STM32WB0 BLE 5.4 feature
Periodic Advertising with Response

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STM32WB0 extended feature
Play with BLE 5.4 PAwR

PAwR 3

PAwR, Bluetooth Low Energy 5.4 advanced feature is part of STM32WB0 !

1 Basic Beacon

2 Create BLE Profile

3 PAwR Advanced feature

4 BLE Add On

5 Test your RF design

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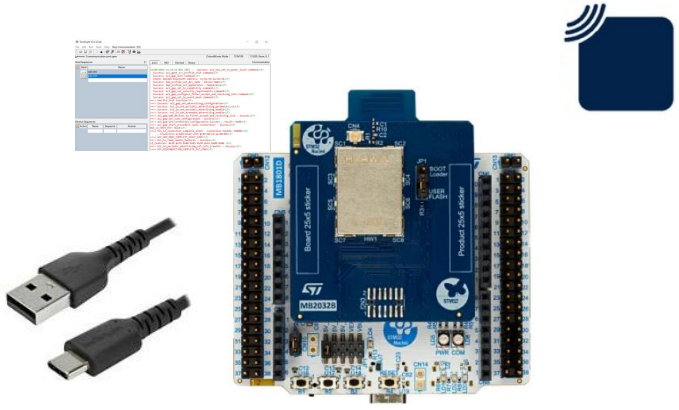
Purpose

- In this part we will show following:
  - Periodic Advertising with Response concepts & applications
  - Demonstrate PAwR using STM32CubeWB0 code examples

PAwR OBSERVER



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PAwR BROADCASTER

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Periodic Advertising with Response connectionless

Advertising

Connected

PAwR allows devices that receive periodic advertisements to transmit responses back to the broadcaster **without need to establish connection process**

Periodic Advertising with Response BLE 5.4

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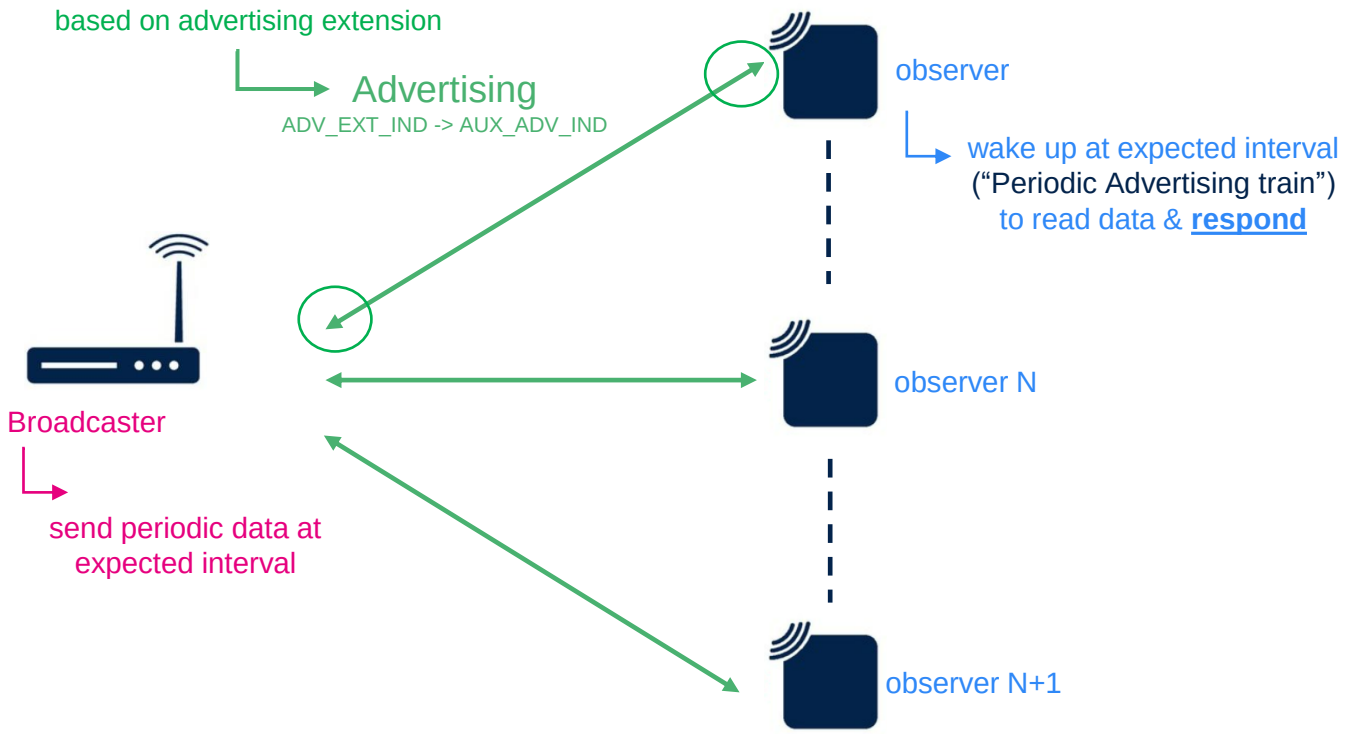
Periodic Advertising with Response

PAwR is well-suited to sensitive low power applications that need to send and receive messages between a central hub device and a large number of other devices in a network.



PAwR

- Introduced in Bluetooth v5.4
- Bidirectional communication
- Connectionless
- Scalability
- Energy-efficiency

Applications

- **Electronic Shelves Label** 
- Healthcare applications: monitoring patient
- Industrial applications: monitoring factories

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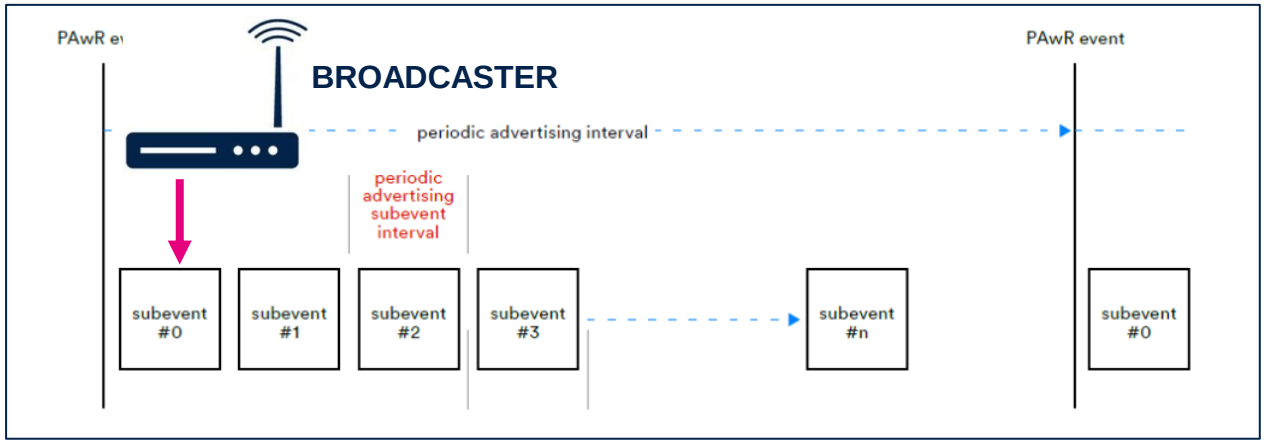
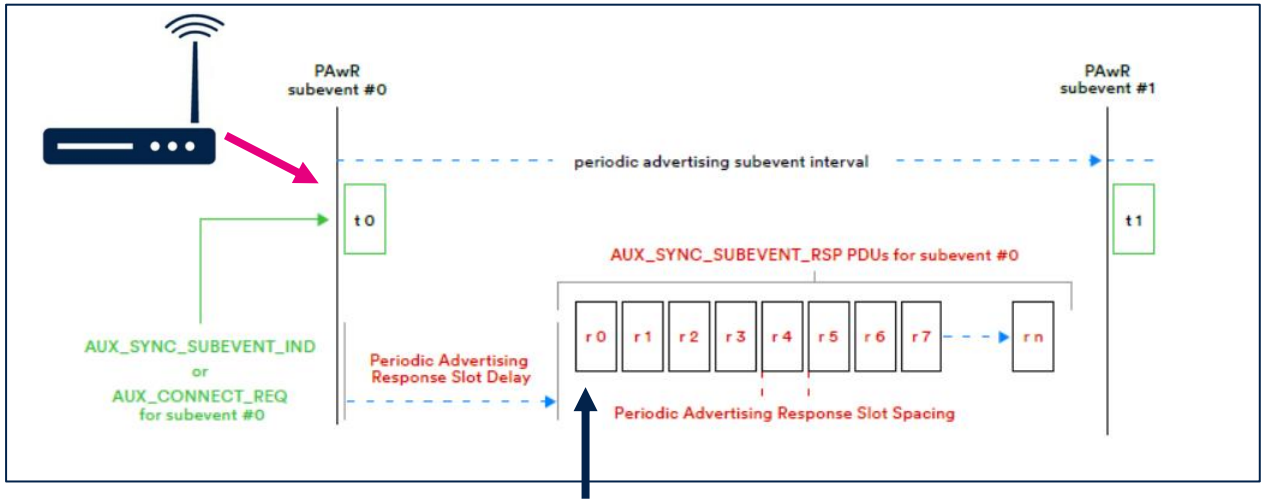
Periodic Advertising with Response



Each PAwR events (occurred at defined periodic advertising interval) is made by subevents, where packets are transmitted.

The interval between two consecutive subevents is called periodic advertising subevent interval.



At the beginning of a subevent, **the Broadcaster transmits one packet**, and after a periodic advertising response slot delay it can receive **responses from observer devices inside the so-called response slots** (one response packet in a single response slot).

The interval between the start of two consecutive response slots is the periodic advertising response slot spacing.

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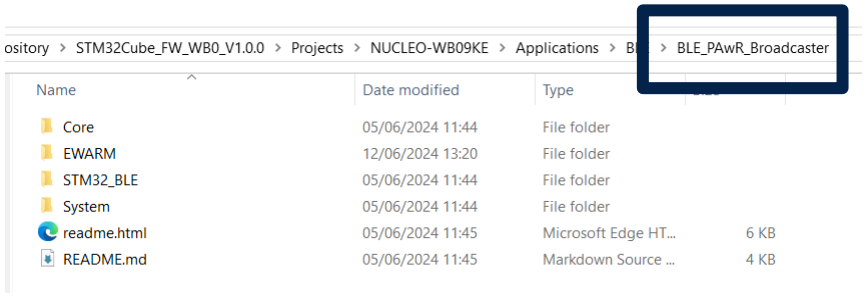
Periodic Advertising with Response
STM32WB0 resources available

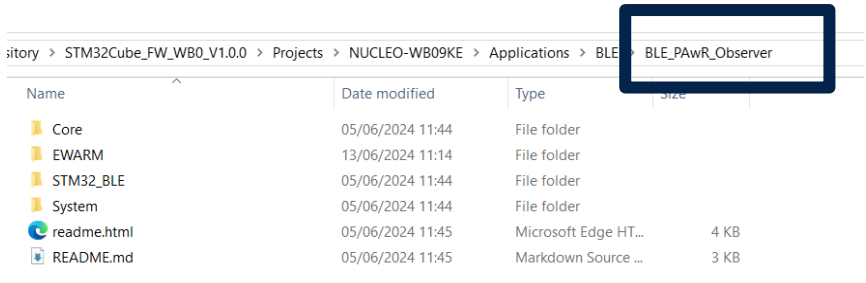
STM32CubeWB0 package : code examples

STM32CubeWB0 - STM32Cube MCU Package for STM32WB0 series

like ESL Access Point role



like ESL Tag role



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STM32WB0 extended feature Demo
Play with BLE 5.4 PAwR

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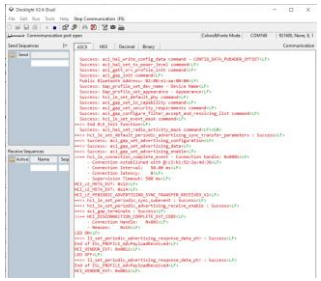
PAwR BROADCASTER



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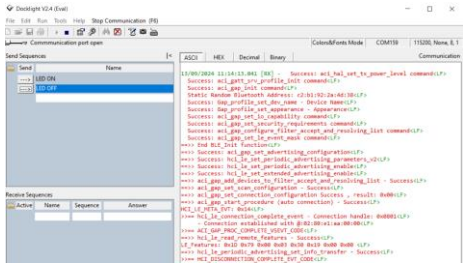

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Takeaways

PAwR supported over STM32WB0

Extend and create new Bluetooth® Low Energy application around STM32WB0 thanks to PAwR feature

PAwR OBSERVER

PAwR BROADCASTER