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Log Management API

API that controls the device log.

- BS2_GetLog: Gets certain amount of logs.
- BS2_GetFilteredLog: [Deprecated] Gets filtered logs.
- BS2_ClearLog: Deletes all logs.
- BS2_StartMonitoringLog: Starts Real-time log streaming.
- BS2_StartMonitoringLogEx: [+ V2.7.1] Starts Real-time log streaming including the temperature information.
- BS2_StopMonitoringLog: Stops Real-time log streaming.
- BS2_GetLogBlob: Gets certain amount of logs based on the event mask.
- BS2_GetFilteredLogSinceEventId: [Deprecated] Gets filtered logs.
- BS2_GetImageLog : Gets image logs using event ID.
- BS2_GetLogSmallBlob: [+ 2.6.4] Gets certain amount of logs based on the event mask in an efficient way.
- BS2_GetLogSmallBlobEx: [+ 2.7.1] Gets certain amount of logs based on the event mask in an efficient way, including the temperature information.

Callback Function

OnLogReceived

Callback function that is called when receiving a new log from the device.

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

1. *deviceId*
Device ID

2. *log*
New log information structure

OnLogReceivedEx

[+ V2.7.1] Callback function that is called when receiving a new log from the device.
The temperature information is transferred as the 3rd parameter, and auditTemperature should be true in BS2FaceConfigExt.

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

1. *deviceId*
Device ID

2. *log*
New log information structure

3. *temperature*
Temperature information

Structure

BS2Event

```c
typedef struct {
    uint32_t id;
    uint32_t dateTime;
    uint32_t deviceID;
    union {
        char userID[BS2_USER_ID_SIZE];
        uint32_t uid;
        uint32_t doorID;
        uint32_t liftID;
        uint32_t zoneID;
        struct {
            uint32_t ioDeviceID;
            uint16_t port;
            int8_t value;
            uint8_t reserved[25];
        };
        struct {
            uint32_t zoneID;
            uint32_t doorID;
            uint32_t ioDeviceID;
            uint16_t port;
            uint8_t reserved[18];
        } alarm;
        struct {
            uint32_t zoneID;
            uint32_t doorID[4];
            uint8_t reserved[12];
        } interlock;
        struct {
            uint16_t relayPort;
            uint16_t inputPort;
            uint8_t reserved[28];
        } relayAction;
        struct {
```

```
            BS2_DEVICE_ID deviceId;
            uint8_t data[28];
        } osdpStandard;
    };
    union {
        uint16_t code;
        struct {
            uint8_t subCode;
            uint8_t mainCode;
        };
    };
    uint8_t param;
#ifdef LESS_THAN_SDK_2_6_0
    BS2_BOOL image;          // Deprecated in V2.6.0
#else
    uint8_t image: 1;        // Supports image and DST by splitting bit unit
    uint8_t isDST: 1;
    uint8_t half: 1;
    uint8_t hour: 4;
    uint8_t negative: 1;
#endif
} 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. *uid*
You can refer to doorID regarding door log, zoneID regarding zone log. If you do not know exactly then you can refer to uid.
Since uid, doorID, liftID, zoneID are declared as union, basically it means information such as unordered list.

6. *doorID*
ID of the door that generated the log.

7. *liftID*
ID of the lift that generated the log.

8. *zoneID*

ID of the zone that generated the log.

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

10. *port*
Port for ioDeviceID.

11. *value*
Port value for ioDeviceID and means below.
BS2_PORT_VALUE_UNKNOWN : -1
BS2_PORT_VALUE_OPEN : 0
BS2_PORT_VALUE_CLOSED : 1
BS2_PORT_VALUE_SUPERVISED_SHORT : 2
BS2_PORT_VALUE_SUPERVISED_OPEN : 3

12. *alarm.zoneID*
Zone ID that makes intrusion alarm zone alarms.

13. *alarm.doorID*
Door ID that makes intrusion alarm zone alarms.

14. *interlock.zoneID*
Zone ID that makes interlock zone alarms.

15. *interlock.doorID*
Door ID that makes interlock zone alarms.

16. *relayAction.relayPort*
Relay port identifier when IM-120 RelayAction takes place.

17. *relayAction.inputPort*
Relay port identifier when IM-120 RelayAction takes place.

18. *osdpStandard.deviceId*
Identifier of the OSDP standard device.

19. *osdpStandard.data*
This is notification structure information with a total size of 28 bytes generated from OSDP standard devices.
For detailed information about the structure, please refer to BS2OsdpStandardDeviceNotify.

20. *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	Card verification success
	BS2_SUB_EVENT_VERIFY_CARD_PIN	0x07	Card and PIN verification success
	BS2_SUB_EVENT_VERIFY_CARD_FINGER	0x08	Card and fingerprint verification success
	BS2_SUB_EVENT_VERIFY_CARD_FINGER_PIN	0x09	Card, fingerprint, and PIN verification success
	BS2_SUB_EVENT_VERIFY_CARD_FACE	0x0A	Card and face verification success
	BS2_SUB_EVENT_VERIFY_CARD_FACE_PIN	0x0B	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
	BS2_SUB_EVENT_VERIFY_CARD_FACE_FINGER	0x10	Card, face and finger verification sucess
	BS2_SUB_EVENT_VERIFY_CARD_FINGER_FACE	0x11	Card, finger and face verification success
	BS2_SUB_EVENT_VERIFY_ID_FACE_FINGER	0x12	ID, face and finger verification sucess
	BS2_SUB_EVENT_VERIFY_ID_FINGER_FACE	0x13	ID, finger and face verification sucess
	BS2_SUB_EVENT_VERIFY_MOBLIE_CARD	0x16	Mobile card verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_PIN	0x17	Mobile card and PIN verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_FINGER	0x18	Mobile card and fingerprint verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_FINGER_PIN	0x19	Mobile card, fingerprint, PIN verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_FACE	0x1A	Mobile card and face verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_FACE_PIN	0x1B	Mobile card, face, PIN verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_FACE_FINGER	0x20	Mobile card, face, fingerprint verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_MOBILE_CARD_FINGER_FACE	0x21	Mobile card, fingerprint, face verification success (+V2.8)
	BS2_SUB_EVENT_VERIFY_QR	0x25	QR verification success
	BS2_SUB_EVENT_VERIFY_QR_PIN	0x26	QR and PIN verification success
	BS2_SUB_EVENT_VERIFY_QR_FINGER	0x27	QR and finger verification success
	BS2_SUB_EVENT_VERIFY_QR_FINGER_PIN	0x28	QR, finger and PIN verification success
	BS2_SUB_EVENT_VERIFY_QR_FACE	0x29	QR and face verification success
	BS2_SUB_EVENT_VERIFY_QR_FACE_PIN	0x2A	QR, face and PIN verification success
	BS2_SUB_EVENT_VERIFY_QR_FACE_FINGER	0x2B	QR, face and finger verification success
	BS2_SUB_EVENT_VERIFY_QR_FINGER_FACE	0x2C	QR, finger and face 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
	BS2_SUB_EVENT_IDENTIFY_FACE_FINGER	0x05	Face and finger identification success
	BS2_SUB_EVENT_IDENTIFY_FACE_FINGER_PIN	0x06	Face, finger and PIN identification success
	BS2_SUB_EVENT_IDENTIFY_FINGER_FACE	0x07	Finger and face identification success
	BS2_SUB_EVENT_IDENTIFY_FINGER_FACE_PIN	0x08	Finger, face and PIN identification success
User	BS2_SUB_EVENT_ENROLL_FAIL_INVALID_FACE	0x01	Enroll fail (Invalid face)
	BS2_SUB_EVENT_UPDATE_FAIL_INVALID_FACE	0x01	Update fail (Invalid face)
	BS2_SUB_EVENT_ENROLL_FAIL_MISMATCHED_FORMAT	0x02	Enroll fail (Mismatch format)
	BS2_SUB_EVENT_UPDATE_FAIL_MISMATCHED_FORMAT	0x02	Update fail (Mismatch format)
	BS2_SUB_EVENT_ENROLL_FAIL_FULL_CREDENTIAL	0x03	Enroll fail (Full credential)
	BS2_SUB_EVENT_UPDATE_FAIL_FULL_CREDENTIAL	0x03	Update fail (Full credential)
	BS2_SUB_EVENT_ENROLL_FAIL_INVALID_USER	0x04	Enroll fail (Invalid user)
	BS2_SUB_EVENT_UPDATE_FAIL_INVALID_USER	0x04	Update fail (Invalid user)
	BS2_SUB_EVENT_ENROLL_FAIL_INTERNAL_ERROR	0x09	Enroll fail (Internal error)
	BS2_SUB_EVENT_UPDATE_FAIL_INTERNAL_ERROR	0x09	Update fail (Internal error)
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
	BS2_SUB_EVENT_HIGH_TEMPERATURE	0x00	High temperature
	BS2_SUB_EVENT_NO_TEMPERATURE	0x01	No temperature
	BS2_SUB_EVENT_UNMASKED_FACE	0x02	Unmasked face
	BS2_SUB_EVENT_BYPASS_NO_VIOLATION	0x00	Bypass violation (No)
	BS2_SUB_EVENT_BYPASS_THERMAL_VIOLATION	0x01	Bypass violation (Thermal)
	BS2_SUB_EVENT_BYPASS_MASK_VIOLATION	0x02	Bypass violation (Mask)
	BS2_SUB_EVENT_BYPASS_MASK_THERMAL_VIOLATION	0x03	Bypass violation (Mask + Thermal)

Category	Event code	Value	Description
Credential	BS2_SUB_EVENT_CREDENTIAL_ID	0x01	Invalid user ID
	BS2_SUB_EVENT_CREDENTIAL_CARD	0x02	Invalid 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
	BS2_SUB_EVENT_CREDENTIAL_MOBILE_CARD	0x08	Invalid mobile card (+V2.8)
	BS2_SUB_EVENT_NON_NUMERIC_QR	0x09	Non numeric QR
	BS2_SUB_EVENT_CREDENTIAL_QR	0x0C	Invalid QR
	BS2_SUB_EVENT_NON_PRINTABLE_QR	0x0A	Contains unusable characters
	BS2_SUB_EVENT_TOO_LONG_QR	0x0B	Too long QR
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
	BS2_SUB_EVENT_AUTH_FAIL_MATCHING_REFUSAL	0x04	Matching refusal
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_SCHEDULED_LOCK	0x07	Access was denied because the scheduled lock zone
	BS2_SUB_EVENT_ACCESS_EXCUSED_APB	0x08	It violated APB rules, but Access allowed (Soft APB)
	BS2_SUB_EVENT_ACCESS_EXCUSED_TIMED_APB	0x09	It violated Timed APB rules, but Access allowed (Soft APB)
	BS2_SUB_EVENT_ACCESS_DENIED_FACE_DETECTION	0x0A	Access denied (Face detection failed)
	BS2_SUB_EVENT_ACCESS_DENIED_CAMERA_CAPTURE	0x0B	Access denied (Camera capture failed)
	BS2_SUB_EVENT_ACCESS_DENIED_FAKE_FINGER	0x0C	Access denied (Fake finger)
	BS2_SUB_EVENT_ACCESS_DENIED_DEVICE_ZONE_ENTRANCE_LIMIT	0x0D	Access denied (Device zone entrance limit)
	BS2_SUB_EVENT_ACCESS_DENIED_INTRUSION_ALARM	0x0E	Access denied (Intrusion alarm)
	BS2_SUB_EVENT_ACCESS_DENIED_INTERLOCK	0x0F	Access denied (Interlock)
	BS2_SUB_EVENT_ACCESS_EXCUSED_AUTH_LIMIT	0x10	It violated authentication limit, but access allowed
	BS2_SUB_EVENT_ACCESS_DENIED_AUTH_LIMIT	0x11	Access denied (Authentication limit)
	BS2_SUB_EVENT_ACCESS_DENIED_ANTI_TAILGATE	0x12	Access denied (Anti-tailgate)
	BS2_SUB_EVENT_ACCESS_DENIED_HIGH_TEMPERATURE	0x13	Access denied (High temperature)
	BS2_SUB_EVENT_ACCESS_DENIED_NO_TEMPERATURE	0x14	Access denied (No temperature)
	BS2_SUB_EVENT_ACCESS_DENIED_UNMASKED_FACE	0x15	Access denied (Unmasked face)
APB	BS2_SUB_EVENT_ZONE_HARD_APB	0x01	Hard APB zone
	BS2_SUB_EVENT_ZONE_SOFT_APB	0x02	Soft APB zone
Door	BS2_SUB_EVENT_DOOR_FLAG_SCHEDULE	0x01	Door flag (Schedule)
	BS2_SUB_EVENT_DOOR_FLAG_OPERATOR	0x04	Door flag (Operator)
	BS2_SUB_EVENT_DOOR_FLAG_EMERGENCY	0x02	Door flag (Emergency)
Floor	BS2_SUB_EVENT_FLOOR_FLAG_SCHEDULE	0x01	Floor flag (Schedule)
	BS2_SUB_EVENT_FLOOR_FLAG_OPERATOR	0x04	Floor flag (Operator)
	BS2_SUB_EVENT_FLOOR_FLAG_ACTION	0x08	Floor flag (Action)
	BS2_SUB_EVENT_FLOOR_FLAG_EMERGENCY	0x02	Floor flag (Emergency)

21. *mainCode*

Main code value of log types.

Category	Event code	Value	Description
Auth	BS2_EVENT_VERIFY_SUCCESS	0x1000	1:1 authentication success
	BS2_EVENT_VERIFY_FAIL	0x1100	1:1 authentication fail
	BS2_EVENT_VERIFY_DURESS	0x1200	1:1 duress authentication success
	BS2_EVENT_IDENTIFY_SUCCESS	0x1300	1:N authentication success
	BS2_EVENT_IDENTIFY_FAIL	0x1400	1:N authentication fail
	BS2_EVENT_IDENTIFY_DURESS	0x1500	1:N duress authentication success
	BS2_EVENT_DUAL_AUTH_SUCCESS	0x1600	Dual authentication success
	BS2_EVENT_DUAL_AUTH_FAIL	0x1700	Dual authentication fail
	BS2_EVENT_AUTH_FAILED	0x1800	Attempted to authenticate with the non-registered credential
	BS2_EVENT_ACCESS_DENIED	0x1900	Invalid user attempted to authenticate or user violated the APB rule
	BS2_EVENT_FAKE_FINGER_DETECTED	0x1A00	Fake fingerprint detection
	BS2_EVENT_BYPASS_SUCCESS	0x1B00	Bypass success (by temperature or mask)
	BS2_EVENT_BYPASS_FAIL	0x1C00	Bypass fail (by temperature or mask)
	BS2_EVENT_ABNORMAL_TEMPERATURE_DETECTED	0x1D00	High temperature or no temperature
	BS2_EVENT_UNMASKED_FACE_DETECTED	0x1E00	Unmasked face detection
User	BS2_EVENT_USER_ENROLL_SUCCESS	0x2000	User enroll success
	BS2_EVENT_USER_ENROLL_FAIL	0x2100	User enroll fail
	BS2_EVENT_USER_UPDATE_SUCCESS	0x2200	User update success
	BS2_EVENT_USER_UPDATE_FAIL	0x2300	User update fail
	BS2_EVENT_USER_DELETE_SUCCESS	0x2400	User delete success
	BS2_EVENT_USER_DELETE_FAIL	0x2500	User delete fail
	BS2_EVENT_USER_DELETE_ALL_SUCCESS	0x2600	Delete all user success
	BS2_EVENT_USER_ISSUE_AOC_SUCCESS	0x2700	Authentication success with access card
	BS2_EVENT_USER_DUPLICATE_CREDENTIAL	0x2800	Duplicated credential(Card/Fingerprint/Face) detection
	BS2_EVENT_USER_UPDATE_PARTIAL_SUCCESS	0x2900	User partial update success
	BS2_EVENT_USER_UPDATE_PARTIAL_FAIL	0x2A00	User partial update fail
	BS2_EVENT_USER_RELOADED	0x2B00	User loaded

Category	Event code	Value	Description
Device	BS2_EVENT_DEVICE_SYSTEM_RESET	0x3000	System reset
	BS2_EVENT_DEVICE_SYSTEM_STARTED	0x3100	System started
	BS2_EVENT_DEVICE_TIME_SET	0x3200	System time set
	BS2_EVENT_DEVICE_TIMEZONE_SET	0x3201	Time zone chagned
	BS2_EVENT_DEVICE_DST_SET	0x3202	DST setting changed
	BS2_EVENT_DEVICE_LINK_CONNECTED	0x3300	LAN cable connected
	BS2_EVENT_DEVICE_LINK_DISCONNETED	0x3400	LAN cable disconnected
	BS2_EVENT_DEVICE_DHCP_SUCCESS	0x3500	IP address allocated by DHCP
	BS2_EVENT_DEVICE_ADMIN_MENU	0x3600	Open administrator menu
	BS2_EVENT_DEVICE_UI_LOCKED	0x3700	Screen locked
	BS2_EVENT_DEVICE_UI_UNLOCKED	0x3800	Screen unlocked
	BS2_EVENT_DEVICE_COMM_LOCKED	0x3900	RS485 communication locked
	BS2_EVENT_DEVICE_COMM_UNLOCKED	0x3A00	RS485 communication unlocked
	BS2_EVENT_DEVICE_TCP_CONNECTED	0x3B00	TCP connected
	BS2_EVENT_DEVICE_TCP_DISCONNECTED	0x3C00	TCP disconnected
	BS2_EVENT_DEVICE_RS485_CONNECTED	0x3D00	RS485 connected
	BS2_EVENT_DEVICE_RS485_DISCONNCTED	0x3E00	RS485 disconnected
	BS2_EVENT_DEVICE_INPUT_DETECTED	0x3F00	Input device detected
	BS2_EVENT_DEVICE_TAMPER_ON	0x4000	Device or peripheral was removed
	BS2_EVENT_DEVICE_TAMPER_OFF	0x4100	Device or peripheral was reconnected
	BS2_EVENT_DEVICE_EVENT_LOG_CLEARED	0x4200	Log was deleted
	BS2_EVENT_DEVICE_FIRMWARE_UPGRADED	0x4300	Firmware was updated
	BS2_EVENT_DEVICE_RESOURCE_UPGRADED	0x4400	Resource was updated
	BS2_EVENT_DEVICE_CONFIG_RESET	0x4500	System information was initialized(including network)
	BS2_EVENT_DEVICE_DATABASE_RESET	0x4501	Database was initialized
	BS2_EVENT_DEVICE_FACTORY_RESET	0x4502	Factory default
	BS2_EVENT_DEVICE_CONFIG_RESET_EX	0x4503	System information was initialized(without network)
	BS2_EVENT_DEVICE_FACTORY_RESET_WITHOUT_ETHERNET	0x4504	Factory default (without network settings)
Supervised Input	BS2_EVENT_SUPERVISED_INPUT_SHORT	0x4600	Supervised Input (Short circuit detection)
	BS2_EVENT_SUPERVISED_INPUT_OPEN	0x4700	Supervised Input (Disconnection detection)
Device-Ex	BS2_EVENT_DEVICE_AC_FAIL	0x4800	AC Power failed
	BS2_EVENT_DEVICE_AC_SUCCESS	0x4900	AC Power succeeded
	BS2_EVENT_EXIT_BUTTON	0x4A00	Exit button
	BS2_EVENT_SIMULATED_EXIT_BUTTON	0x4A01	Simulated exit button
	BS2_EVENT_OPERATOR_OPEN	0x4B00	Oerator open
	BS2_EVENT_VOIP_OPEN	0x4C00	Interphone open

Category	Event code	Value	Description
Door	BS2_EVENT_DOOR_UNLOCKED	0x5000	Door unlocked
	BS2_EVENT_DOOR_LOCKED	0x5100	Door locked
	BS2_EVENT_DOOR_OPENED	0x5200	Door opened
	BS2_EVENT_DOOR_CLOSED	0x5300	Door closed
	BS2_EVENT_DOOR_FORCED_OPEN	0x5400	Door forced open
	BS2_EVENT_DOOR_HELD_OPEN	0x5500	Door held open
	BS2_EVENT_DOOR_FORCED_OPEN_ALARM	0x5600	Door-forced-to-open alarm has started
	BS2_EVENT_DOOR_FORCED_OPEN_ALARM_CLEAR	0x5700	Door-forced-to-open alarm was released
	BS2_EVENT_DOOR_HELD_OPEN_ALARM	0x5800	Door-held-open alarm has started
	BS2_EVENT_DOOR_HELD_OPEN_ALARM_CLEAR	0x5900	Door-held-open alarm was released
	BS2_EVENT_DOOR_APB_ALARM	0x5A00	Door-level anti-passback alarm has started
	BS2_EVENT_DOOR_APB_ALARM_CLEAR	0x5B00	Door-level anti-passback alarm was released
	BS2_EVENT_DOOR_RELEASE	0x5C00	Door release
	BS2_EVENT_DOOR_LOCK	0x5D00	Door lock
	BS2_EVENT_DOOR_UNLOCK	0x5E00	Door unlock
Zone	BS2_EVENT_ZONE_APB_VIOLATION	0x6000	Zone-level anti-passback rule has been violated
	BS2_EVENT_ZONE_APB_ALARM	0x6100	Zone-level anti-passback alarm has started
	BS2_EVENT_ZONE_APB_ALARM_CLEAR	0x6200	Zone-level anti-passback alarm was released
	BS2_EVENT_ZONE_TIMED_APB_VIOLATION	0x6300	Timed anti-passback rule has been violated
	BS2_EVENT_ZONE_TIMED_APB_ALARM	0x6400	Timed anti-passback alarm has started
	BS2_EVENT_ZONE_TIMED_APB_ALARM_CLEAR	0x6500	Timed anti-passback alarm was released
	BS2_EVENT_ZONE_FIRE_ALARM_INPUT	0x6600	Fire alarm input was detected
	BS2_EVENT_ZONE_FIRE_ALARM	0x6700	Fire alarm has started
	BS2_EVENT_ZONE_FIRE_ALARM_CLEAR	0x6800	Fire alarm was released
	BS2_EVENT_ZONE_SCHEDULED_LOCK_VIOLATION	0x6900	Scheduled lock violation
	BS2_EVENT_ZONE_SCHEDULED_LOCK_START	0x6A00	Scheduled lock has started
	BS2_EVENT_ZONE_SCHEDULED_LOCK_END	0x6B00	Scheduled lock has ended
	BS2_EVENT_ZONE_SCHEDULED_UNLOCK_START	0x6C00	Scheduled unlock has started
	BS2_EVENT_ZONE_SCHEDULED_UNLOCK_END	0x6D00	Scheduled unlock has ended
	BS2_EVENT_ZONE_SCHEDULED_LOCK_ALARM	0x6E00	Scheduled lock alarm zone start
	BS2_EVENT_ZONE_SCHEDULED_LOCK_ALARM_CLEAR	0x6F00	Scheduled lock alarm zone clear
Lift	BS2_EVENT_FLOOR_ACTIVATED	0x7000	Floor activated
	BS2_EVENT_FLOOR_DEACTIVATED	0x7100	Floor deactivated
	BS2_EVENT_FLOOR_RELEASE	0x7200	Floor released
	BS2_EVENT_FLOOR_ACTIVATE	0x7300	Floor activate
	BS2_EVENT_FLOOR_DEACTIVATE	0x7400	Floor deactivate
	BS2_EVENT_LIFT_ALARM_INPUT	0x7500	Lift alarm Input
	BS2_EVENT_LIFT_ALARM	0x7600	Lift alarm
	BS2_EVENT_LIFT_ALARM_CLEAR	0x7700	Lift alarm clear
	BS2_EVENT_ALL_FLOOR_ACTIVATED	0x7800	Floor activate (All)
	BS2_EVENT_ALL_FLOOR_DEACTIVATED	0x7900	Floor deactivate (All)

Category	Event code	Value	Description
RelayAction	BS2_EVENT_RELAY_ACTION_ON	0xC300	RelayAction Switch-ON
	BS2_EVENT_RELAY_ACTION_OFF	0xC400	RelayAction Switch-OFF
	BS2_EVENT_RELAY_ACTION_KEEP	0xC500	RelayAction KEEP SIGNAL

22.*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

[+ 2.6.3] Additional feature of param

Only if the event code is relevant to the user.
If you add, modify or delete users directly from the device, param is 1, 0 if done through BioStar.
For example, if param was 1 with the event BS2_EVENT_USER_ENROLL_SUCCESS, it means the user was added directly on the device.
This feature is supported from the firmware version below.

Device Type	Supported Ver.
BioStation 2	V1.7.0
BioStation A2	V1.6.0
CoreStation 40	V1.2.0
BioEntry P2	V1.2.0
BioStation L2	V1.4.0
BioLite N2	V1.1.0
BioEntry W2	V1.3.0
FaceStation 2	V1.2.0

23. *image*

Prior to SDK V2.6.0, it used the whole 1 byte and means below:
- Whether the image was included when the event occurred (true / false).

Since SDK V2.6.0, 1 byte has been changed to provide the following information by bit unit.
- Whether or not image is included. - Whether DST is applied

Category	Bit	Parameter	Description
Prior to SDK 2.6.0	8	image	Used in case image is included when an event occurs.
Since SDK 2.6.0	1	image	Used in case image is included when an event occurs.
	1	isDST	Whether the current log has been applied to DST
	1	half	Whether DST is covered in 30-minute increments. 0 is 0 minutes, 1 is 30 minutes.
	4	hour	Time. 1 to 12 o'clock
	1	negative	0 is +, 1 is -

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
0x0000	None

Value	Description
0x0001	BS2EventExtInfo Structure
0x0002	User ID
0x0004	Card ID
0x0008	Door ID
0x0010	Zone ID
0x0020	BS2EventExtIoDevice Structure
0x0040	TNA Key
0x0080	Job Code
0x0100	Image
0x0200	Temperature
0xFFFF	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.
The device records card ID only for failure auth, it returns user ID when successful auth regardless of eventMask value.

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.

BS2EventSmallBlob

```
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* imageObj;                      // valid if eventMask has
BS2_EVENT_MASK_IMAGE
    uint8_t reserved;
} BS2EventSmallBlob;
```

1. *eventMask*

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

Value	Description
0x0000	None
0x0001	BS2EventExtInfo Structure
0x0002	User ID
0x0004	Card ID
0x0008	Door ID
0x0010	Zone ID
0x0020	BS2EventExtIoDevice Structure
0x0040	TNA Key
0x0080	Job Code
0x0100	Image
0x0200	Temperature
0xFFFF	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.
The device records card ID only for failure auth, it returns user ID when successful auth regardless of eventMask value.

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. *imageObj*
Data of the image.

13. *reserved*
Reserved space.

BS2EventSmallBlobEx

```
typedef struct {
    uint16_t eventMask;
    uint32_t id;
    BS2EventExtInfo info;                   // valid if eventMask has
BS2_EVENT_MASK_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;                         // valid if eventMask has
BS2_EVENT_MASK_TNA_KEY
    uint32_t jobCode;                       // valid if eventMask has
BS2_EVENT_MASK_JOB_CODE
    uint16_t imageSize;                     // valid if eventMask has
BS2_EVENT_MASK_IMAGE
    uint8_t* imageObj;                      // valid if eventMask has
BS2_EVENT_MASK_IMAGE
    uint8_t reserved;
    uint32_t temperature;                   // valid if eventMask has
BS2_EVENT_MASK_TEMPERATURE
} BS2EventSmallBlobEx;
```

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

Value	Description
0x0000	None
0x0001	BS2EventExtInfo Structure
0x0002	User ID
0x0004	Card ID
0x0008	Door ID
0x0010	Zone ID
0x0020	BS2EventExtIoDevice Structure
0x0040	TNA Key
0x0080	Job Code
0x0100	Image
0x0200	Temperature
0xFFFF	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.
The device records card ID only for failure auth, it returns user ID when successful auth regardless of eventMask value.

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. *temperature*
Temperature information is set when there's a thermal camera installed and setting to record event logs. Refer to auditTemperature

14. *reserved*
Reserved.

BS2IOStatus

```
typedef struct{
    uint8_t count;
    uint8_t reserved[3];
    BS2_PORT_VALUE status[BS2_IO_STATUS_MAX_IO_PORT];
} BS2_IO_STATUS;

typedef struct{
    BS2_DEVICE_ID deviceID;

    BS2_IO_STATUS input;
    BS2_IO_STATUS output;
    BS2_IO_STATUS relay;
    BS2_IO_STATUS tamper;
    BS2_IO_STATUS auxIn;
    BS2_IO_STATUS auxOut;

    uint8_t numOfSupervisorInput;
    BS2_PORT_VALUE supervisorInputStatus[BS2_IO_STATUS_MAX_SIO_PORT];
    uint8_t reserved1[3];
    uint8_t reserved2[16];
} BS2IOStatus;
```

1. *count*
Number of ports.

2. *status*
Indicates the port status.

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

3. *deviceID*

Device ID.

4. *input*
Represents the input port.

5. *output*
Represents the output port.

6. *relay*
Represents the relay port.

7. *tamper*
Represents the tamper port.

8. *auxIn*
Represents the auxiliary input port.

9. *auxOut*
Represents the auxiliary output port.

10. *numOfSupervisorInput*
Number of supervisor input ports.

11. *supervisorInputStatus*
Indicates the status of supervisor input ports.

12. *reserved1*
Reserved space.

13. *reserved2*
Reserved space.

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