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User Management API

API that provides functions to enroll and delete users.

- [BS2_GetUserList](#): Gets the enrolled user ID list.
- [BS2_RemoveUser](#): Deletes user.
- [BS2_RemoveAllUser](#): Deletes all users.
- [BS2_GetUserInfos](#): Gets the user information of the given user ID.
- [BS2_GetUserInfosEx](#): [+ 2.4.0] Gets the user information of the given user ID. (including Job code and User phrase)
- [BS2_EnrolUser](#): Enrolls new user.
- [BS2_EnrolUserEx](#): [+ 2.4.0] Enrolls new user. (including Job code and User phrase)
- [BS2_EnrollUser](#): [+ 2.6.3] Enrolls new user.
- [BS2_EnrollUserEx](#): [+ 2.6.3] Enrolls new user. (including Job code and User phrase)
- [BS2_GetUserDatas](#): Gets selected data of user.
- [BS2_GetUserDatasEx](#): [+ 2.5.0] Gets selected data of user. (including Job code, User phrase)
- [BS2_GetSupportedUserMask](#): Gets user settings supported by the device.
- [BS2_EnrollUserSmall](#): [+ 2.6.3] Enrolls new user with efficient use of memory.
- [BS2_EnrollUserSmallEx](#): [+ 2.6.3] Enrolls new user with efficient use of memory.
- [BS2_GetUserSmallInfos](#): [+ 2.6.3] Gets the user information of the given user ID with efficient use of memory.
- [BS2_GetUserSmallInfosEx](#): [+ 2.6.3] Gets the user information of the given user ID with efficient use of memory.
- [BS2_GetUserSmallDatas](#): [+ 2.6.3] Gets selected data of user with efficient use of memory.
- [BS2_GetUserSmallDatasEx](#): [+ 2.6.3] Gets selected data of user with efficient use of memory.
- [BS2_EnrollUserFaceEx](#): [+ 2.7.1] FaceStation F2 Enrolls new user.
- [BS2_GetUserInfosFaceEx](#): [+ 2.7.1] FaceStation F2 Gets the user information of the given user ID.
- [BS2_GetUserDatasFaceEx](#): [+ 2.7.1] FaceStation F2 Gets selected data of user.

Structure

BS2User

```
typedef struct {
    char userID[BS2_USER_ID_SIZE];
    uint8_t formatVersion;
    uint8_t flag;
    uint16_t version;
    uint8_t numCards;
    uint8_t numFingers;
    uint8_t numFaces;
    uint8_t reserved2[1];
    uint32_t authGroupID;
    uint32_t faceChecksum;
} BS2User;
```

1. *userID*

User ID provided as string, and has a range of 1 ~ 4294967295.

2. *formatVersion*

Not Used.

3. *flag*

Flag that shows the user's status. OR operation is available and the mask value is listed below.

| Value | Description |
|-------|---------------|
| 0x00 | None |
| 0x01 | User enrolled |
| 0x02 | User updated |
| 0x04 | User deleted |
| 0x80 | User disabled |

4. *version*

Not Used.

5. *numCards*

Number of cards mapped to user.

6. *numFingers*

Number of fingerprint templates mapped to user.

7. *numFaces*

Number of face templates mapped to user.

8. *authGroupID*

ID of group when face group matching is enabled.

9. *faceChecksum*

Not Used.

BS2UserSetting

Other than FaceStation F2

```
typedef struct {
    uint32_t startTime;
    uint32_t endTime;
    uint8_t fingerAuthMode;
    uint8_t cardAuthMode;
    uint8_t idAuthMode;
    uint8_t securityLevel;
} BS2UserSetting;
```

1. startTime

Start time that a user can identify. When the value is 0, there are no limitations.

2. endTime

End time that that a user can identify. When the value is 0, there are no limitations.

3. fingerAuthMode

Finger authentication mode for user authentication.

| Value | Description |
|-------|--|
| 0 | Uses only fingerprint authentication |
| 1 | Uses fingerprint and PIN authentication |
| 254 | Cannot use |
| 255 | Undefined(Operates as defined in system) |

4. cardAuthMode

Card authentication mode for user authentication.

| Value | Description |
|-------|---|
| 2 | Uses only card authentication |
| 3 | Uses card and fingerprint authentication |
| 4 | Uses card and PIN authentication |
| 5 | Uses fingerprint or PIN after card authentication |
| 6 | Uses card, fingerprint, and PIN authentication |
| 254 | Cannot use |
| 255 | Undefined(Operates as defined in system) |

5. idAuthMode

ID authentication mode for user authentication.

| Value | Description |
|-------|--|
| 7 | Uses fingerprint authentication after entering user ID |
| 8 | Uses PIN authentication after entering user ID |
| 9 | Uses fingerprint or PIN authentication after entering user ID |
| 10 | Uses fingerprint and PIN authentication after entering user ID |
| 254 | Cannot use |
| 255 | Undefined(Operates as defined in system) |

6. securityLevel

Security level for fingerprint identification or face recognition.

| Value | Description |
|-------|---------------------------------|
| 0 | Default value defined in system |
| 1 | Lowest security level |

| Value | Description |
|-------|------------------------|
| 2 | Low security level |
| 3 | Normal security level |
| 4 | High security level |
| 5 | Highest security level |

BS2UserPhoto

```
typedef struct {
    uint32_t size;
    uint8_t data[BS2_USER_PHOTO_SIZE];
} BS2UserPhoto;
```

1. *size*

Size of the user profile image data.

2. *data*

Data of the profile image, which can be stored up to 16kb.

BS2UserBlob

```
typedef struct {
    BS2User user;
    BS2UserSetting setting;
    uint8_t name[BS2_USER_NAME_SIZE];
    BS2UserPhoto photo;
    uint8_t pin[BS2_PIN_HASH_SIZE];
    BS2CSNCard* cardObjs;
    BS2Fingerprint* fingerObjs;
    BS2Face* faceObjs;
    uint32_t accessGroupId[BS2_MAX_NUM_OF_ACCESS_GROUP_PER_USER];
} BS2UserBlob;
```

1. **user**

Structure that defines the basic user information.

2. **setting**

Structure that defines the configuration value for user identification.

3. **name**

User name having UTF-8 for string encoding.

4. **photo**

User profile image, which supports only jpeg images.

5. **pin**

Personal Identification Number(PIN). It should be entered through *BS_MakePinCode* function.

6. *cardObjs*

Card list for user authentication that needs to exist as much as **user.numCards**. Refer to [Smartcard API](#) for data format.

In case of Secure Credential card, *cardObjs* array of *BS2UserBlob* structure should be filled and the user should be updated after Secure Credential card issuing.

7. *fingerObjs*

Fingerprint template for user authentication that needs to exist as much as **user.numFingers**. Refer to [Fingerprint API](#) for data format.

8. *faceObjs*

Face template for user authentication that needs to exist as much as **user.numFaces**. Refer to [Face API](#) for data format.

9. *accessGroupId*

List of access groups where users belong to which can be configured up to 16 groups.

BS2Job

```
typedef struct {
    uint8_t numJobs;
    uint8_t reserved[3];

    struct {
        BS2_JOB_CODE code;
        BS2_JOB_LABEL label;
    } jobs[BS2_MAX_JOB_SIZE];
} BS2Job;
```

1. *numJobs*

Number of job codes allocated to the user.

2. *reserved*

Reserved Space.

3. *jobs*

List of jobs.

BS2UserBlobEx

```
typedef struct {
    BS2User user;
    BS2UserSetting setting;
    uint8_t name[BS2_USER_NAME_SIZE];
    BS2UserPhoto photo;
    uint8_t pin[BS2_PIN_HASH_SIZE];
    BS2CSNCard* cardObjs;
```

```
BS2Fingerprint* fingerObjs;  
BS2Face* faceObjs;  
BS2Job job;  
BS2_USER_PHRASE phrase;  
uint32_t accessGroupId [BS2_MAX_NUM_OF_ACCESS_GROUP_PER_USER];  
} BS2UserBlobEx;
```

1. **user**

Structure that defines the basic user information.

2. **setting**

Structure that defines the configuration value for user identification.

3. **name**

User name having UTF-8 for string encoding.

4. **photo**

User profile image, which supports only Jpeg images.

5. **pin**

Personal Identification Number(PIN). It should be entered through *BS_MakePinCode* function.

6. **cardObjs**

Card list for user authentication that needs to exist as much as **user.numCards**. Refer to [Smartcard API](#) for data format.

7. **fingerObjs**

Fingerprint template for user authentication that needs to exist as much as **user.numFingers**. Refer to [Fingerprint API](#) for data format.

8. **faceObjs**

Face template for user authentication that needs to exist as much as **user.numFaces**. Refer to [Face API](#) for data format.

9. **job**

Job code that will be allocated to user.

10. **phrase**

Private message that will be displayed when the user authenticates. (only in FS2 FW 1.0.0 or higher)

11. **accessGroupId**

List of access groups where users belong to which can be configured up to 16 groups.

BS2UserSmallBlob

```
typedef struct {  
    BS2User user;  
    BS2UserSetting setting;
```

```
uint8_t name[BS2_USER_NAME_SIZE];
BS2UserPhoto* photo;
uint8_t pin[BS2_PIN_HASH_SIZE];
BS2CSNCard* cardObjs;
BS2Fingerprint* fingerObjs;
BS2Face* faceObjs;
uint32_t accessGroupId[BS2_MAX_NUM_OF_ACCESS_GROUP_PER_USER];
} BS2UserSmallBlob;
```

1. **user**

Structure that defines the basic user information.

2. **setting**

Structure that defines the configuration value for user identification.

3. **name**

User name having UTF-8 for string encoding.

4. **photo**

User profile image, which supports only jpeg images.

5. **pin**

Personal Identification Number(PIN). It should be entered through *BS_MakePinCode* function.

6. **cardObjs**

Card list for user authentication that needs to exist as much as **user.numCards**. Refer to [Smartcard API](#) for data format.

7. **fingerObjs**

Fingerprint template for user authentication that needs to exist as much as **user.numFingers**. Refer to [Fingerprint API](#) for data format.

8. **faceObjs**

Face template for user authentication that needs to exist as much as **user.numFaces**. Refer to [Face API](#) for data format.

9. **accessGroupId**

List of access groups where users belong to which can be configured up to 16 groups.

BS2UserSmallBlobEx

```
typedef struct {
    BS2User user;
    BS2UserSetting setting;
    uint8_t name[BS2_USER_NAME_SIZE];
    BS2UserPhoto* photo;
    uint8_t pin[BS2_PIN_HASH_SIZE];
    BS2CSNCard* cardObjs;
    BS2Fingerprint* fingerObjs;
```



```
BS2Face* faceObjs;  
BS2Job job;  
BS2_USER_PHRASE phrase;  
uint32_t accessGroupId[BS2_MAX_NUM_OF_ACCESS_GROUP_PER_USER];  
} BS2UserSmallBlobEx;
```

1. **user**

Structure that defines the basic user information.

2. **setting**

Structure that defines the configuration value for user identification.

3. **name**

User name having UTF-8 for string encoding.

4. **photo**

User profile image, which supports only Jpeg images.

5. **pin**

Personal Identification Number(PIN). It should be entered through *BS_MakePinCode* function.

6. **cardObjs**

Card list for user authentication that needs to exist as much as **user.numCards**. Refer to [Smartcard API](#) for data format.

7. **fingerObjs**

Fingerprint template for user authentication that needs to exist as much as **user.numFingers**. Refer to [Fingerprint API](#) for data format.

8. **faceObjs**

Face template for user authentication that needs to exist as much as **user.numFaces**. Refer to [Face API](#) for data format.

9. **job**

Job code that will be allocated to user.

10. **phrase**

Private message that will be displayed when the user authenticates. (only in FS2 FW 1.0.0 or higher)

11. **accessGroupId**

List of access groups where users belong to which can be configured up to 16 groups.

BS2UserSettingEx

FaceStation F2 Only

```
typedef struct {  
    uint8_t faceAuthMode;  
    uint8_t fingerprintAuthMode;
```

```

uint8_t cardAuthMode;
uint8_t idAuthMode;
uint8_t reserved[28];
} BS2UserSettingEx;
    
```

1. *faceAuthMode*

User facial authentication mode

| Value | Level 1 | Level 2 | Level 3 | Level 4 |
|-------|----------------------------------|--------------------|---------|---------|
| 11 | Face | | | |
| 12 | Face | Fingerprint | | |
| 13 | Face | PIN | | |
| 14 | Face | Fingerprint or PIN | | |
| 15 | Face | Fingerprint | PIN | |
| 254 | Cannot use | | | |
| 255 | Not defined(System defined mode) | | | |

2. *fingerprintAuthMode*

User fingerprint authentication mode

| Value | Level 1 | Level 2 | Level 3 | Level 4 |
|-------|----------------------------------|-------------|---------|---------|
| 16 | Fingerprint | | | |
| 17 | Fingerprint | Face | | |
| 18 | Fingerprint | PIN | | |
| 19 | Fingerprint | Face or PIN | | |
| 20 | Fingerprint | Face | PIN | |
| 254 | Cannot use | | | |
| 255 | Not defined(System defined mode) | | | |

3. *cardAuthMode*

User card authentication mode

| Value | Level 1 | Level 2 | Level 3 | Level 4 |
|-------|---------|---------------------|---------|---------|
| 21 | Card | | | |
| 22 | Card | Face | | |
| 23 | Card | Fingerprint | | |
| 24 | Card | PIN | | |
| 25 | Card | Face or Fingerprint | | |
| 26 | Card | Face or PIN | | |
| 27 | Card | Fingerprint or PIN | | |

| Value | Level 1 | Level 2 | Level 3 | Level 4 |
|-------|----------------------------------|----------------------------|--------------------|---------|
| 28 | Card | Face or Fingerprint or PIN | | |
| 29 | Card | Face | Fingerprint | |
| 30 | Card | Face | PIN | |
| 31 | Card | Fingerprint | Face | |
| 32 | Card | Fingerprint | PIN | |
| 33 | Card | Face or Fingerprint | PIN | |
| 34 | Card | Face | Fingerprint or PIN | |
| 35 | Card | Fingerprint | Face or PIN | |
| 254 | Cannot use | | | |
| 255 | Not defined(System defined mode) | | | |

4. *idAuthMode*

User ID authentication mode

| Value | Level 1 | Level 2 | Level 3 | Level 4 |
|-------|----------------------------------|----------------------------|--------------------|---------|
| 36 | ID | Face | | |
| 37 | ID | Fingerprint | | |
| 38 | ID | PIN | | |
| 39 | ID | Face or Fingerprint | | |
| 40 | ID | Face or PIN | | |
| 41 | ID | Fingerprint or PIN | | |
| 42 | ID | Face or Fingerprint or PIN | | |
| 43 | ID | Face | Fingerprint | |
| 44 | ID | Face | PIN | |
| 45 | ID | Fingerprint | Face | |
| 46 | ID | Fingerprint | PIN | |
| 47 | ID | Face or Fingerprint | PIN | |
| 48 | ID | Face | Fingerprint or PIN | |
| 49 | ID | Fingerprint | Face or PIN | |
| 254 | Cannot use | | | |
| 255 | Not defined(System defined mode) | | | |

5. *reserved*

Reserved

BS2UserFaceExBlob

```
typedef struct
{
    BS2User user;
    BS2UserSetting setting;
    BS2_USER_NAME user_name;
    BS2UserPhoto* user_photo_obj;
    BS2_USER_PIN pin;
    BS2CSNCard* cardObjs;
    BS2Fingerprint* fingerObjs;
    BS2Face* faceObjs; // FS2, FL
    BS2Job job;
    BS2_USER_PHRASE phrase;
    BS2_ACCESS_GROUP_ID accessGroupId[BS2_MAX_NUM_OF_ACCESS_GROUP_PER_USER];

    BS2UserSettingEx settingEx; // F2
    BS2FaceEx* faceExObjs; // F2
} BS2UserFaceExBlob;
```

1. *user*

Basic user information defined structure

2. *setting*

Basic user setting defined structure

3. *name*

User name (Encoding : UTF-8)

4. *photo*

User profile image (Only support jpeg)

5. *pin*

PIN, must be filled with a return of API *BS2_MakePinCode*

6. *cardObjs*
Card list for user authentication, there must be as many as **user.numCards**. Refer to [Smartcard API](#) for data format.

7. *fingerObjs*

Fingerprint template list for user authentication, there must be as many as **user.numFingers**. Refer to [Fingerprint API](#) for data format.

8. *faceObjs*

FaceStation2, FaceLite Face template list for user authentication, there must be as many as **user.numFaces**. Refer to [Face API](#) for data format.

9. *job*

Job code in T&A mode

10. *phrase*

Personal message displayed on the device UI when authentication. (FS2 FW 1.0.0 or higher only)

11. *accessGroupId*

List of access group of the user assigned, maximum is 16.

12. *settingEx*

FaceStation F2 Sets private authentication. It is now possible to combine more various authentication modes by combining fingerprints and faces.

13. *faceExObjs*

FaceStation F2 Face template list for user authentication, there must be as many as **user.numFaces**. Refer to [Face API](#) for data format.

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