Intro

The Host Controller Interface (HCI) is the common point where devices are split. Typically this interface is over an asynchronous protocol such as UART. Some devices will define proprietary interfaces between the application and host layers. Multi-core SOCs can also use the HCI or proprietary interfaces to split the stack between multiple CPUs.

Packets

All contents in the packets are formatted little endian unless stated otherwise

Packet Types

Packet	Packet Type
Command	0x01
Async Data	0x02
Sync Data	0x03
Event	0x04

Command Type

The HCI command packet typically consists of an HCI command header followed by command parameters. The structure of the HCI command packet is defined in the Bluetooth specification.

Here is a general overview of the HCI command packet structure:

Type (1 Byte)	OpCode (2 Bytes)	Parameters (N Bytes)
0x01	0xXXXX	...

Opcodes are mix of Opcode Group Field (OGF, 6 Bits) and the Opcode Command Field (OCF, 10 Bits)

Opcode = (OGF << 10) | OCF

Below is an example of the BLE standard command for reset

RESET

OGF	OCF	Paramters
0x3	0x3	Length = 0

Type = 0x1 Opcode = (0x3 << 10) | 0x3 = 0x0C03 Parmeters = 0

Command = Type | Opcode | Parameters = {0x1, 0x03, 0x0C, 0x00}

Note the little endian format of the opcode.

Async Data Type

The asynchronous data packet is comprised of the connection handle, fragmentation bits, the number of data bytes, and the data bytes themselves.

Handle (12 Bits)	PB Flag (2 Bits)	BC Flag (2 Bits)	Total Length (2 Bytes)	Data (Total Length)
0xXXX	0bXX	0bXX	0xXXXX	...

Sync Data

This synchronous data packet is not used in BLE.

Event Data

The structure of an HCI asynchronous event packet typically consists of an HCI event header followed by event parameters. Here's a general overview:

Type (1 Byte)	Event Code (2 Bytes)	Event Params (N Bytes)
0x04	0xXX	...

Vendor Specific Commands

OGF : 0x3F
MAX_NUMBER_CONNECTIONS: set at application layer by user.

NOTE: All data parameters and return values are returned little endian formatted unless stated otherwise.

Write Memory

OCF	Length	Parameters	Return
0x300	5 + N, where N is the number of bytes to write	Length, Address	Status
#### Description			

Write N bytes to a specified 32-bit address.

Parameters

Length (1 Byte):

Description	Value
Number of bytes to write to address	0 – 0xFF
Address (4 Bytes):	

Description	Value
Address to write data to	0 - 0xFFFFFFFF

Return

Status

Read Memory

OCF	Length	Parameters
0x301	5	Length, Address

Description

Read memory from a specified 32-bit address.

Parameters

Length (1 Byte):

Description	Value
Number of bytes to write to address	0 – 0xFF

Address (4 Bytes):

Description	Value
Address to write data to	0 - 0xFFFFFFFF

Return

Data (N)

Description	Value
Data read from address	0 - 0xFF

Reset Connection Stats

OCF	Length	Parameters
0x302	0	N/A

Description

Clear all connection statistics.

Return

Status

VS TX Test

OCF	Length	Parameters
0x303	6	RF Channel, Packet Length, Packet Type, Num Packets

Description

Start a TX test using a specific number of packets.

Parameters

RF Channel (1 Byte):

Description	Value
RF channel to transmit on	0 – 39

Packet Length (1 Byte):

Description	Value
Number of bytes in single packet	0 - 255

Packet Type (1 Byte)

Description	Value
PRBS9	0x00
00001111'b packet payload	0x01
01010101'b packet payload	0x02
PRBS15	0x03
11111111'b packet payload	0x04
00000000'b packet payload	0x05
11110000'b packet payload	0x06
10101010'b packet payload	0x07

PHY (1 Byte)

Description	Value
1M	0x01
2M	0x02
Coded Unspecified	0x03
Coded S8	0x04
Coded S2	0x05

Num Packets (2 Bytes)

Description	Value
Number of packets to send over courser of test	0 - 0xFFFF

Return

Status

VS End Test

OCF	Length	Parameters
0x304	0	N/A

Description

End current DTM test and return all test stats.

Return

TX Data (2 Bytes)

Description	Value
Number of packets transmitted	0 - 0xFFFF

RX Data Ok(2 Bytes)

Description	Value
Number of packets received ok	0 – 0xFFFF

RX Data CRC (2 Bytes)

Description	Value
Number of packets received with a CRC error	0 - 0xFFFF

RX Data Timeout (2 Bytes)

Description	Value
Number of timeouts waiting to receive a packet	0 - 0xFFFF

Set Scan Channel Map

OCF	Length	Parameters
0x301	1	Channel Map

Description

Set channel map to scan on

Parameters

Channel Map (1 Byte):

Description	Value
Channel map used to scan	0 – 0xFF

Return

Status

Set Event Mask

OCF	Length	Parameters
0x3E1	5	Mask, Enable

Description

Enables/Disabled events the controller will flag

Parameters

Mask (4 Bytes):

Description	Value
Mask of events to enable/disable	0x0 – 0xFFFFFFFFFFFFFFFF

Enable (1 Byte):

Description	Value
Disable	0x00
Enable	0x01

Return

Status

Enable ACL Sink

OCF	Length	Parameters
0x3E3	1	Enable

Description

Enables/Disables asynchronous connection-oriented logical transport.

Parameters

Enable (1 Byte):

Description	Value
Disable	0x00
Enable	0x01

Return

Status

Generate ACL

OCF	Length	Parameters
0x3E4	5	Handle, Packet Length, Num Packets

Description

Generate ACL for a specified connection.

Parameters

Handle (2 Bytes):

Description	Value
Connection handle	0x01-MAX_NUMBER_CONNECTIONS

MAX_NUMBER_CONNECTIONS set at application layer by user.

Packet Length (2 Bytes):

Description	Value
Length of packet of generated ACL	0x00 – MAX_ACL_LEN

MAX_ACL_LEN set at application layer by user.

Num Packets (1 Bytes):

Description	Value
Number of packets to send in generated ACL	0x00 – 0xFF

Return

Status

Enable Autogenerate ACL

OCF	Length	Parameters
0x3E3	1	Enable

Description

Enable/Disable Autogenerate ACL

Parameters

Enable (1 Byte):

Description	Value
Disable	0x00
Enable	0x01

Return

Status

Set TX Test Error Pattern

OCF	Length	Parameters
0x3E6	4	Error Pattern

Description

Set pattern of errors for TX test mode.

Parameters

Error Pattern (1 Byte):

Description	Value
1s = no error, 0s = CRC Failure	0x0 - 0xFFFFFFFF

Return

Status

Set Connection Operational Flags

OCF	Length	Parameters
0x3E7	7	Handle, Flags, Enable

Description

Enable/Disable connection operational flags for a given connection.

Parameters

Handle (2 Bytes):

Description	Value
Connection handle	0x01-MAX_NUMBER_CONNECTIONS

MAX_NUMBER_CONNECTIONS set at application layer by user.

Flags (4 Bytes)

Description	Value
Flags to enable or disable	0x0 – 0xFFFFFFFF

Enable (1 Byte):

Description	Value
Disable	0x00
Enable	0x01

Return

Status

Set P-256 Private Key

OCF	Length	Parameters
0x3E8	32	Private Key

Description

Set P-256 private key or clear set private key. The private key will be used for generating key pairs and Diffie-Hellman keys until cleared.

Parameters

Private Key (32 Bytes):

Description	Value
Clear Private Key	0x00…
Private Key	0x1 – 0xFF…

Description	Value

Return

Status

Get channel map of periodic scan/adv

OCF	Length	Parameters	Return
0x3DE	3	Advertising Handle, Adverting	Channel Map

Description

Get the channel map used for periodic scanning or advertising.

Parameters

Handle (2 Bytes):

Description	Value
Periodic Scanner/Advertiser Handle	0x01-MAX_NUMBER_CONNECTIONS

Advertising (1 Byte):

Description	Value
Scanner	0x00
Advertiser	0x01

Return

Channel Map (5 Bytes):

Description	Value
Channel Masks	{0x00-0xFF, ...}

Get ACL Test Report

OCF	Length	Parameters
0x3E9	0	N/A

Description

Get ACL Test Report

Return

RX ACL Packet Count (4 Bytes):

Description	Value
Number of ACL packets received	0x0 – 0xFFFFFFFF

RX ACL Octet Count (4 Bytes):

Description	Value
Number of ACL octets received	0x0 – 0xFFFFFFFF

Generated ACL Packet Count (4 Bytes):

Description	Value
Number of generated ACL packets	0x0 – 0xFFFFFFFF

Generated ACL Octet Count (4 Bytes):

Description	Value
Number of generated ACL octets	0x0 – 0xFFFFFFFF

Set Local Minimum Number of Used Channels

OCF	Length	Parameters
0x3EA**	3	PHYs, Power Threshold, Min Used Channels

Description

Set local minimum number of used channels.

Parameters

PHYs (1 Byte):

Description	Value
1M	0x1
2M	0x2
Coded	0x3

Power Threshold (1 Byte, signed 8-Bit):

Description	Value
Power Threshold for PHY	+/-127

Min Used Channels (1 Byte)

Description	Value
Minimum number of used channels	1 - 37

Return

Status

Get Peer Minimum Number of Used Channels

OCF	Length	Parameters	Return
0x3EB	2	Handle	1M PHY, 2M PHY, Coded PHY

Description

Get peer minimum number of used channels.

Parameters

Handle (2 Bytes):

Description	Value
Connection Handle	0x01-MAX_NUMBER_CONNECTIONS

Return

1M PHY (1 Byte):

Description	Value
1M min used channels	1 - 37

2M PHY (1 Byte):

Description	Value
2M min used channels	1 - 37

Coded PHY (1 Byte):

Description	Value
Coded min used channels	1 – 37

Set validate public key mode between ALT1 and ALT2

OCF	Length	Parameters
0x3EC	1	Validate Mode

Description

Set mode used to validate public key.

Parameters

Validate Mode (1 Byte):

Description	Value
ALT2	0x0
ALT1	0x1

Return

Status

Set BD Address

OCF	Length	Parameters
0x3F0	6	BD Address

Description

Set the device address.

Parameters

BD Address (6 Bytes):

Description	Value
Device Address	{0x00-0xFF, ...}

Return

Status

Get Random Address

OCF	Length	Parameters	Return
0x3F1	0	N/A	BD Address
#### Description			

Get random device address.

Return

BD Address (6 Bytes):

Description	Value
Device Address	{0x00-0xFF, ...}
### Set Local Feature	

OCF	Length	Parameters
0x3F2	8	Local Features

Description

Set local supported features.

Parameters

Local Features (8 Bytes):

Description	Value
Mask of Local Features	0x00 – 0xFFFFFFFFFFFFFFFF

Return

Status

Set Operational Flags

OCF	Length	Parameters
0x3F3	5	Flags, Enable

Description

Enable Disable Operational Flags

Parameters

Flags (4 Bytes):

Description	Value
Flags to enable or disable	0x0 – 0xFFFFFFFF

Enable (1 Byte):

Description	Value
Disable	0x00
Enable	0x01

Return

Status

Get PDU Filter Statistics

OCF	Length	Parameters
0x3F4	0	N/A

Description

Get the accumulated PDU filter statistics.

Return

Fail PDU Type Filter (2 Bytes):

Description	Value
Number of PDUs failing PDU type filter	0x0 – 0xFFFF

Pass PDU Type Filter (2 Bytes):

Description	Value
Number of PDUs passing PDU type filter	0x0 – 0xFFFF

Fail Whitelist Filter (2 Bytes):

Description	Value
Number of PDUs failing whitelist filter	0x0 – 0xFFFF

Pass Whitelist Filter (2 Bytes):

Description	Value
Number of PDUs passing whitelist filter	0x0 – 0xFFFF

Fail Peer Address Match (2 Bytes):

Description	Value
Number of PDUS failing peer address match	0x0 – 0xFFFF

Pass Peer Address Match (2 Bytes):

Description	Value
Number of PDUs passing peer address match	0x0 – 0xFFFF

Fail Local Address Match (2 Bytes):

Description	Value
Number of PDUS failing local address match	0x0 – 0xFFFF

Pass local Address Match (2 Bytes):

Description	Value
Number of PDUs passing local address match	0x0 – 0xFFFF

Fail Peer RPA Verify (2 Bytes):

Description	Value
Number of peer RPAs failing verification	0x0 – 0xFFFF

Pass Peer RPA Verify (2 Bytes):

Description	Value
Number of peer RPAs passing verification	0x0 – 0xFFFF

Fail Local RPA Verify (2 Bytes):

Description	Value
Number of local RPAs failing verification	0x0 – 0xFFFF

Description	Value

Pass Local RPA Verify (2 Bytes):

Description	Value
Number of local RPAs passing verification	0x0 – 0xFFFF

Fail Peer Private Address (2 Bytes):

Description	Value
Number of peer addresses failing requirement to be RPAs	0x0 – 0xFFFF

Fail Local Private Address (2 Bytes):

Description	Value
Number of local addresses failing requirement to be RPAs	0x0 – 0xFFFF

Fail Peer Address Res Req (2 Bytes):

Description	Value
Number of PDUs failing required peer address resolution	0x0 – 0xFFFF

Pass Peer Address Res Req (2 Bytes):

Description	Value
Number of PDUs passing optional peer address resolution	0x0 – 0xFFFF

Pass Local Address Res Opt. (2 Bytes): | **Description** | **Value** | | ---------- | ---------- | | Number of PDUs passing optional local address resolution | 0x0 – 0xFFFF | | |

Peer Res Address Pend (2 Bytes):

Description	Value
Number of peer address resolutions pended	0x0 – 0xFFFF

Local Res Address Pend (2 Bytes):

Description	Value
Number of local address resolutions pended	0x0 – 0xFFFF
### Set Advertising TX Power	

OCF	Length	Parameters	Return
0x3F5	1	Power	Status
#### Description			

Set the TX power used for advertising.

Parameters

Power (1 Byte, Signed 8-Bit):

Description	Value
Power	-15 - 6

Return

Status

Set Connection TX Power

OCF	Length	Parameters	Return
0x3F6	1	Power	Status
#### Description			

Set the TX power used for connections.

Parameters

Power (1 Byte, Signed 8-Bit):

Description	Value
Power	-15 - 6

Return

Status

Set Encryption Mode

OCF	Length	Parameters
0x3F7	4	Enable Auth, Nonce Mode, Handle

Description

Set encryption mode for a given connection.

Parameters

Enable Auth (1 Byte):

Description	Value
Disable	0x0
Enable	0x1

Handle (2 Bytes):

Description	Value
Connection Handle	0x01-MAX_NUMBER_CONNECTIONS

Return

Status

Set Channel Map

OCF	Length	Parameters
0x3F8	6	Handle, Channel Map

Description

Set the channel map

Parameters

Handle (2 Bytes):

Description	Value
Connection Handle	0x01-MAX_NUMBER_CONNECTIONS

Channel Map (4 Bytes):

Description	Value
Channel Map	0x00 – 0xFFFFFFFF

Return

Status

Set Diagnostic Mode

OCF	Length	Parameters
0x3F9	1	Enable

Description

Enable/Disable PAL System Assert Trap

Parameters

Enable (1 Byte):

Description	Value
Disable	0x0
Enable	0x1

Return

Status

Enable Sniffer Packet Forwarding

OCF	Length	Parameters
0x3CD	1	Enable

Description

Enable/Disable sniffer packet forwarding.

Parameters

Enable (1 Byte):

Description	Value
Disable	0x0
Enable	0x1

Return

Status

Get Memory Stats

OCF	Length	Parameters
0x3FA	0	N/A

Description

Read memory and system statistics.

Return

Stack Usage (2 Byte):

Description	Value
Number of bytes used by stack	0x0 – 0xFFFF

Sys Assert Count (2 Byte):

Description	Value
Number of times assertions hit	0x0 – 0xFFFF

Free Memory (4 Bytes):

Description	Value
Memory free for stack usage	0x0 – 0xFFFFFFFF

Used Memory (4 Bytes):

Description	Value
Memory used by stack	0x00 – 0xFFFFFFFF

Max Connections (2 Bytes):

Description	Value
Number of max connections allowed	0x00 – MAX_NUMBER_CONNECTIONS

Connection Context Size (2 Bytes):

Description	Value
Number of bytes used for connection context	0x00 – 0xFFFF

CS Watermark Level (2 Bytes):

Description	Value
Critical section watermark duration in microseconds	0x00 – 0xFFFF

LL Handler Watermark Level (2 Byte):

Description	Value
LL handler watermark level in microseconds	0x00 – 0xFFFF

Sch Handler Watermark Level (2 Byte):

Description	Value
Scheduler handler watermark level in microseconds	0x00 – 0xFFFF

LHCI Handler Watermark Level (2 Byte):

Description	Value
LHCI handler watermark level in microseconds	0x00 – 0xFFFF

Max Adv Sets (2 Bytes):

Description	Value
Maximum number of advertising sets	0x00 – 0xFFFF

Description	Value

Adv Set Context Size (2 Bytes):

Description	Value
Size of advertising set context in bytes	0x00 – 0xFFFF

Ext Scan Max (2 Bytes):

Description	Value
Maximum number of extended scanners	0x0 – 0xFFFF

Ext Scan Context Size (2 Bytes):

Description	Value
Size of context size for extended scanners in bytes	0x00 – 0xFFFF

Max Num Extended Init (2 Bytes):

Description	Value
maximum number of extended initiators.	0x00 – 0xFFFF

Ext Init Context Size (2 Byte):

Description	Value
Size of context size for extended initiators in bytes	0x00 – 0xFFFF
Max Periodic Scanners (2 Bytes):	

Description	Value
Maximum number of periodic scanners	0x00-0xFFFF

Periodic Scanners Context Size(2 Bytes):

Description	Value
Context size of periodic scanners in bytes	0x00-0xFFFF

Max CIG (2 Bytes):

Description	Value
Maximum number of CIG	0x00-0xFFFF

CIG Context Size (2 Bytes):

Description	Value
Context size of CIG in bytes	0x00-0xFFFF
Max CIS (2 Bytes):	

Description	Value
Maximum number of CIS	0x00-0xFFFF

CIS Context Size (2 Bytes):

Description	Value
Context size of CIS in bytes	0x00-0xFFFF
### Get Advertising Stats	

OCF	Length	Parameters
0x3FB	0	N/A
#### Description		

Get the accumulated adverting stats.

Return

TX ADV (4 Bytes):

Description	Value
Number of sent advertising packets	0x00 – 0xFFFFFFFF

RX Req (4 Bytes):

Description	Value
Number of successfully received advertising requests	0x00 – 0xFFFFFFFF

RX Req CRC (4 Bytes):

Description	Value
Number of received advertising requests with CRC errors	0x00 – 0xFFFFFFFF

RX Req Timeout (4 Bytes):

Description	Value
Number of timed out received advertising requests (receive timeout)	0x00 – 0xFFFFFFFF

TX RSP (4 Bytes):

Description	Value
Number of sent response packets	0x00 – 0xFFFFFFFF

Err ADV (4 Bytes):

Description	Value
Number of advertising transaction errors	0x00 – 0xFFFFFFFF

RX Setup (2 Bytes):

Description	Value
RX packet setup watermark in microseconds	0x00 – 0xFFFF

TX Setup (2 Bytes):

Description	Value
TX packet setup watermark in microseconds	0x00 – 0xFFFF

RX ISR (2 Bytes):

Description	Value
RX ISR processing watermark in microseconds	0x00 – 0xFFFF

TX ISR (2 Bytes):

Description	Value
TX ISR processing watermark in microseconds	0x00 – 0xFFFF

Get Scan Stats

OCF	Length	Parameters
0x3FC	0	N/A
#### Description		

Get the statistics captured during scanning.

Return

RX ADV (4 Bytes):

Description	Value
Number of successfully received advertising packets	0x00 – 0xFFFFFFFF

RX ADV CRC (4 Bytes):

Description	Value
Number of received advertising packets with CRC errors	0x00 – 0xFFFFFFFF

RX ADV Timeout (4 Bytes):

Description	Value
Number of timed out advertising packets (receive timeout)	0x00 – 0xFFFFFFFF

TX Req (4 Bytes):

Description	Value
Number of sent advertising requests	0x00 – 0xFFFFFFFF

RX RSP (4 Bytes):

Description	Value
Number of successfully received advertising response packets	0x00 – 0xFFFFFFFF

RX RSP CRC (4 Bytes):

Description	Value
Number of received advertising response packets with CRC errors	0x00 – 0xFFFFFFFF

RX RSP Timeout (4 Bytes):

Description	Value
Number of timed out advertising response packets (receive timeout)	0x00 – 0xFFFFFFFF

Description	Value

Err Scan (4 Bytes):

Description	Value
Number of scan transaction errors	0x00 – 0xFFFFFFFF

RX Setup (2 Bytes):

Description	Value
RX packet setup watermark in microseconds	0x00 – 0xFFFFFFFF

TX Setup (2 Bytes):

Description	Value
TX packet setup watermark in microseconds	0x00 – 0xFFFFFFFF

RX ISR (2 Bytes):

Description	Value
RX ISR processing watermark in microseconds	0x00 – 0xFFFFFFFF

TX ISR (2 Bytes):

Description	Value
TX ISR processing watermark in microseconds	0x00 – 0xFFFFFFFF
### Get Connection Stats	

OCF	Length	Parameters
0x3FD	0	N/A

OCF	Length	Parameters
#### Description		

Get the statistics captured during connection.

Return

RX Data (4 Bytes)

Description	Value
Number of successfully received data packets	0x00 - 0xFFFFFFFF

RX Data CRC (4 Bytes)

Description	Value
Number of received data packets with CRC errors	0x00 - 0xFFFFFFFF

RX Data Timeout (4 Bytes)

Description	Value
Number of timed out data packets (receive timeout)	0x00 - 0xFFFFFFFF

TX Data (4 Bytes)

Description	Value
Number of sent data packets	0x00 - 0xFFFFFFFF

Err Data (4 Bytes)

Description	Value
Number of data transaction errors	0x00 - 0xFFFFFFFF

RX Setup (2 Bytes)

Description	Value
RX packet setup watermark in microseconds	0x00 - 0xFFFF

TX Setup (2 Bytes)

Description	Value
TX packet setup watermark in microseconds	0x00 - 0xFFFF

RX ISR (2 Bytes)

Description	Value
RX ISR processing watermark in microseconds	0x00 - 0xFFFF

TX ISR (2 Bytes)

Description	Value
TX ISR processing watermark in microseconds	0x00 - 0xFFFF

Get Test Stats

OCF	Length	Parameters	Return
0x3FE	0	N/A	Test stats in order as documented
#### Description			

Get the statistics captured during test mode.

Return

RX Data (4 Bytes)

Description	Value
Number of successfully received data packets	0x00 - 0xFFFFFFFF

Description	Value

RX Data CRC (4 Bytes)

Description	Value
Number of received data packets with CRC errors	0x00 - 0xFFFFFFFF

RX Data Timeout (4 Bytes)

Description	Value
Number of timed out data packets (receive timeout)	0x00 - 0xFFFFFFFF

TX Data (4 Bytes)

Description	Value
Number of sent data packets	0x00 - 0xFFFFFFFF

Err Data (4 Bytes)

Description	Value
Number of data transaction errors	0x00 - 0xFFFFFFFF

RX Setup (2 Bytes)

Description	Value
RX packet setup watermark in microseconds	0x00 - 0xFFFF

TX Setup (2 Bytes)

Description	Value
TX packet setup watermark in microseconds	0x00 - 0xFFFF

RX ISR (2 Bytes)

Description	Value
RX ISR processing watermark in microseconds	0x00 - 0xFFFF

TX ISR (2 Bytes)

Description	Value
TX ISR processing watermark in microseconds	0x00 - 0xFFFF

Get Pool Stats

OCF	Length	Parameters	Return
0x3FF	0	N/A	Pool stats in order as documented

Description

Get the memory pool statistics captured during runtime.

NOTE: The flag *WSF_BUF_STATS* must be defined to *TRUE* at compile time

Return

Num Pool (1 Bytes):

Description	Value
Number of pools defined	0x00 – 0xFF

Note: The rest of the return parameters may be repeated *Num Pool* times and will be sent in order of the pool number (e.g., pool 0, pool 1, ..., pool N-1).

Buf Size (2 Bytes):

Description	Value
Pool Buffer Size	0x00 – 0xFFFF

Num Buf (1 Byte):

Description	Value
Total Number of buffers	0x00 – 0xFF

Num Alloc (1 Byte):

Description	Value
Number of outstanding allocations	0x00 – 0xFF

Max Alloc (1 Byte):

Description	Value
High allocation watermark	0x00 – 0xFF

Max Req Len (2 Bytes):

Description	Value
Maximum requested buffer length	0x00 – 0xFFFF

Set Additional AuxPtr Offset

OCF	Length	Parameters
0x3D0	5	Delay, Handle

Description

Set auxiliary packet offset delay.

Parameters

Delay (4 Bytes):

Description	Value
Disable	0x00
Delay in microseconds	0x1 – 0xFFFFFFFF

Handle (1 Byte):

Description	Value
Connection handle	0x01-MAX_NUMBER_CONNECTIONS

Return

Status

Set Extended Advertising Data Fragmentation

OCF	Length	Parameters
0x3D1	2	Handle, Frag Length

Description

Set the extended advertising fragmentation length.

Parameters

Handle (1 Bytes):

Description	Value
Advertising Handle	0x01-MAX_NUMBER_CONNECTIONS

Frag Length (1 Bytes):

Description	Value
Fragmentation Length	0x00-0xFF

Return

Status

Set Extended Advertising PHY Options

OCF	Length	Parameters
0x3D2	3	Handle, Primary Opt., Secondary Opt.

Description

Set extended advertising PHY options

Parameters

Handle (1 Byte):

Description	Value
Advertising Handle	0x01-MAX_NUMBER_CONNECTIONS

Primary Opt. (1 Byte):

Description	Value
Primary advertising channel PHY options.	0x00-0xFF

Secondary Opt. (1 Byte):

Description	Value
Secondary advertising channel PHY options.	0x00-0xFF

Return

Status

Set extended Advertising Default PHY Options

OCF	Length	Parameters
0x3D3	1	PHY Opt.

Description

Set the default TX PHY options for extended adv slave primary and secondary channel.

Parameters

PHY Opt. (1 Byte):

Description	Value
PHY Options	0x00 – 0xFF

Return

Status

Generate ISO Packets

OCF	Length	Parameters
0x3D5	5	Handle, Packet Length, Num Packets

Description

Generate ISO packets.

Parameters

Handle (2 Byte):

Description	Value
Connection Handle	0x01-MAX_NUMBER_CONNECTIONS

Packet Length (2 Byte):

Description	Value
Packet Length	0x00-0xFFFF

Num Packets (1 Byte):

Description	Value
Number of packets	0x00-0xFF
#### Return	

Status

Get ISO Test Report

OCF	Length	Parameters
0x3D6	16	RX ISO Packet Count,RX ISO Octet CountGenerate Packet Count,Generate Octet Count

Description

Get statistics captured during ISO test.

Return

RX ISO Packet Count (4 Byte):

Description	Value
Receive ISO Packet Count	0x00 – 0xFFFFFFFF

RX ISO Octet Count (4 Byte):

Description	Value
Receive ISO Octet Count	0x00 – 0xFFFFFFFF

Description	Value

Generate Packet Count (4 Byte):

Description	Value
Generate ISO Packet Count	0x00 – 0xFFFFFFFF

Generate Octet Count (4 Byte):

Description	Value
Generate ISO Octet Count	0x00 – 0xFFFFFFFF

Enable ISO Packet Sink

OCF	Length	Parameters
0x3D7	1	Enable

Description

Enable/Disable ISO packet sink.

Parameters

Enable (1 Byte):

Description	Value
Disable	0x00
Enable	0x01

Return

Status

Enable Autogenerate ISO Packets

OCF	Length	Parameters
0x3D8	2	Packet Length

Description

Enable autogenerate ISO packets.

Parameters

Packet Length (2 Bytes):

Description	Value
Disable	0x00
Length	0x01 – 0xFFFF

Return

Status

Get ISO Connection Statistics

OCF	Length	Parameters
0x3D9	0	N/A
#### Description		

Get statistics captured during ISO connection.

Return

RX Data (4 Bytes)

Description	Value
Number of successfully received data packets	0x00 - 0xFFFFFFFF

Description	Value

RX Data CRC (4 Bytes)

Description	Value
Number of received data packets with CRC errors	0x00 - 0xFFFFFFFF

RX Data Timeout (4 Bytes)

Description	Value
Number of timed out data packets (receive timeout)	0x00 - 0xFFFFFFFF

TX Data (4 Bytes)

Description	Value
Number of sent data packets	0x00 - 0xFFFFFFFF

Err Data (4 Bytes)

Description	Value
Number of data transaction errors	0x00 - 0xFFFFFFFF

RX Setup (2 Bytes)

Description	Value
RX packet setup watermark in microseconds	0x00 - 0xFFFF

TX Setup (2 Bytes)

Description	Value
TX packet setup watermark in microseconds	0x00 - 0xFFFF

RX ISR (2 Bytes)

Description	Value
RX ISR processing watermark in microseconds	0x00 - 0xFFFF

TX ISR (2 Bytes)

Description	Value
TX ISR processing watermark in microseconds	0x00 - 0xFFFF
### Get Auxiliary Advertising Statistics	

OCF	Length	Parameters
0x3DA	0	N/A
#### Description		

Get accumulated auxiliary advertising stats.

Return

TX ADV (4 Bytes):

Description	Value
Number of sent advertising packets	0x00 – 0xFFFFFFFF

RX Req (4 Bytes):

Description	Value
Number of successfully received advertising requests	0x00 – 0xFFFFFFFF

RX Req CRC (4 Bytes):

Description	Value
Number of received advertising requests with CRC errors	0x00 – 0xFFFFFFFF

Description	Value

RX Req Timeout (4 Bytes):

Description	Value
Number of timed out received advertising requests (receive timeout)	0x00 – 0xFFFFFFFF

TX RSP (4 Bytes):

Description	Value
Number of sent response packets	0x00 – 0xFFFFFFFF

TX Chain (4 Bytes):

Description	Value
Number of sent chain packets	0x00 – 0xFFFFFFFF

Err ADV (4 Bytes):

Description	Value
Number of advertising transaction errors	0x00 – 0xFFFFFFFF

RX Setup (2 Bytes):

Description	Value
RX packet setup watermark in microseconds	0x00 – 0xFFFF

TX Setup (2 Bytes):

Description	Value
TX packet setup watermark in microseconds	0x00 – 0xFFFF

RX ISR (2 Bytes):

Description	Value
RX ISR processing watermark in microseconds	0x00 – 0xFFFF

TX ISR (2 Bytes):

Description	Value
TX ISR processing watermark in microseconds	0x00 – 0xFFFF

Get Auxiliary Scanning Statistics

OCF	Length	Parameters
0x3DB	0	N/A
#### Description		

Get accumulated auxiliary scanning statistics.

Return

RX ADV (4 Bytes):

Description	Value
Number of sent advertising packets	0x00 – 0xFFFFFFFF

RX ADV CRC (4 Bytes):

Description	Value
Number of received advertising requests with CRC errors	0x00 – 0xFFFFFFFF

RX ADV Timeout (4 Bytes):

Description	Value
Number of timed out received advertising requests (receive timeout)	0x00 – 0xFFFFFFFF

TX REQ (4 Bytes):

Description	Value
Number of sent advertising requests	0x00 – 0xFFFFFFFF

RX RSP (4 Bytes):

Description	Value
Number of successfully received advertising response packets	0x00 – 0xFFFFFFFF

RX RSP CRC (4 Bytes):

Description	Value
Number of received advertising response packets with CRC errors	0x00 – 0xFFFFFFFF

RX RSP Timeout (4 Bytes):

Description	Value
Number of timed out advertising response packets (receive timeout)	0x00 – 0xFFFFFFFF

RX Chain (4 Bytes):

Description	Value
Number of successfully received chain packets	0x00 – 0xFFFFFFFF

RX Chain CRC (4 Bytes):

Description	Value
Number of received chain packets with CRC errors	0x00 – 0xFFFFFFFF

RX Chain Timeout (4 Bytes):

Description	Value
Number of timed out chain packets (receive timeout)	0x00 – 0xFFFFFFFF

Err Scan (4 Bytes):

Description	Value
Number of scan transaction errors	0x00 – 0xFFFFFFFF

RX Setup (2 Bytes):

Description	Value
RX packet setup watermark in microseconds	0x00 – 0xFFFF

TX Setup (2 Bytes):

Description	Value
TX packet setup watermark in microseconds	0x00 – 0xFFFF

RX ISR (2 Bytes):

Description	Value
RX ISR processing watermark in microseconds	0x00 – 0xFFFF

TX ISR (2 Bytes):

Description	Value
TX ISR processing watermark in microseconds	0x00 – 0xFFFF

Get Periodic Scanning Statistics

OCF	Length	Parameters
0x3DC	0	N/A

Description

Get accumulated periodic scanning statistics.

Return

RX ADV (4 Bytes):

Description	Value
Number of successfully received advertising packets	0x00 – 0xFFFFFFFF

RX ADV CRC (4 Bytes):

Description	Value
Number of received advertising packets with CRC errors	0x00 – 0xFFFFFFFF

RX ADV Timeout (4 Bytes):

Description	Value
Number of timed out advertising packets (receive timeout)	0x00 – 0xFFFFFFFF

RX Chain (4 Bytes):

Description	Value
Number of successfully received chain packets	0x00 – 0xFFFFFFFF

RX Chain CRC (4 Bytes):

Description	Value
Number of received chain packets with CRC errors	0x00 – 0xFFFFFFFF

RX Chain Timeout (4 Bytes):

Description	Value
Number of timed out chain packets (receive timeout)	0x00 – 0xFFFFFFFF

Err Scan (4 Bytes):

Description	Value
Number of scan transaction errors	0x00 – 0xFFFFFFFF

RX Setup (2 Bytes):

Description	Value
RX packet setup watermark in microseconds	0x00 – 0xFFFF

TX Setup (2 Bytes):

Description	Value
TX packet setup watermark in microseconds	0x00 – 0xFFFF

RX ISR (2 Bytes):

Description	Value
RX ISR processing watermark in microseconds	0x00 – 0xFFFF

TX ISR (2 Bytes):

Description	Value
TX ISR processing watermark in microseconds	0x00 – 0xFFFF

Set Connection PHY TX Power

OCF	Length	Parameters
0x3DD	4	Handle, Level, PHY

Description

Set power level during a connection for a given PHY.

Parameters

Handle (2 Bytes):

Description	Value
Connection handle	0x01-MAX_NUMBER_CONNECTIONS

Level (1 Byte, Signed 8-Bit):

Description	Value
Power Level	-15 - 6

PHY (1 Byte, Signed 8-Bit):

Description	Value
1M	0x00
2M	0x01
Coded	0x02

Return

Status