



Current DevID Data Objects and LDevID/IDevID Linkage Revisited

Mike Borza

Decided at last meeting

- Structure of DevID data objects
- LDevIDs will not be linked to IDevIDs as part of the standard-defined data objects
- linkage may be made at the protocol level or through higher-layer mechanisms
 - e.g. maintain a correspondence database of LDevIDs to IDevIDs
 - e.g. define an option transform in I&A reference protocols that incorporates both IDevID and LDevID

Current structure of DevID

DevID
<ul style="list-style-type: none">• issuerID• uniqueID• pubKey• version• reserved• signature

- Presently common structure for both LDevID and IDevID
- DevID structure can be authenticated by itself
 - **but liveness not assured**
 - requires additional information for use in I&A protocols
 - remote-party challenge (random number) will be signed as part of any robust I&A

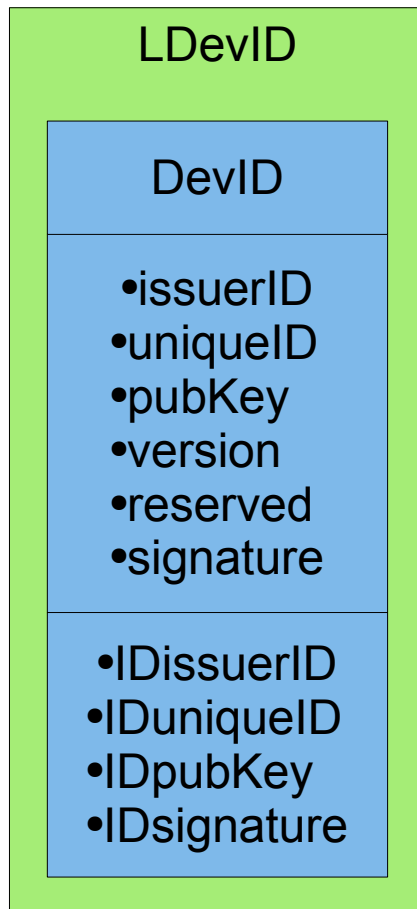
The case against tying LDevIDs to IDevIDs







- Gets around (some) questions about privacy and anonymity
- Keeps common structure between {IL}DevIDs (so far)
- Captures most common use-cases of interest to enterprises
- Is pretty much minimal structure capable of doing the job

The case for...

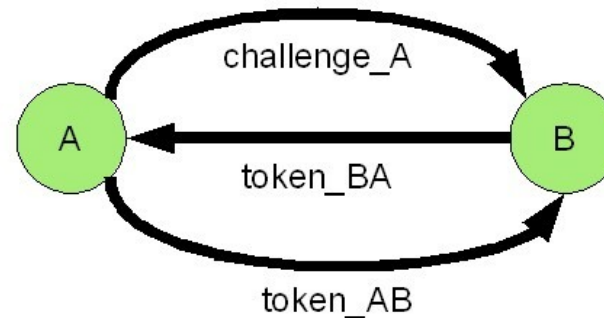
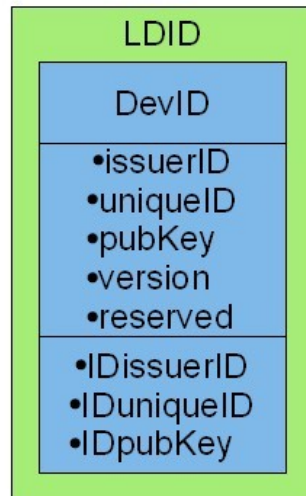
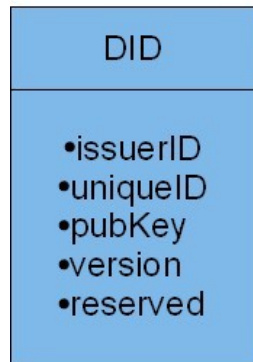
- Supports automatic service provisioning with end-user defined & assigned LDevIDs
- Allows tight binding of locally significant identity to physical asset identity
- Interoperability is guaranteed in cases where tying them together is desired
 - this is not true for ad hoc methods

How might this work?



-  LDevID incorporates the base elements of DevID, is subsequently signed by the corresponding IDevID
 -  binding is cryptographic, order is correct (IDevID “vouches” for LDevID)
-  still not complete without challenge
-  IDevID signing may be optional to support unlinked applications
 -  both forms may exist simultaneously
-  denote unlinked LDevID by NULL IDevID part

Achieving the same objective with a mutual I&A protocol



$$\text{token_BA} = [L]\text{DID_B} \parallel \text{challenge_A} \parallel \text{challenge_B} \parallel \text{s}(\text{privKey_B}) [\parallel \text{s}(\text{IDprivKey_B})]$$

$$\text{token_AB} = [L]\text{DID_A} \parallel \text{challenge_A} \parallel \text{challenge_B} \parallel \text{s}(\text{privKey_A}) [\parallel \text{s}(\text{IDprivKey_A})]$$

- DID, LDID are new data objects
 - LDID may exist only for purposes of I&A protocols
 - ordering of signing is important: IDDevID “vouches” for LDevID
- challenges A & B (nonces) assure “liveness” of exchange
 - required to prevent playback

Discussion

- Do the static signatures in current {IL}DevID structures serve any useful purpose?
- Are the reference protocols sufficient to achieve linkage?
 - If so, should they be normative?
 - define both unilateral and mutual protocols