

NAME

fido_cred_set_authdata, **fido_cred_set_authdata_raw**, **fido_cred_set_attstmt**, **fido_cred_set_x509**, **fido_cred_set_sig**, **fido_cred_set_id**, **fido_cred_set_clientdata**, **fido_cred_set_clientdata_hash**, **fido_cred_set_rp**, **fido_cred_set_user**, **fido_cred_set_extensions**, **fido_cred_set_blob**, **fido_cred_set_pin_minlen**, **fido_cred_set_prot**, **fido_cred_set_rk**, **fido_cred_set_uv**, **fido_cred_set_fmt**, **fido_cred_set_type** - set parameters of a FIDO2 credential

SYNOPSIS

```
#include <fido.h>
```

```
typedef enum {
```

```
    FIDO_OPT_OMIT = 0, /* use authenticator's default */
```

```
    FIDO_OPT_FALSE, /* explicitly set option to false */
```

```
    FIDO_OPT_TRUE, /* explicitly set option to true */
```

```
} fido_opt_t;
```

```
int
```

```
fido_cred_set_authdata(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_authdata_raw(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_attstmt(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_x509(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_sig(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_id(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_clientdata(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_clientdata_hash(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

```
int
```

```
fido_cred_set_rp(fido_cred_t *cred, const char *id, const char *name);
```

int

```
fido_cred_set_user(fido_cred_t *cred, const unsigned char *user_id, size_t user_id_len,
    const char *name, const char *display_name, const char *icon);
```

int

```
fido_cred_set_extensions(fido_cred_t *cred, int flags);
```

int

```
fido_cred_set_blob(fido_cred_t *cred, const unsigned char *ptr, size_t len);
```

int

```
fido_cred_set_pin_minlen(fido_cred_t *cred, size_t len);
```

int

```
fido_cred_set_prot(fido_cred_t *cred, int prot);
```

int

```
fido_cred_set_rk(fido_cred_t *cred, fido_opt_t rk);
```

int

```
fido_cred_set_uv(fido_cred_t *cred, fido_opt_t uv);
```

int

```
fido_cred_set_fmt(fido_cred_t *cred, const char *ptr);
```

int

```
fido_cred_set_type(fido_cred_t *cred, int cose_alg);
```

DESCRIPTION

The **fido_cred_set_authdata** set of functions define the various parameters of a FIDO2 credential, allowing a *fido_cred_t* type to be prepared for a subsequent call to **fido_dev_make_cred(3)** or **fido_cred_verify(3)**. For the complete specification of a FIDO2 credential and the format of its constituent parts, please refer to the Web Authentication (webauthn) standard.

The **fido_cred_set_authdata()**, **fido_cred_set_attstmt()**, **fido_cred_set_x509()**, **fido_cred_set_sig()**, **fido_cred_set_id()**, and **fido_cred_set_clientdata_hash()** functions set the authenticator data, attestation statement, attestation certificate, attestation signature, id, and client data hash parts of *cred* to *ptr*, where *ptr* points to *len* bytes. A copy of *ptr* is made, and no references to the passed pointer are kept.

The authenticator data passed to **fidocrcred_set_authdata()** must be a CBOR-encoded byte string, as obtained from **fidocrcred_authdata_ptr()**. Alternatively, a raw binary blob may be passed to **fidocrcred_set_authdata_raw()**. An application calling **fidocrcred_set_authdata()** does not need to call **fidocrcred_set_id()**. The latter is meant to be used in contexts where the credential's authenticator data is not available.

The attestation statement passed to **fidocrcred_set_attstmt()** must be a CBOR-encoded map, as obtained from **fidocrcred_attstmt_ptr()**. An application calling **fidocrcred_set_attstmt()** does not need to call **fidocrcred_set_x509()** or **fidocrcred_set_sig()**. The latter two are meant to be used in contexts where the credential's complete attestation statement is not available or required.

The **fidocrcred_set_clientdata()** function allows an application to set the client data hash of *cred* by specifying the credential's unhashed client data. This is required by Windows Hello, which calculates the client data hash internally. For compatibility with Windows Hello, applications should use **fidocrcred_set_clientdata()** instead of **fidocrcred_set_clientdata_hash()**.

The **fidocrcred_set_rp()** function sets the relying party *id* and *name* parameters of *cred*, where *id* and *name* are NUL-terminated UTF-8 strings. The contents of *id* and *name* are copied, and no references to the passed pointers are kept.

The **fidocrcred_set_user()** function sets the user attributes of *cred*, where *user_id* points to *user_id_len* bytes and *name*, *display_name*, and *icon* are NUL-terminated UTF-8 strings. The contents of *user_id*, *name*, *display_name*, and *icon* are copied, and no references to the passed pointers are kept. Previously set user attributes are flushed. The *user_id*, *name*, *display_name*, and *icon* parameters may be NULL.

The **fidocrcred_set_extensions()** function sets the extensions of *cred* to the bitmask *flags*. At the moment, only the FIDO_EXT_CRED_BLOB, FIDO_EXT_CRED_PROTECT, FIDO_EXT_HMAC_SECRET, FIDO_EXT_MINPINLEN, and FIDO_EXT_LARGELOB_KEY extensions are supported. If *flags* is zero, the extensions of *cred* are cleared.

The **fidocrcred_set_blob()** function sets the "credBlob" to be stored with *cred* to the data pointed to by *ptr*, which must be *len* bytes long.

The **fidocrcred_set_pin_minlen()** function enables the CTAP 2.1 FIDO_EXT_MINPINLEN extension on *cred* and sets the expected minimum PIN length of *cred* to *len*, where *len* is greater than zero. If *len* is zero, the FIDO_EXT_MINPINLEN extension is disabled on *cred*.

The **fidocrcred_set_prot()** function enables the CTAP 2.1 FIDO_EXT_CRED_PROTECT extension on *cred* and sets the protection of *cred* to the scalar *prot*. At the moment, only the FIDO_CRED_PROT_UV_OPTIONAL, FIDO_CRED_PROT_UV_OPTIONAL_WITH_ID, and

FIDO_CRED_PROT_UV_REQUIRED protections are supported. If *prot* is zero, the protection of *cred* is cleared.

The **fidocred_set_rk()** and **fidocred_set_uv()** functions set the *rk* (resident/discoverable key) and *uv* (user verification) attributes of *cred*. Both are FIDO_OPT_OMIT by default, allowing the authenticator to use its default settings.

The **fidocred_set_fmt()** function sets the attestation statement format identifier of *cred* to *fmt*, where *fmt* must be *packed* (the format used in FIDO2), *fidou2f* (the format used in U2F), *tpm* (the format used by TPM-based authenticators), or *none*. A copy of *fmt* is made, and no references to the passed pointer are kept. Note that not all authenticators support FIDO2 and therefore may only be able to generate *fidou2f* attestation statements.

The **fidocred_set_type()** function sets the type of *cred* to *cose_alg*, where *cose_alg* is COSE_ES256, COSE_ES384, COSE_RS256, or COSE_EDDSA. The type of a credential may only be set once. Note that not all authenticators support COSE_RS256, COSE_ES384, or COSE_EDDSA.

Use of the **fidocred_set_authdata** set of functions may happen in two distinct situations: when generating a new credential on a FIDO2 device, prior to `fidocred_dev_make_cred(3)` (i.e, in the context of a FIDO2 client), or when validating a generated credential using `fidocred_verify(3)` (i.e, in the context of a FIDO2 server).

For a complete description of the generation of a FIDO2 credential and its verification, please refer to the FIDO2 specification. A concrete utilisation example of the **fidocred_set_authdata** set of functions can be found in the *cred.c* example shipped with *libfido2*.

RETURN VALUES

The error codes returned by the **fidocred_set_authdata** set of functions are defined in `<fido/err.h>`. On success, FIDO_OK is returned.

SEE ALSO

`fidocred_exclude(3)`, `fidocred_verify(3)`, `fidocred_dev_make_cred(3)`