Abstract

FIDO-compliant relying parties may wish to offer tailored user interfaces based on the transports a FIDO U2F authenticator supports. This standard describes one way relying parties may learn which transports an authenticator supports, by allowing authenticator vendors to embed hardware features as an optional extension in the authenticator's attestation certificate.

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1. Document Information

1.1 Notation

Type names, attribute names and element names are written as code.

1.1.1 Key Words

The key words “must”, “must not”, “required”, “shall”, “shall not”, “should”, “should not”, “recommended”, “may”, and “optional” in this document are to be interpreted as described in [RFC2119].

2. Attestation certificates

Attestation certificates are X.509 certificates. Transports supported by an authenticator can be embedded as an extension in the authenticator's attestation certificate. As certificate extensions are only available since [X509V3], the attestation certificate's version must be v3.

As such, this specification is a profile of [RFC5280] which is itself a profile of the ISO/IEC/ITU-T [X509V3] specifications for public key certificates. All syntax and semantics are inherited from those specifications unless explicitly documented otherwise. In this document, all fields are defined in ASN.1 and must be DER-encoded ([X690]).

3. FIDO U2F extensions
3.1 FIDO U2F OID arc

The FIDO OID arc and its FIDO U2F OID subarc are defined as:

```
-- FIDO Alliance's OID
id-fido OBJECT IDENTIFIER ::= 1.3.6.1.4.1.45724

-- FIDO U2F protocol OID
id-fido-u2f OBJECT IDENTIFIER ::= { id-fido 2 }
```

3.2 FIDO U2F certificate extensions

The FIDO U2F certificate extensions arc is defined as:

```
-- FIDO U2F certificate extensions arc
id-fido-u2f-ce OBJECT IDENTIFIER ::= { id-fido-u2f 1 }
```

3.2.1 FIDO U2F certificate transports extension

This extension is identified by `id-fido-u2f-ce-transports` and specifies the transports supported by the authenticator. It's a non-critical extension and therefore FIDO clients and relying parties may ignore it, if present.

The FIDO U2F certificate transports extension is defined as:

```
-- FIDO U2F certificate extensions
id-fido-u2f-ce-transports OBJECT IDENTIFIER ::= { id-fido-u2f-ce 1 }

fidoU2FTransports EXTENSION ::= {
  WITH SYNTAX FIDOU2FTransports
  ID id-fido-u2f-ce-transports
}

FIDOU2FTransports ::= BIT STRING {
  bluetoothRadio(0), -- Bluetooth Classic
  bluetoothLowEnergyRadio(1),
  uSB(2),
  nFC(3),
  uSBInternal(4)
}
```

3.3 Examples

3.3.1 BT classic authenticator

```
EXAMPLE 1
```
```
SEQUENCE
OBJECT IDENTIFIER 30 13
  value: id-fido-u2f-ce-transports 06 0B
  OCTET STRING 2B 06 01 04 01 82 E5 1C 02 01 01
  BIT STRING 04 04 03 02
    unused bits: 7 07
    value: 0x80 80
```

3.3.2 USB + NFC authenticator

```
EXAMPLE 2
```
```
SEQUENCE
OBJECT IDENTIFIER 30 13
  value: id-fido-u2f-ce-transports 06 0B
  OCTET STRING 2B 06 01 04 01 82 E5 1C 02 01 01
```
A. References

A.1 Normative references

[RFC2119]
Best Current Practice. URL: https://tools.ietf.org/html/rfc2119

[RFC5280]

[X509V3]

[X690]