OAuth and Claims

IETF 106

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Overview

- Draft: https://datatracker.ietf.org/doc/draft-spencer-oauth-claims/
- Lifts claims concept out of OpenID Connect (OIDC)
- Explains how to use in other, non-OIDC flows
- Stipulates claims I/O
- Adds extra examples not found in OIDC
- Defines clarifying terms
- Compatible with OIDC

Example

```
GET /authorize?
 client_id=s6BhdRkqt3&
 response_type=code&
 claims=%7B%0A%20%20%22access_token%22%20%3A%20%7B%20%0A
%20%20%20%20%22https%3A%2F%2Fexample.com%2Fclaim1%22%20%
3A
%20null%2C%0A%20%20%20%20%22fname%22%20%3A%20%7B%0A%20%2
0
%20%20%20%20%22value%22%20%3A%20%22John%22%0A%20%20%20%2
0 %7D%0A%20%20%7D%0A%7D
Host: server.example.com
```

Example

```
GET /authorize?
 client_id=s6BhdRkqt3&
 response_type=code&
 claims={
  "access_token" : {
    "https://example.com/claim1" :  null,
    "fname" : {
      "value" : "John" } } }
Host: server.example.com
```

Terms

- Claim, claim name, claim value from JWT
- Essential claims similar to OIDC except not tied to end user
- Others defined in draft
  - Critical claims are those required by client
  - Claims sink, claims request object, claims sink query object, etc.

Claims Sink

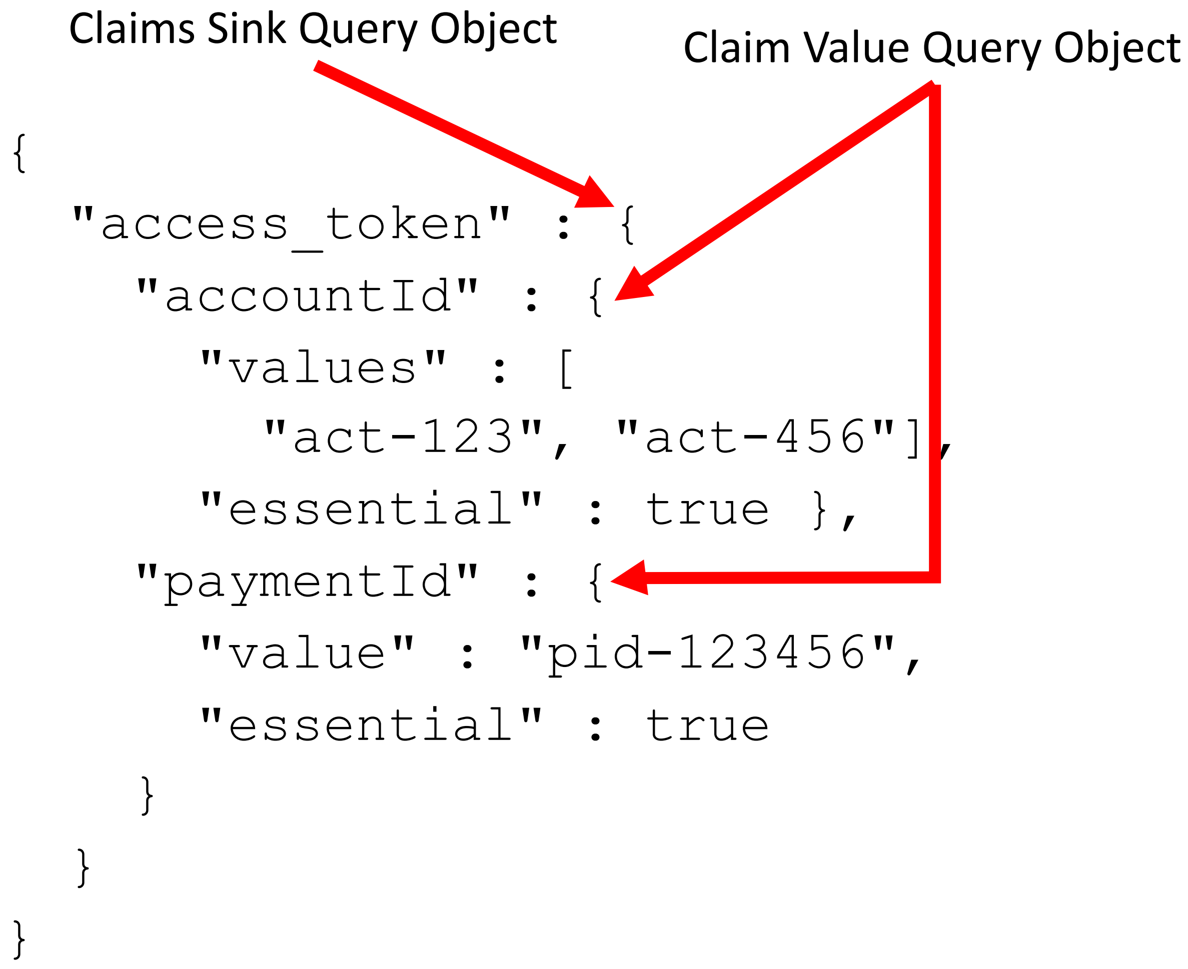
- Where client would like AS to put claims
- Examples
  - access_token
  - ?
  - *
  - id_token (in OIDC not draft)
  - userinfo (in OIDC not draft)

```
{
    "access_token" : {
    }
}
```

Claims Sink

Requesting Claims

- A query for certain claims
- Ask that claims be put in certain claims sink
- Can request a certain value or values
- Values specified in preferred order



Claims Sink Query Object

Claim Value Query Object

```
{
  "access_token" : {
    "accountId" : {
      "values" : [
        "act-123", "act-456"],
      "essential" : true },
    "paymentId" : {
      "value" : "pid-123456",
      "essential" : true
    }
  }
}
```

Essential Claims

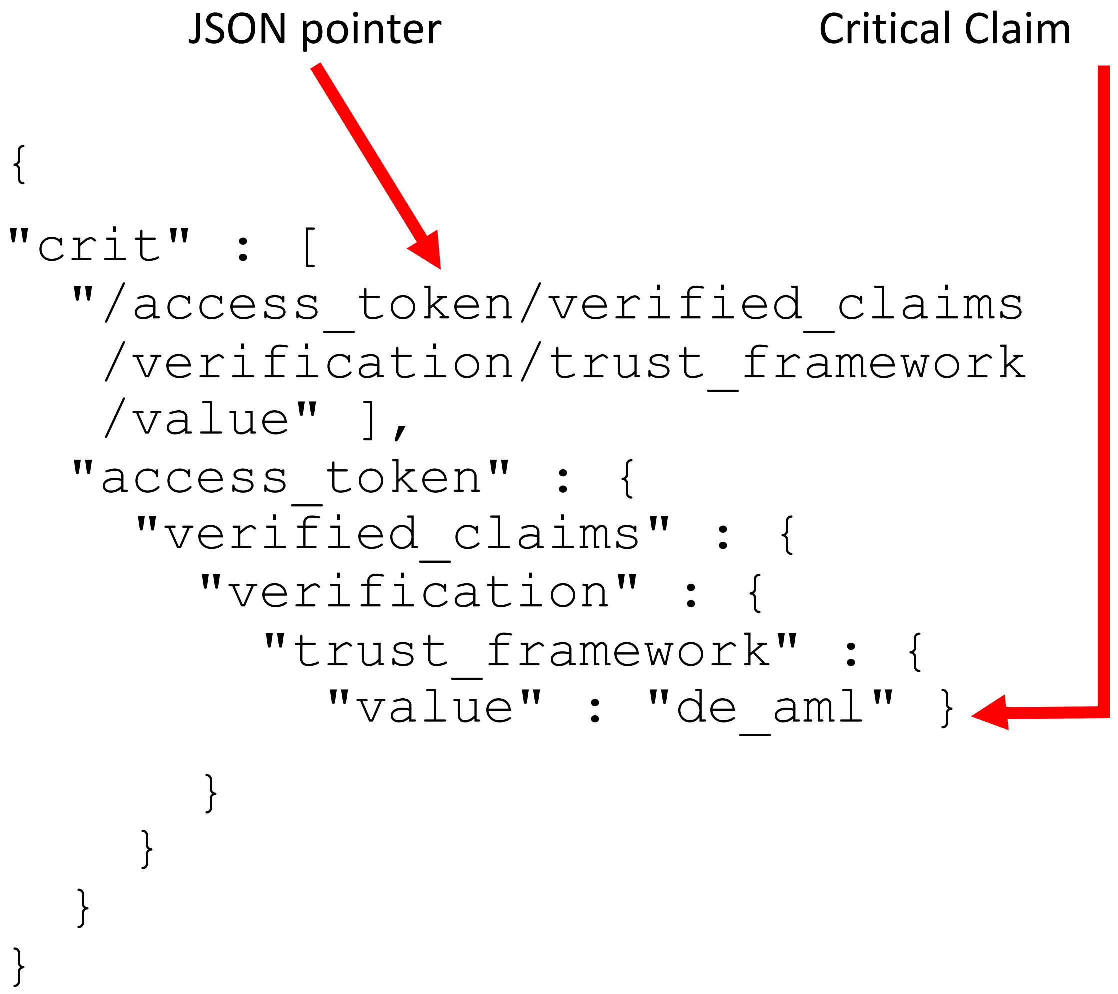
- Essential to smooth authorization of tasks requested by RO
  - Not required
  - Not dictating AS assert something
- AS must not generate an error if not available

Essential Claims

```
{
  "access_token" : {
    "accountId" : {
      "values" : [
        "act-123", "act-456"],
      "essential" : true },
    "paymentId" : {
      "value" : "pid-123456",
      "essential" : true
    }
  }
}
```

Critical Claims

- AS must return error if it doesn’t understand claims requested
- crit member of claims request obj:
  - Is a list of JSON pointers
  - Is like crit in JWT header
- JSON pointer defines how to escape slash in claim name



JSON pointer

Critical Claim

```
{
"crit" : [
 "/access_token/verified_claims
  /verification/trust_framework
  /value" ],
 "access_token" : {
  "verified_claims" : {
   "verification" : {
    "trust_framework" : {
     "value" : "de_aml" }

   }
  }
 }
}
```

Special Claims Sinks

- ? – Client doesn’t care where claims end up
- * – Client wants all claims in all supported claim sinks
- Resource indicator – Client wants claims for certain RS (TBD)

Flows

- Claims request/response profiled for following authorization flows:
  - Code
  - Implicit
  - ROPC
  - CC
- Token refresh
- Token introspection
- Token exchange (TBD)

Authorization Flows

- Code & Implicit
  - Request is like OIDC using claims request parameter
  - Response includes space-separated list of granted claim names
- ROPC and CC
  - Claims request parameter (as code & implicit) & like scope request parameter
  - Response includes space-separated list of granted claim names
- Error responses
  - Maintains compatibility with OIDC
  - Defines more informative optional errors

Refresh

- Can send claims request paramameter to down-scope AT
- Can be up-scoped again if it doesn't exceed original grant
- Difficulties to implement with regard to:
  1. Using scopes & claims together
  2. Policy changes at AS between time of grant and down-scope

  Both cases are out of scope and left to implementations or profiles

Token Introspection

- Response includes space-separated list of claim names that were authorized

Authorization Server Metadata

- claims_parameter_supported (same as OIDC)
- claims_supported (same as OIDC)
- critical_claims_supported
  - true / false (default) if critical claims are supported
  - Helpful when determining if AS/OP supports this draft

Open Questions

- Drop essential and leave that to OIDC?
- Restructure to avoid redundancy?
- How to integration with resource indicators?
- Inputs and suggestions on use with token exchange?

Next Version of Draft

- Finish writing:
  - Token exchange subsections
  - Resource indicator tie in
  - Privacy considerations
  - Security considerations
  - IANA considerations
- Add section about registration metadata, so client can register certain claims

Full Disclosure

- Curity support all of this in our product
    - Most is required by OIDC
    - Other aspects help make claim useful in practice
- We have no patents on any of these things

Request of WG

- Ask that WG adopt this draft as a work item