

Building an Unofficial Client for XDA Developers

Aayush Gupta

About Me

- Independent Contractor
- Android Developer @ The Calyx Institute, working on CalyxOS
- Senior Staff Member, DevRel @ XDA Developers (Forums)
- FOSS Developer & Contributor



**EDUCATIONAL PURPOSES
ONLY!**

Agenda

- API
- Authentication
- Notifications
- Closing

Why?

- Not happy with WebView app after migration to Xenforo
- Later official app died and was removed from Play Store
- Want to learn Compose



API

API

- New API wasn't made public after migration
- Thanks to Audentio, we know XDA uses Xenforo which has a public REST API documentation
- However, XDA also uses custom API endpoints

API

- Used HTTP Toolkit for analysing network calls to figure out required information related to API



HTTP Toolkit					
Method	Status	Source	Host	Path and query	
GET	🚫	🤖	d1wp6m56sqw74a.clo...	/~assets/8fb0cde40673f01846de8674f79782...	
GET	200	🤖🚫	android.http toolkit.tech	/config	
GET	200	🤖	d1wp6m56sqw74a.clo...	/~assets/15dcb36a1303639c6e8cf2e0f87ccdb6	
GET	200	🤖	xdaforums.com	/api/me	
GET	200	🤖	xdaforums.com	/api/me	
POST	🚫	🤖	sentry.audent.io	/api/27/envelope/?sentry_key=3196935bbbdd...	
GET	200	🤖	xdaforums.com	/api/threads?page=1	
GET	200	🤖	xdaforums.com	/api/alerts?page=1&unread=true	
GET	200	🤖	xdaforums.com	/api/conversations?audapp_sort_unread=1	
GET	200	🤖	xdaforums.com	/api/threads/audapp-watched?page=1	
GET	200	🤖	xdaforums.com	/api/threads/audapp-watched?page=1	
GET	200	🤖	xdaforums.com	/data/avatars/l/6042/6042178.jpg?1696564686	
POST	200	🤖	xdaforums.com	/api/audapp-push-subscriptions	
GET	200	🤖	xdaforums.com	/data/avatars/l/5678/5678465.jpg?1616190090	
GET	200	🤖	xdaforums.com	/data/avatars/l/710/710782.jpg?1600603013	
GET	200	🤖	xdaforums.com	/data/avatars/l/278/278202.jpg?1608388307	
GET	200	🤖	xdaforums.com	/data/avatars/l/2154/2154611.jpg?1600603142	
GET	200	🤖	xdaforums.com	/api/threads/3739733?page=1	
GET	200	🤖	xdaforums.com	/api/threads/3739733/audapp-first-unread-po...	
GET	200	🤖	xdaforums.com	/api/threads/4623759?page=1	
GET	200	🤖	xdaforums.com	/api/threads/4623759/audapp-first-unread-po...	
GET	200	🤖	xdaforums.com	/api/threads/2295857?page=1	
GET	200	🤖	xdaforums.com	/api/threads/2295857/audapp-first-unread-po...	
GET	200	🤖	xdaforums.com	/api/threads/3566074?page=1	
GET	200	🤖	xdaforums.com	/api/threads/3566074/audapp-first-unread-po...	

HTTP/1.1

GET

REQUEST

⬆

METHOD: GET

+

URL

+ https://xdaforums.com/api/me

HEADERS

+ Accept-Encoding: gzip

+ authorization: Bearer

Auth Token

+ Connection: Keep-Alive

+ Cookie: xf_csrf=lPeC9a8mu1vteQIo

+ Host: xdaforums.com

+ If-Modified-Since: Tue, 23 Jul 2024 09:08:51 GMT

+ user-agent: Dalvik/2.1.0 (Linux; U; Android 14; Pixel 6a Build/AP2A.240605.024) AudCommunityApp/android/0.15.41/light

200

RESPONSE

⬆

STATUS: 200 OK

+

HEADERS

+ Cache-Control: private, no-cache, max-age=0

+ Connection: keep-alive

HT
TP

Intercept



View



Mock



Send



Settings

Method	Status	Source	Host	Path and query
GET			d1wp6m56sqw74a.clo...	/~assets/8fb0cde40673f01846de8674f79782...
GET	200		android.http toolkit.tech	/config
GET	200		d1wp6m56sqw74a.clo...	/~assets/15dcb36a1303639c6e8cf2e0f87ccdb6
GET	200		xdaforums.com	/api/me
GET	200		xdaforums.com	/api/me
POST			sentry.audent.io	/api/27/envelope/?sentry_key=3196935bbbdd...
GET	200		xdaforums.com	/api/threads?page=1
GET	200		xdaforums.com	/api/alerts?page=1&unread=true
GET	200		xdaforums.com	/api/conversations?audapp_sort_unread=1
GET	200		xdaforums.com	/api/threads/audapp-watched?page=1
GET	200		xdaforums.com	/api/threads/audapp-watched?page=1
GET	200		xdaforums.com	/data/avatars/l/6042/6042178.jpg?1696564686
POST	200		xdaforums.com	/api/audapp-push-subscriptions
GET	200		xdaforums.com	/data/avatars/l/5678/5678465.jpg?1616190090
GET	200		xdaforums.com	/data/avatars/l/710/710782.jpg?1600603013
GET	200		xdaforums.com	/data/avatars/l/278/278202.jpg?1608388307
GET	200		xdaforums.com	/data/avatars/l/2154/2154611.jpg?1600603142
GET	200		xdaforums.com	/api/threads/3739733?page=1
GET	200		xdaforums.com	/api/threads/3739733/audapp-first-unread-po...
GET	200		xdaforums.com	/api/threads/4623759?page=1
GET	200		xdaforums.com	/api/threads/4623759/audapp-first-unread-po...
GET	200		xdaforums.com	/api/threads/2295857?page=1
GET	200		xdaforums.com	/api/threads/2295857/audapp-first-unread-po...
GET	200		xdaforums.com	/api/threads/3566074?page=1
GET	200		xdaforums.com	/api/threads/3566074/audapp-first-unread-po...

Extras: 0}
XF-Used-API-
Version: 1



43.4 kB

JSON

RESPONSE BODY

```
1 {  
2   "me": {  
3     "__typename": "Viewer",  
4     "id": 6042178,  
5     "username": "theimpulson",  
6     "name": "theimpulson",  
7     "message_count": 1897,  
8     "reaction_score": 5826,  
9     "trophy_points": 22851,  
10    "email": "aayushgupta219@gmail.com",  
11    "timezone": "Asia/Kolkata",  
12    "style_id": 3,  
13    "language_id": 1,  
14    "conversations_unread": 0,  
15    "alerts_unread": 0,  
16    "alerts_unviewed": 0,  
17    "isAdmin": false,  
18    "isModerator": true,  
19    "created_at": {  
20      "atomic": "2014-09-22T08:29:00+05:30",  
21      "formatted": "Sep 22, 2014 at 2:59 AM",  
22      "__typename": "Timestamp"  
23    },  
24  }
```

933ms

PERFORMANCE



```
interface XDAInterface {  
  
    companion object {  
        const val BASE_URL = "https://xdaforums.com/api/"  
    }  
  
    @GET("me/")  
    suspend fun getCurrentUser(): Response<Me>  
  
    @GET("audapp-alerts/")  
    suspend fun getAlerts(  
        @Query("page") page: Int? = null,  
        @Query("cutoff") cutoff: Int? = null,  
        @Query("unviewed") unviewed: Boolean? = null,  
        @Query("unread") unread: Boolean? = null  
    ): Response<Alerts>  
}
```


Authentication

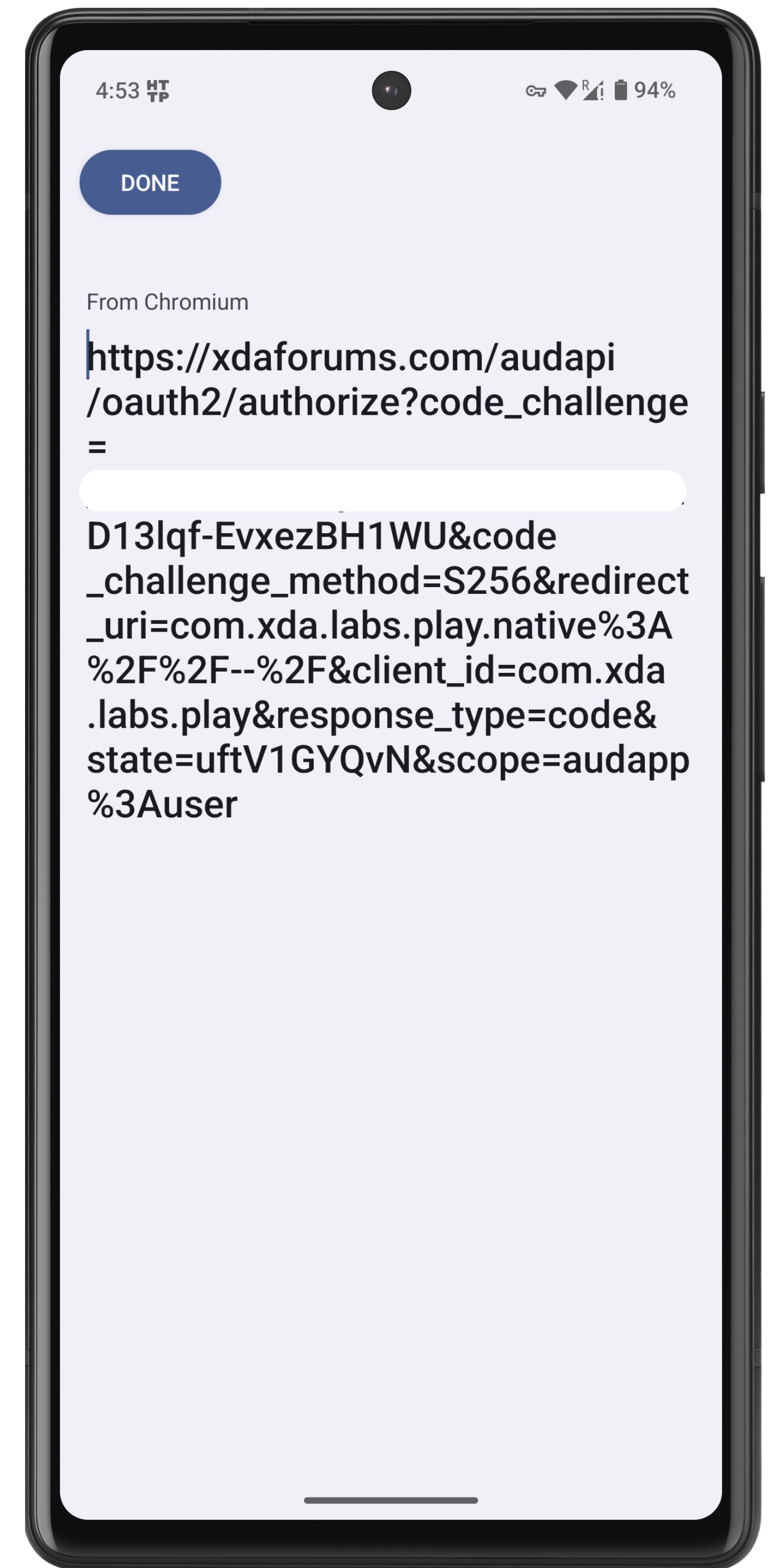
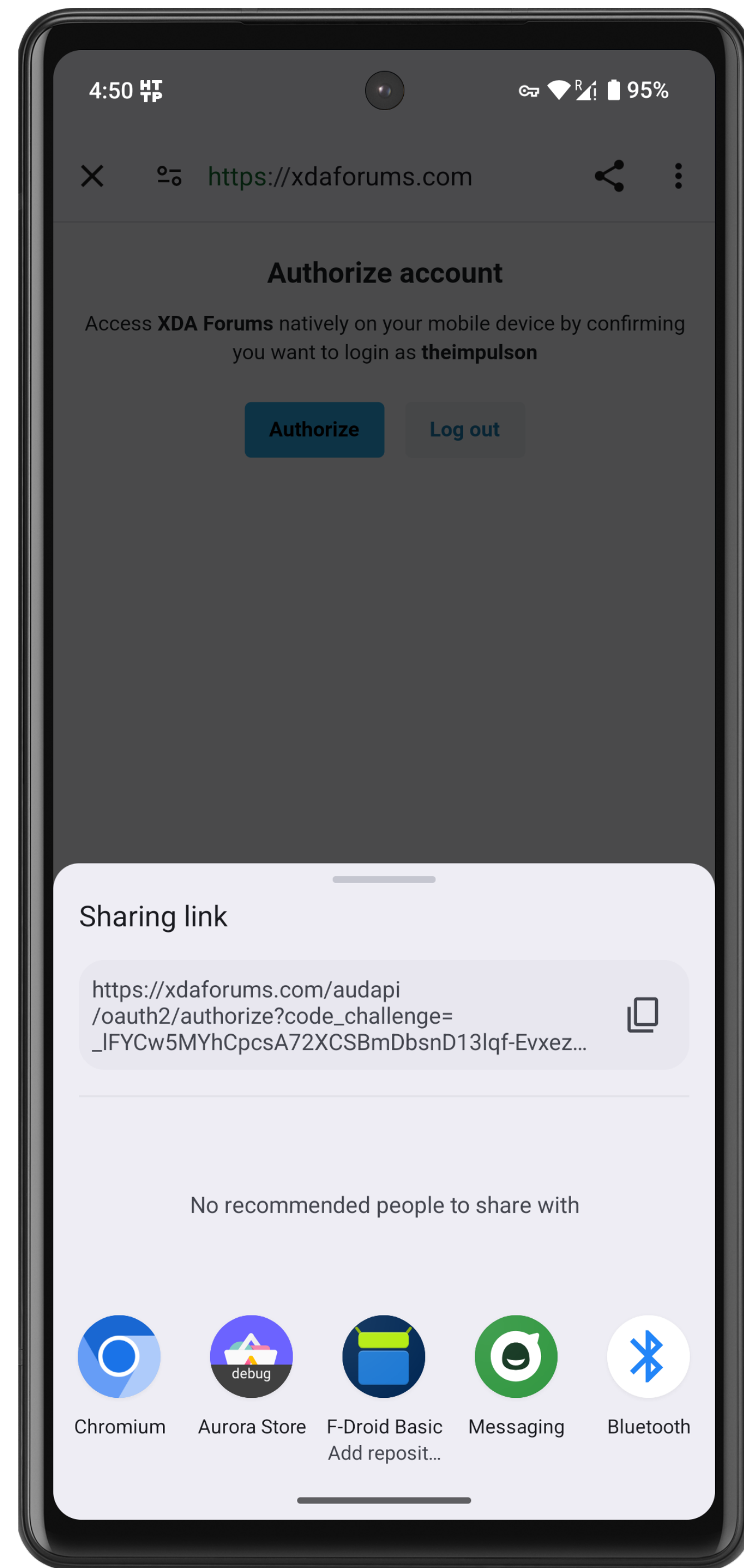
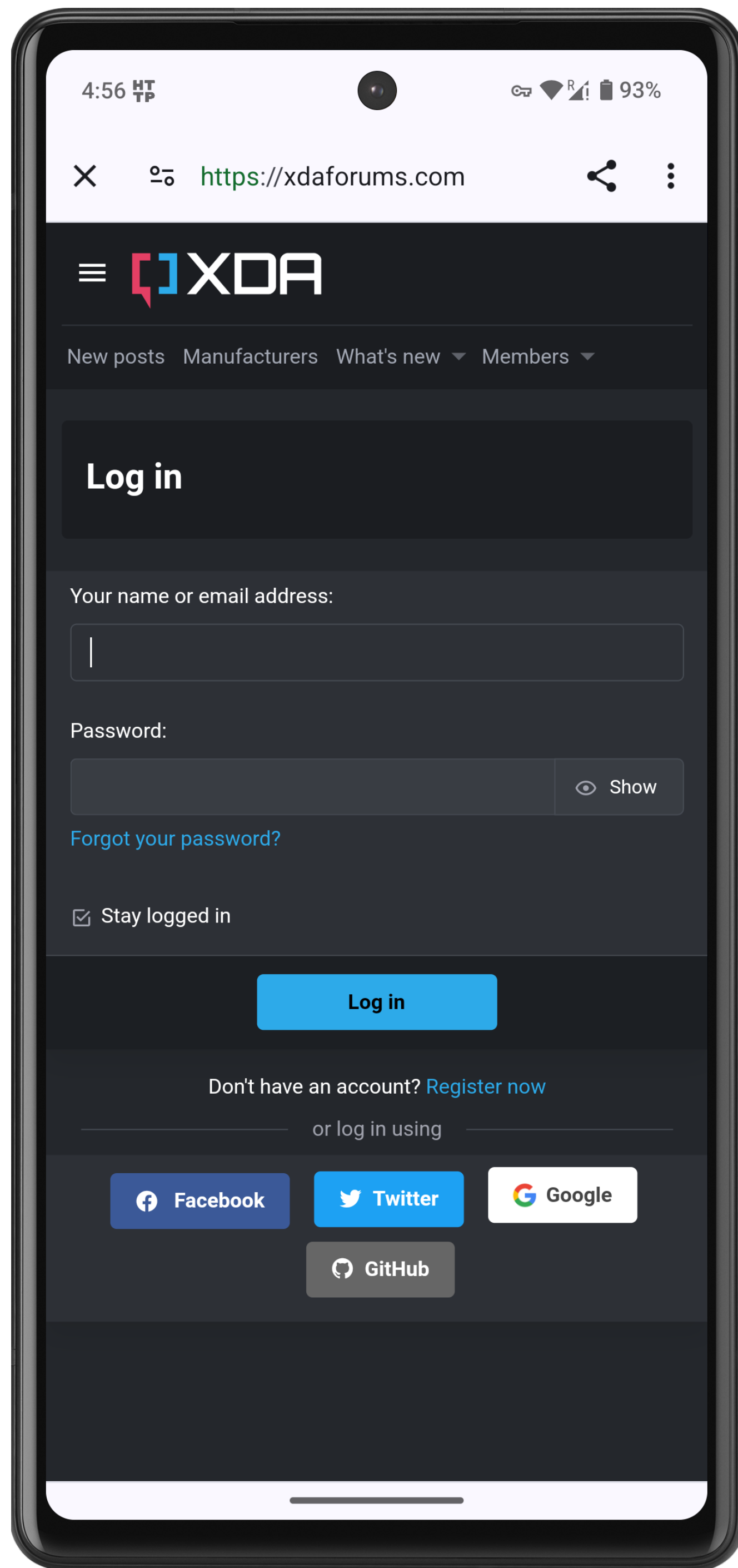
Authentication

- Post-migration XDA switched to OAuth2 for logins
- App has to be registered on the server side to be able to allow logins
- Extracted required URL & parameters from the official app
- Requires to uninstall official app (due to app link verification)

Authentication

- Used AppAuth-Android library from openid for OAuth2 logins
- Easy to use and well documented for beginners
- Seems unmaintained now





```
companion object {
    // Taken from official XDA app for oauth2 login
    private const val AUTHORIZATION_URL = "https://xdaforums.com/audapi/oauth2/authorize"
    private const val TOKEN_URL = "https://xdaforums.com/api/audapi-oauth2/token"
    private const val CLIENT_ID = "com.xda.labs.play"
    private const val REDIRECT_URI = "com.xda.labs.play.native://--/"
    private const val SCOPE = "audapp:user"
}

val authorizationService = AuthorizationService(context)
private val authorizationServiceConfiguration = AuthorizationServiceConfiguration(
    Uri.parse(AUTHORIZATION_URL),
    Uri.parse(TOKEN_URL)
)

val authState = AuthState(authorizationServiceConfiguration)
val accessToken = sharedPreferences.getString(ACCESS_TOKEN, "")

fun getAuthReqIntent(): Intent {
    val authRequestBuilder = AuthorizationRequest.Builder(
        authorizationServiceConfiguration,
        CLIENT_ID,
        ResponseTypeValues.CODE,
        Uri.parse(REDIRECT_URI)
    )

    authRequestBuilder.setScope(SCOPE)
    return authorizationService.getAuthorizationRequestIntent(authRequestBuilder.build())
}
```

```
val startActivityResult = rememberLauncherForActivityResult(
    contract = ActivityResultContracts.StartActivityResult(),
    onResult = {
        try {
            val response = AuthorizationResponse.fromIntent(it.data!!)
            val exception = AuthorizationException.fromIntent(it.data!!)
            viewModel.authState.update(response, exception)

            viewModel.authorizationService.performTokenRequest(
                response!!.createTokenExchangeRequest()
            ) { res, ex ->
                Log.i(TAG, "Logged in!")

                // Save AccessToken
                viewModel.authState.update(res, ex)
                viewModel.saveAccessToken()
            }
        } catch (exception: Exception) {
            Log.e(TAG, "Failed to log in", exception)
        }
    }
)
```


Notifications

Notifications

- XDA uses Expo (expo.dev) for push notifications
- Expo (on server side) forwards the notifications to the app using Firebase
- Expo's library is react-native only (calls official firebase library under the hood)

Notifications

- Extracted firebase configuration from official app using apktool
- Used Retrofit library to call Expo API with official Firebase library to register for push notifications




```
import java.util.UUID

data class ExpoData(
    val deviceToken: String, // The FCM token to identify the device
    val deviceId: String = UUID.randomUUID().toString(),
    val development: Boolean = false,
    val appId: String = "com.xda.labs.play",
    val projectId: String = "firebase-ID-of-the-project",
    val type: String = "fcm",
)

suspend fun registerPushNotifications(expoData: ExpoData): Boolean? {
    // Get token from Expo and register that on XDA
    val expoPushToken =
        safeExecute { expoInterface.getExpoPushToken(expoData) }?.data?.expoPushToken

    return if (!expoPushToken.isNullOrBlank()) {
        val body = MultipartBody.Builder(UUID.randomUUID().toString())
            .setType(MultipartBody.FORM)
            .addFormDataPart("token", expoPushToken)
            .build()
        safeExecute { xdaInterface.postExpoPushToken(body) }?.success
    } else {
        false
    }
}
```

Closing

Closing

- [XDA Staff Members](#) for testing, translations and help with development
- [dr.ketan](#) for modded official app
- XDA Community for everything

Thank You!

