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Log Management API

API that controls the device log.

- [BS2_GetLog](#): Gets certain amount of logs.
- [BS2_GetFilteredLog](#): Gets filtered logs.
- [BS2_ClearLog](#): Deletes all logs.
- [BS2_StartMonitoringLog](#): Starts Real-time log streaming.
- [BS2_StopMonitoringLog](#): Stops Real-time log streaming.
- [BS2_GetLogBlob](#): Gets certain amount of logs based on the event mask.
- [BS2_GetFilteredLogSinceEventId](#): Gets filtered logs.

Callback Function

```
typedef void (*OnLogReceived)(uint32_t deviceId, BS2Event* log);
```

1. *OnLogReceived*

Callback function that is called when a new log is received.

Structure

BS2Event

```
typedef struct {
    uint32_t id;
    uint32_t dateTime;
    uint32_t deviceId;
    union {
        char userID[BS2_USER_ID_SIZE];
        uint32_t ioDeviceID;
    };
    union {
        uint16_t code;
        struct {
            uint8_t mainCode;
            uint8_t subCode;
        };
    };
    uint8_t param;
    uint8_t image;
} BS2Event;
```

1. id

Log record ID which automatically increases from 1 when the log is generated.

2. dateTime

The time when the log has been generated. It means the seconds past from UTC until the current time.

3. deviceID

ID of the device that generated the log.

4. userID

User ID related to log. When the value is 0, the log is not relevant to user.

5. ioDeviceID

Door or Input device ID. When the value is 0, the log is not relevant to Door or Input device.

6. mainCode

Main code value of log types.

Category	Event code	Value	Description
Auth	BS2_EVENT_VERIFY_SUCCESS	0x10	1:1 authentication success
	BS2_EVENT_VERIFY_FAIL	0x11	1:1 authentication fail
	BS2_EVENT_VERIFY_DURESS	0x12	1:1 duress authentication success
	BS2_EVENT_IDENTIFY_SUCCESS	0x13	1:N authentication success
	BS2_EVENT_IDENTIFY_FAIL	0x14	1:N authentication fail
	BS2_EVENT_IDENTIFY_DURESS	0x15	1:N duress authentication success
	BS2_EVENT_DUAL_AUTH_SUCCESS	0x16	Dual authentication success
	BS2_EVENT_DUAL_AUTH_FAIL	0x17	Dual authentication fail
	BS2_EVENT_AUTH_FAILED	0x18	Attempted to authenticate with the non-registered credential
	BS2_EVENT_ACCESS_DENIED	0x19	Invalid user attempted to authenticate or user violated the APB rule
User	BS2_EVENT_USER_ENROLL_SUCCESS	0x20	User enroll success
	BS2_EVENT_USER_ENROLL_FAIL	0x21	User enroll fail
	BS2_EVENT_USER_UPDATE_SUCCESS	0x22	User update success
	BS2_EVENT_USER_UPDATE_FAIL	0x23	User update fail
	BS2_EVENT_USER_DELETE_SUCCESS	0x24	User delete success
	BS2_EVENT_USER_DELETE_FAIL	0x25	User delete fail
	BS2_EVENT_USER_DELETE_ALL_SUCCESS	0x26	Delete all user success
	BS2_EVENT_USER_ISSUE_AOC_SUCCESS	0x26	Authentication success with access card

Category	Event code	Value	Description
Device	BS2_EVENT_DEVICE_SYSTEM_RESET	0x30	System reset
	BS2_EVENT_DEVICE_SYSTEM_STARTED	0x31	System started
	BS2_EVENT_DEVICE_TIME_SET	0x32	System time set
	BS2_EVENT_DEVICE_LINK_CONNECTED	0x33	LAN cable connected
	BS2_EVENT_DEVICE_LINK_DISCONNECTED	0x34	LAN cable disconnected
	BS2_EVENT_DEVICE_DHCP_SUCCESS	0x35	IP address allocated by DHCP
	BS2_EVENT_DEVICE_ADMIN_MENU	0x36	Open administrator menu
	BS2_EVENT_DEVICE_UI_LOCKED	0x37	Screen locked
	BS2_EVENT_DEVICE_UI_UNLOCKED	0x38	Screen unlocked
	BS2_EVENT_DEVICE_COMM_LOCKED	0x39	RS485 communication locked
	BS2_EVENT_DEVICE_COMM_UNLOCKED	0x3A	RS485 communication unlocked
	BS2_EVENT_DEVICE_TCP_CONNECTED	0x3B	TCP connected
	BS2_EVENT_DEVICE_TCP_DISCONNECTED	0x3C	TCP disconnected
	BS2_EVENT_DEVICE_RS485_CONNECTED	0x3D	RS485 connected
	BS2_EVENT_DEVICE_RS485_DISCONNECTED	0x3E	RS485 disconnected
	BS2_EVENT_DEVICE_INPUT_DETECTED	0x3F	Input device detected
	BS2_EVENT_DEVICE_TAMPER_ON	0x40	Device or peripheral was removed
	BS2_EVENT_DEVICE_TAMPER_OFF	0x41	Device or peripheral was reconnected
	BS2_EVENT_DEVICE_EVENT_LOG_CLEARED	0x42	Log was deleted
	BS2_EVENT_DEVICE_FIRMWARE_UPGRADED	0x43	Firmware was updated
BS2_EVENT_DEVICE_RESOURCE_UPGRADED	0x44	Resource was updated	
BS2_EVENT_DEVICE_CONFIG_RESET	0x45	System information was initialized	
Door	BS2_EVENT_DOOR_UNLOCKED	0x50	Door unlocked
	BS2_EVENT_DOOR_LOCKED	0x51	Door locked
	BS2_EVENT_DOOR_OPENED	0x52	Door opened
	BS2_EVENT_DOOR_CLOSED	0x53	Door closed
	BS2_EVENT_DOOR_FORCED_OPEN	0x54	Door forced open
	BS2_EVENT_DOOR_HELD_OPEN	0x55	Door held open
	BS2_EVENT_DOOR_FORCED_OPEN_ALARM	0x56	Door-forced-to-open alarm has started
	BS2_EVENT_DOOR_FORCED_OPEN_ALARM_CLEAR	0x57	Door-forced-to-open alarm was released
	BS2_EVENT_DOOR_HELD_OPEN_ALARM	0x58	Door-held-open alarm has started
	BS2_EVENT_DOOR_HELD_OPEN_ALARM_CLEAR	0x59	Door-held-open alarm was released
	BS2_EVENT_DOOR_APB_ALARM	0x5A	Door-level anti-passback alarm has started
	BS2_EVENT_DOOR_APB_ALARM_CLEAR	0x5B	Door-level anti-passback alarm was released

Category	Event code	Value	Description
Zone	BS2_EVENT_ZONE_APB_VIOLATION	0x60	Zone-level anti-passback rule has been violated
	BS2_EVENT_ZONE_APB_ALARM	0x61	Zone-level anti-passback alarm has started
	BS2_EVENT_ZONE_APB_ALARM_CLEAR	0x62	Zone-level anti-passback alarm was released
	BS2_EVENT_ZONE_TIMED_APB_VIOLATION	0x63	Timed anti-passback rule has been violated
	BS2_EVENT_ZONE_TIMED_APB_ALARM	0x64	Timed anti-passback alarm has started
	BS2_EVENT_ZONE_TIMED_APB_ALARM_CLEAR	0x65	Timed anti-passback alarm was released
	BS2_EVENT_ZONE_FIRE_ALARM_INPUT	0x66	Fire alarm input was detected
	BS2_EVENT_ZONE_FIRE_ALARM	0x67	Fire alarm has started
	BS2_EVENT_ZONE_FIRE_ALARM_CLEAR	0x68	Fire alarm was released
	BS2_EVENT_ZONE_FORCED_LOCK_START	0x69	Door-forced-locked schedule has started
	BS2_EVENT_ZONE_FORCED_LOCK_END	0x6A	Door-forced-locked schedule has ended
	BS2_EVENT_ZONE_FORCED_UNLOCK_START	0x6B	Door-forced-unlocked schedule has started
	BS2_EVENT_ZONE_FORCED_UNLOCK_END	0x6C	Door-forced-unlocked schedule has ended

7. subCode

Sub code value of log types. Use if the additional information is necessary.

Category	Event code	Value	Description
Verify	BS2_SUB_EVENT_VERIFY_ID_PIN	0x01	ID and PIN verification success
	BS2_SUB_EVENT_VERIFY_ID_FINGER	0x02	ID and fingerprint verification success
	BS2_SUB_EVENT_VERIFY_ID_FINGER_PIN	0x03	ID, fingerprint, and PIN verification success
	BS2_SUB_EVENT_VERIFY_ID_FACE	0x04	ID and face verification success
	BS2_SUB_EVENT_VERIFY_ID_FACE_PIN	0x05	ID, face, and PIN verification success
	BS2_SUB_EVENT_VERIFY_CARD	0x06	Smart card verification success
	BS2_SUB_EVENT_VERIFY_CARD_PIN	0x07	Smart card and PIN verification success
	BS2_SUB_EVENT_VERIFY_CARD_FINGER	0x08	Smart card and fingerprint verification success
	BS2_SUB_EVENT_VERIFY_CARD_FINGER_PIN	0x09	Smart card, fingerprint, and PIN verification success
	BS2_SUB_EVENT_VERIFY_CARD_FACE	0x0A	Smart card and face verification success
	BS2_SUB_EVENT_VERIFY_CARD_FACE_PIN	0x0B	Smart card, PIN, and face verification success
	BS2_SUB_EVENT_VERIFY_AOC	0x0C	AOC card verification success
	BS2_SUB_EVENT_VERIFY_AOC_PIN	0x0D	AOC card and PIN verification success
	BS2_SUB_EVENT_VERIFY_AOC_FINGER	0x0E	AOC card and fingerprint verification success
	BS2_SUB_EVENT_VERIFY_AOC_FINGER_PIN	0x0F	AOC card, fingerprint, PIN verification success
Identify	BS2_SUB_EVENT_IDENTIFY_FINGER	0x01	Fingerprint identification success
	BS2_SUB_EVENT_IDENTIFY_FINGER_PIN	0x02	Fingerprint and PIN identification success
	BS2_SUB_EVENT_IDENTIFY_FACE	0x03	Face identification success
	BS2_SUB_EVENT_IDENTIFY_FACE_PIN	0x04	Face and PIN identification success
Auth	BS2_SUB_EVENT_DUAL_AUTH_FAIL_TIMEOUT	0x01	Dual authentication timeout
	BS2_SUB_EVENT_DUAL_AUTH_FAIL_ACCESS_GROUP	0x02	Attempted the dual authentication with invalid user
Credential	BS2_SUB_EVENT_CREDENTIAL_ID	0x01	Invalid user ID
	BS2_SUB_EVENT_CREDENTIAL_CARD	0x02	Invalid Smart card
	BS2_SUB_EVENT_CREDENTIAL_PIN	0x03	Invalid PIN
	BS2_SUB_EVENT_CREDENTIAL_FINGER	0x04	Invalid fingerprint
	BS2_SUB_EVENT_CREDENTIAL_FACE	0x05	Invalid face
	BS2_SUB_EVENT_CREDENTIAL_AOC_PIN	0x06	Invalid AOC PIN
	BS2_SUB_EVENT_CREDENTIAL_AOC_FINGER	0x07	Invalid AOC fingerprint
Auth	BS2_SUB_EVENT_AUTH_FAIL_INVALID_AUTH_MODE	0x01	Invalid authentication mode
	BS2_SUB_EVENT_AUTH_FAIL_INVALID_CREDENTIAL	0x02	Non-registered authentication method
	BS2_SUB_EVENT_AUTH_FAIL_TIMEOUT	0x03	Authentication timeout

Category	Event code	Value	Description
Access	BS2_SUB_EVENT_ACCESS_DENIED_ACCESS_GROUP	0x01	Access was denied because the user has not been registered for the access group
	BS2_SUB_EVENT_ACCESS_DENIED_DISABLED	0x02	Access was denied because the user is inactive
	BS2_SUB_EVENT_ACCESS_DENIED_EXPIRED	0x03	Access was denied because the user entry period was expired
	BS2_SUB_EVENT_ACCESS_DENIED_ON_BLACKLIST	0x04	Access was denied because the card is on the blacklist
	BS2_SUB_EVENT_ACCESS_DENIED_APB	0x05	Access was denied because the user has violated the anti-passback rule
	BS2_SUB_EVENT_ACCESS_DENIED_TIMED_APB	0x06	Access was denied because the user tried to enter the timed anti-passback zone within the limited time frame
	BS2_SUB_EVENT_ACCESS_DENIED_FORCED_LOCK	0x07	Access was denied because the zone was forced to be locked
APB	BS2_SUB_EVENT_ZONE_HARD_APB	0x01	Hard APB zone
	BS2_SUB_EVENT_ZONE_SOFT_APB	0x02	Soft APB zone

8. param

It is used only when extra information on the device is needed. Usually, a time and attendance code, a port number of the door or input device is stored in the *param* argument. When a time and attendance code is stored, refer to the following values:

Device Type	T&A Code	Mapped Key	Value
BioStation 2	BS2_TNA_UNSPECIFIED	(N/A)	0
	BS2_TNA_KEY_1	F1	1
	BS2_TNA_KEY_2	F2	2
	BS2_TNA_KEY_3	F3	3
	BS2_TNA_KEY_4	F4	4
	BS2_TNA_KEY_5	1	5
	BS2_TNA_KEY_6	2	6
	BS2_TNA_KEY_7	3	7
	BS2_TNA_KEY_8	4	8
	BS2_TNA_KEY_9	5	9
	BS2_TNA_KEY_10	6	10
	BS2_TNA_KEY_11	7	11
	BS2_TNA_KEY_12	8	12
	BS2_TNA_KEY_13	9	13
	BS2_TNA_KEY_14	Call	14
	BS2_TNA_KEY_15	0	15
BS2_TNA_KEY_16	Esc	16	

9. image

It is used when the event includes image information.

BS2EventBlob

```

typedef struct {
    uint16_t eventMask;
    uint32_t id;
    BS2EventExtInfo info;
    union
    {
        BS2_USER_ID userID; // valid if eventMask has
BS2_EVENT_MASK_USER_ID
        uint8_t cardID[BS2_CARD_DATA_SIZE]; // valid if eventMask has
BS2_EVENT_MASK_CARD_ID
        BS2_DOOR_ID doorID; // valid if eventMask has
BS2_EVENT_MASK_DOOR_ID
        BS2_ZONE_ID zoneID; // valid if eventMask has
BS2_EVENT_MASK_ZONE_ID
        BS2EventExtIoDevice ioDevice; // valid if eventMask has
BS2_EVENT_MASK_IODEVICE
    };
    uint8_t tnaKey;
    uint32_t jobCode;
    uint16_t imageSize;
    uint8_t image[BS2_EVENT_MAX_IMAGE_SIZE];
    uint8_t reserved;
} BS2EventBlob;

```

1. eventMask

Event mask value. Logs will be retrieved based on the mask value such as user, card, door, or zone.

Value	Description
0	None
1	BS2EventExtInfo structure
2	User ID
4	Card ID
8	Door ID
16	Zone ID
32	BS2EventExtIoDevice structure
64	Door ID
128	Zone ID
256	TNA Key
512	Job Code
1024	Image
65535	ALL

2. id

Log record ID which automatically increases from 1 when the log is generated.

3. *info*

BS2EventExtInfo structure information.

4. *userID*

User ID related to log. When the value is 0, the log is not relevant to user.

5. *cardID*

Card ID related to log. When the value is 0, the log is not relevant to card.

6. *doorID*

Door ID related to log. When the value is 0, the log is not relevant to door.

7. *zoneID*

Zone ID related to log. When the value is 0, the log is not relevant to zone.

8. *ioDevice*

Door or input device ID related to log. When the value is 0, the log is not relevant to door or input. Refer to BS2EventExtIoDevice structure.

9. *tnaKey*

The T&A key that has been used for the authentication. When the value is 0, the log is not relevant to T&A key.

10. *jobCode*

The job code that has been used for the authentication. When the value is 0, the log is not relevant to job code.

11. *imageSize*

Size of the image when there is an image log.

12. *image*

Data of the image.

13. *reserved*

Reserved space.

BS2EventExtInfo

```
typedef struct {
    uint32_t dateTime;
    uint32_t deviceID;
    union {                                     ///< 2 bytes
        BS2_EVENT_CODE code;
        struct {
            uint8_t subCode;
            uint8_t mainCode;
        };
    };
    uint8_t reserved[2];
};
```

```
} BS2EventExtInfo;
```

1. *dateTime*

The time when the log has been generated. It means the seconds past from UTC until the current time.

2. *deviceId*

ID of the device that generated the log.

3. *subCode*

Sub code value of log types. Use if the additional information is necessary.

4. *mainCode*

Main code value of log types.

5. *reserved*

Reserved space.

BS2EventExtIoDevice

```
typedef struct {  
    uint32_t ioDeviceID;  
    uint16_t port;  
    uint8_t value;  
    uint8_t reserved[1];  
} BS2EventExtInfo;
```

1. *ioDeviceID*

Door or input device ID related to log. When the value is 0, the log is not relevant to door or input.

2. *port*

Input port number.

3. *value*

Status of the input port.

Value	Description
-1	Unknown
0	Open
1	Closed
2	Supervised Short
3	Supervised Open

4. *reserved*

Reserved space.

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