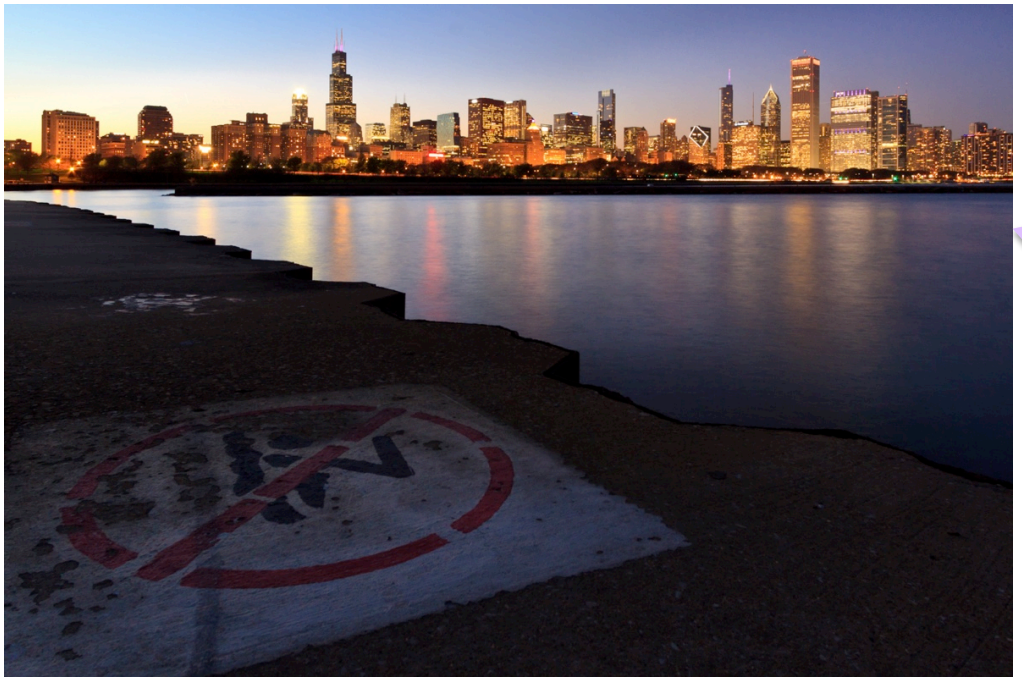
HTTPS Token Binding and TLS Terminating Reverse Proxies



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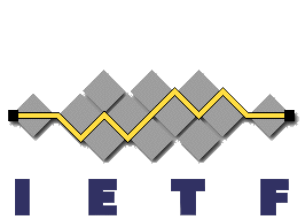
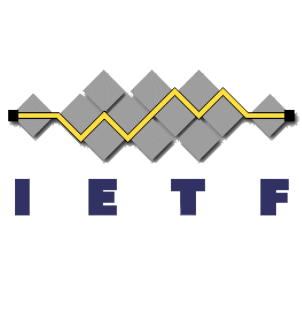
https://tools.ietf.org/html/draft-campbell-tokbind-tls-term-00

Problem Statement



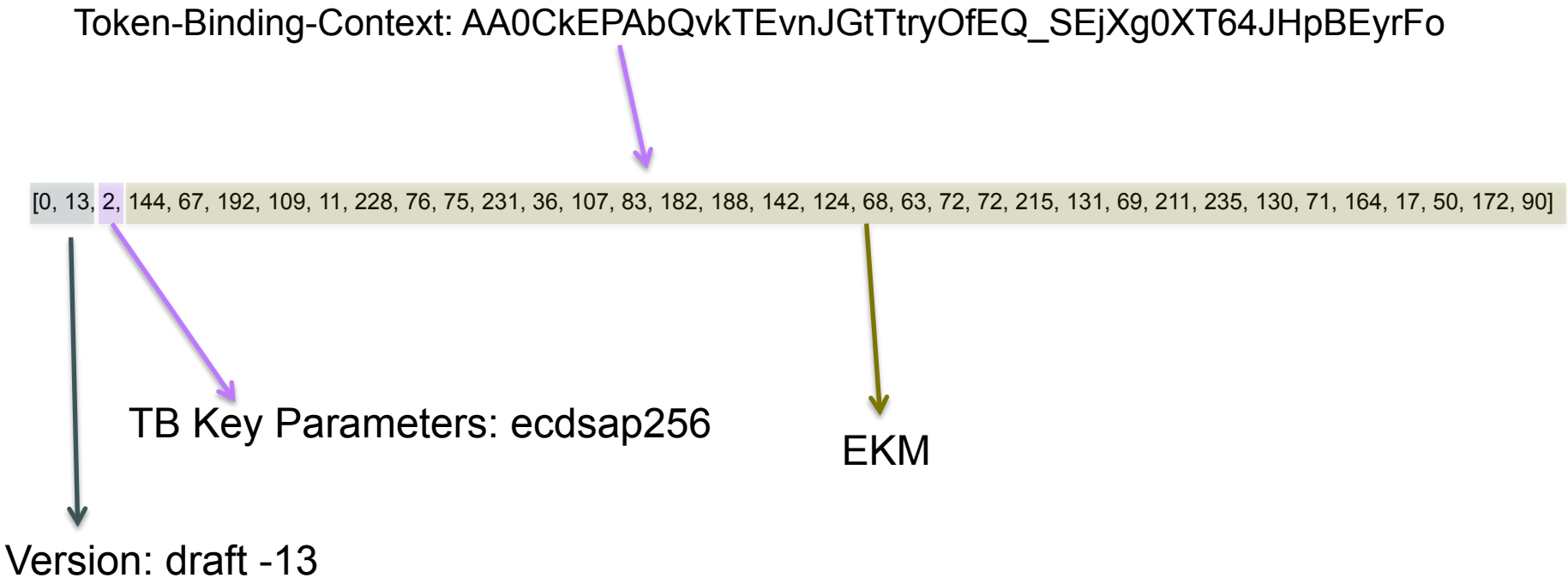
- HTTPS application deployments often have TLS 'terminated' by a reverse proxy (TTRP) sitting in front of the actual application
- For applications in such deployments to take advantage of token binding, some information needs to be communicated from the TLS layer to the application
  - (in the general case anyway)
- In the absence of a standard means of doing this, different implementations will do it differently
  - Terrible for interoperability
  - A boon to unneeded complexity
  - Improved opportunity to get things wrong
  - i.e. client certificate authentication

'consensus to work on the problem' in Seoul

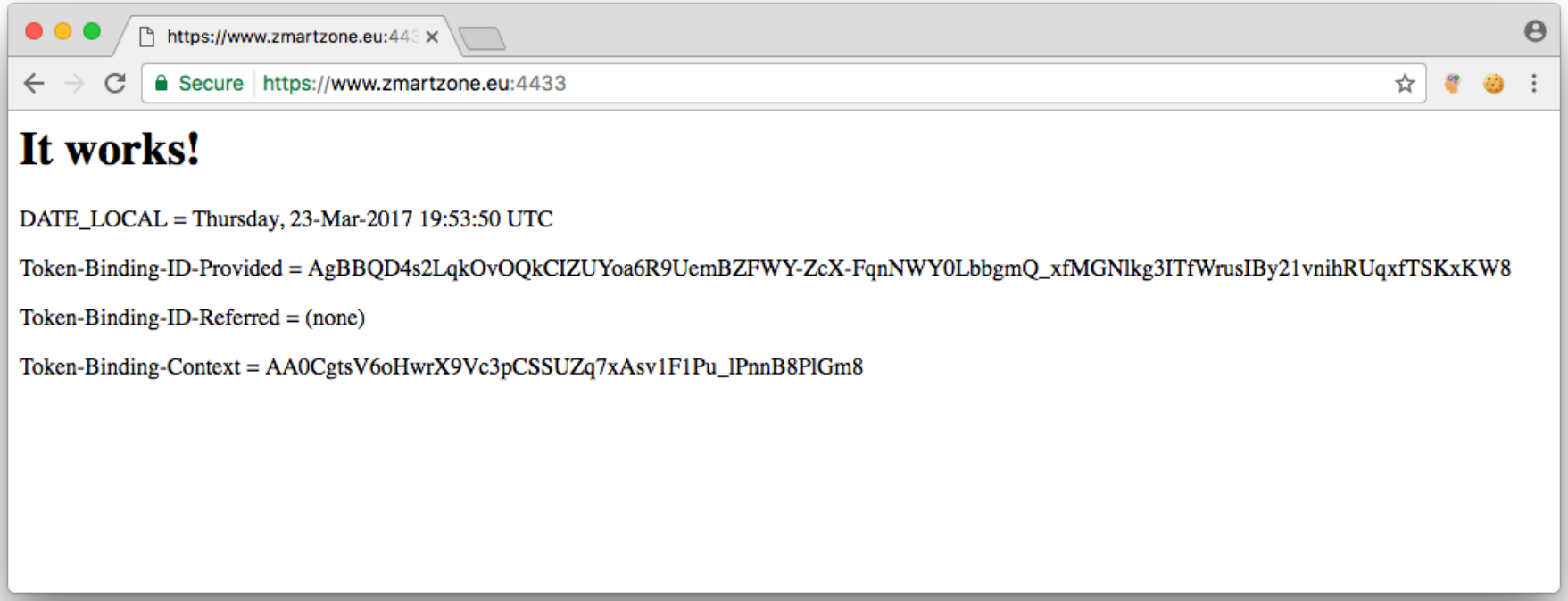


- draft-campbell-tokbind-tls-term-00
- New HTTP header: "Token-Binding-Context" sent from TTRP to backend application
  - base64url-encoded byte sequence, which is the concatenation of the following from the TLS connection between the client and reverse proxy
    - Token Binging Protocol Version
    - Token Binging Key parameters
    - EKM
  - Sufficient for backend application to validate the Sec-Token-Binding header
- Trust between the TTRP and backend application
- TTRP sanitizes header

Example


Token-Binding-Context: AA0CkEPAbQvkTEvnJGtTtryOfEQ_SEjXg0XT64JHpBEyrFo
[0, 13, 2, 144, 67, 192, 109, 11, 228, 76, 75, 231, 36, 107, 83, 182, 188, 142, 124, 68, 63, 72, 72, 215, 131, 69, 211, 235, 130, 71, 164, 17, 50, 172, 90]
TB Key Parameters: ecdsap256
EKM
Version: draft -13

Running Code

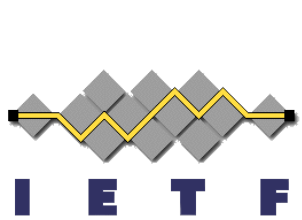


(Apache with mod_token_binding brought to you by Hans Zandbelt)

Rough Consensus

- Once more: is this the right approach?
  - Current: backend application validates the Token Binding Message using the context from TTRP
    - Keeps the TTRP lite
    - Reconciling and updating supported key parameters difficult with lots of apps
  - Alternative: TTRP validates the Token Binding Message and passes Token Binding ID(s)
    - Simpler for apps
    - Supported key parameters isolated to TTRP
    - Does not keep the TTRP lite
  - Both…
    - Really?

Current Approach: Issues/Questions



- Explain the rational of keeping the TTRP lightweight
- Is Token Binding Protocol Version needed or useful?
- EKM lengths
- Recently on the mailing list
  - Sec- for Token-Binding-Context?
  - MAC the header?

Next...

- Call for Adoption by the WG?
- Do some work
- Discuss at IETF 99 in Prague