HTTP Signature Authentication Scheme

HTTPbis draft-ietf-httpbis-unprompted-auth-06

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What?

- Provide authenticated HTTP resources without telegraphing you are doing so
    - Client provides correct authentication without any additional flows or…
    - Server fails with generic error (“404”)
- Un-probe-ability

Hackathon Plan

- First Interoperability test!
  - draft-ietf-httpbis-unprompted-auth-06

- Two server implementations, one client
  - Will it blend?

Implementation Reference

★ Guardian Project Java implementation (client+server): https://gitlab.com/guardianproject/httpsignatureauthentation/-/tree/main/http-sigauth-java

- Supports HTTP 1 and 2

★ Guardian Project nginx impl (server): https://gitlab.com/guardianproject/httpsignatureauthentation/-/tree/main/ngx-http-sig-auth-module?ref_type=heads

- Supports HTTP 1, 2, and 3 (limited)

★ François Michel's Go impl (client+server): https://github.com/francoismichel/http-signature-auth-go

- Supports HTTP 1, 2, and 3
- Interops with Guardian's Client impl

David Schinazi's impl (client+server): https://github.com/google/quiche/

- Implemented inside Google's quiche library (a QUIC/HTTP3 implementation)
- Supports HTTP 3
- Interops with François's server (+ vice versa)

★ Tested at IETF119 hackathon

Known Public HTTP Sig. Auth. Servers

- https://sigauth.unready.im/ping
  By: Abel Luck / Guardian Project
  Impl: NGINX, C
  Supports: HTTP 1, 2, 3
  Notes: To add you own pub key
  https://sigauth.unready.im/keydb
- https://sigauth.unready.im:8191/ping
  By: Abel Luck / Guardian Project
  Impl: Jetty, Java
  Supports: HTTP 1, 2 (or 3 via reverse proxy)
  Notes: To add you own pub key
  https://sigauth.unready.im/keydb
- https://httpsignature.francoismichel.be/signature/insecure/draft-ietf-httpbis-unprompted-auth-05
  By: François Michel, Université catholique de Louvain
  Impl: Go
  Supports: HTTP 1, 2, 3
  Notes: Accepts any key-id as long as the signature verifies
- https://httpsignature.francoismichel.be/signature/secure/draft-ietf-httpbis-unprompted-auth-05
  By: François Michel, Université catholique de Louvain
  Impl: Go
  Supports: HTTP 1, 2, 3

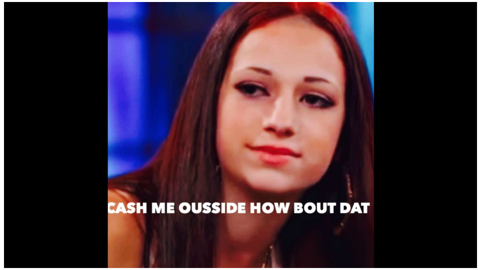
What got done

Server	Client	Success	Fail1	Fail2
GP (w RP)	GP	Y	Y	Y
GP (w/o RP)	GP	Y	Y	Y
FM (w/o RP) (any key)	GP	Y	Y	(Not tested)
FM (w/o RP) (any key)	Google	Y	Y	(Not tested)
Google (w/o RP)	FM	Y	Y	Y

Success - properly formatted request
Fail 1 - badly formatted (or empty) request
Fail 2 - bad credential

What we learned

- Lessons learned from this hackathon:
  - limited, initial test only
    - e.g., not enough failure cases tested
  - Some bothersome practicalities fitting this work into existing protocol stacks (client and server)
    - Cash me outside for much whining…



Wrap Up

Hackathon members:

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- David Oliver (on-site)
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- François Michel (remote)
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First timers @ IETF/Hackathon: Abel

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