

NAME

fido_assert_new, **fido_assert_free**, **fido_assert_count**, **fido_assert_rp_id**, **fido_assert_user_display_name**, **fido_assert_user_icon**, **fido_assert_user_name**, **fido_assert_authdata_ptr**, **fido_assert_blob_ptr**, **fido_assert_clientdata_hash_ptr**, **fido_assert_hmac_secret_ptr**, **fido_assert_largeblob_key_ptr**, **fido_assert_user_id_ptr**, **fido_assert_sig_ptr**, **fido_assert_id_ptr**, **fido_assert_authdata_len**, **fido_assert_blob_len**, **fido_assert_clientdata_hash_len**, **fido_assert_hmac_secret_len**, **fido_assert_largeblob_key_len**, **fido_assert_user_id_len**, **fido_assert_sig_len**, **fido_assert_id_len**, **fido_assert_sigcount**, **fido_assert_flags** - FIDO2 assertion API

SYNOPSIS

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

```
fido_assert_t *
```

```
fido_assert_new(void);
```

```
void
```

```
fido_assert_free(fido_assert_t **assert_p);
```

```
size_t
```

```
fido_assert_count(const fido_assert_t *assert);
```

```
const char *
```

```
fido_assert_rp_id(const fido_assert_t *assert);
```

```
const char *
```

```
fido_assert_user_display_name(const fido_assert_t *assert, size_t idx);
```

```
const char *
```

```
fido_assert_user_icon(const fido_assert_t *assert, size_t idx);
```

```
const char *
```

```
fido_assert_user_name(const fido_assert_t *assert, size_t idx);
```

```
const unsigned char *
```

```
fido_assert_authdata_ptr(const fido_assert_t *assert, size_t idx);
```

```
const unsigned char *
```

```
fido_assert_clientdata_hash_ptr(const fido_assert_t *assert);
```

```
const unsigned char *
```

fido_assert_blob_ptr(*const fido_assert_t *assert, size_t idx*);

*const unsigned char **

fido_assert_hmac_secret_ptr(*const fido_assert_t *assert, size_t idx*);

*const unsigned char **

fido_assert_largeblob_key_ptr(*const fido_assert_t *assert, size_t idx*);

*const unsigned char **

fido_assert_user_id_ptr(*const fido_assert_t *assert, size_t idx*);

*const unsigned char **

fido_assert_sig_ptr(*const fido_assert_t *assert, size_t idx*);

*const unsigned char **

fido_assert_id_ptr(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_authdata_len(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_clientdata_hash_len(*const fido_assert_t *assert*);

size_t

fido_assert_blob_len(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_hmac_secret_len(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_largeblob_key_len(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_user_id_len(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_sig_len(*const fido_assert_t *assert, size_t idx*);

size_t

fido_assert_id_len(*const fido_assert_t *assert, size_t idx*);

uint32_t

fido_assert_sigcount(*const fido_assert_t *assert, size_t idx*);

uint8_t

fido_assert_flags(*const fido_assert_t *assert, size_t idx*);

DESCRIPTION

A FIDO2 assertion is a collection of statements, each statement a map between a challenge, a credential, a signature, and ancillary attributes. In *libfido2*, a FIDO2 assertion is abstracted by the *fido_assert_t* type. The functions described in this page allow a *fido_assert_t* type to be allocated, deallocated, and inspected. For other operations on *fido_assert_t*, please refer to `fido_assert_set_authdata(3)`, `fido_assert_allow_cred(3)`, `fido_assert_verify(3)`, and `fido_dev_get_assert(3)`.

The **fido_assert_new()** function returns a pointer to a newly allocated, empty *fido_assert_t* type. If memory cannot be allocated, NULL is returned.

The **fido_assert_free()** function releases the memory backing **assert_p*, where **assert_p* must have been previously allocated by **fido_assert_new()**. On return, **assert_p* is set to NULL. Either *assert_p* or **assert_p* may be NULL, in which case **fido_assert_free()** is a NOP.

The **fido_assert_count()** function returns the number of statements in *assert*.

The **fido_assert_rp_id()** function returns a pointer to a NUL-terminated string holding the relying party ID of *assert*.

The **fido_assert_user_display_name()**, **fido_assert_user_icon()**, and **fido_assert_user_name()**, functions return pointers to the user display name, icon, and name attributes of statement *idx* in *assert*. If not NULL, the values returned by these functions point to NUL-terminated UTF-8 strings. The user display name, icon, and name attributes will typically only be returned by the authenticator if user verification was performed by the authenticator and multiple resident/discoverable credentials were involved in the assertion.

The **fido_assert_authdata_ptr()**, **fido_assert_clientdata_hash_ptr()**, **fido_assert_id_ptr()**, **fido_assert_user_id_ptr()**, **fido_assert_sig_ptr()**, **fido_assert_sigcount()**, and **fido_assert_flags()** functions return pointers to the CBOR-encoded authenticator data, client data hash, credential ID, user ID, signature, signature count, and authenticator data flags of statement *idx* in *assert*.

The **fido_assert_hmac_secret_ptr()** function returns a pointer to the hmac-secret attribute of statement *idx* in *assert*. The HMAC Secret Extension (hmac-secret) is a CTAP 2.0 extension. Note that the resulting hmac-secret varies according to whether user verification was performed by the authenticator.

The **fid0_assert_blob_ptr()** and **fid0_assert_largeblob_key_ptr()** functions return pointers to the "credBlob" and "largeBlobKey" attributes of statement *idx* in *assert*. Credential Blob (credBlob) and Large Blob Key (largeBlobKey) are CTAP 2.1 extensions.

The **fid0_assert_authdata_len()**, **fid0_assert_clientdata_hash_len()**, **fid0_assert_id_len()**, **fid0_assert_user_id_len()**, **fid0_assert_sig_len()**, **fid0_assert_hmac_secret_len()**, **fid0_assert_blob_len()**, and **fid0_assert_largeblob_key_len()** functions return the length of a given attribute.

Please note that the first statement in *assert* has an *idx* (index) value of 0.

The authenticator data and signature parts of an assertion statement are typically passed to a FIDO2 server for verification.

RETURN VALUES

The authenticator data returned by **fid0_assert_authdata_ptr()** is a CBOR-encoded byte string, as obtained from the authenticator.

The **fid0_assert_rp_id()**, **fid0_assert_user_display_name()**, **fid0_assert_user_icon()**, **fid0_assert_user_name()**, **fid0_assert_authdata_ptr()**, **fid0_assert_clientdata_hash_ptr()**, **fid0_assert_id_ptr()**, **fid0_assert_user_id_ptr()**, **fid0_assert_sig_ptr()**, **fid0_assert_hmac_secret_ptr()**, **fid0_assert_blob_ptr()**, and **fid0_assert_largeblob_key_ptr()** functions may return NULL if the respective field in *assert* is not set. If not NULL, returned pointers are guaranteed to exist until any API function that takes *assert* without the *const* qualifier is invoked.

SEE ALSO

fid0_assert_allow_cred(3), **fid0_assert_set_authdata(3)**, **fid0_assert_verify(3)**, **fid0_dev_get_assert(3)**, **fid0_dev_largeblob_get(3)**