

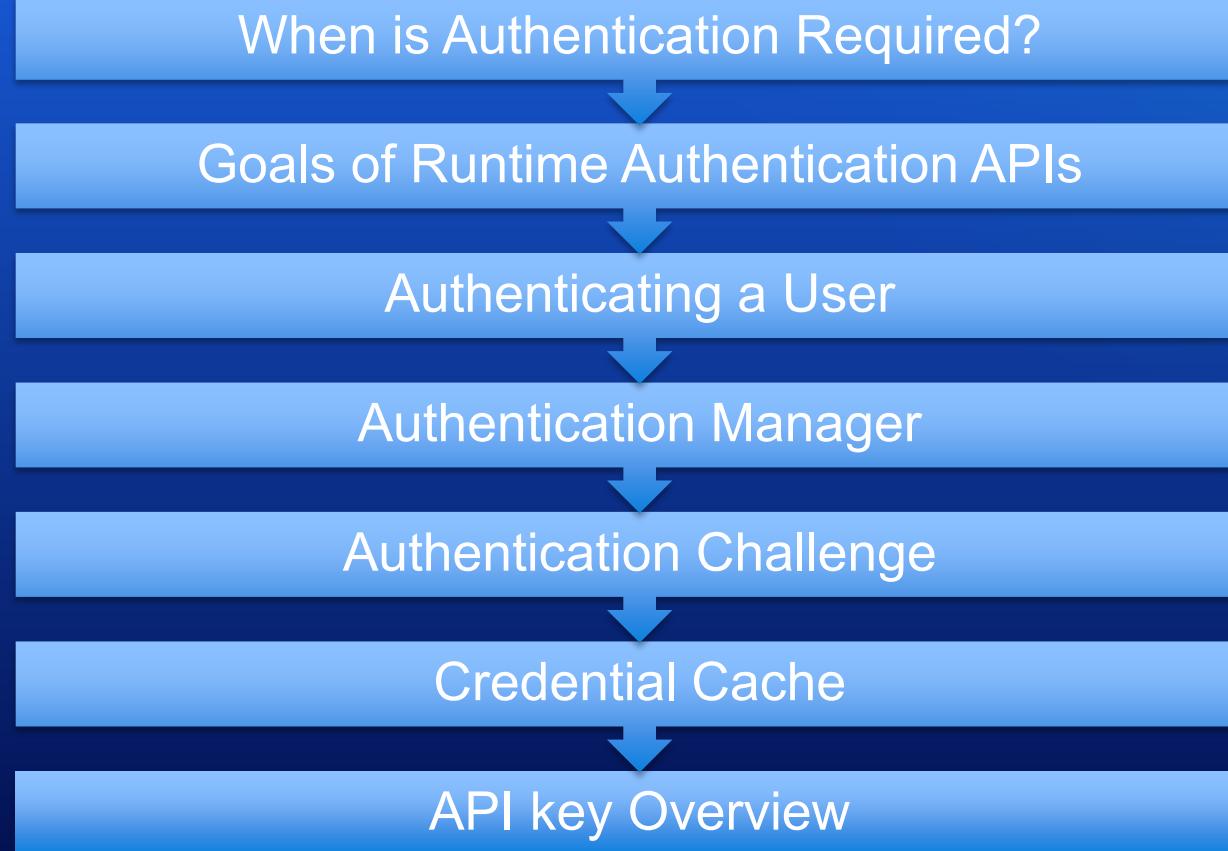


ArcGIS Runtime: Authenticating Your Apps with the ArcGIS System

Nimesh Jarecha, Koushik Hajra, Xueming Wu

*2021 ESRI
DEVELOPER SUMMIT*

Purpose



When is Authentication Required?

What is Authentication?

When is Authentication Required?

Authentication Methods

Access a user's
secured/private resource

Add or update a user's data
to server

Access ArcGIS Platform
services

OAuth 2.0

ArcGIS Token

Client Certificate or Public
Key Infrastructure (PKI)

HTTP (Integrated Windows
Authentication (IWA), Basic,
Digest)

Goals of Runtime Authentication APIs

Less Code

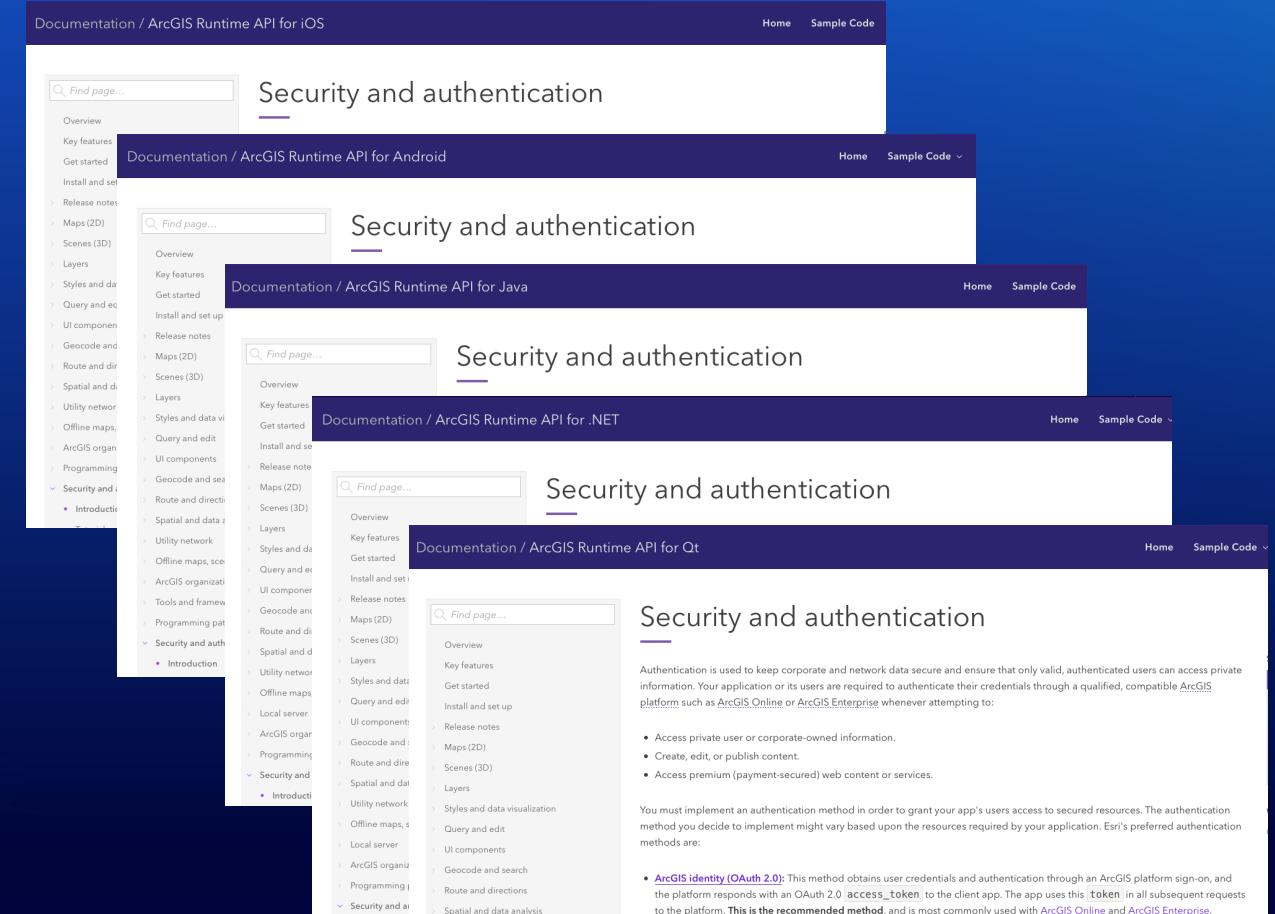
Central Logic

Handle all
Authentication
Methods

Common
Patterns in
Runtime SDKs

Avoid different
failure points

Do it once in
one place



Runtime Authentication APIs

Class
AuthenticationManager
Properties
credentialCache: CredentialCache <i>read only</i>
OAuthConfigurations: Array<OAuthConfiguration> <i>read only</i>
trustedHosts: Array<String> <i>read only</i>
Methods
authenticationChallengeReceivedAsync(): AuthenticationChallenge
sharedAuthenticationManager(): AuthenticationManager

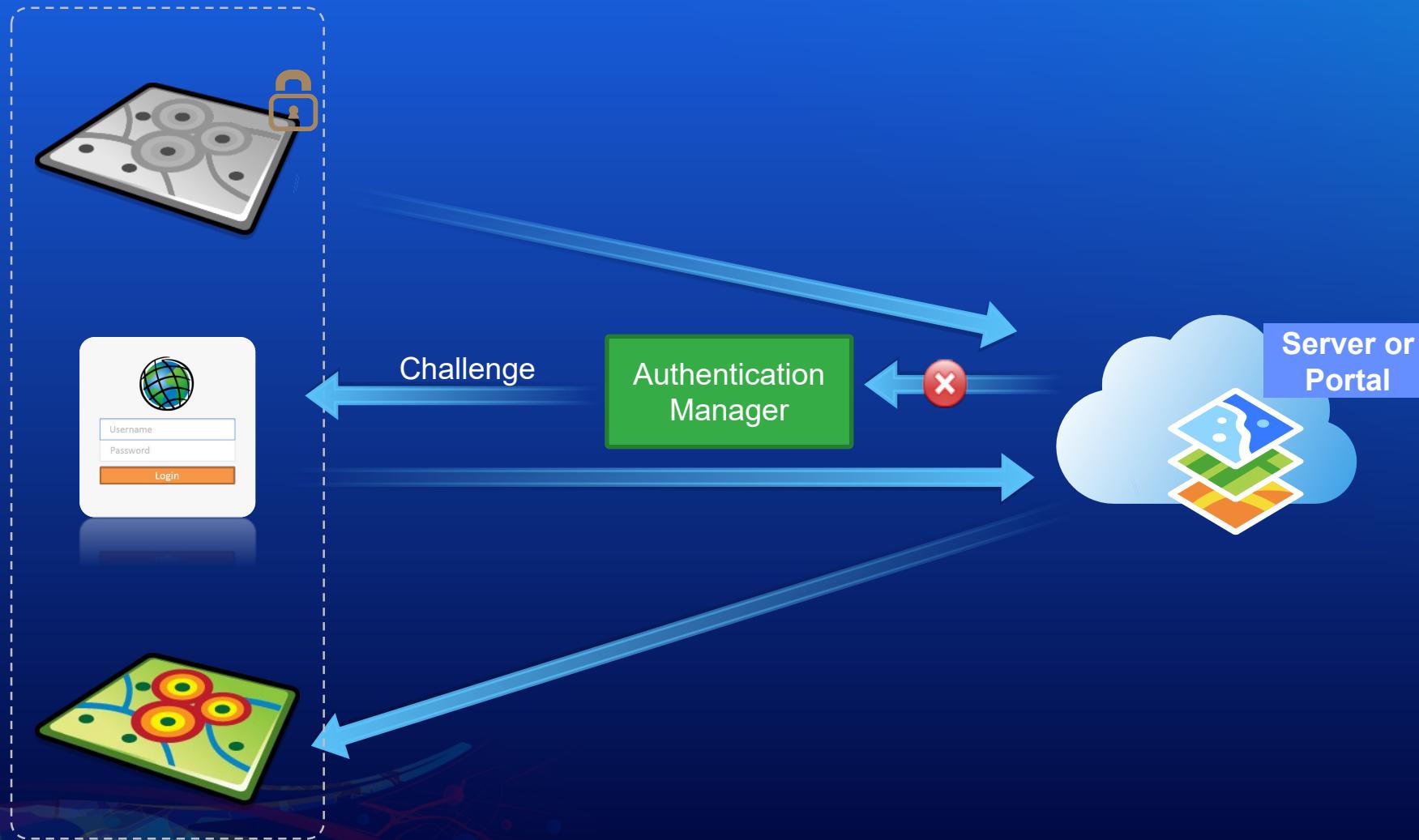
Enumeration
AuthenticationChallengeType
Enumeration Values
unknown (0)
usernamePassword (1)
OAuth (2)
clientCertificate (3)
untrustedHost (4)

Class
AuthenticationChallenge
Properties
authenticatingHost: String <i>read only</i>
error: Error <i>read only</i>
failureCount: int32 <i>read only</i>
portalURL: URL <i>read only</i>
proposedCredential: UserCredential <i>read only</i>
type: AuthenticationChallengeType <i>read only</i>
Methods
cancel(): void
continueWithCredential(): UserCredential
continueWithDefaultHandling(): void
isRemoteResourceFederatedWithPortalURL(portalURL: URL): bool
trustHostAndContinue(): void

Class
OAuthConfiguration
Constructors
OAuthConfiguration(portalURL: URL, clientId: String, redirectURL: String)
Properties
clientId: String <i>read only</i>
culture: String?
portalURL: URL <i>read only</i>
redirectURL: String <i>read only</i>
refreshTokenExchangeInterval: int32
refreshTokenExpirationInterval: int32
showCancelButton: bool
showSocialLogins: bool
userInterfaceStyle: UserInterfaceStyle

Class
CredentialCache
Properties
autoSyncTolidentityStore: bool <i>read only</i>
persistence: CredentialPersistence?
Methods
disableAutoSyncTolidentityStore(): void
enableAutoSyncTolidentityStore(identifier: String, acrossApps: String, acrossDevices: bool): void
removeAllCredentials(): void
removeAndRevokeAllCredentialsAsync(): Future<Dictionary<Credential, Error>>
removeAndRevokeCredentialAsync(credential: Credential): Future<void>
removeItemFromIdentityStoreAsync(identifier: String): void

Authenticating a User



Authentication Manager



Authentication Challenge

Authentication Challenge

Created when server responds with one or more demands for credentials

Has type, error, failure count, proposed credential, authenticating host etc.

Can be controlled using RequestConfiguration

Types

Username Password

OAuth

Client Certificate

Untrusted Host

Actions

Continue with Credentials

Trust Host and Continue

Cancel

Handlers

Default

Custom

Default Authentication Challenge Handler

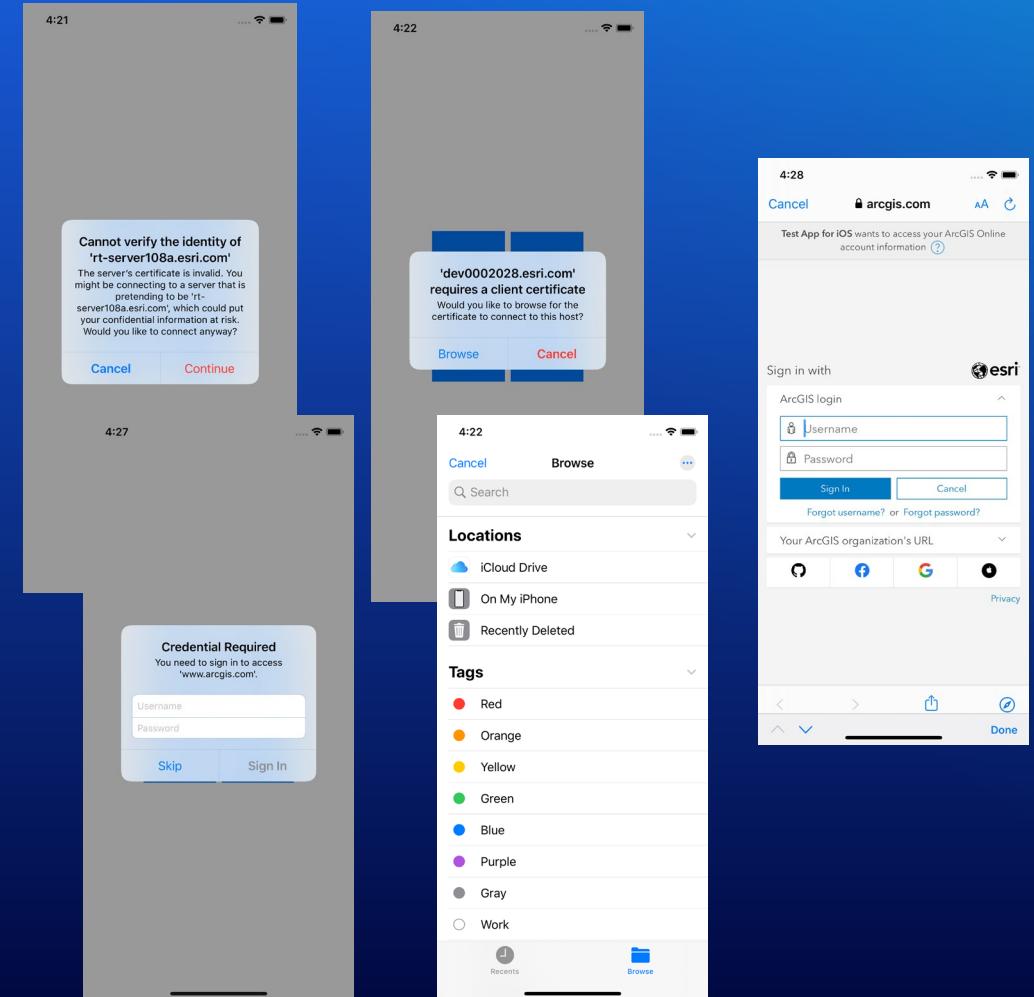
UI presented by SDK to handle different type of authentication challenges

Platform Specific Workflows

iOS: Default

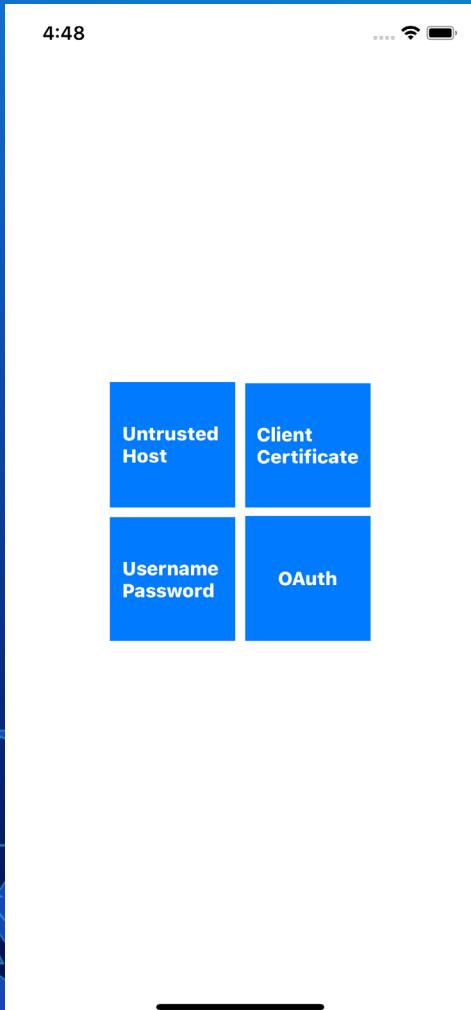
Java and Android: Opt-In

```
val handler = DefaultAuthenticationChallengeHandler(this)  
AuthenticationManager.setAuthenticationChallengeHandler(handler)
```



Default Authentication Challenge Handler

Nimesh Jarecha



Custom Authentication Challenge Handler

Platform Specific Workflows

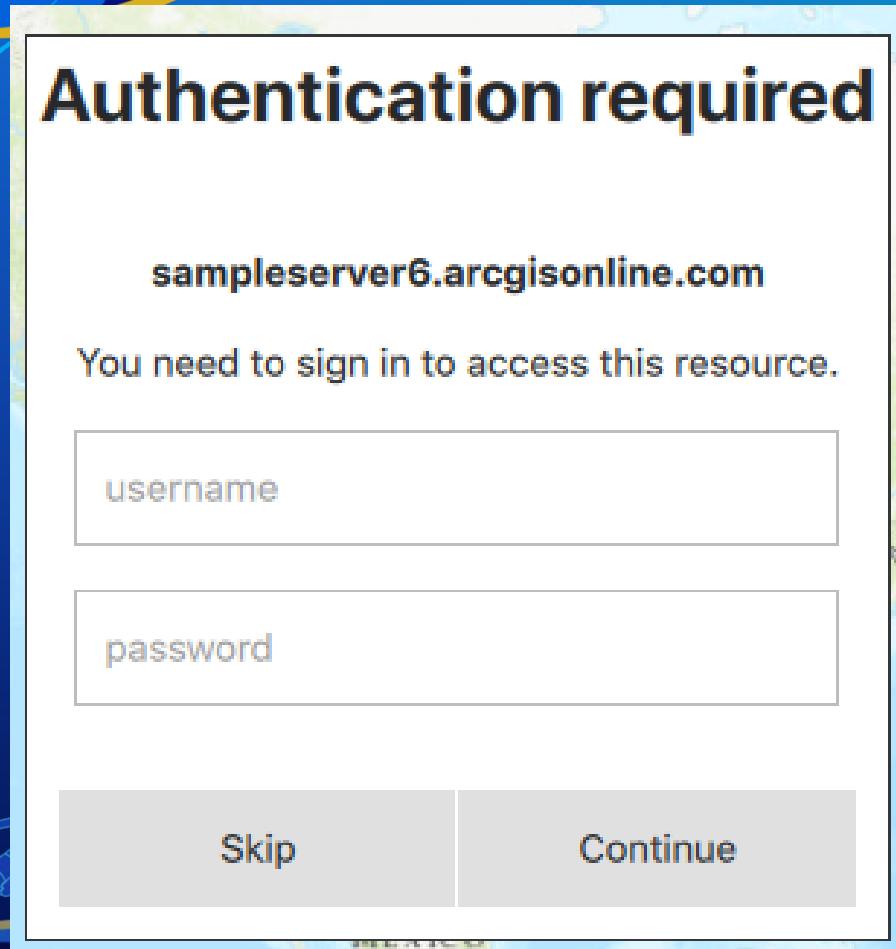
- Platform specific APIs to handle authentication challenge

Custom UI

- Take desired action on authentication challenge
- Present UI matching other Application UI

Runtime Qt Custom Handler

- Challenge handling done using toolkit
- Toolkit is open sourced



Custom Authentication Challenge Handler (Qt)

Koushik Hajra

Credential Cache

In-memory Cache

- Enabled by default
- Reuse credentials for requests in the same domain
- Accessed via AuthenticationManager
- Add/Update/Remove credentials
- Revoke OAuth tokens

Persistence

- Between User Sessions
- Between Different Apps
- Between Different Devices
- Platform specific solutions
 - iOS – Keychain
 - Android – SharedPreferences, or json
 - Java - json
 - Qt - json
 - .Net – Keystore, Keychain, or Data Protection

```
var json = {  
  "portalUrl": portalUrl,  
  "refreshToken": refreshToken,  
  "tokenServiceUrl": tokenServiceUrl,  
  "oAuthClientInfoClientId": clientInfo.clientId,  
  "oAuthClientInfoOAuthMode": clientInfo.oAuthMode  
}  
  
console.log(oAuthRefreshTokenFileName, clientInfo.oAuthMode);  
oAuthRefreshTokenFile.writeFileSync(oAuthRefreshTokenFileName, json)
```

Credential Cache

Xueming Wu

Offline Content Security



Unsecured Mobile Map/Scene Package
(MMPK/MSPK)



Unsecured extracted geodatabase on disk

API key Overview

Access ArcGIS Platform services

Metered Basemaps

Geocoding & POI search

Routing, Service Area, Closest Facility

Demographics

API key Benefits

Scope to specific services

Monitor usage per key

Restrict access by referrer heading

Permanent access until API key is updated or deleted.

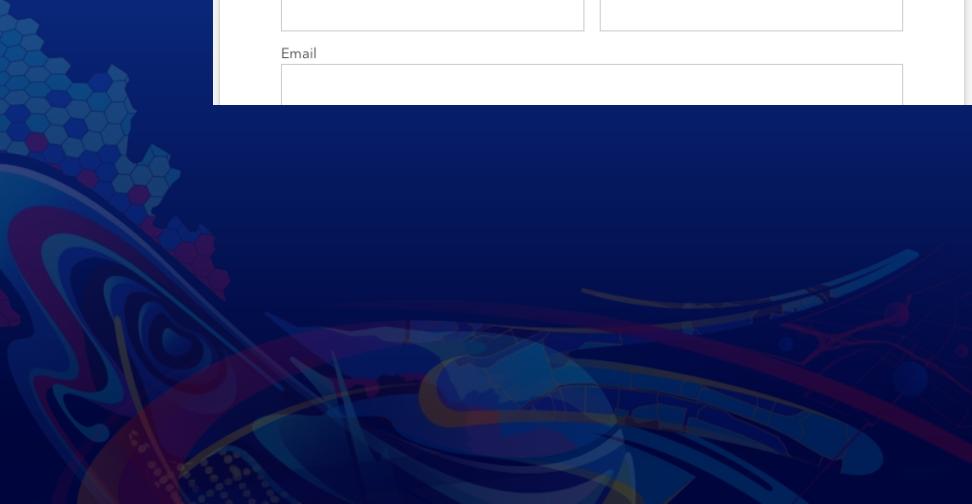
Use with your own sign-in/user identity, outside of ArcGIS.

ArcGIS Developer Account

Pay as you go access to ArcGIS Platform services

Access to the own read only private hosted data services

ArcGIS Developer Account



developers.arcgis.com

Features Pricing Support

Create your ArcGIS developer account

GitHub Facebook Google Apple

We will require you to share your email address with us, [learn why](#).

OR

First name Last name
Email

Welcome, Nimesh

Dashboard API keys OAuth

Get Started

Guide  Mapping APIs and location services

Tutorial  Create a mapping app

Tutorial  Access geocoding and routing services

ArcGIS Runtime API for iOS v100.10.0 · January 27, 2021

 Doc and tutorials

 Blog · January 27, 2021

Welcome to ArcGIS Runtime 100.10

API keys (1)

Manage

Use API keys to access [location services](#) and premium content in your applications. Learn more about using [API keys](#) to access services in the [ArcGIS Developer Guide](#).

Default API Key |  Modified 3 hours ago

 AAPKe2f440792e8b4ef0a9f1e746ef4dbad0vbpjl1cYbu74_o11sD4-WFHyxU-A1yg2CeYJ5Egc4mz3xD8oL8hyaExo6bZODp3

View Usage  Edit API Key

Services

Basemaps Geocoding (not stored) Routing Service area

Allowed Referrers

Any referrer header is allowed.

Create and configure your first API key  Restrict API key access from specific clients Monitor use of your API keys

Use API key with Runtime SDKs

ArcGIS Runtime Environment

Layers

- ArcGIS Tiled Layer
- ArcGIS Vector Tiled Layer
- ArcGIS Scene Layer
- Service Feature Table

Tasks

- Route Task
- Locator Task
- Service Area Task
- Closest Facility Task
- Export Tile Cache Task
- Export Vector Tiles Task
- Geodatabase Sync Task

Documentation / ArcGIS Runtime API for iOS

[Home](#) [Sample Code](#)

Find page...

- Overview
- Key features
- Get started
- Install and set up
- Release notes
- Maps (2D)
 - Introduction
 - Tutorials
 - Display a map
 - Add a point, line, and polygon
 - Display a web map
- Scenes (3D)
- Layers
- Styles and data visualization
- Query and edit
- UI components

Display a map

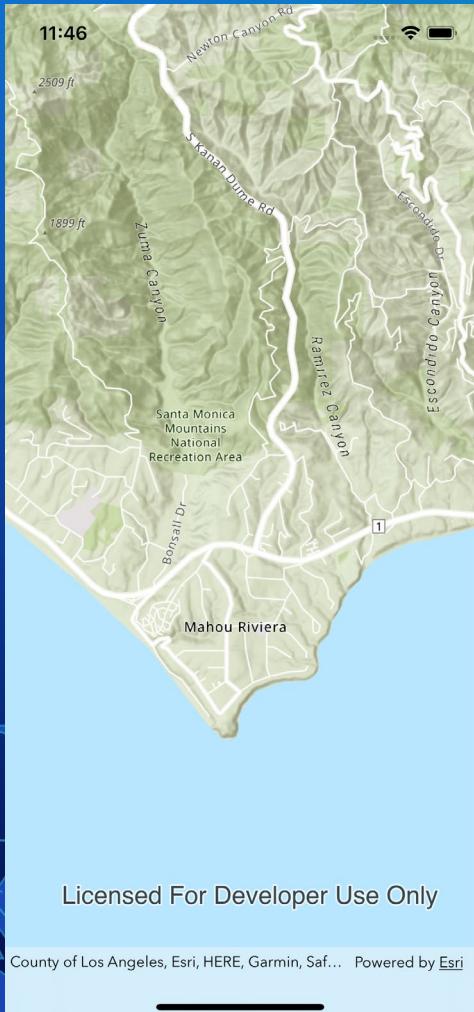
Learn how to create and display a map with a basemap layer...



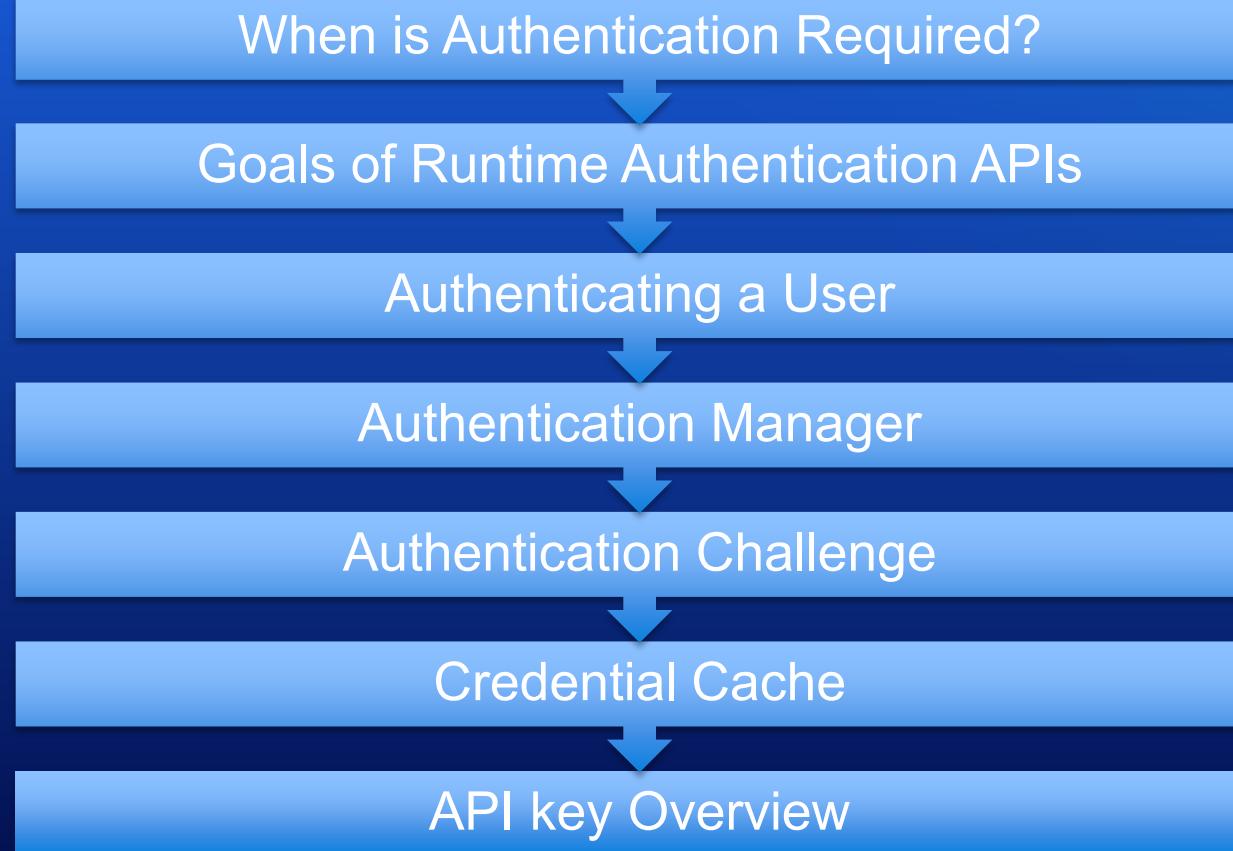
County of Los Angeles, Esri, HERE, Garmin, SafeGraph, METI/NASA, NASA, NGA, USGS, Bureau of Land Management... Powered by [Esri](#)

Display a Map

Nimesh Jarecha



Summary

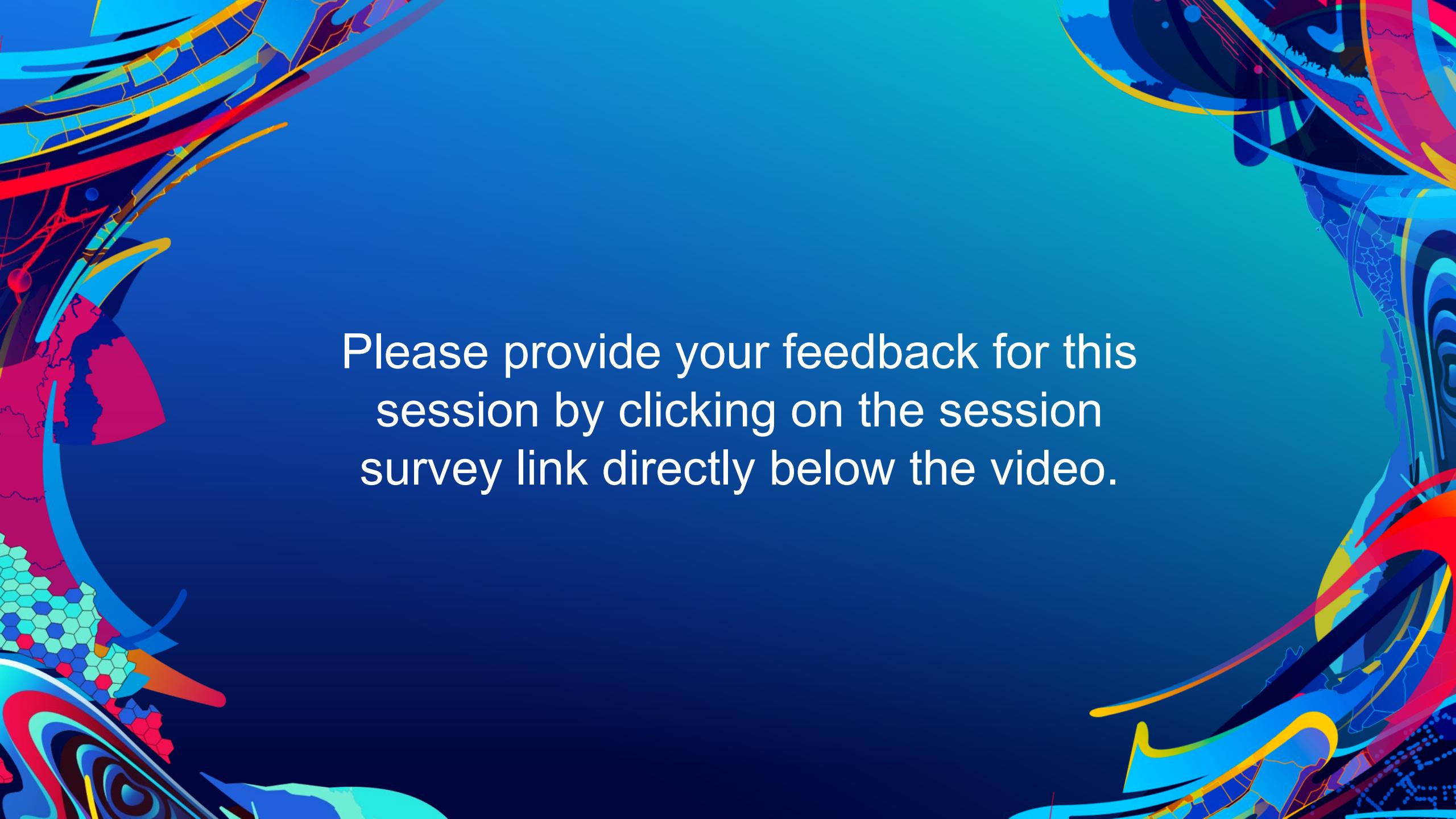


- Android: <https://developers.arcgis.com/android/security-and-authentication/>
- iOS: <https://developers.arcgis.com/ios/security-and-authentication/>
- Java: <https://developers.arcgis.com/java/security-and-authentication/>
- .Net: <https://developers.arcgis.com/net/security-and-authentication/>
- Qt: <https://developers.arcgis.com/qt/security-and-authentication/>

Thank you!



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