OAuth 2.0 Incremental Auth

OAuth Interim Meeting 2020-05-04

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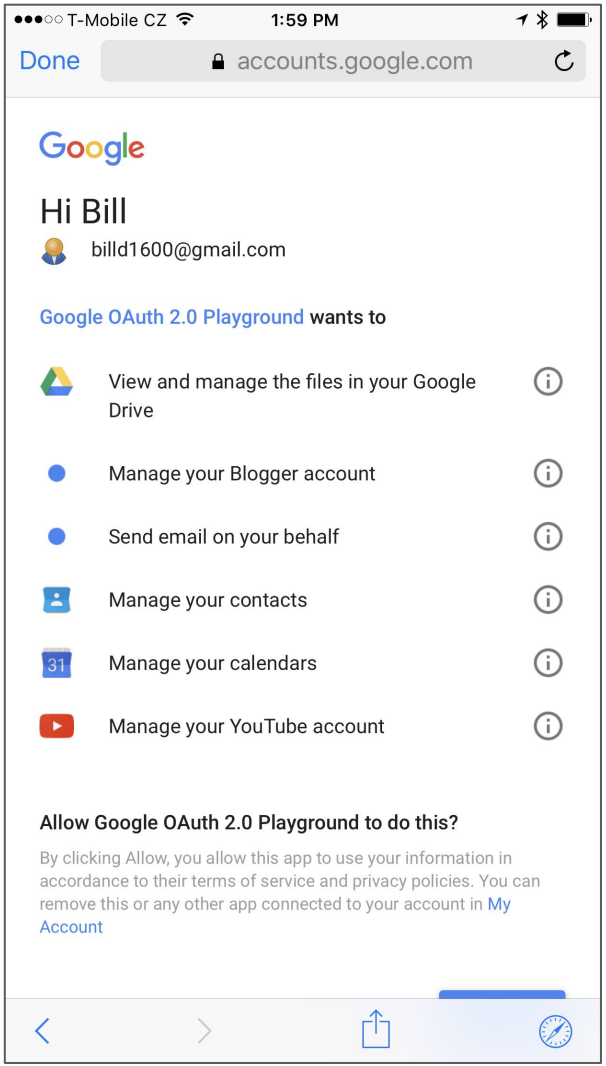
Recap: Incremental Auth Problem Statement

Asking for the kitchen sink of scopes up-front is a bad thing.

Users should have the *context* of the authorization request.

E.g. Granting a calendar scope only makes sense in the context of interacting with a calendar-related feature.

https://tools.ietf.org/html/draft-ietf-oauth-incremental-authz-03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accounts.google.com
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Hi Bill
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Google OAuth 2.0 Playground wants to
View and manage the files in your Google Drive
Manage your Blogger account
Send email on your behalf
Manage your contacts
Manage your calendars
Manage your YouTube account
Allow Google OAuth 2.0 Playground to do this?
By clicking Allow, you allow this app to use your information in accordance to their terms of service and privacy policies. You can remove this or any other app connected to your account in My Account

Incremental Auth Definition

The ability to request additional scopes in subsequent requests adding to a single authorization grant representing all scopes granted so far.

Implies that the access and refresh token carry the union of all granted scopes.

Confidential Client Protocol

Auth 2.0 doesn’t stop you returning an authorization grant with *more* scope, so many people have implemented this already for confidential clients. This spec documents best practices, security considerations, and new authorization endpoint parameter `include_granted_scopes`.

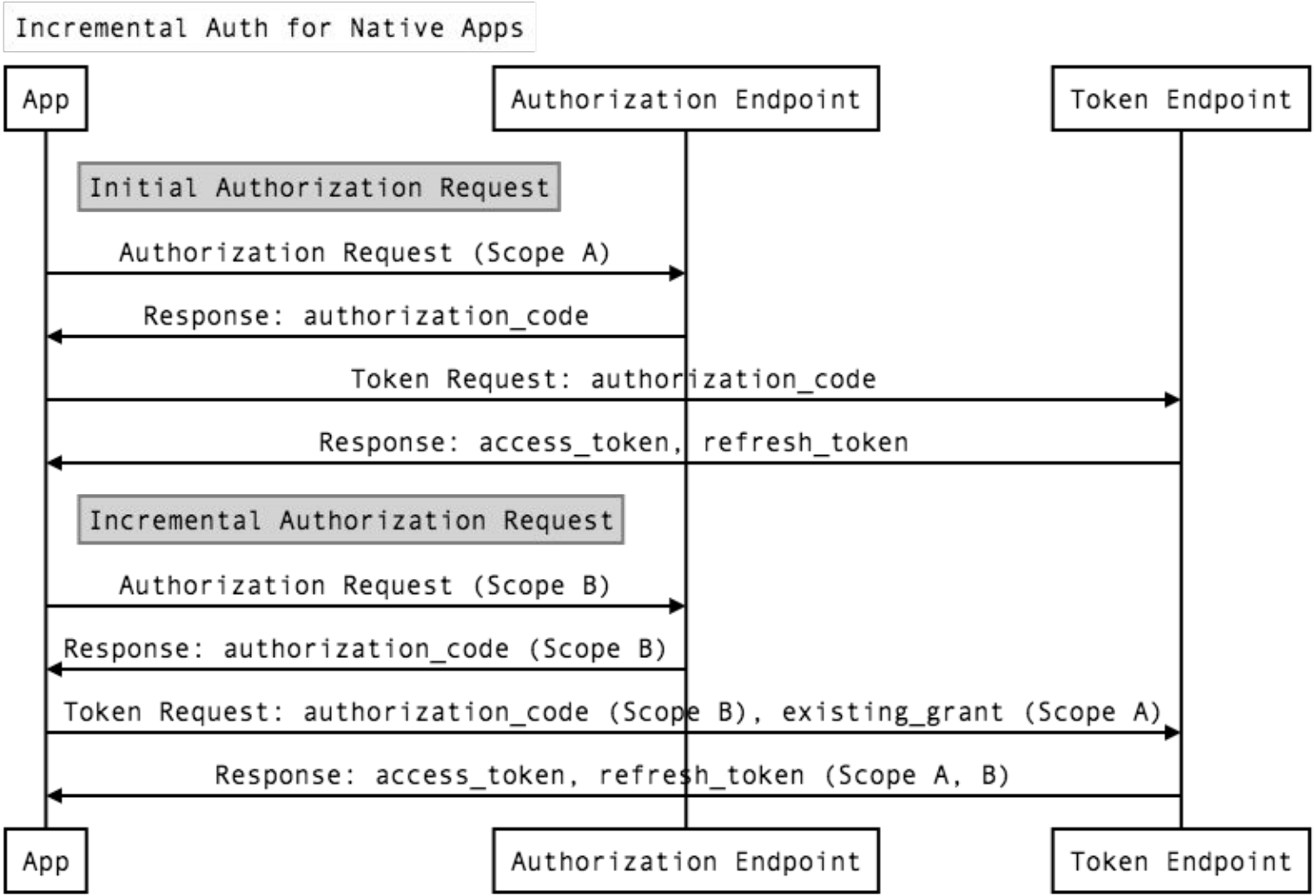
https://tools.ietf.org/html/draft-ietf-oauth-incremental-authz-03

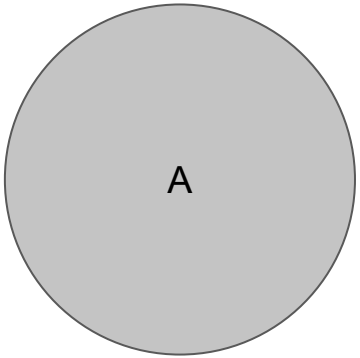
Public Client Protocol

New token endpoint param: `existing_grant`.

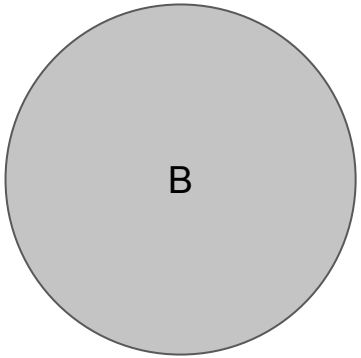
When exchanging the authorization code from subsequent (i.e. incremental) requests, pass the previous refresh token in `existing_grant`.

Resulting access and refresh tokens will contain a union of the scope.

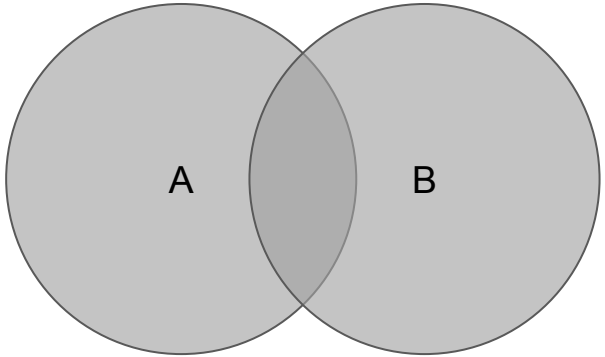

Incremental Auth for Native Apps
App
Authorization Endpoint
Token Endpoint
Initial Authorization Request
Authorization Request (Scope A)
Response: authorization_code
Token Request: authorization_code
Response: access_token, refresh_token
Incremental Authorization Request
Authorization Request (Scope B)
Response: authorization_code (Scope B)
Token Request: authorization_code (Scope B), existing_grant (Scope A)
Response: access_token, refresh_token (Scope A, B)
App
Authorization Endpoint
Token Endpoint



Grant A



Grant B



Combined Grant A ∪ B

Updates since last review

Clarified RFC8414 metadata field

“scope” response param behavior documented

New error code defined “`overbroad_scope`”, authorization server can use this error if rejecting an overly broad authz request.

Documented recommended client behavior if the user reduces scope

Example APIs (from AppAuth)

```
// builds authentication request
NSArray* scope = @[ @"https://www.googleapis.com/auth/calendar" ];
OIDAuthorizationRequest *incrementalAuthorizationRequest =
    [_authState incrementalAuthorizationRequestWithScopes:scope];

// performs authentication request
appDelegate.currentAuthorizationFlow =
    [_authState presentIncrementalAuthorizationRequest:incrementalAuthorizationRequest
                                presentingViewController:self
    callback:^(BOOL success, NSError * _Nullable error) {
      // your code here
}];
```

OAuth 2.0 Incremental Auth Running Code

Google’s OAuth server already supports this spec!

Example application:
https://github.com/WilliamDenniss/AppAuth-iOS_IncrementalAuthDemo

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Discussion