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iGS03 JSON format

Scope of the Document

This document presents the JSON format for iGS03 series which includes the following variants:

1. iGS03M: The LTE model

2. iGS03W: The WiFi model

3. iGS03E: The Ethernet Model

iGS03 supports two kinds of JSON formats.

The raw JSON format

It wraps the raw ADV data in JSON format.

E.g.

{"data":["$GPRP,E4307654B092,F008D1798C60,-86,02010612FF590080BC290100FFFFFFFFFFFFFFFFFFFF,1634688944"]}

The decoded JSON format (Require firmware v1.1.0.0+)

The gateway parses the received BLE ADV data and converts output to specific JSON format.

iGS03 can recognize below beacon types:

iBS0x series sensor beacons

iBeacon

Eddystone

AltBeacon

In addition to the above beacon types, iGS03 also supports HEARTBEAT and GNSS reports.

For other unrecognized beacons, it will be classified as "Unknown" type.

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Common JSON properties

The common properties:

ts: timestamp (Unix epoch time)

gw: The reader gateway MAC address

type: The beacon type

> iBS0x
> iBeacon
> EddystoneUID
> EddystoneURL
> EddystoneTLM
> EddystoneEID
> AltBeacon
> HEARTBEAT
> GNSS
> Unknown

tag: The beacon MAC address (Not available for HEARTBEAT and GNSS)

rssi: The received beacon RSSI (Not available for HEARTBEAT and GNSS)

Beacon properties for INGICS iBS0x series

Below list all supported properties:

vbatt: This battery voltage in Volt

btn: Boolean for button pressed detection

hall: Boolean for hall sensor open/close detection

move: Boolean for moving detection

fall: Boolean for falling detection

temp: Temperature in Celsius

xtemp: External probe temperature in Celsius

rh: Relative humidity

range: ToF sensor reported range in mm

count: The trigger count

ir: Boolean to indicate if object is detected

pir: Boolean to indicate if object is detected

din: Boolean for occupation detection

gp: Pressure in hPa

accels: 3 records of raw 3-axis values in 0.04G unit

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Note, the iBS0x series beacon only reports the properties used by the given model.

The supported iBS0x beacon types:

iBS01/iBS01H/iBS01T/iBS01G

iBS02PIR2/iBS02IR2/iBS02HM2 (iBS02PIR/iBS02IR/iBS02HM are deprecated)

iBS03/iBS03P/iBS03R/iBS03T/iBS03G/iBS03TP

iBS04/iBS04i

iBS05/iBS05H/iBS05T/iBS05G/iBS05i

iBS06/iBS06i

iBS01RG/iBS03RG/iBS03GP (raw G series)

Example of iBS0x JSON format output:

iBS01H

{"data":[{"ts":1634020377,"gw":"F008D1798C60","tag":"F973D9D36662","rssi":-89,"type":"iBS01H","vbatt":3.02,"btn":false,"hall":false}]}

iBS01T

{"data":[{"ts":1634020377,"gw":"F008D1798C60","tag":"FB45C77FD45B","rssi":-78,"type":"iBS01T","vbatt":3.02,"btn":false,"temp":27.00,"rh":57}]}

iBS02PIR2

{"data":[{"ts":1634020377,"gw":"F008D1798C60","tag":"1804ED6BFFDD","rssi":-70,"type":"iBS02PIR2","vbatt":3.01,"pir":false}]}

iBS02IR2

{"data":[{"ts":1634020377,"gw":"F008D1798C60","tag":"F0F8F2CADE19","rssi":-89,"type":"iBS02IR2","vbatt":2.97,"ir":true}]}

iBS02M2

{"data":[{"ts":1634020377,"gw":"F008D1798C60","tag":"806FB0C7C059","rssi":-91,"type":"iBS02M2","vbatt":3.05,"din":false}]}

iBS03

{"data":[{"ts":1636362978.116,"gw":"F008D1798C60","tag":"0081F9865897","rssi":-51,"type":"iBS03","vbatt":2.92,"btn":false,"hall":false}]}

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iBS03G

{"data":[{"ts":1636362963,"gw":"F008D1798C60","tag":"0C61CFC1478D","rssi":-75,"type":"iBS03G","vbatt":2.92,"btn":false,"move":false,"fall":false}]}

iBS03T

{"data":[{"ts":1636362978,"gw":"F008D1798C60","tag":"0081F96B2A2F","rssi":-65,"type":"iBS03T","vbatt":2.97,"btn":false,"temp":25.19,"rh":53}]}

iBS03R

{"data":[{"ts":1636362978,"gw":"F008D1798C60","tag":"607771FCCF43","rssi":-89,"type":"iBS03R","vbatt":2.91,"range":589}]}

iBS03P

{"data":[{"ts":1636362977,"gw":"F008D1798C60","tag":"607771FCD5F0","rssi":-65,"type":"iBS03P","vbatt":2.91,"xtemp":25.56}]}

iBS03TP

{"data":[{"ts":1636362978,"gw":"F008D1798C60","tag":"806FB082CD81","rssi":-60,"type":"iBS03TP","vbatt":2.91,"temp":25.09,"xtemp":25.03}]}

iBS03GP

{"data":[{"ts":1636362977,"gw":"F008D1798C60","tag":"1804ED55A1F6","rssi":-55,"type":"iBS03GP","vbatt":2.87,"accels": [{"x":72,"y":48,"z":-232},{"x":72,"y":48,"z":-232},{"x":72,"y":48,"z":-232}],"gp":1018.60,"btn":false,"move":false}]}

iBS03RG

{"data":[{"ts":1635324758,"gw":"F008D1798C60","tag":"6098668795FB","rssi":-85,"type":"iBS03RG","vbatt":3.14,"accels": [{"x":-24,"y":16,"z":-248},{"x":-24,"y":16,"z":-248},{"x":-24,"y":24,"z":-248}],"btn":false,"move":false}]}

iBS04

{"data":[{"ts":1636362978,"gw":"F008D1798C60","tag":"0081F9863D33","rssi":-72,"type":"iBS04","vbatt":2.97,"btn":false}]}

iBS04i

{"data":[{"ts":1636362978,"gw":"F008D1798C60","tag":"0081F986436A","rssi":-61,"type":"iBS04i","vbatt":2.56,"btn":false}]}

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iBS05

{"data":[{"ts":1636362954,"gw":"F008D1798C60","tag":"C38B3F54F844","rssi":-62,"type":"iBS05","vbatt":3.15,"btn":false}]}

iBS05G

{"data":[{"ts":1634260521,"gw":"F008D1798C60","tag":"EEF601762769","rssi":-70,"type":"iBS05G","vbatt":2.92,"btn":false,"move":false}]}

iBS05H

{"data":[{"ts":1638766775,"gw":"F008D1789208","tag":"DDF0C08D558D","rssi":-65,"type":"iBS05H","vbatt":2.93,"btn":false,"hall":false,"count":9}]}

iBS05T

{"data":[{"ts":1634260521,"gw":"F008D1798C60","tag":"F616698B881F","rssi":-75,"type":"iBS05T","vbatt":2.90,"btn":false,"temp":29.98}]}

iBeacon properties

uuid: UUID in HEX string

major: Major number

minor: Minor number

ref_tx: RSSI value (Received Signal Strength Indication) measured at 1 meter from the iBeacon

Example of iBeacon JSON format output::

{"data":[{"ts":1636362978,"gw":"F008D1798C60","tag":"D42202001C8F","rssi":-74,"type":"iBeacon","uuid":"E2C56DB5DFFB48D2B060D0F5A71096E0","major":0,"minor":0,"ref_tx":-59}]}

Eddystone properties

EddystoneUID

ns: Namespace in HEX string

id: Instance ID in HEX string

ref_tx: the received power at 0 meters measured in dBm.

Example of EddystoneUID JSON format:

{"data":[{"ts":1634020276,"gw":"F008D1798C60","tag":"734680D6067B","rssi":-67,"type":"EddystoneUID","ns":"182BC

ECE1661AC994401","id":"000000000123","ref_tx":-69}]}

EddystoneURL

url: The decoded URL string

ref_tx: the received power at 0 meters measured in dBm.

Example of EddystoneURL JSON format:

{"data":[{"ts":1634020276,"gw":"F008D1798C60","tag":"4E3C0A0A5547","rssi":-67,"type":"EddystoneURL","url":"http:/www.ingics.com/","ref_tx":-20}]}

EddystoneTLM

vbatt: This battery voltage in Volt

temp: The beacon temperature in Celsius

Example of EddystoneTLM JSON format:

{"data":[{"ts":1634020276,"gw":"F008D1798C60","tag":"68129DEAD13E","rssi":-65,"type":"EddystoneTLM","vbatt":2.961,"temp":16.42}]}

Note, only unencrypted TLM is recognized. The encrypted TLM will be recognized as Unknown type.

EddystoneEID

eid: Ephemeral Identifier in HEX string

ref_tx: Calibrated Tx power at 1m.

Example of EddystoneEID JSON format:

{"data":[{"ts":1634020275,"gw":"F008D1798C60","tag":"41FBC0D9A55F","rssi":-67,"type":"EddystoneEID","eid":"14C6B6B971B06341","ref_tx":-62}]}

AltBeacon properties

mfg_id: The beacon device manufacturer's company identifier code

beacon_id: The beacon identifier in HEX string

mfg_rsvd: This value is defined by the manufacturer and is to be evaluated based on the mfg_id value

ref_tx: The average received signal strength at 1m from the advertiser

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Example of AltBeacon JSON format:

{"data":[{"ts":1634020324,"gw":"F008D1798C60","tag":"5CF09623C187","rssi":-61,"type":"AltBeacon","mfg_id":65532,"beacon_id":"5B88B87CEBFD4C19849A86A2FAD2ACA2007B00F4","mfg_rsvd":153,"ref_tx":-62}]}

GNSS properties

lat: Latitude

long: Longitude

speed: Unit: knots.

hdop: Horizontal dilution of precision

Example of GNSS JSON format:

{"data":[{"ts":1633561383,"gw":"F008D1798C28","type":"GNSS","lat":22.991034,"long":120.175339,"speed":0.0,"hdop":2.3}]}

HEARTBEAT properties

The HEARTBEAT only uses common properties.

Example of HEARTBEAT JSON format:

{"data":[{"ts":1634686623,"gw":"F008D1798C60","type":"HEARTBEAT"}]}

Unknown beacon properties

raw_data: The received raw ADV data

Example of Unknown beacon JSON format:

{"data":[{"ts":1634020191,"gw":"F008D1798C60","tag":"61EBA16FC2AE","rssi":-50,"type":"Unknown","raw_data":"1EFF0600010920026F9FED438F158F0DE9AFD6CE11DD5AE7470F504D691B66"}]}

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Revision History

DATE	REVISION	CHANGES
Dec 8, 2021	1	Initial release