

**Store and Manage Data in a DBMS
With
ArcView Database Access**

**Presented By:
Andrew Arana & Canserina Kurnia**

Overview

Topics to be Covered:

- **General method for accessing data**
 - database themes, database tables
- **Accessing SDE databases**
- **Accessing databases with ODBC**
- **Demo**
- **Questions & Answers**



Database Access

- **Provides a generalized approach for accessing databases in ArcView**
- **Supports viewing, query and analysis of database data from the ArcView user interface**
 - **Make maps with database themes**
 - **See values in database tables**



Database Access

- **What's new in Version 2.1a?**
 - Improved ODBC support
 - Enhanced SDE support
 - Compatible with SDE 3.0.2 and ArcSDE 8
- **Available as a default extension in ArcView 3.2**

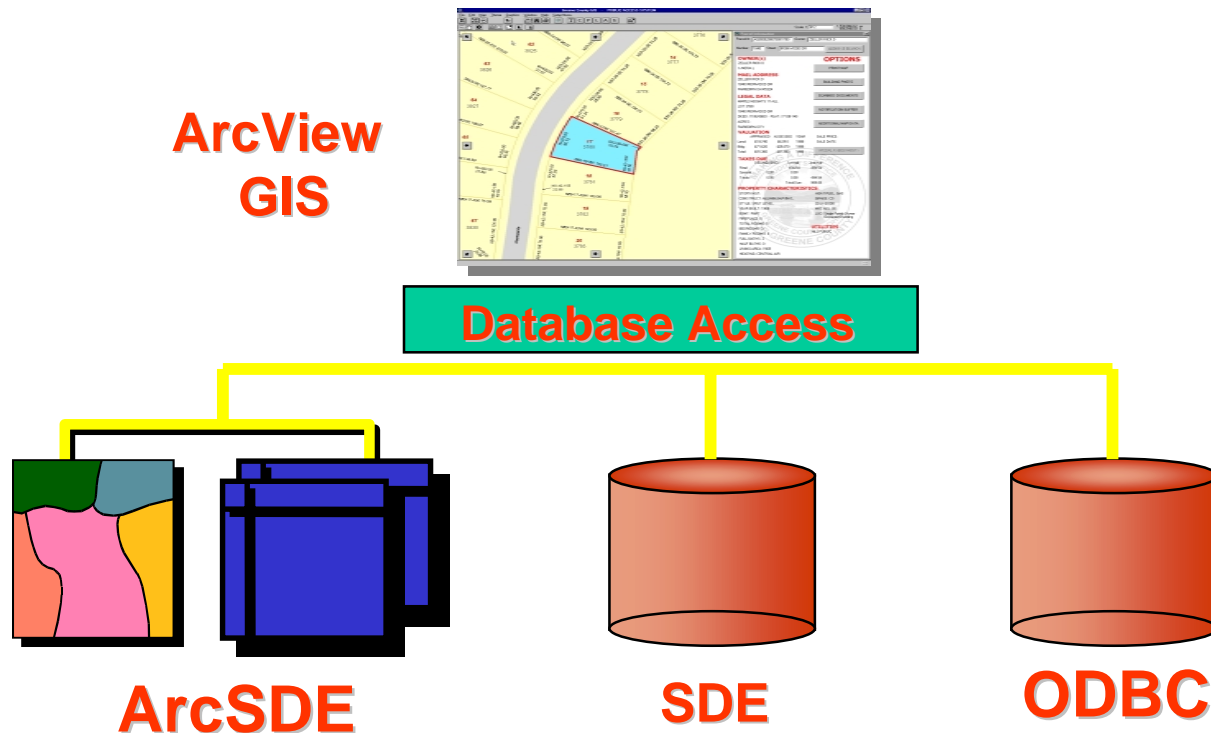


Database Access

- ODBC support

Connect to ODBC supported databases

Flexible, robust interface to ODBC databases



ESRI

Database Access

- **Alternative to SQL Connect**
 - Provides a dialog interface and a wizard interface
 - Retrieve and modify SQL statements
 - Respects database locking mechanism



Database Access

- **Alternative to SQL Connect (cont):**
 - Get a list of tables from the database based on owner and privilege
 - Automatic connection on project open
 - An ODBC class for error retrieval
 - Multiple make connection requests



ESRI



Database Access

- **Database Tables behave like regular tables**
 - Dynamic link between SDE Database Table and SDE Database Theme
 - Selections enabled on Database Tables (Select All, Select None, Switch Selection, Promote, Find)
- **Database Tables managed in memory**
 - No longer cached to disk



ESRI

Database Access

- Database themes and database tables represent SQL Select statements
- To join several tables in the database together, do it in the query



Database Access

- **Wizard for creating database themes**
- **Function like feature themes**
 - **Selecting, classifying, projecting, identifying, labeling features**



Database Access

- Query Builder for selecting features by their attributes - modified for database themes and database tables
 - SQL statements can be treated as 3 parts: **SELECT**, **FROM** and **WHERE** clauses



ESRI



Database Access

- **Database tables support complex queries**
 - Summarizing and grouping data
 - Sorting records by multiple fields
 - Providing aliases for column names
 - Nested select statements



ESRI



Database Access

- **Centralized data location**
- **Solves the multi-user problem in ArcView**
 - **Provides data locking and transaction support for Avenue applications that edit source data**



ESRI



Database Access

- **Database Themes and database tables are both read-only from the user interface**
- **With Avenue you can directly access, manipulate, and analyze the source data**



ESRI®



Database Access

- Loading the extension adds a new set of objects into ArcView
- Common database access objects define the general methods used to access databases
 - e.g., Connection, QueryDef, RecordSet



ESRI



Database Access

- **Project can have many connections to different databases, both SDE and ODBC**
- **Can prompt users to login on opening a project or save the login with the project**



Database Access and SDE

- **How do you get data into SDE?**
 - Have Database Administrator set up an account
 - Information you need
 - Server name
 - IP Address
 - Service number
 - Hosts and Services file



ESRI



Database Access and SDE

- **How do you get data into SDE (cont)?**
 - Shp2SDE (SDE)
 - ArcInfo 8
 - Database Access sample extension
 - Solution for ArcView users



ESRI



Database Access and SDE

- Requests return ArcView shapes, not SDE geometry: have real coordinates
 - SDE's feature analysis operations are not available, e.g. overlay, buffering (can use another supporting extensions)
- Projections handled by ArcView, not SDE's projection engine



ESRI

Database Access and SDE

- **Can create new tables and spatial columns in the database**
- **Can spatially lock records for editing**
- **Editing applications**
 - **Edit one feature at a time**
 - **Check out features, edit shapefiles, check new features back in**



ESRI



Database Access and SDE

- **Can't use database themes directly with Spatial Analyst, Network Analyst, 3D Analyst**
 - **Export to shapefile, then use shapefile with those extensions**



ESRI



Database Access and SDE

- **SDE can store feature-linked annotation**
 - Can add annotation database themes into a view
 - Read-only since annotation isn't supported in shapefiles
 - Need to use ArcInfo to store annotation in SDE



ESRI



Database Access and SDE

- **One version of Database Access for all SDE 3 servers and ArcSDE 8**
 - Oracle, SYBASE, SQL Server, SDE for Coverages, DB2 Universal Database, Informix Dynamic Server
 - ArcSDE 8



ESRI



Database Access and SDE

- Using Sample Extensions to add more functionality for working with SDE Database Theme
 - **SDE 3.0 Tools ([sde3tls.avx](#))** – Tools for loading, manipulating, and analyzing SDE data
 - **[sde3aedt.avx](#)** - Directly editing a SDE feature's attributes
 - **[sde3edit.avx](#)** - Editing features with the Check Out, Check In method



ESRI

Database Access and SDE

- **Tips**
 - Index joins fields for best performance
- **Where do I learn more?**
 - Tutorial in AvTutor folder
 - *The Practical SQL Handbook* (Bowman et. al.)
 - ArcView Help



ESRI



Demo



ESRI

Twentieth Annual ESRI International User Conference • June 26-30, 2000

Database Access and ODBC

- **The Database Access provides**
 - multi-user access to client-server databases
 - local flat file databases using ODBC
- **Accessing External Databases (ex: Ms-Access, Excel, Oracle) in ArcView:**
 - SQL Connect (setting ODBC driver in Control Panel)
 - Using Database Access Extension



ESRI



Database Access and ODBC

- Uses the ODBC 3.0
- Works with PC versions of ArcView 3.2
- Does not support spatial data (Add Database Table **NOT** Add Database Theme)



Database Access and ODBC

- **First, Need Connection to the Database:**
 - Load the Database Access extension
 - Choose ODBC from the Database Access dropdown list (or create NEW)
 - lick the Connect button to open the ODBC Select Data Source dialog
 - Select the ODBC Driver



ESRI

Database Access and ODBC

- **Wizard Interface**
- **Dialog Interface**
 - Works like the SQL Connect dialog
 - Configure a data source on the fly
 - Option to use a File or a Machine data source
 - Works with table and column names that have spaces



ESRI

Database Access and ODBC

- **Two interfaces for creating database tables:**
 - **SQL Query Wizard**
(walks you through the steps)
 - **Add Database Table Dialog**
(create an SQL Select statement)



ESRI®



Database Access and ODBC

- **Features of a Database table**
 - Retrieve and modify the SQL Statement used to create the table
 - Supports the concept of keyset and forward only scrolling database tables



ESRI®



Database Access and ODBC

- **Database Table Preferences**
 - 100 records are retrieved from the database at a time (Fetch Count)
 - up to 1,000 records can be stored in memory at once (Cache size)
 - any database table with 50,000 records or more will be forward only scrolling by default (Maximum keyset)



ESRI



Database Access and ODBC

- **Use Avenue scripts to**
 - execute SQL statements
 - update the attributes of tables in your database (add and delete records)
 - Respects database locking mechanisms
 - Classes are also available for retrieving error information from the ODBC driver, driver administrator or database.



ESRI



Database Access and ODBC

- **Error retrieval**
 - **ODBCDiagnostic class stores error information associated with an ODBCRecordSet or ODBCConnection Object**



Database Access and ODBC

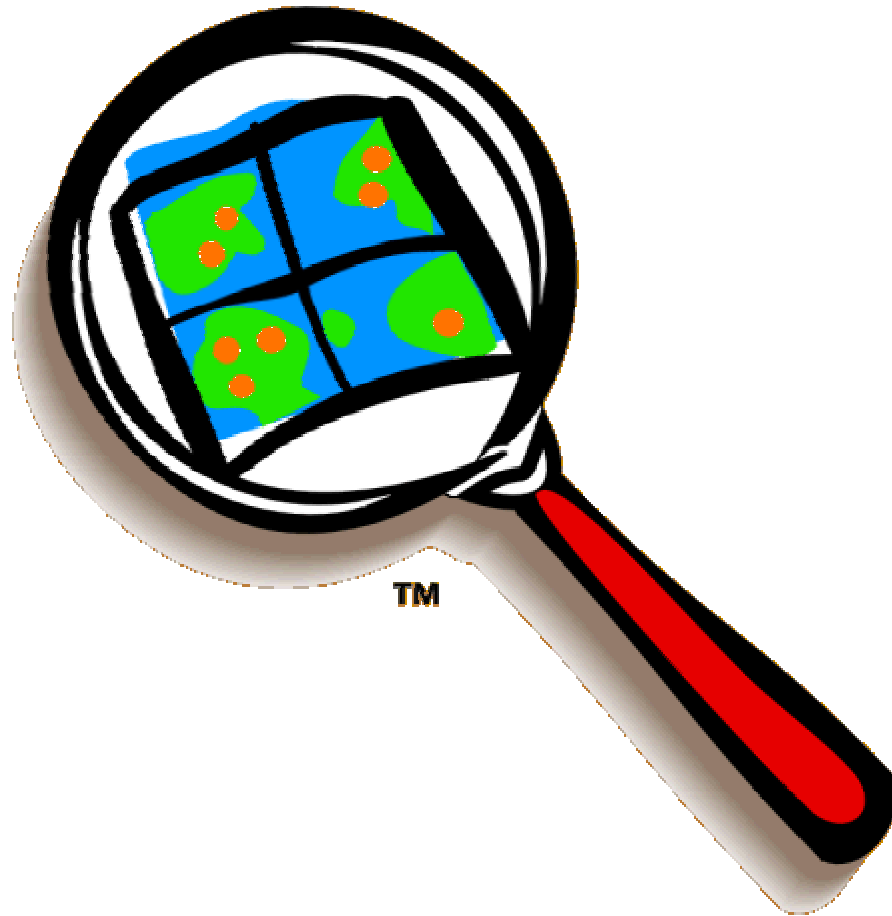
- **Flexible interface for Avenue Applications**
 - **Get a list of tables from the database based on owner and privilege**
 - **Multiple make connection requests**
 - **SQL statements can treated as 3 parts; select, from and where clauses**



ESRI



Demo



TM



ESRI®



ESRI