

2013 EMEA User Conference

October 23-25, 2013 | Munich, Germany



Technical Workshop

Web Enabling databases with ArcGIS for Server

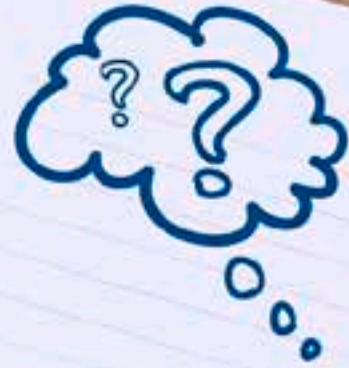
Ismael Chivite

Recording of this session is available here:

<http://video.arcgis.com/watch/2391/web-enabling-databases-with-arcgis-for-server>

Agenda

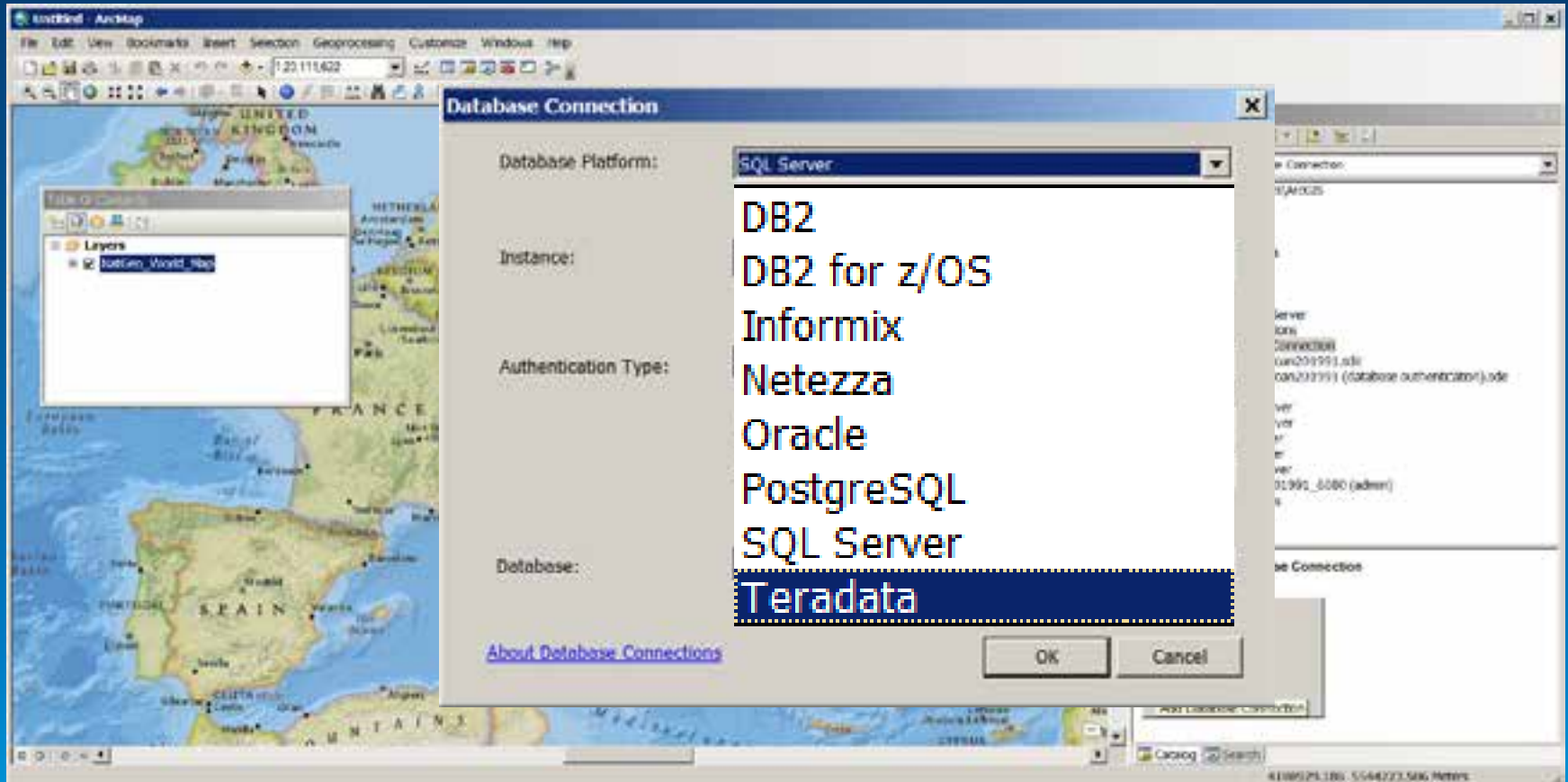
1. Query Layers in ArcGIS Server: the 'basics'
2. Multiple geometries and geometry fields
3. Using complex queries
4. Understanding Map Service Dynamic Layers and Workspaces
5. Editing Query Layers with ArcGIS Server



questions?
& answers



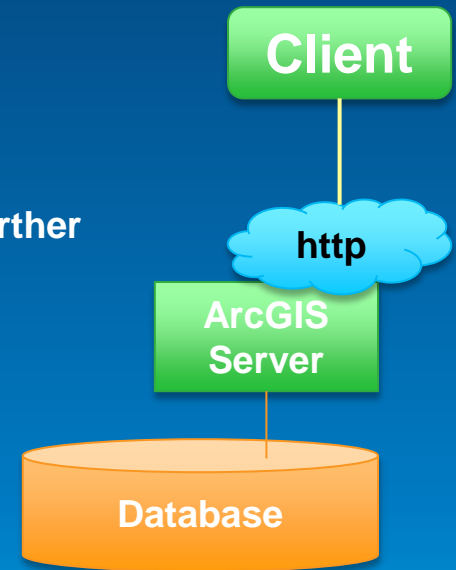
ArcGIS supports direct access to databases...



Plus OLEDB data sources...

Demo 1 (The Basics of map services)

- REST Web Service on top of your database
- Constrained access to data
 - Leverages database security
 - Map controls which layers are accessed
 - Use definition expressions in the map document to constrain further
- Basic query capabilities
 - Attribute and spatial queries
 - Not the full breadth of SQL is available (wait a few minutes...)



Demo 2 (Mappings of database to ArcGIS models)

Tables with and without spatial columns

Tables with multiple spatial columns

Spatial columns with more than one geometry type

Spatial columns with more than one geometry dimension

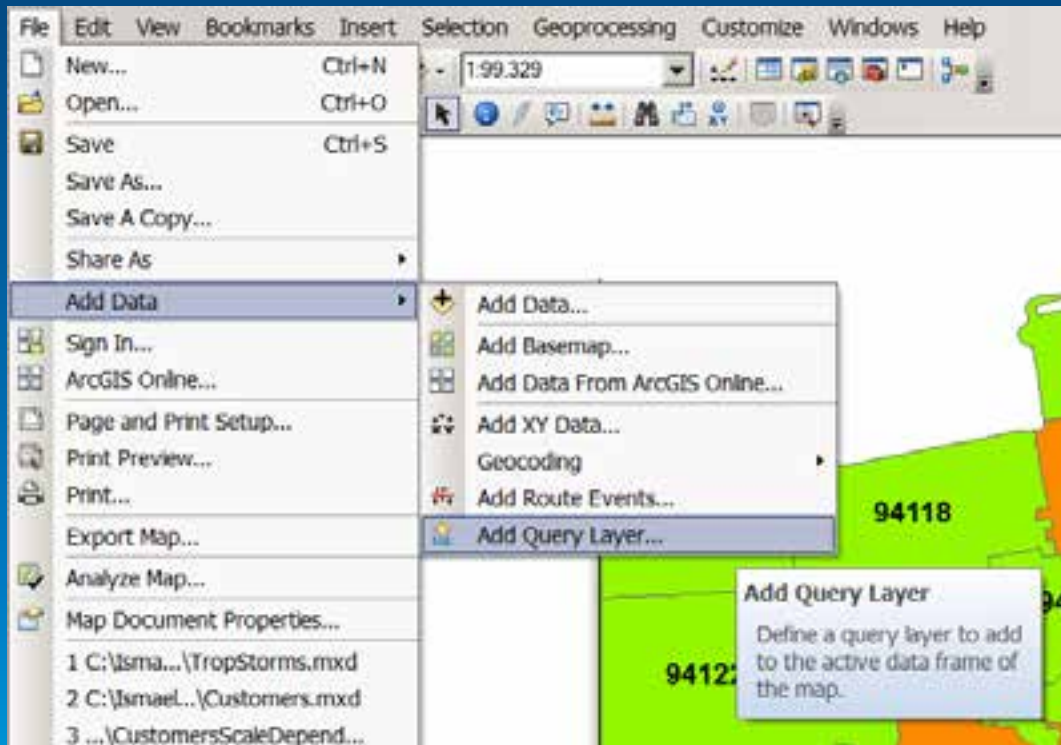
Spatial columns with geometries in more than one spatial reference

Database views (with on the fly joins, aggregate functions...)

```
SELECT
    IncidentID, Geo, CallTime,
    CAST(datediff(s,CallTime,GetDate()) as INT) as 'Age'
FROM demo.NEWYORK911CALLS
WHERE Age < 180)
```

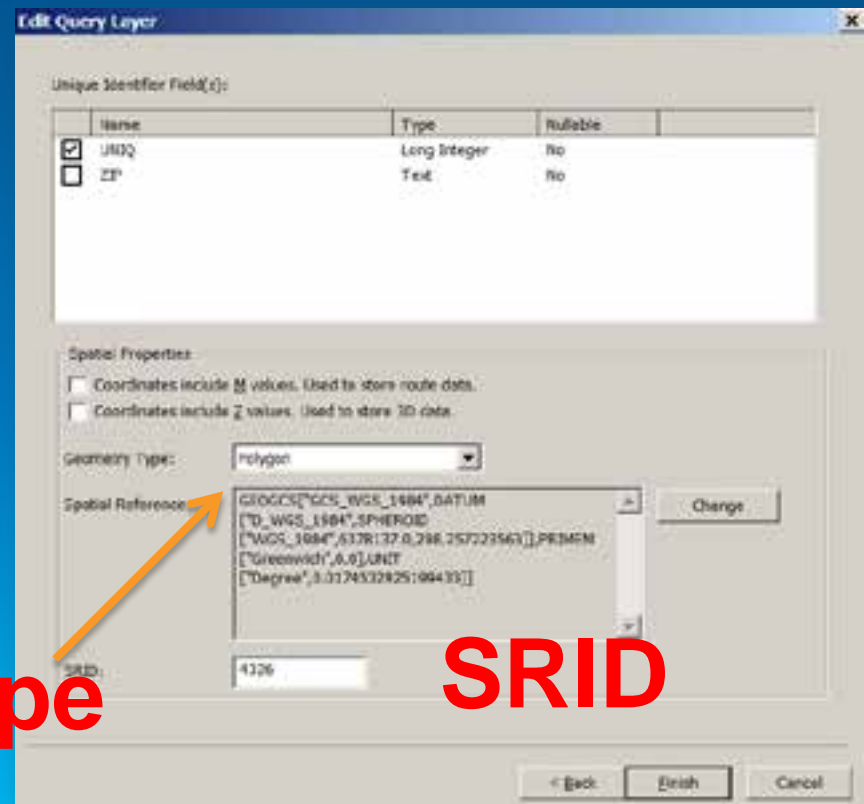
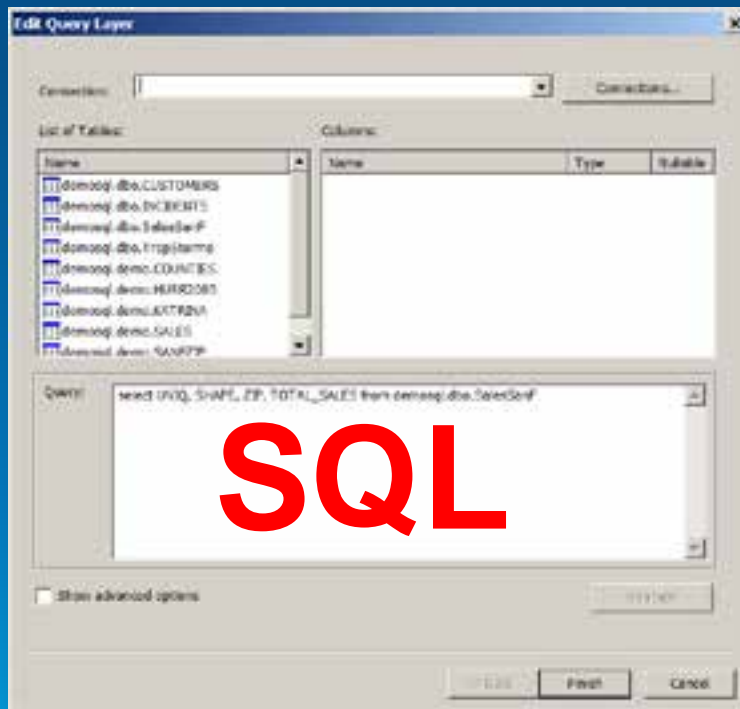

Demo 3 (Complex queries and Views)

Add Query Layer



Demo 3 (Complex queries and Views)

Define SQL Statement, Type of Geometry and SRID for your layer

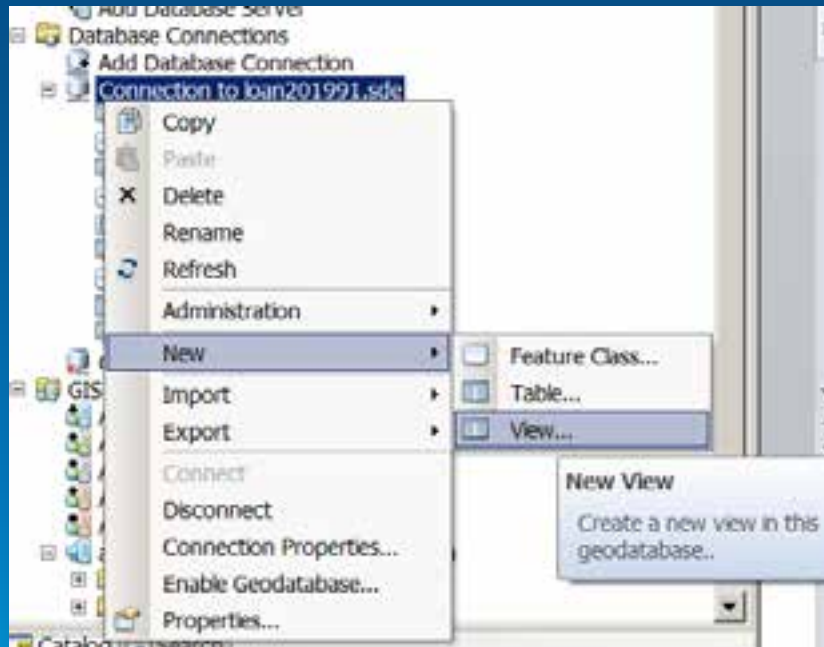


Geom type

SRID

Demo 3 (Complex queries and Views)

Optionally persist your database view



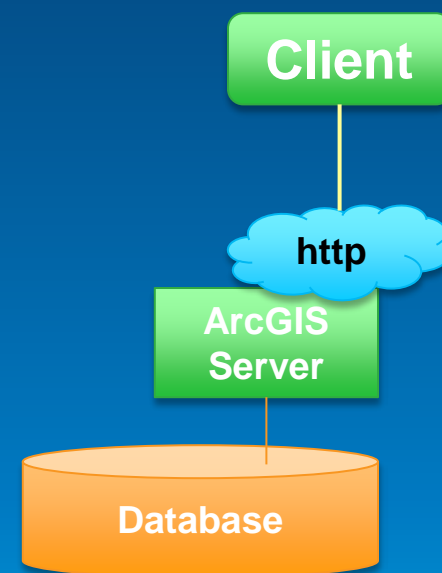
Demo 4 (Dynamic Layers and Workspaces)

- **Dynamic Layers**

- An optional feature of a map service
- Lets clients manipulate symbology and order of existing layers in your service
- Use from the APIs or from arcgis.com viewer

- **Dynamic Workspaces**

- Also optional
- Lets client manipulate the contents of your map service (add layers)
- Powerful but should be used with **caution**.



Enabling Feature Access in your services

	Read	Write
Microsoft SQL Server	YES	YES
Oracle	YES	YES
DB2 and DB2 for z/OS	YES	YES
Informix	YES	YES
PostgreSQL	YES	YES
Netezza	YES	NO
Teradata	YES	NO

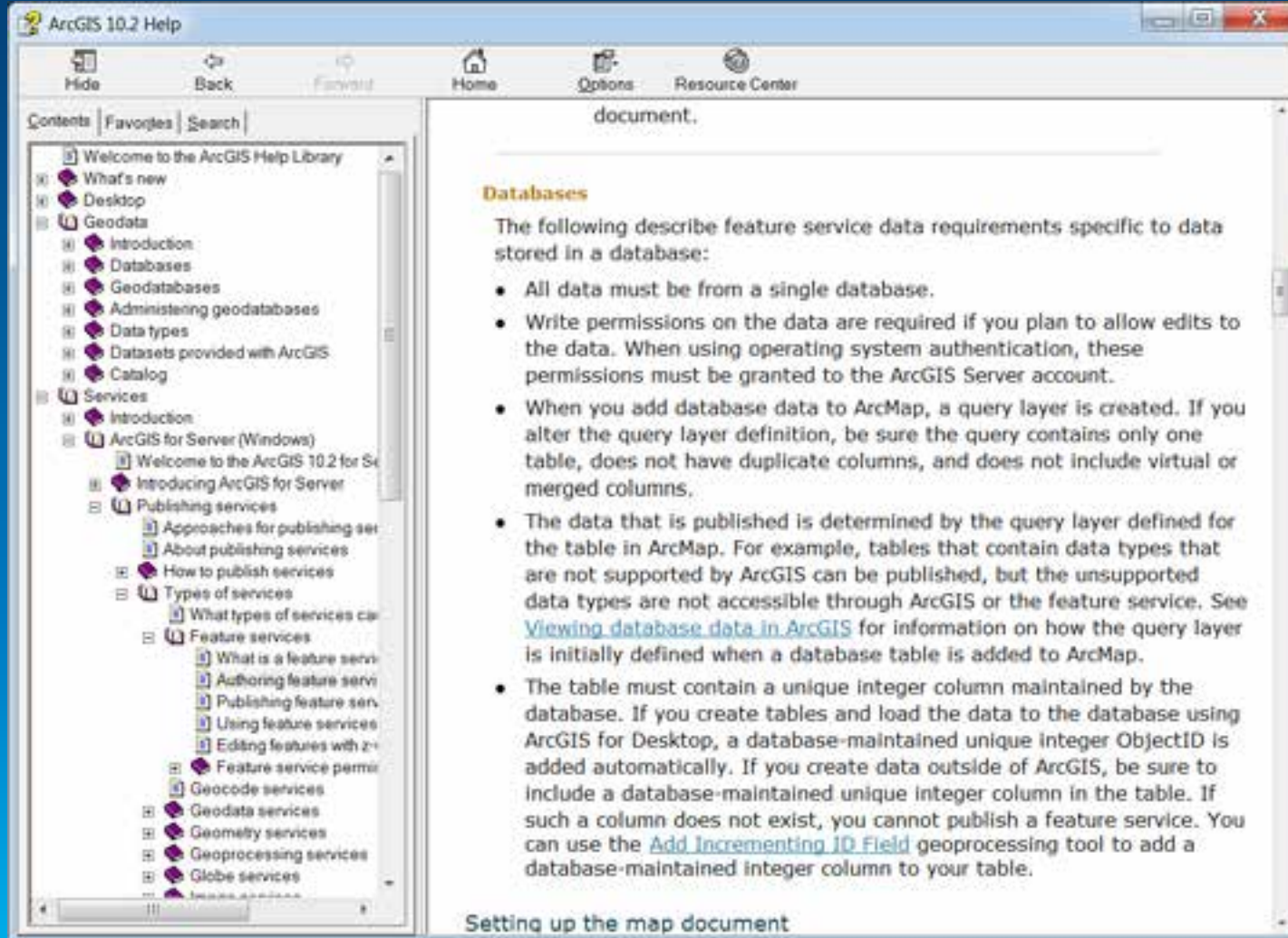
Geodatabase specific features

	Geodatabase
Point, Polyline, Polygon	YES
Annotation (text)	YES
Cartographic representations	YES
Attachments	YES
Attribute domains and subtypes	YES
Editor tracking	YES
Versions	YES
History	YES
Geometric network behavior	YES
Topology rules, Cadaster Fabrics	YES
Street network...	YES

Demo 5 (Editing with Feature Services)

- **Feature Services**
 - **10.2 – Supports editing with databases**
 - **Services published from query layers**

Feature Service Data and Layer Requirements



The screenshot shows the ArcGIS 10.2 Help window. The left pane displays a tree view of the help library. The right pane shows the content for the selected topic, 'Databases', which is part of the 'Feature services' section. The content includes a list of requirements for feature service data stored in a database.

document.

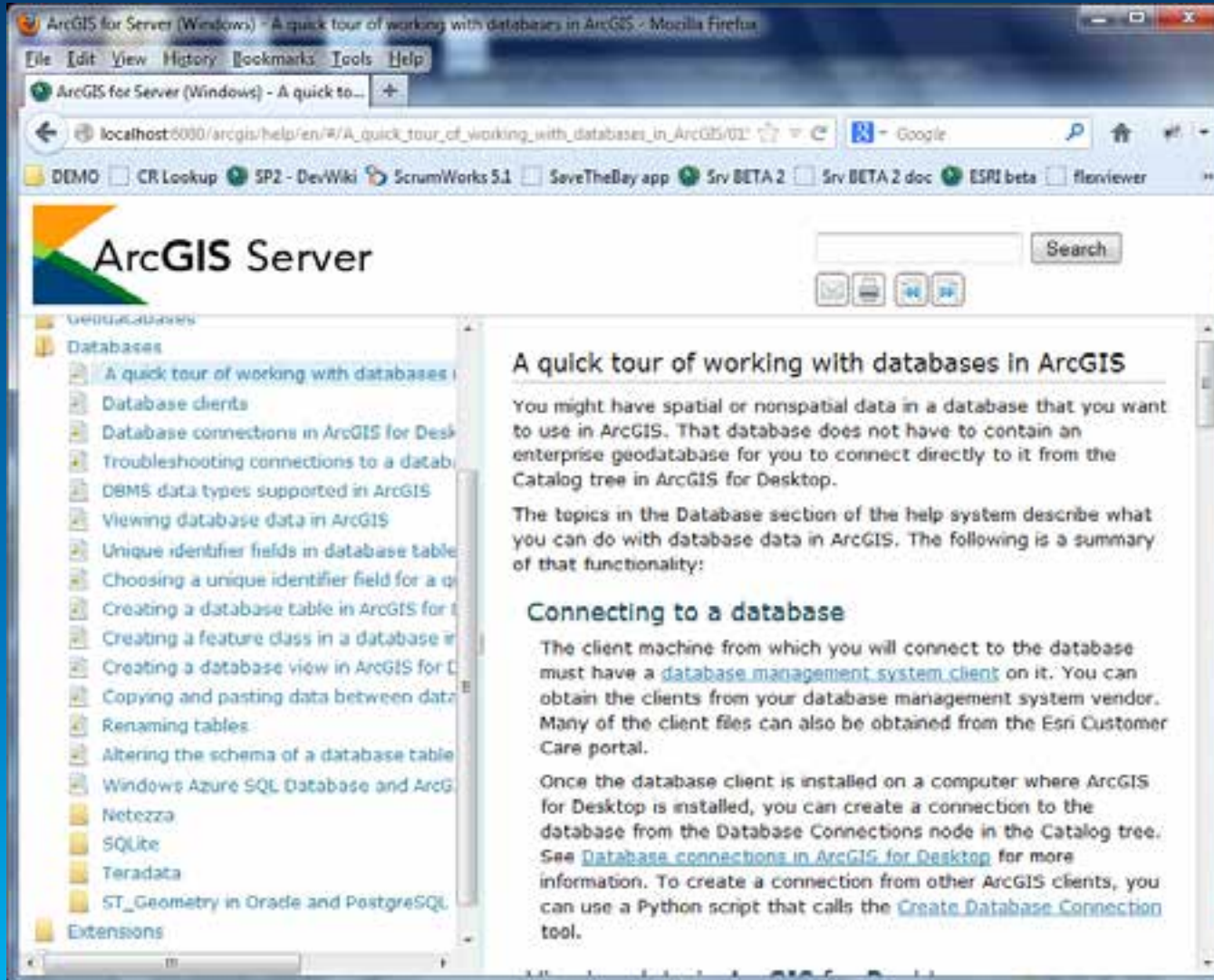
Databases

The following describe feature service data requirements specific to data stored in a database:

- All data must be from a single database.
- Write permissions on the data are required if you plan to allow edits to the data. When using operating system authentication, these permissions must be granted to the ArcGIS Server account.
- When you add database data to ArcMap, a query layer is created. If you alter the query layer definition, be sure the query contains only one table, does not have duplicate columns, and does not include virtual or merged columns.
- The data that is published is determined by the query layer defined for the table in ArcMap. For example, tables that contain data types that are not supported by ArcGIS can be published, but the unsupported data types are not accessible through ArcGIS or the feature service. See [Viewing database data in ArcGIS](#) for information on how the query layer is initially defined when a database table is added to ArcMap.
- The table must contain a unique integer column maintained by the database. If you create tables and load the data to the database using ArcGIS for Desktop, a database-maintained unique integer ObjectID is added automatically. If you create data outside of ArcGIS, be sure to include a database-maintained unique integer column in the table. If such a column does not exist, you cannot publish a feature service. You can use the [Add Incrementing ID Field](#) geoprocessing tool to add a database-maintained integer column to your table.

Setting up the map document

ArcGIS and Databases



The screenshot shows a Mozilla Firefox browser window displaying the ArcGIS Server help page. The browser's address bar shows the URL: localhost:6000/arcgis/help/en/#/A_quick_tour_of_working_with_databases_in_ArcGIS/02. The page title is "ArcGIS for Server (Windows) - A quick tour of working with databases in ArcGIS". The browser's menu bar includes File, Edit, View, History, Bookmarks, Tools, and Help. The browser's toolbar shows a search bar with the text "Google" and a search button. The browser's status bar shows several tabs: DEMO, CR Lookup, SP2 - DevWiki, ScrumWorks 5.1, SaveTheDay app, Srv BETA 2, Srv BETA 2 doc, ESRI beta, and flexviewer.

The ArcGIS Server logo is visible in the top left corner of the page. Below the logo is a search bar with a search button. The page content is organized into a left-hand navigation pane and a main content area. The navigation pane is titled "Databases" and contains a list of topics, including "A quick tour of working with databases in ArcGIS", "Database clients", "Database connections in ArcGIS for Desktop", "Troubleshooting connections to a database", "DBMS data types supported in ArcGIS", "Viewing database data in ArcGIS", "Unique identifier fields in database tables", "Choosing a unique identifier field for a table", "Creating a database table in ArcGIS for Desktop", "Creating a feature class in a database in ArcGIS for Desktop", "Creating a database view in ArcGIS for Desktop", "Copying and pasting data between databases", "Renaming tables", "Altering the schema of a database table", "Windows Azure SQL Database and ArcGIS", "Netezza", "SQLite", "Teradata", and "ST_Geometry in Oracle and PostgreSQL". The main content area is titled "A quick tour of working with databases in ArcGIS" and contains the following text:

You might have spatial or nonspatial data in a database that you want to use in ArcGIS. That database does not have to contain an enterprise geodatabase for you to connect directly to it from the Catalog tree in ArcGIS for Desktop.

The topics in the Database section of the help system describe what you can do with database data in ArcGIS. The following is a summary of that functionality:

Connecting to a database

The client machine from which you will connect to the database must have a [database management system client](#) on it. You can obtain the clients from your database management system vendor. Many of the client files can also be obtained from the Esri Customer Care portal.

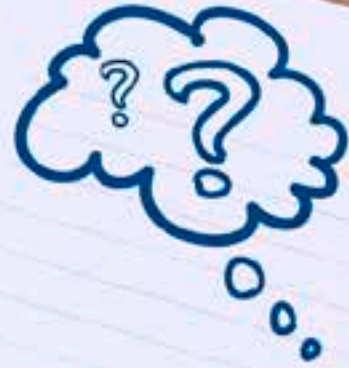
Once the database client is installed on a computer where ArcGIS for Desktop is installed, you can create a connection to the database from the Database Connections node in the Catalog tree. See [Database connections in ArcGIS for Desktop](#) for more information. To create a connection from other ArcGIS clients, you can use a Python script that calls the [Create Database Connection tool](#).

Related Help Topics

- [Add Incrementing ID Field GP tool](#)
- [Enabling enterprise geodatabase functionality in an existing database](#)

Other Notes on Feature Services

- Data can't be from a geodatabase connection
- Supports where clause
 - Set as layers Definition Query
- Supports non-spatial tables



questions?
& answers





Understanding our world.