



The File Geodatabase API

Dave Sousa, Lance Shipman

2018 Esri DEVSummit Conference | Palm Springs, CA

File Geodatabase API

Overview

- Introduction
- Supported Tasks
- API Overview
- What's not supported
- Updates
- Demo



File Geodatabase API

Introduction

- Example Video: [City Engine](#)
 - Provide a non-ArcObjects means by which advanced developers can work with File Geodatabases
 - C++ API with coarse grained access to File Geodatabase
 - Does not replace ArcObjects as the recommended approach to interacting with the File Geodatabase
- 
- A decorative graphic in the bottom right corner of the slide, featuring a stylized map with various colored regions in shades of teal, purple, and blue, set against a light blue background.

File Geodatabase API

Introduction

- Leveraging the work done with simplifying the Geodatabase
 - Will only support file geodatabases created with 10.0 and newer clients
 - No support for pre-10.0 file geodatabases
- Target audience
 - Advanced developers who require access to the File Geodatabase without an ArcObjects license for purposes of interoperability

File Geodatabase API

Coarse-grained tasks possible with API

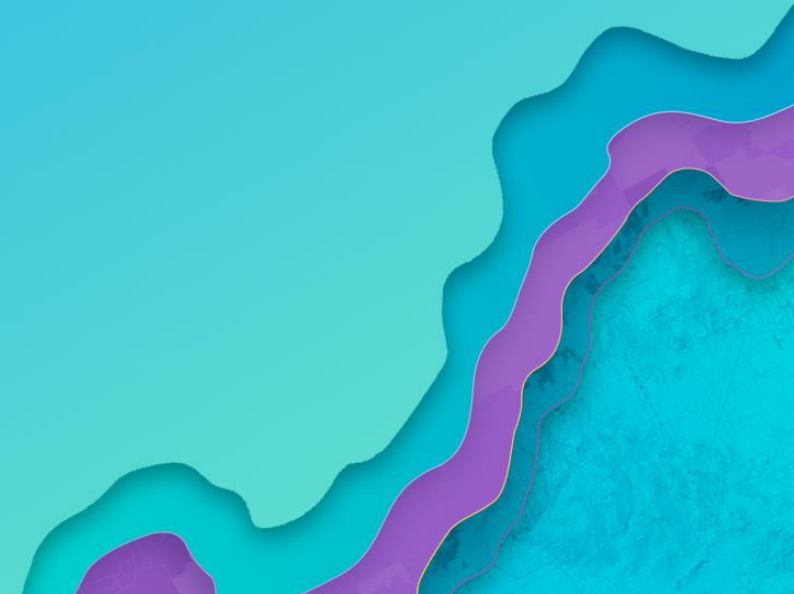
- Create, Open, Delete file geodatabases
- Read the schema of a geodatabase
 - All content within a geodatabase can be opened for read access
- Create schema for objects within the simple feature model:
 - Tables
 - Point, Multipoint, Line, Polygon, Multipatch feature classes
 - Feature datasets
 - Domains
 - Subtypes



File Geodatabase API

Coarse-grained tasks possible with API

- Read the contents of datasets in a geodatabase
 - The majority of dataset content within a geodatabase can be read
 - Some exceptions such as network indexes
- Insert, Delete and Edit the contents of simple datasets:
 - Tables
 - Point, Line, Polygon, Multipoint, Multipatch feature classes



File Geodatabase API

Coarse-grained tasks possible with API

- Perform attribute and (limited) spatial queries on datasets
 - Spatial queries will be limited to the envelope-intersects operator
- Spatial References
 - GCS, PCS and Unknown
 - Custom coordinate systems are supported
- Support for a subset of the SQL 92 standard
 - e.g. Select statements, Order By,
 - Joins are not supported



File Geodatabase API

Download

- Single downloadable ZIP files containing:
 - C++ library (single dll, lib, .h) built on Windows, Linux or MacOS platforms
 - API documentation (html) and samples
 - .NET Wrapper and samples
- **Freely available from GitHub**
 - https://github.com/Esri/file-geodatabase-api/tree/master/FileGDB_API_1.5.1

File Geodatabase API

Supported Platforms/Compiler - Windows

- Platforms:
 - Windows 2008 Server Standard, Enterprise & Datacenter (32-bit and 64-bit) SP2
 - Windows 2008 R2 Server Standard, Enterprise, and Datacenter (64-bit)
 - Windows 2012 Server Standard and Datacenter (64-bit)
 - Windows 2012 R2 Server Standard and Datacenter (64-bit)
 - Windows 7 Ultimate, Enterprise, Professional, Home Premium (32-bit and 64-bit)
 - Windows 8.1 Enterprise, Professional (32-bit and 64-bit)
 - Windows 10 Enterprise, Professional (32-bit and 64-bit)
- Compilers:
 - Visual Studio 2012, 2013, 2015 and 2017

File Geodatabase API

Supported Platforms - Linux

- Platforms:

- Red Hat Enterprise Linux Server 5.7+
- Red Hat Enterprise Linux Server 6.x
- Red Hat Enterprise Linux Server 7.x
- SUSE Linux Enterprise Server 11 SP4
- SUSE Linux Enterprise Server 12
- Ubuntu 14.04 LTS
- Ubuntu 16.04 LTS

- Compilers:

- The minimum supported versions of gcc are version 4.1.2 on Linux.
- The minimum version of clang is clang 3.7
- If you are using gcc 5.x and above you will need to use the FileGDB API version for GCC5.

File Geodatabase API

Supported Platforms - Mac

- Platforms:

- Yosemite (10.10)
- El Capitan (10.11)
- Sierra (10.12)

- Compilers:

- The minimum supported version of gcc are version 4.2.1 on Mac OS X.
- The minimum version of clang is clang 3.7



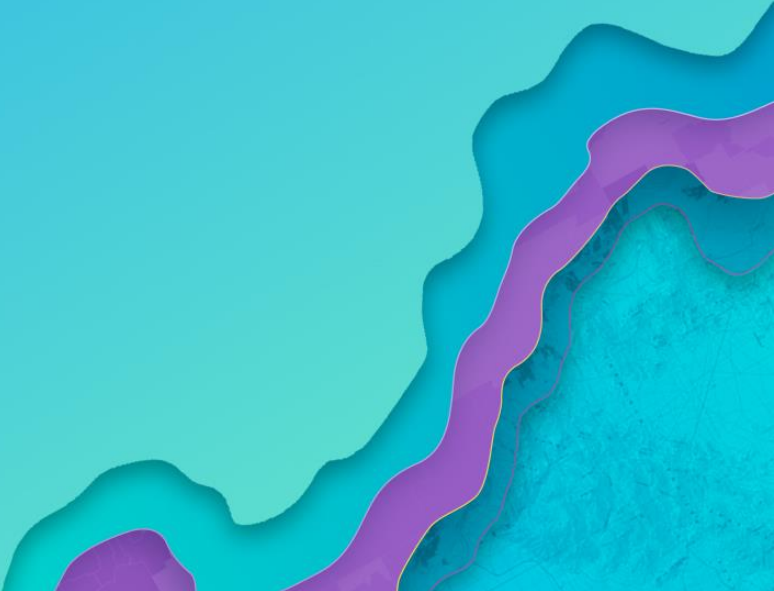
File Geodatabase API

Features Not Supported

- While the File Geodatabase API supports reading the schema and data of complex geodatabase types, the API does not honor geodatabase behavior on inserts, deletes or updates to the following dataset types:
 - Annotation and Dimension feature classes
 - Relationship Classes
 - Networks (GN and ND)
 - Topologies
 - Terrains
 - Representations
 - Parcel Fabrics

File Geodatabase API

Features Not Supported

- Raster Datasets, Raster Catalogs, Mosaic Datasets and Raster Attributes are not supported
 - Spatial queries are limited to the envelope-intersects operator
 - Attachments are not supported
 - Joins are not supported.
- 

File Geodatabase API

Updates

- 1.1, 1.2 , 1.3, 1.4, 1.5 and 1.5.1 releases were made available following the initial release



File Geodatabase API

Updates/Bug Fixes 1.5

- Visual Studio 2015 Supported
- GCC 5.x supported on Linux
- Added SUSE 12, Ubuntu 14.04 and Ubuntu 16.04 to the list of supported Linux platforms.
- Allow the use of the Spatial Reference ID to create the spatial reference. (BUG-000100781)
- File Geodatabase: COUNT(0) should return 0 with a WHERE clause that returns no rows (1=0) (BUG-000100782)
- Remove Windows FileGDBAPI.dll's reliance on Microsoft.VC90.CRT (BUG-000100783)
- FileGDB API throws -2147217395 error when executing SQL query with SQL functions. (BUG-000088293)
- Table::FreeWriteLock does not clear the lock. (BUG-000097116)

File Geodatabase API

Download Location

- **GitHub**

https://github.com/Esri/file-geodatabase-api/tree/master/FileGDB_API_1.5.1



File Geodatabase API

Demo

- Tour the API on disk
- Integrate the API into a C++ project
- Show basic API functionality
- Importing data into the File Geodatabase



File Geodatabase Demo

Summary

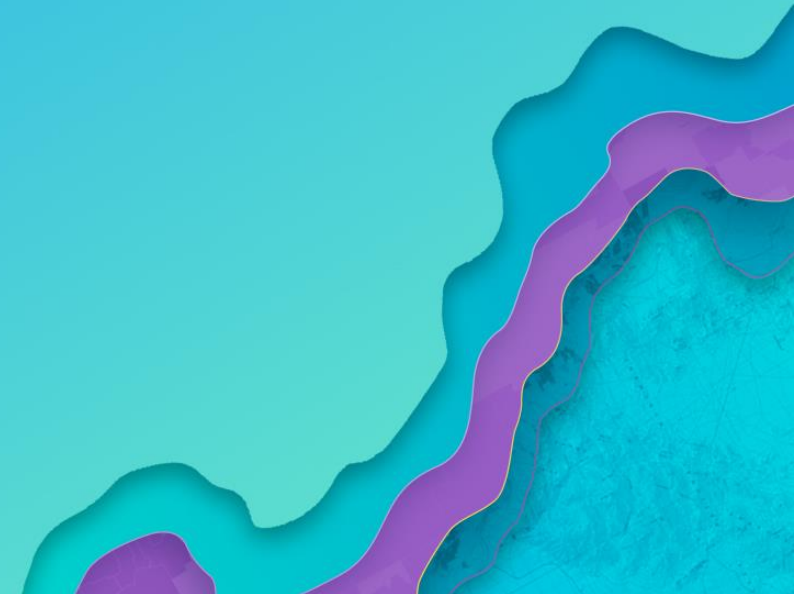
- Provide a C++ non-ArcObjects based means by which advanced developers can work with File Geodatabases
- Does not replace ArcObjects as recommended way to access the File Geodatabase



File Geodatabase API

Review

- Introduction
- Supported Tasks
- API Overview
- What's not supported
- Updates
- Demo





esri

THE
SCIENCE
OF
WHERE