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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](#): Gets the user information of the given user ID. ([+ 2.4.0] including Job code and User phrase)
- [BS2_EnrolUser](#): Enrolls new user.
- [BS2_EnrolUserEx](#): Enrolls new user. ([+ 2.4.0] including Job code and User phrase)
- [BS2_EnrolUser](#): [+ 2.6.3] Enrolls new user.
- [BS2_EnrolUserEx](#): [+ 2.6.3] Enrolls new user. (including Job code and User phrase)
- [BS2_GetUserDatas](#): Gets selected data of user. (+ [2.5.0])
- [BS2_GetUserDatasEx](#): Gets selected data of user. ([+ 2.5.0] 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](#): FaceStation F2 Enrolls new user. [+ V2.7.1]
- [BS2_GetUserInfosFaceEx](#): FaceStation F2 Gets the user information of the given user ID. [+ V2.7.1]
- [BS2_GetUserDatasFaceEx](#): FaceStation F2 Gets selected data of user. [+ V2.7.1]

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

```
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
2	Low security level
3	Normal security level
4	High security level

Value	Description
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

```
typedef struct {  
    uint8_t faceAuthMode;  
    uint8_t fingerprintAuthMode;  
    uint8_t cardAuthMode;  
    uint8_t idAuthMode;  
    uint8_t reserved[28];  
}
```

```
} BS2UserSettingEx;
```

FaceStation F2

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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