

# **Building an Unofficial Client for XDA Developers**

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# 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



**HT  
TP**

Intercept



View



Mock



Send



Settings

Method	Status	Source	Host	Path and query
GET	0	Android	d1wp6m56sqw74a.clo...	/~assets/8fb0cde40673f01846de8674f79782...
GET	200	Android	android.httptoolkit.tech	/config
GET	200	Android	d1wp6m56sqw74a.clo...	/~assets/15dcb36a1303639c6e8cf2e0f87ccdb6
GET	200	Android	xdaforums.com	/api/me
GET	200	Android	xdaforums.com	/api/me
POST	0	Android	sentry.audent.io	/api/27/envelope/?sentry_key=3196935bbbdd...
GET	200	Android	xdaforums.com	/api/threads?page=1
GET	200	Android	xdaforums.com	/api/alerts?page=1&unread=true
GET	200	Android	xdaforums.com	/api/conversations?audapp_sort_unread=1
GET	200	Android	xdaforums.com	/api/threads/audapp-watched?page=1
GET	200	Android	xdaforums.com	/api/threads/audapp-watched?page=1
GET	200	Android	xdaforums.com	/data/avatars/l/6042/6042178.jpg?1696564686
POST	200	Android	xdaforums.com	/api/audapp-push-subscriptions
GET	200	Android	xdaforums.com	/data/avatars/l/5678/5678465.jpg?1616190090
GET	200	Android	xdaforums.com	/data/avatars/l/710/710782.jpg?1600603013
GET	200	Android	xdaforums.com	/data/avatars/l/278/278202.jpg?1608388307
GET	200	Android	xdaforums.com	/data/avatars/l/2154/2154611.jpg?1600603142
GET	200	Android	xdaforums.com	/api/threads/3739733?page=1
GET	200	Android	xdaforums.com	/api/threads/3739733/audapp-first-unread-po...
GET	200	Android	xdaforums.com	/api/threads/4623759?page=1
GET	200	Android	xdaforums.com	/api/threads/4623759/audapp-first-unread-po...
GET	200	Android	xdaforums.com	/api/threads/2295857?page=1
GET	200	Android	xdaforums.com	/api/threads/2295857/audapp-first-unread-po...
GET	200	Android	xdaforums.com	/api/threads/3566074?page=1
GET	200	Android	xdaforums.com	/api/threads/3566074/audapp-first-unread-po...

Android 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

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View

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Settings

Method	Status	Source	Host	Path and query
GET	200	Android	d1wp6m56sqw74a.clo...	/~assets/8fb0cde40673f01846de8674f79782...
GET	200	Android	android.httptoolkit.tech	/config
GET	200	Android	d1wp6m56sqw74a.clo...	/~assets/15dcb36a1303639c6e8cf2e0f87ccdb6...
GET	200	Android	xdaforums.com	/api/me
GET	200	Android	xdaforums.com	/api/me
POST	200	Android	sentry.audent.io	/api/27/envelope/?sentry_key=3196935bbbdd...
GET	200	Android	xdaforums.com	/api/threads?page=1
GET	200	Android	xdaforums.com	/api/alerts?page=1&unread=true
GET	200	Android	xdaforums.com	/api/conversations?audapp_sort_unread=1
GET	200	Android	xdaforums.com	/api/threads/audapp-watched?page=1
GET	200	Android	xdaforums.com	/api/threads/audapp-watched?page=1
GET	200	Android	xdaforums.com	/data/avatars/l/6042/6042178.jpg?1696564686
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GET	200	Android	xdaforums.com	/api/threads/3739733/audapp-first-unread-po...
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GET	200	Android	xdaforums.com	/api/threads/2295857?page=1
GET	200	Android	xdaforums.com	/api/threads/2295857/audapp-first-unread-po...
GET	200	Android	xdaforums.com	/api/threads/3566074?page=1
GET	200	Android	xdaforums.com	/api/threads/3566074/audapp-first-unread-po...

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

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 ▾

LOG MAP CHAT EXPORT



```
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

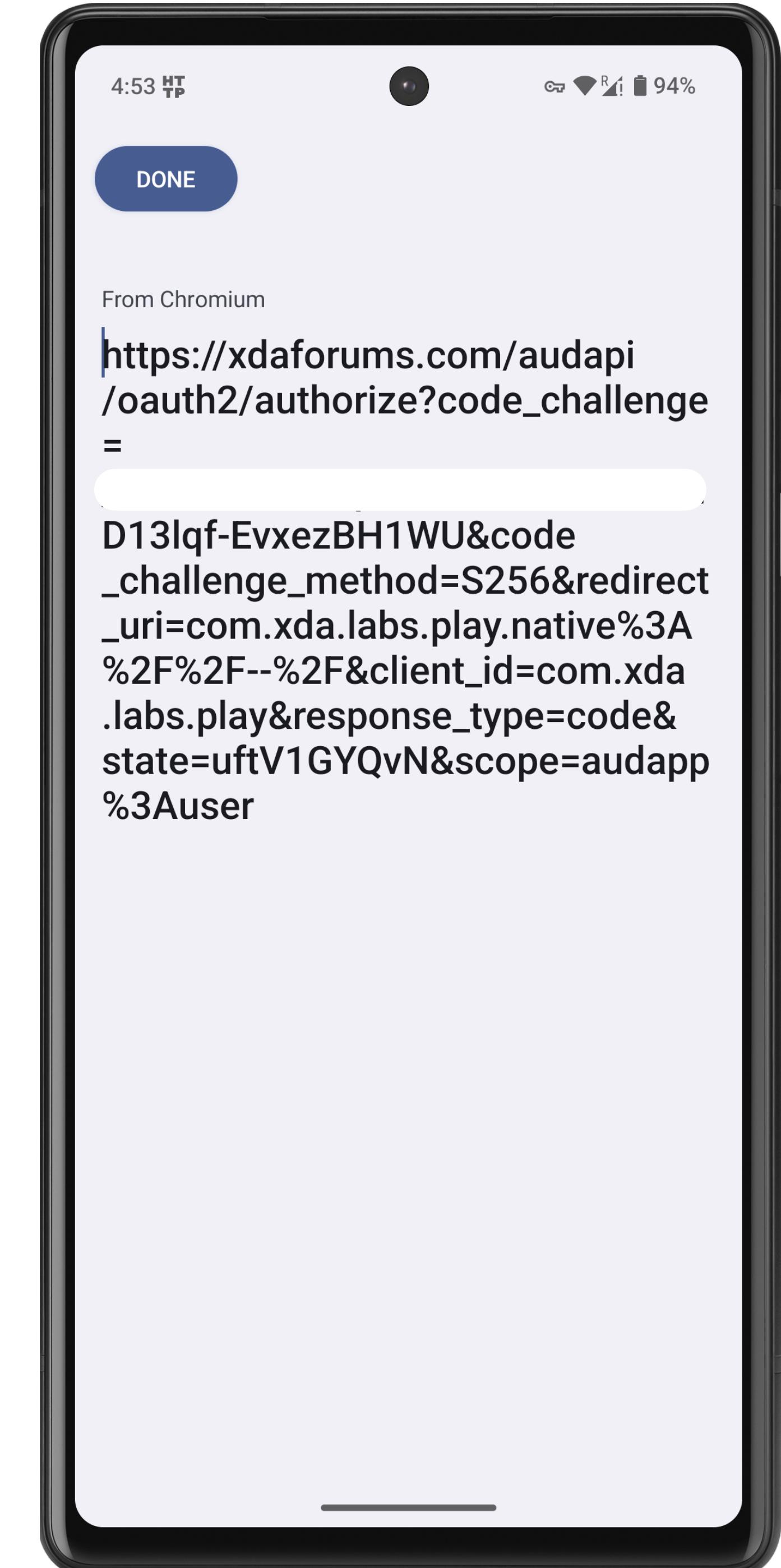
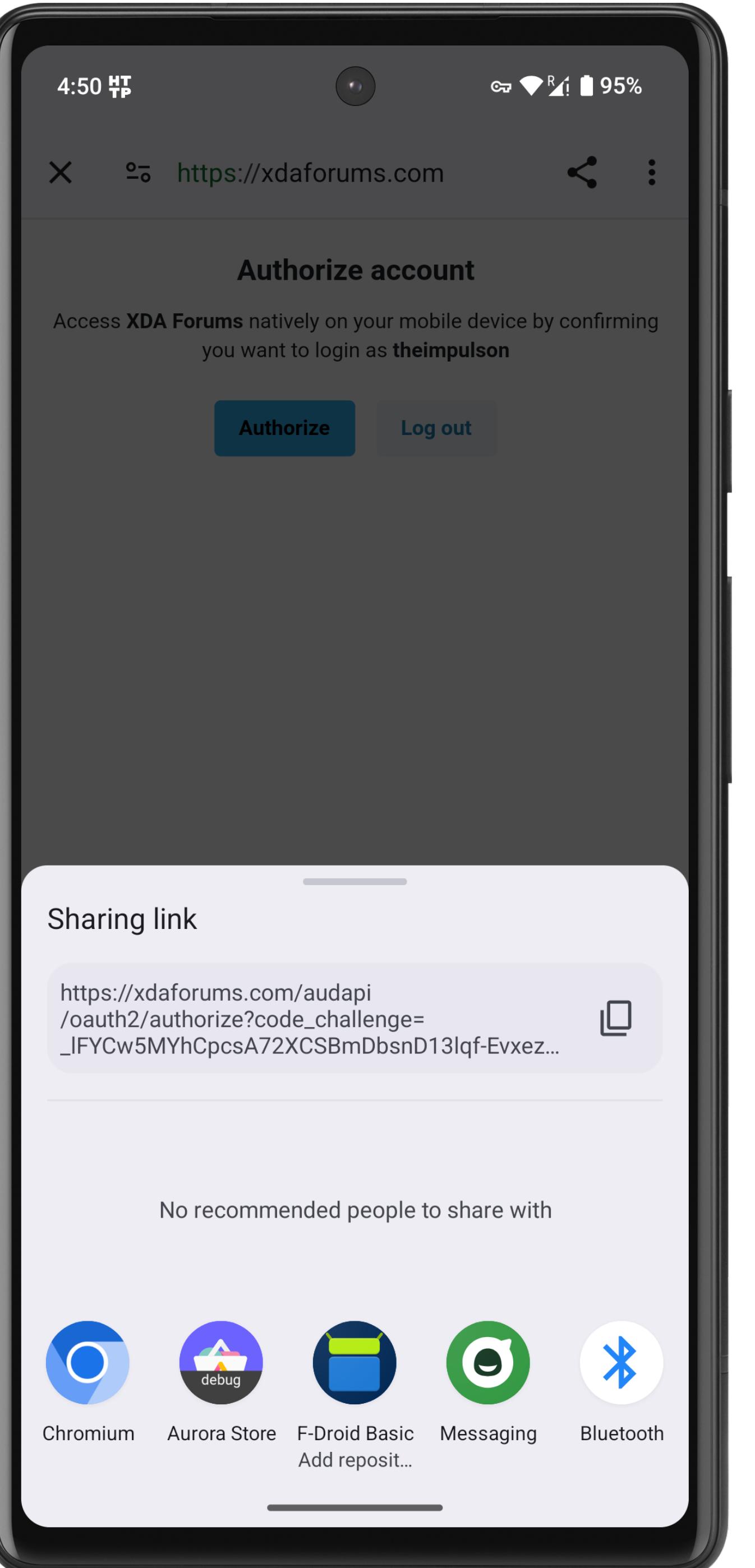
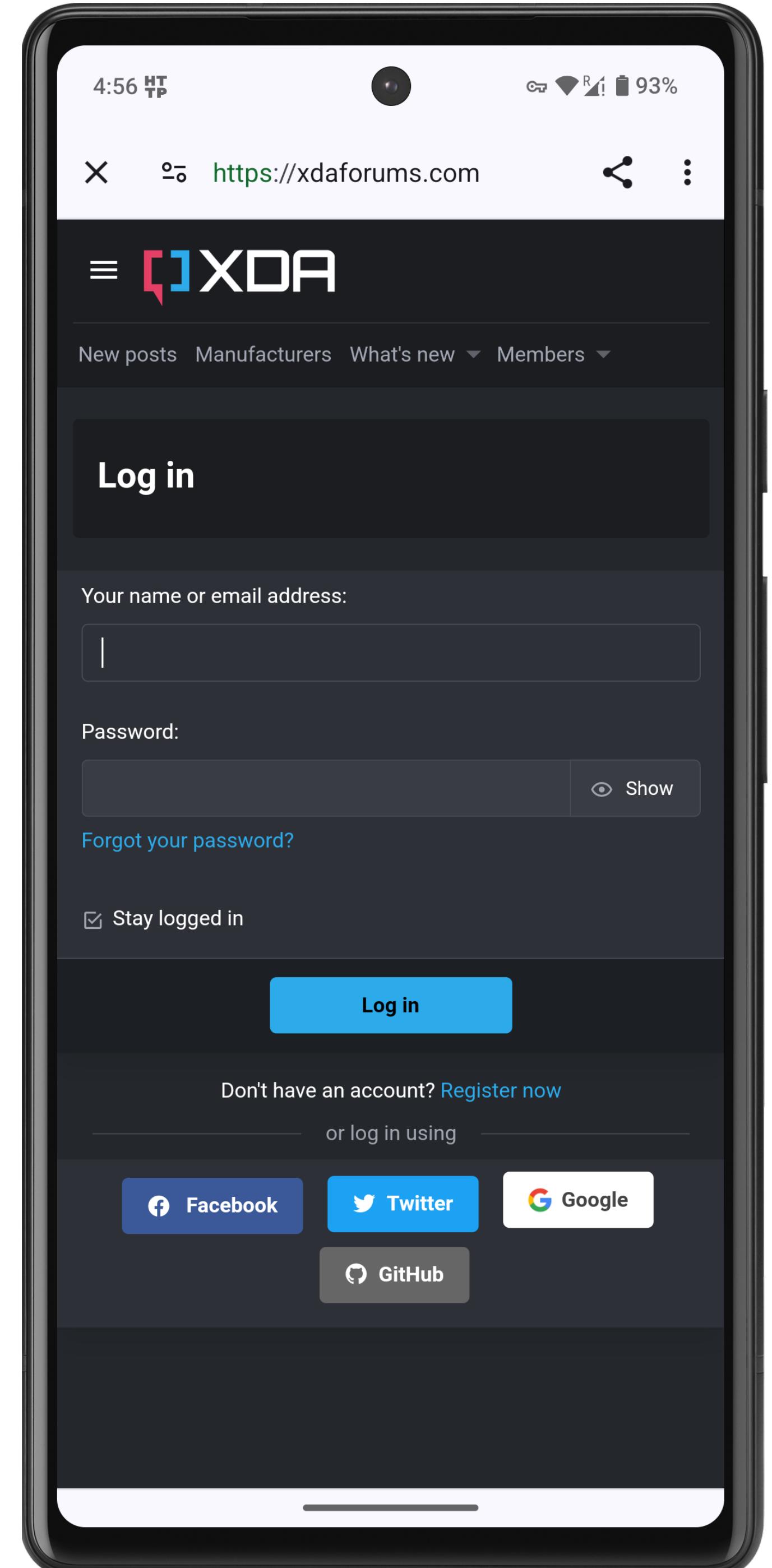
# Authentication

- 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 startActivityForResult = rememberLauncherForActivityResult(  
    contract = ActivityResultContracts.StartActivityForResult(),  
    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](https://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.isNullOrEmpty()) {
        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!

