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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.
- 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.

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 uid;
        uint32 t doorID;
        uint32 t liftID;
        uint32 t zoneID;
        struct {
            uint32 t ioDeviceID;
            uint16_t port;
            int8 t value;
            uint8 t reserved[25];
        };
```

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```
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;
   };
   union {
        uint16 t code;
        struct {
            uint8_t subCode;
            uint8 t mainCode;
        };
   };
    uint8_t param;
#ifdef LESS_THAN_SDK_2_6_0
   BS2_B00L image; // Deprecated in V2.6.0
#else
   uint8 t image: 1;
                           // Support image and DST by bit division
   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 doorlD 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

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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. subCode

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

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Category	Event code	Value	Description
	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
Verify	BS2_SUB_EVENT_VERIFY_CARD_FINGER	0x08	Card and fingerprint verification success
Ciny	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_IDENTIFY_FINGER	0x01	Fingerprint identification success
Identify	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_DUAL_AUTH_FAIL_TIMEOUT	0x01	Dual authentication timeout
Auth	BS2_SUB_EVENT_DUAL_AUTH_FAIL_ACCESS_GROUP	0x02	Attempted the dual authentication with invalid user
	BS2_SUB_EVENT_CREDENTIAL_ID	0x01	Invalid user ID
	BS2_SUB_EVENT_CREDENTIAL_CARD	0x02	Invalid card
Credential	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 Fingerprint
	BS2_SUB_EVENT_CREDENTIAL_AOC_FINGER	0x07	Invalid AOC fingerprint Invalid authentication mode
Auth	BS2_SUB_EVENT_AUTH_FAIL_INVALID_AUTH_MODE BS2_SUB_EVENT_AUTH_FAIL_INVALID_CREDENTIAL	0x01 0x02	Non-registered authentication
	BS2_SUB_EVENT_AUTH_FAIL_TIMEOUT	0x03	method Authentication timeout

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Category	Event code	Value	Description
	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
Access	BS2_SUB_EVENT_ACCESS_DENIED_ON_BLACKLIST	0x04	Access was denied because the card is on the blacklist
Access	BS2_SUB_EVENT_ACCESS_DENIED_APB	0x05	Access was denied because the user has violated the antipassback 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
A DD	BS2_SUB_EVENT_ZONE_HARD_APB	0x01	Hard APB zone
APB	BS2_SUB_EVENT_ZONE_SOFT_APB	0x02	Soft APB zone

17. mainCode

Main code value of log types.

Category	Event code	Value	Description
	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
Auth	BS2_EVENT_IDENTIFY_DURESS	0x1500	1:N duress authentication success
	BS2_EVENT_DUAL_AUTH_SUCCESS	0x1600	Dual authentication success
			Dual authentication fail
			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

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Category	Event code	Value	Description
	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
User	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	UX2800	detection
	BS2_EVENT_DEVICE_SYSTEM_RESET	0x3000	System reset
	BS2_EVENT_DEVICE_SYSTEM_STARTED		System started
	BS2_EVENT_DEVICE_TIME_SET		System time set
	BS2_EVENT_DEVICE_TIMEZONE_SET		Time zone chagned
	BS2_EVENT_DEVICE_DST_SET		DST setting changed
	BS2_EVENT_DEVICE_LINK_CONNECTED		LAN cable connected
	BS2_EVENT_DEVICE_LINK_DISCONNETED		LAN cable disconnected
	BS2_EVENT_DEVICE_DHCP_SUCCESS		IP address allocated by DHCP
	BS2_EVENT_DEVICE_ADMIN_MENU		Open administrator menu
	BS2_EVENT_DEVICE_UI_LOCKED		Screen locked
	BS2_EVENT_DEVICE_UI_UNLOCKED		Screen unlocked
	BS2_EVENT_DEVICE_COMM_LOCKED		RS485 communication locked
	BS2_EVENT_DEVICE_COMM_UNLOCKED		RS485 communication unlocked
Device	BS2_EVENT_DEVICE_TCP_CONNECTED		TCP connected
	BS2_EVENT_DEVICE_TCP_DISCONNECTED		TCP disconnected
Device	BS2_EVENT_DEVICE_RS485_CONNECTED	0x3D00	RS485 connected
	BS2_EVENT_DEVICE_RS485_DISCONNCTED		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		Log was deleted
	BS2_EVENT_DEVICE_FIRMWARE_UPGRADED		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		Database was initialized
	BS2_EVENT_DEVICE_FACTORY_RESET	0x4502	Factory default
	BS2_EVENT_DEVICE_CONFIG_RESET_EX	0x4503	System information was initialized(without network)
Supervised	BS2_EVENT_SUPERVISED_INPUT_SHORT	0x4600	Supervised Input (Short circuit detection)
Input	BS2_EVENT_SUPERVISED_INPUT_OPEN	0x4700	Supervised Input (Disconnection detection)
Davica Ev	BS2_EVENT_DEVICE_AC_FAIL	0x4800	AC Power failed
1) \(\(\)	BS2_EVENT_DEVICE_AC_SUCCESS	0x4900	AC Power succeeded

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Category	Event code	Value	Description
	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
Door	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_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
Zone	BS2_EVENT_ZONE_FIRE_ALARM	0x6700	Fire alarm has started
	BS2_EVENT_ZONE_FIRE_ALARM_CLEAR	0x6800	Fire alarm was released
	BS2_EVENT_ZONE_FORCED_LOCK_START	0x6900	Door-forced-locked schedule has started
	BS2_EVENT_ZONE_FORCED_LOCK_END	0x6A00	Door-forced-locked schedule has ended
	BS2_EVENT_ZONE_FORCED_UNLOCK_START	0x6B00	Door-forced-unlocked schedule has started
	BS2_EVENT_ZONE_FORCED_UNLOCK_END	0x6C00	Door-forced-unlocked schedule has ended
	BS2_EVENT_ZONE_SCHEDULED_UNLOCK_END	0x6D00	Scheduled unlock 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

18. 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:

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Device Type	T&A Code	Mapped Key	Value
	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
BioStation 2	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

19. 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.

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Category	Bit	Parameter	Description
	1	image	Used in case image is included when an event occurs.
	1	isDST	Whether the current log has been applied to DST
Since SDK 2.6.0	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
0	None
1	BS2EventExtInfo structure
2	User ID
4	Card ID
8	Door ID
16	Zone ID
32	BS2EventExtIoDevice structure
64	Door ID

Value	Description
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 BS2EventExtloDevice 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

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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
0	None

Value	Description
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 BS2EventExtloDevice 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.

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13. reserved

Reserved space.

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