

G3 Zigbee configuration guide (v1.3)

Revision log:

v1.3>update for fw6.4.1 sqlite_db

v1.2>add support for #comment

>add support for different polling interval for each asset

>add [multiplier, adder] optional arguments for data type FLOAT

v1.1

>add support for Zigbee to run in query mode or read mode

Filename :	iotasset.txt
Location :	\user

1. Introduction

The file 'iotasset.txt' contains the assets configuration that is required by the Zigbee program to acquire data from Zigbee devices. Acquired data is then inserted into database for downstream IoT clients.

2. IOT asset 'KEY,VALUE' general format

Each IOT asset is defined by using a BLOCK of 'key, value' pairs (CSV format). There are five Zigbee key names that must be present for each IoT asset.

ZIGBEE KEYS	Description
TYPE	To define the type of Zigbee communication
NODEID	To define the source network address of the Zigbee device
ENDPNT	To define the source endpoint of the Zigbee node
CLUSID	To define the cluster ID of the functional domain
ATTRID	To define the attribute ID from the set of attributes

Each asset block must include the pair 'Key, Field_name' for database purpose. Backslash (\) and double quote mark (") char cannot be used. Comments can be inserted by using the hash (#) sign.

To ease parsing of different types of assets, the asset blocks need to be located between the start and end of block markers.

ZIGBEE BLOCK MARKER	Description
ZCL_START	Define the start of Zigbee assets
ZCL_STOP	Define the end(stop) of Zigbee assets

3. IOT asset 'KEY,VALUE' setup information

TYPE, m [, i]

Argument	Value	Description
m	ZBQ	Query mode: send query & read attributes
	ZBR	Read mode: read auto reported attributes ^{#1}
i	1, 2, 3, 4, 5,....	Poll interval for each asset. ^{#2}

#1 For read mode, the poll interval [i] will be ignored if argument included.

#2 Optional: Argument [i] if excluded will result in default polling i=1, which polls on every interval.

Example of Poll Interval calculations with master Poll Period = 15 sec.

note: Poll Period is the time interval between polling, refer to web config 'IoT Hardware'.

Asset Poll Period	Calculation	Poll Interval (i)
1min	1*60/15	4
30min	30*60/15	120
1 hour	1*60*60/15	240
3 hour	3*60*60/15	720

NODEID, n

Argument	Value (hexdec)	Description
n	0000-FFFF	Source network address of the Zigbee device

ENDPNT, r

Argument	Value (hexadec)	Description
r	00-FF	Source endpoint of the Zigbee node

CLUSID, s

Argument	Value (hexadec)	Description
s	0000-FFFF	Cluster ID of the functional domain

ATTRID, t, x, y

Argument	Value	Description
t	0000-FFFF (hexadec)	Attribute ID from the set of attributes
x	Multiplier (dec)	Value = Value*Multiplier + Adder ^{#3}
y	Adder (dec)	Value = Value*Multiplier + Adder ^{#3}

#3 Optional: for Data Type INTEGER & FLOAT, **both** x & y arguments required when applied.

4. Data Type support list (reference: Zigbee Cluster Library)

DATA TYPE BOOLEAN

Data Type ID	Length of Data (Octets)	Description
0x10	1	Boolean value, ie 0 or 1

DATA TYPE INTEGER

Data Type ID	Length of Data (Octets)	Description
0x20	1	Unsigned 8-bit integer
0x28		Signed 8-bit integer
0x21	2	Unsigned 16-bit integer
0x29		Signed 16-bit integer
0x22	3	Unsigned 24-bit integer
0x2A		Signed 24-bit integer
0x23	4	Unsigned 32-bit integer
0x2B		Signed 32-bit integer

DATA TYPE FLOATING POINT

Data Type ID	Length of Data (Octets)	Description
0x39	4	Single precision floating point number.

DATA TYPE STRING

Data Type ID	Length of Data (Octets)	Description
0x42	Defined in first octet.	Character string

5. Example for IOT asset configuration

iotasset example for read mode (Zigbee devices auto reporting attributes)

```
ZCL_START                #start of Zigbee block

TYPE, ZBR                #read mode
NODEID, E55A             #source address=0xE55A
ENDPNT, 0A              #source endpoint=0x0A
CLUSID, 0702            #cluster ID=0x0702
ATTRID, E10A, 0.01, 0   #attribute ID=0xE10A, value=value*0.01 + 0
Key, VoltageRMS

TYPE, ZBR
NODEID, E55A
ENDPNT, 0A
CLUSID, 0702
ATTRID, E11C, 0.01, 0   #attribute ID=0xE11C, value=value*0.01 + 0
Key, CurrentRMS

TYPE, ZBR
NODEID, E55A
ENDPNT, 0A
CLUSID, 0702
ATTRID, E143, 0.01, 0   #attribute ID=0xE143, value=value*0.01 + 0
Key, Frequency

ZCL_STOP                #end of Zigbee block
```

#iotasset example for query mode
#similar to read mode but in query mode, the G3 sends Zigbee request message

ZCL_START

TYPE, ZBQ #query mode
NODEID, E55A
ENDPNT, 0A
CLUSID, 0702
ATTRID, E10A, 0.01, 0
Key, VoltageRMS

TYPE, ZBQ
NODEID, E55A
ENDPNT, 0A
CLUSID, 0702
ATTRID, E11C, 0.01, 0
Key, CurrentRMS

TYPE, ZBQ, 10 #every 10 polling interval
NODEID, E55A
ENDPNT, 0A
CLUSID, 0702
ATTRID, E143, 0.01, 0
Key, Frequency

ZCL_STOP

6. Method to upload 'iotasset.txt' file to G3

-Upload the iotasset.txt file from your computer using the 'Upload iotasset.txt' button in the 'IoT Hardware' tab.

-Put the iotasset.txt file in \user folder of USB drive (with label 'FATBOX'). Plug the USB drive into G3 and click the 'Upload to FATBOX' button in the 'Management' tab.

-Use SCP/Putty console or WinSCP.

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