



CREDIT: COURTESY OF DREAMWORKS ANIMATION

No, SHREQ is not an adorable ogre,
it is rather a *boring Web Security System*

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Problem Statement:

HTTP requests are used *Everywhere*

However, there is still no *Standard*
for digitally signing HTTP requests

“Rolling their own”

- FAPI (Financial API)
- Open Banking UK
- Open Banking France*
- Amazon.com
- Other?

* Or are using schemes have not reached standards status

SHREQ – Signed HTTP Requests

Signs all items forming an HTTP request:

- HTTP URI
- HTTP Method
- HTTP Body (if applicable)
- Optional: Additional HTTP Headers
- + Time Stamp

Other notable characteristics:

- JSON Oriented (for POST/PUT/PATCH)
- Signed Requests are Serializable
- Cryptography builds on JOSE/JWS

SHREQ uses JSON Canonicalization

```
{  
  "statement": "Hello Signed World!",  
  "otherStuff": [2e+3, true]  
}
```

"On the wire"



What the crypto sees



```
{"otherStuff":[2000,true],"statement":"Hello  
Signed World!"}
```

I-D: <https://tools.ietf.org/html/draft-rundgren-json-canonicalization-scheme-05>

Yeah, the mandatory sample...

```
POST /transact/pay HTTP/1.1
Host: example.com
Content-Type: application/json
Content-Length: 1234
```

```
{
  "payme": "100000000000.99",
  "currency": "USD",
  ".secinf": {
    "uri": "https://example.com/transact/pay",
    "mtd": "POST",
    "iat": 1551361123,
    "jws": "eyJhbGciOiJI..VHVItCBCb849imarDt"
  }
}
```

SHREQ is worth a shot in the IETF?

<https://github.com/cyberphone/ietf-signed-http-requests>

It's Alive...

POST using CURL:

```
curl -H content-type:application/json -d "{\"name\":\"Jane Smith\",\"profession\":  
\"hacker\", \".secinf\":{\"uri\":\"https://mobilepki.org/shreq/preconfreq\", \"iat\"  
:1552152336, \"jws\":\"eyJhbGciOiJIJFZlIHNiJ9..OfeBIeps4uzBdTksDLuTtYGR2Kip_1fNsx2AmI  
quRgqkcbo3SuZ7ea67YdHansxYCs0pAtMVP4f_Q_GMGubTyg\"}}\" https://mobilepki.org/shreq/  
preconfreq
```

GET using a Browser:

https://mobilepki.org/shreq/preconfreq/456?.jws=eyJhbGciOiJIJFZlIHNiJ9.eyJodHUiOiJqbFM2RzJiUk12LTZNaW9uZWUxOjUyNTU1NiJ9..OfeBIeps4uzBdTksDLuTtYGR2Kip_1fNsx2AmIquRgqkcbo3SuZ7ea67YdHansxYCs0pAtMVP4f_Q_GMGubTyg