Using the File Geodatabase API

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Overview

- File Geodatabase API
  - Introduction
  - Supported Tasks
  - API Overview
  - What’s not supported
  - Updates
  - Demo

File Geodatabase API

- Provide a non-ArcObjects means by which advanced developers can work with File Geodatabases

- C++ API with coarse grained access to File Geodatabase
- Will not replace ArcObjects as the recommended approach to interacting with the File Geodatabase

File Geodatabase API…

- 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

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, Line, Polygon, Multipoint, Multipatch feature classes
  - Feature datasets
  - Domains
  - Subtypes

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**

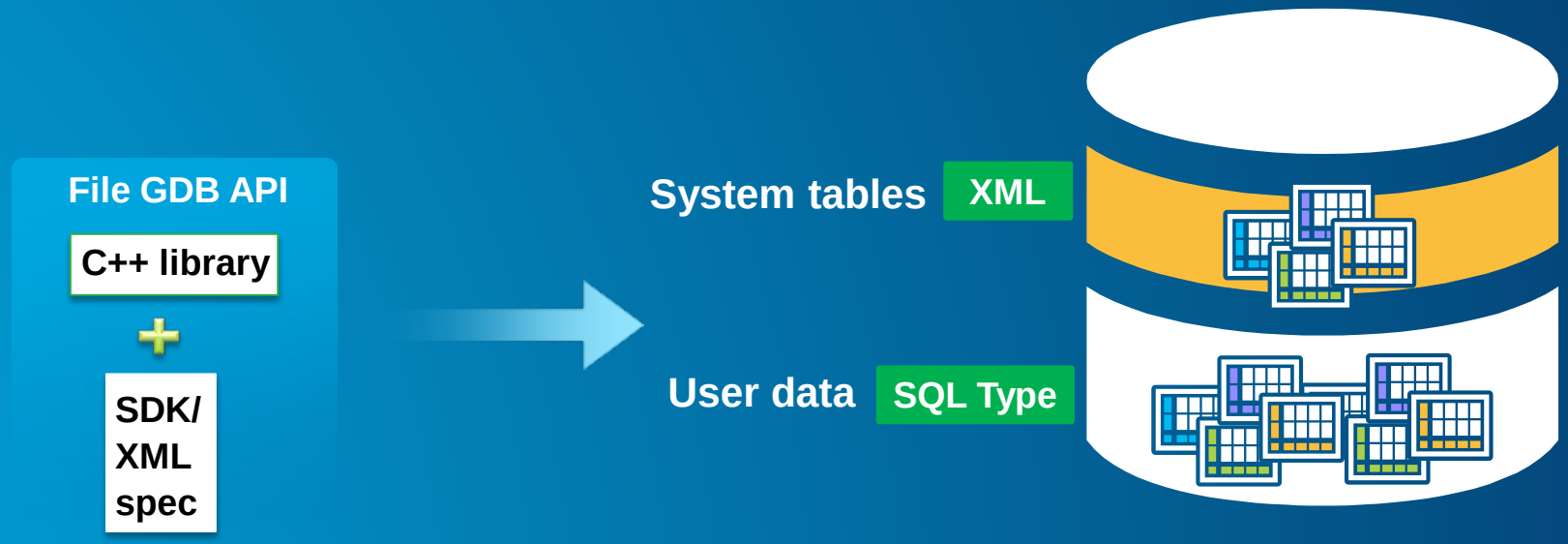
- **Insert, Update and Delete contents of simple datasets:**
  - **Tables**
  - **Point, Line, Polygon, Multipoint, Multipatch feature classes**

Coarse-Grained Tasks possible with API…

- Perform attribute and (limited) spatial queries on datasets
  - Spatial queries are limited to the envelope-intersects operator
- Spatial Reference
  - Pre-defined GCS, PCS and Unknown
  - Custom coordinate systems are supported at 1.4
- Support for a subset of the SQL 92 standard
  - e.g. Select statements, Order By,
  - Joins are not supported.

File Geodatabase API Overview

- Single downloadable ZIP file containing:
  - C++ library (single dll, lib, .h) built on Windows, Linux and Mac platforms
  - API documentation (html) and Samples
- Freely available from http://www.esri.com/apps/products/download/



Supported Platforms for Windows

- **32-bit and 64-bit:**
  - Windows 2003, 2008 Server SP2
  - Windows 2012 Server
  - Windows 7 and Windows 7 SP2
  - Windows 8, 8.1
- **64-bit:**
  - Windows 2008 R2 Server

- Visual Studio 2008, 2010, 2012 and 2013

Supported Platforms for …

- Minimum supported platforms for Linux 32-bit:
  - Red Hat Enterprise Linux Release 5.7
  - SUSE Linux Enterprise Server 11
- Support for Linux 64-bit with the 1.1 release
- Mac OS 64-bit (Intel) support:
  - Mountain Lion (10.8)
  - Mavericks (10.9) and Yosemite (10.10)

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

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.

Updates

- 1.1, 1.2 and 1.3 releases were made available following the initial release
- The 1.4 release available next week. Currently it is in certification.
- Notable bug fixes/enhancements at 1.1:
  - Release on Linux 64-bit
  - The .NET wrapper

Updates

- Notable bug fixes/enhancements at 1.2:
  - Mac OS 64-bit (Intel) support (10.6 or later)
  - Spatial Index is not used in a spatial search (NIM071538)
  - Domains cannot be assigned to a table created with the API (NIM074135)
  - Updated and corrected the extended_shapefile_format.pdf (NIM077629)
  - Supported coordinate systems updated to match ArcGIS 10.1 (NIM078034)

Updates

- Notable bug fixes/enhancements at 1.3:
  - Visual Studio 2012 Supported
  - Fix the MutlipatchShapebuffer helper functions. (NIM078028)
  - QueryEnvelope does not correctly calculate M and Z extent. (NIM082237)
  - MultiPartShapeBuffer::GetMs return the wrong pointer value. (NIM084105)
  - Using only a null or empty geometry results in a invalid extent. (NIM085366)

Updates

- Notable bug fixes/enhancements coming at 1.4:
  - Support for reading Compressed fgdb data (NIM071731)
  - Custom projection support (NIM073951)
  - non-XML creation of tables
  - The field list is now honored on Searches, only returning the requested fields (NIM082242)
  - Upgrade to libxlt (1.1.2.8) to pickup fix for memory leak (NIM098151)
  - Added Compact geodatabase (NIM098323)
  - MS Visual Studio 2013 support

  - Switched to the Apache license

Download Locations

- File Geodatabase API 1.4
  - Current: http://www.esri.com/apps/products/download/

Demo

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

Summary

- File Geodatabase API
  - 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

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