

iTiles Connection

Connectivity: BLE

Tile will act as a BLE server using the following parameters:

SERVICE_UUID: 6E400001-B5A3-F393-E0A9-E50E24DCCA9E

CHARACTERISTIC_UUID_RX: 6E400002-B5A3-F393-E0A9-E50E24DCCA9E

CHARACTERISTIC_UUID_TX: 6E400003-B5A3-F393-E0A9-E50E24DCCA9E

Main tile will advertise itself with device name "iTiles"

iTiles Command List

Format

Start Byte	Tile ID	Command	Length	Parameters	End Byte
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Start Byte: 0xAA

Tile ID: A unique identifier for each tile from 0 to 127. A MASTER tile has a default ID of 0. To send a command to all tiles, use a tile ID of 0xFF

Command: Byte command instruction

Length: The number of bytes for Length + Parameters

Parameters: Additional parameters for different commands

End Byte: 0xEF

Detailed Command List

1. BROADCAST (App -> MASTER -> STANDARD)
Description: Broadcast main tile ID to all sub-tiles. For initiating pairing
Command: 0x01
Parameters: 6 bytes MASTER tile mac address
2. REQUEST_TILE_ID (STANDARD -> MASTER)
Description: STANDARD tile sends a command to request for a tile id to be assigned
Command: 0x02

Parameters: 6 byte STANDARD tile mac address

3. ASSIGN_ID (MASTER -> STANDARD)
Description: MASTER tile assigns and sends a tile ID to the STANDARD tile that made the request
Command: 0x03
Parameters: 1 bytes tile ID (0x01 – 0x7F)
4. UNPAIR (App -> MASTER -> STANDARD)
Description: Unpair a tile from the MASTER tile
Command: 0x04
Parameters: 1 bytes tile ID (0x01 – 0x7F). 0xFF to unpair all tiles from the MASTER tile.
5. QUERY_PAired_TILES (App -> MASTER)
Description: App to request for a list of tiles that are paired to the MASTERTILE
Command: 0x05
Parameters: Nil
6. QUERY_ONLINE_TILES (App -> MASTER -> STANDARD)
Description: App to request for a list of tiles that are online
Command: 0x06
Parameters: Nil
7. REPLY_PAired_TILES (MASTER -> App)
Description: MASTERTILE to send a list of pair tiles to app
Command: 0x07
Parameters 1: Total Number of tiles paired
Parameter 2 onwards: Tile ID of paired tiles
8. REPLY_ONLINE_TILES (STANDARD -> MASTER -> App)
Description: All tiles to send a message to inform the app that they are online
Command: 0x08
Parameter 1: Battery Level
Parameter 2: Hardware Version
Parameter 3: Firmware Version
9. TRIGGER_LIGHT (App -> MASTER -> STANDARD)
Description: Trigger one or all tiles to light up in a single color
Command: 0x0B
Parameter 1:
 0x00 – 0xFF: Red intensity
Parameter 2:
 0x00 – 0xFF: Green intensity
Parameter 3:
 0x00 – 0xFF: Blue intensity

Parameter 4:

0x00: Stay on forever

0x01 – 0xFF: Off after X seconds

Parameter 5:

0x00: Don't log reaction time

0x01: Log reaction time for touch/step only

0x02: Log reaction time for shake only

0x03: Log reaction time for both touch/step and shake

0x04: Log reaction time for side pairing

Parameter 6:

0x00: No timeout response

0x01 – 0xFF: Timeout response after X seconds

10. TRIGGER_SOUND (App -> MASTER -> STANDARD)

Description: Trigger one or all tiles to play a specific sound

Command: 0x0C

Parameter 1:

0x01 – 0xFF: Sound track ID

Parameter 2:

0x01 – 0x9: Repeat 1 to 9 times

Parameter 3:

0x00: Don't log reaction time

0x01: Log reaction time for touch/step only

0x02: Log reaction time for shake only

0x03: Log reaction time for both touch/step and shake

0x04: Log reaction time for side pairing

Parameter 4:

0x00: No timeout response

0x01 – 0xFF: Timeout response after X seconds

11. TRIGGER_VIBRATE (App -> MASTER -> STANDARD)

Description: Trigger one or all tiles to vibrate a specific pattern

Command: 0x0D

Parameter 1:

0x01 – 0xFF: Vibration pattern ID

Parameter 2:

0x01 – 0x9: Repeat 1 to 9 times

Parameter 3:

0x00: Don't log reaction time

0x01: Log reaction time for touch/step only

0x02: Log reaction time for shake only

0x03: Log reaction time for both touch/step and shake

0x04: Log reaction time for side pairing

Parameter 4:

0x00: No timeout response

0x01 – 0xFF: Timeout response after X seconds

12. TRIGGER_SIDE (App -> MASTER -> STANDARD)

Description: Trigger sides of tile to light up. Can have multiple sides with different colours

Command: 0x0E

Parameter 1:

0x00 – 0xFF: Side 1 Red intensity

Parameter 2:

0x00 – 0xFF: Side 1 Green intensity

Parameter 3:

0x00 – 0xFF: Side 1 Blue intensity

Parameter 4:

0x00 – 0xFF: Side 2 Red intensity

Parameter 5:

0x00 – 0xFF: Side 2 Green intensity

Parameter 6:

0x00 – 0xFF: Side 2 Blue intensity

Parameter 7:

0x00 – 0xFF: Side 3 Red intensity

Parameter 8:

0x00 – 0xFF: Side 3 Green intensity

Parameter 9:

0x00 – 0xFF: Side 3 Blue intensity

Parameter 10:

0x00 – 0xFF: Side 4 Red intensity

Parameter 11:

0x00 – 0xFF: Side 4 Green intensity

Parameter 12:

0x00 – 0xFF: Side 4 Blue intensity

Parameter 13:

0x00 – 0xFF: Side 5 Red intensity

Parameter 14:

0x00 – 0xFF: Side 5 Green intensity

Parameter 15:

0x00 – 0xFF: Side 5 Blue intensity

Parameter 16:

0x00 – 0xFF: Side 6 Red intensity

Parameter 17:

0x00 – 0xFF: Side 6 Green intensity

Parameter 18:

0x00 – 0xFF: Side 6 Blue intensity

Parameter 19:

0x00: Stay on forever

0x01 – 0xFF: Off after X seconds

Parameter 20:

0x00: Don't log reaction time

0x01: Log reaction time for touch/step only

0x02: Log reaction time for shake only

0x03: Log reaction time for both touch/step and shake

0x04: Log reaction time for side pairing

Parameter 21:

0x00: No timeout response

0x01 – 0xFF: Timeout response after X seconds

13. TRIGGER_EFFECT (App -> MASTER -> STANDARD)

Description: (Not implemented yet)

Command: 0x0F

Parameter 1:

14. ADVANCE_TRIGGER (App -> MASTER -> STANDARD)

Description: Trigger one or more tiles to generate a combination of light sound and vibration

Command: 0x10

Parameter 1:

0x00 – 0xFF: Red intensity

Parameter 2:

0x00 – 0xFF: Green intensity

Parameter 3:

0x00 – 0xFF: Blue intensity

Parameter 4:

0x00: Light stay on forever

0x01 – 0xFF: Light off after X seconds

Parameter 5:

0x00: No sound

0x01 – 0xFF: Sound track ID

Parameter 6:

0x01 – 0x09: (Not implemented yet)

Parameter 7:

0x00: No vibration

0x01 – 0xFF: Vibration pattern ID

Parameter 8:

0x01 – 0x09: Repeat 1 to 9 times (Not implemented yet)

Parameter 9:

0x00: Don't log reaction time

0x01: Log reaction time for touch/step only

0x02: Log reaction time for shake only

0x03: Log reaction time for both touch/step and shake

0x04: Log reaction time for side pairing

Parameter 10:

0x00: No timeout response

0x01 – 0xFF: Timeout response after X seconds

15. OFF_LIGHT (App -> MASTER -> STANDARD)

Description: Off LED on 1 or more tiles

Command: 0x11

Parameters: Nil

16. TOUCH (STANDARD -> MASTER -> App)

Description: Notify app that a tile has been touched

Command: 0x12

Parameter 1:

0x00 – 0x7F: ID of tile that has been touched

Parameter 2: Reaction Time (High Byte)

Parameter 3: Reaction Time (Low Byte)

17. SIDE_UPDATE (STANDARD -> MASTER -> App)

Description: Notify app that the side of tile has been paired/unpaired

Command: 0x13

Parameter 1:

0x01 – 0x06: which side of the tile

Parameter 2:

0x00: Unpair

0x01: Pair

Parameter 3: Reaction Time (High Byte)

Parameter 4: Reaction Time (Low Byte)

18. STEP_CHANGE (STANDARD -> MASTER -> App)

Description: Notify app that a tile has been step on/off (Not implemented yet)

Command: 0x14

Parameter 1:

0x00: Step off

0x01: Step on

Parameter 2: Reaction Time (High Byte)

Parameter 3: Reaction Time (Low Byte)

19. SHAKE (STANDARD -> MASTER -> App)

Description: Notify app that a tile been shaken

Command: 0x15

Parameter 1: Reaction Time (High Byte)

Parameter 2: Reaction Time (Low Byte)

20. SUPER_TRIGGER (App -> MASTER -> STANDARD)

Description: Super Trigger Command for everything in 1 single command

Command: 0x16

Parameter 1:

0x00 – 0xFF: Side 1 Red intensity

Parameter 2:

0x00 – 0xFF: Side 1 Green intensity

Parameter 3:

0x00 – 0xFF: Side 1 Blue intensity

Parameter 4:

0x00 – 0xFF: Side 2 Red intensity

Parameter 5:

0x00 – 0xFF: Side 2 Green intensity

Parameter 6:

0x00 – 0xFF: Side 2 Blue intensity

Parameter 7:

0x00 – 0xFF: Side 3 Red intensity

Parameter 8:

0x00 – 0xFF: Side 3 Green intensity

Parameter 9:

0x00 – 0xFF: Side 3 Blue intensity

Parameter 10:

0x00 – 0xFF: Side 4 Red intensity

Parameter 11:

0x00 – 0xFF: Side 4 Green intensity

Parameter 12:

0x00 – 0xFF: Side 4 Blue intensity

Parameter 13:

0x00 – 0xFF: Side 5 Red intensity

Parameter 14:

0x00 – 0xFF: Side 5 Green intensity

Parameter 15:

0x00 – 0xFF: Side 5 Blue intensity

Parameter 16:

0x00 – 0xFF: Side 6 Red intensity

Parameter 17:

0x00 – 0xFF: Side 6 Green intensity

Parameter 18:

0x00 – 0xFF: Side 6 Blue intensity

Parameter 19:

0x00: Stay on forever

0x01 – 0xFF: Off after X seconds

Parameter 20:

0x00: No sound

0x01 – 0xFF: Sound track ID

Parameter 21:

0x01 – 0x09: (Not implemented yet)

Parameter 22:

0x00: No vibration

0x01 – 0xFF: Vibration pattern ID

Parameter 23:

0x01 – 0x09: Repeat 1 to 9 times (Not implemented yet)

Parameter 24:

0x00: Don't log reaction time

0x01: Log reaction time for touch/step only

0x02: Log reaction time for shake only

0x03: Log reaction time for both touch/step and shake

0x04: Log reaction time for side pairing

Parameter 25:

0x00: No time out reply required from tile

0x01 – 0xFF: Tile to reply with timeout command after X seconds if not touched/shake

21. TILE_TIMEOUT (STANDARD -> MASTER -> App)

Description: Notify app that a tile has timeout from a command

Command: 0x17

Parameter 1: Nil

22. ENABLE_DISABLE_ACCEL (App -> MASTER -> STANDARD)

Description: Enable or disable accelerometer shake interrupt

Command: 0x18

Parameter 1:

0x00: Disable

0x01: Enable

23. SET_ACCEL_THRESHOLD (App -> MASTER -> STANDARD)

Description: Set threshold for shake interrupt

Command: 0x19

Parameter 1:

0x00 – 0xFF: Accelerometer threshold

24. ENABLE_DISABLE_TOUCH (App -> MASTER -> STANDARD)

Description: Enable or Disable touch

Command: 0x1A

Parameter 1:

0x00: Disable touch

0x01: Enable touch

25. SET_VOLUME (App -> MASTER -> STANDARD)

Description: Set tile audio volume

Command: 0x1B

Parameter 1: (Not implemented yet)

26. STOP_EFFECT (App -> MASTER -> STANDARD)

Description: Stop tile Light Effect

Command: 0x1C

Parameter 1: Nil