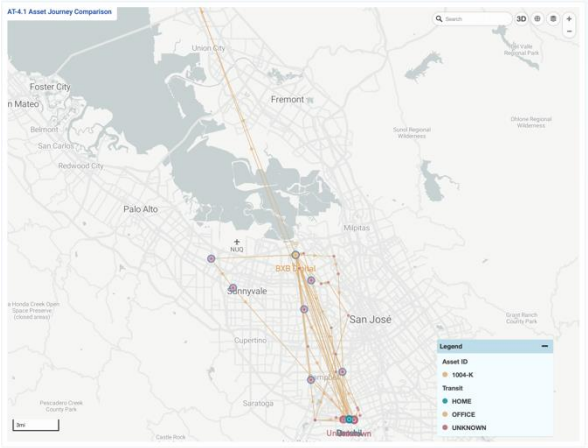
Use CHEP Pallet Tracker location tracking Platform and API to : Track your valuable assets Track your shipments

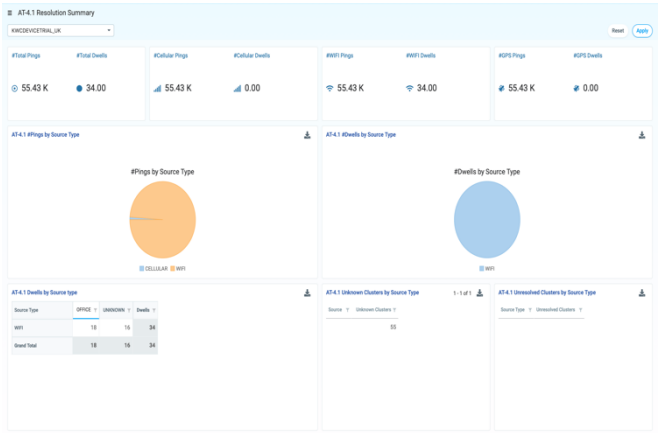
How it works



CHEP Pallet Tracker is intended for enterprise customers wanting to track their assets. Customers with BRIX enterprise license will get access to **Device management** application to configure the device operation rules like logging frequency, ping transmit frequency and can choose the sensor to use like temperature, motion and magneto meter etc. Device can report sensor data every 5min. to once in 3day. Customer can enable the GPS if pallet is expected to work under clear sky. More reports per day – shorter the battery life.

CHEP pallet tracker reports its current location on the scheduled interval along with sensor data. Each communication report from tracker to BRIX is called “Ping” and BRIX uses these “Ping” to create the journey using it preoperatory Asset journey algorithm. Customer can login on **Asset tracking application** module in the BRIX and visualize the complete journey on the map. Please in-between each “Ping” CHEP Pallet Tracker is in the sleep State, preserving the battery.



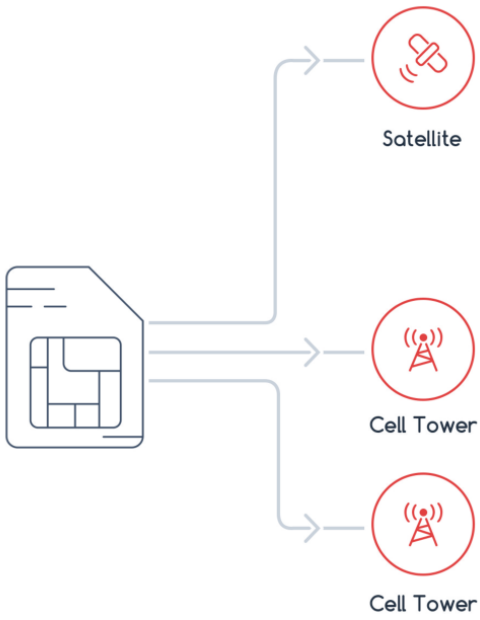


Customer can monitor 1000s of devices in a comprehensive view on BRIX dashboard and can take corrective actions. CHEP pallet tracker uses Cellular, Wifi or GPS to determine it’s location and accuracy of location goes from coarse to accurate in the order. Customer can monitor the # of times each tracker has used Cellular, Wifi or GPS. Customer can see the data for only the devices allocated to it’s own account only but once the customer cancels it’s account, tracker data will no longer be visible even though device will continue to work & report data.

Connectivity

CHEP Pallet Tracker comes with technology specific global SIM card pre-installed. This SIM card works in designated countries on CatM or NB network while for other countries with no coverage for CatM or NB, it falls back to GSM coverage. Device can also communicate on Wifi provided the credentials for access are sent to device thru profile configuration.

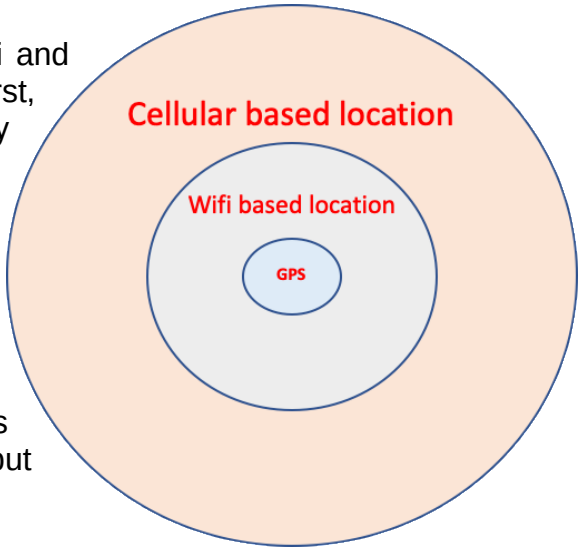
User can not originate the connection to CHEP Pallet tracker unless device wakes-up and contacts the cloud application over Wifi or Cellular. When tracker is not connected to network, it continues to store the data off-line into it's memory. Onboard memory on device can store the data worth 6months of sensor logs.



Location tracking technologies

CHEP pallet tracker acquires location using Cellular, Wifi and GPS. Logic is built into the device to attempt Wifi first, followed by Cellular and only if both don't result into any valid data, GPS is attempted. This logic is implemented to save power as GPS attempt is most power consuming.

Wifi & Cell tower triangulation technology calculates the location of the device based on the location of the nearby cell towers or Wifi hotspots. These are not very accurate, an approximate horizontal positioning error for each type is showsn in the picture here. GPS is the most accurate but takes time and higher power to get a location fix.



Technical specifications

Operation the device
- Single tap button^ to Power-ON
- Hold button for 5s & release to Power-OFF
- Hold button for 10s to clear battery counters

^(Power button accessible when enclosure is open)

LED Indications
- Green LED when Power-ON
- Red LED when Power-OFF
- Flashing Red LED for device failure
- Flashing Blue LED when firmware upgrade

Battery
- AA Batteries: 12, pack of 4 cells
- Type: Energizer E91 AA
- 5 yrs battery life, on CatM/NB Network
- 2 yrs battery life, on 2G Network

Tracking
- GNSS: fully capable GNSS tracking module
- Network triangulation based on Cell ID
  - Triangulation based on CAT-M/NB-IoT cell info
  - Triangulation using 2G when NB-IoT not available
- Wi-Fi MAC IDs capture for location triangulation
- BLE beacon sniffing

Physical Aspects
- Weight: 350g
- Enclosure Material: ABS + PC
- Ruggedization: IP66 per IEC standard 60529
- Mount Screws: 4 x M6 - 30mm

Certifications
- FCC: 2AUKT-ULTRALONG
- IC: 23859-ULTRALONG

Communication
- CAT-M/NB-IoT with 2G fallback
- Wi-Fi
- BLE

Sensors
- Temperature (Resolution: 0.1°C, Accuracy: ±1.5°C, Range: -40 to +125°C)
- Accelerometer 3-axis, ±16G
- Magnetometer 3-axis, ±50 Gauss

Configuration Update
Key parameters can be configured through BRIX
- Publish Interval: 5 minutes to 24 hours
- Log Interval: 1 minute to 24 hours

Dormant Mode to publish every 72 hours and no logs.

Data transmission and storage
- Streams sensor data to BRIX cloud real-time^
- Offline logging of sensor data on built-in memory for up to 6 months when no network connectivity

Operating Temperature
-18°C to 60°C

Built-in Antenna
- Cellular: SMD antenna with -2dBm gain
- BLE and Wi-Fi: CHIP antenna with 3.5dBi gain

Capabilities and Durability
- Device aware of its state when in
  - CHEP SC | Non-CHEP Dwell | Transit
- Periodic capture of sensor data based on log frequency
- Secure log file transmission over Wi-Fi and Cellular
- Efficient power management with smart logic for location determination
- Over the air firmware upgrade: Wi-Fi
- Publish based on event triggers
  - Accelerometer: Impact and movement trigger
  - Temperature: out of bound condition

Security
- Encrypted communication between device & cloud
- X.509 Public/Private key for device authentication
- SSL/TSL v1.1 based security over network

FCC Statement

NOTE: 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 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 or more 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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC 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.

RF Exposure Warning Statements:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment shall be installed and operated with minimum distance 20cm between the radiator & body.

IC Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L’émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d’Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L’exploitation est autorisée aux deux conditions suivantes :

(1) L' appareil ne doit pas produire de brouillage;
(2) L' appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d' en compromettre le fonctionnement.