

# **Yubico Universal 2nd Factor C Library**

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|               | <i>TITLE :</i><br>Yubico Universal 2nd Factor C Library |                 |                  |
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# Chapter 1

# Yubico Universal 2nd Factor C Library

This is a C library that implements the host-side of the U2F protocol. More precisely, it provides an API for applications that wishes to talk to a U2F device and perform the U2F Register and U2F Authenticate operations.

## 1.1 u2f-host

u2f-host —

### Description

### Functions

### Types and Values

## 1.2 u2f-host-types

u2f-host-types —

### Types and Values

|         |                |
|---------|----------------|
| enum    | u2fh_rc        |
| enum    | u2fh_initflags |
| enum    | u2fh_cmdflags  |
| typedef | u2fh_devs      |

### Description

### Functions

### Types and Values

enum u2fh\_rc

Error codes.

**Members**

|                          |                              |
|--------------------------|------------------------------|
| U2FH_OK                  | Success.                     |
| U2FH_MEMORY_ERROR        | Memory error.                |
| U2FH_TRANSPORT_ERROR     | Transport (e.g., USB) error. |
| U2FH_JSON_ERROR          | Json error.                  |
| U2FH_BASE64_ERROR        | Base64 error.                |
| U2FH_NO_U2F_DEVICE       | Missing U2F device.          |
| U2FH_AUTHENTICATOR_ERROR | Authenticator error.         |
| U2FH_TIMEOUT_ERROR       | Timeout error.               |
| U2FH_SIZE_ERROR          |                              |

**enum u2fh\_initflags**

Flags passed to `u2fh_global_init()`.

**Members**

|            |                       |
|------------|-----------------------|
| U2FH_DEBUG | Print debug messages. |
|------------|-----------------------|

**enum u2fh\_cmdflags**

Flags passed to `u2fh_register()` and `u2fh_authenticate()`.

**Members**

|                            |                        |
|----------------------------|------------------------|
| U2FH_REQUEST_USER_PRESENCE | Request user presence. |
|----------------------------|------------------------|

u2fh\_devs

```
typedef struct u2fh_devs u2fh_devs;
```

1.3 u2f-host-version

u2f-host-version —

Functions

const char \*

| u2fh\_check\_version ()

Types and Values

|         |                     |
|---------|---------------------|
| #define | U2FH_VERSION_STRING |
| #define | U2FH_VERSION_NUMBER |
| #define | U2FH_VERSION_MAJOR  |
| #define | U2FH_VERSION_MINOR  |
| #define | U2FH_VERSION_PATCH  |

Description

Functions

u2fh\_check\_version ()

```
const char~*
u2fh_check_version (const char *req_version);
```

Check that the version of the library is at minimum the requested one and return the version string; return NULL if the condition is not satisfied. If a NULL is passed to this function, no check is done, but the version string is simply returned.

See **U2FH\_VERSION\_STRING** for a suitable *req\_version* string.

Parameters

req\_version

| Required version number, or NULL.

|

Returns

Version string of run-time library, or NULL if the run-time library does not meet the required version number.

Types and Values

U2FH\_VERSION\_STRING

```
#define U2FH_VERSION_STRING "1.1.2"
```

Pre-processor symbol with a string that describe the header file version number. Used together with `u2fh_check_version()` to verify header file and run-time library consistency.

### **U2FH\_VERSION\_NUMBER**

```
#define U2FH_VERSION_NUMBER 0x010102
```

Pre-processor symbol with a hexadecimal value describing the header file version number. For example, when the header version is 1.2.3 this symbol will have the value 0x01020300. The last two digits are only used between public releases, and will otherwise be 00.

### **U2FH\_VERSION\_MAJOR**

```
#define U2FH_VERSION_MAJOR 1
```

Pre-processor symbol with a decimal value that describe the major level of the header file version number. For example, when the header version is 1.2.3 this symbol will be 1.

### **U2FH\_VERSION\_MINOR**

```
#define U2FH_VERSION_MINOR 1
```

Pre-processor symbol with a decimal value that describe the minor level of the header file version number. For example, when the header version is 1.2.3 this symbol will be 2.

### **U2FH\_VERSION\_PATCH**

```
#define U2FH_VERSION_PATCH 2
```

Pre-processor symbol with a decimal value that describe the patch level of the header file version number. For example, when the header version is 1.2.3 this symbol will be 3.

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