MapObjects and ArcSDE8

Frequently Asked Technical Questions
MO2 and ArcSDE8

- Frequently Asked Technical ???
  - Connecting
  - Querying / Editing
  - GeoDatabase
  - Relating to external data
  - Deploying
Supported data formats

- ArcSDE8
- Shapefiles
- Coverages
- CAD
- Images

MapObjects
Current versions

- MapObjects 2.0a
- MapObjects 2.0 + 2.0a upgrade
- ArcSDE 8.0.2

http://www.esri.com/modeveloperconnection
Supported formats

- SDE 3.x layers
- ArcSDE8 layers
- GeoDatabase
- ArcSDE for Coverages
Accessing the data

DataBase

DataConnection

Layer

Queries

Recordset

Edits

AddRelate

Table

Filters
How do you connect?

dc.Server = <Server Name>
dc.Database = <Instance>
dc.User = <User>
dc.Password = <Password>
dc.Connect
DataConnection

• SDE 3.x layers
  – Using moSDE302.dll
    dc.Server = "server3x"
    or
    dc.Server = "SDE30:server3x"
  – Using moSDE80.dll
    dc.Server = "SDE80:server3x"
DataConnection

- ArcSDE8
- ArcSDE for Coverages

```python
dc.Server = "SDE80:server8x"
dc.Database = "esri_sde"
    dc.Database = "esri_sde:sde"
dc.User = "sde"
dc.Password = "sde"
dc.Connect
```
GeoDataset Name

- Single-database DBMS
  `<owner>.<tbl>.<spatial column>.<feature>`
- Multiple-database DBMS
  `<db>.<owner>.<tbl>.<spatial column>.<feature>`
- ArcSDE for Coverages
  - Depends on source data
When is SDE license used?

• MO uses SDE license until
  • All SDE layers are removed
  • Memory freed from global variables
    – Layer, Table, Field, etc.
  • dc.Disconnect
  • Application terminates
What about query performance?

- **Client side query**
  - Spatial
  - Attribute

- **Better performance**
  - Server side query
    - Filters
Why use filters?

- Improve performance
- Reduce number of records sent by server
- Serve only necessary fields
  - Text field when rendering Labels
  - Shape field for drawing operations
FilterExpression

• Simple query
  ```
  state_name = 'California'
  ```

• Complex query
  ```
  state_name =
  (select state_name from sttab
   where sde.sttab.code = '123')
  ```
Client side queries

- Attribute query
  - SearchExpression
    - SQL where clause
- Spatial queries
  - SearchShape
  - SearchByDistance
SearchExpression

• ArcSDE
  – SQL Where clause
  – Use Shape to query FID
    • lyr.SearchExpression("Shape > 10")

• ArcSDE for Coverages
  – INFO operators (cn, lk)
    • lyr.SearchExpression("st_name lk 'Dakota'")
Is the data editable?

- GeoDatabase
  - Versioned
- ArcSDE8
- ArcSDE for Coverages
- SDE 3
- MapObjects

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ArcSDE layers

- ArcSDE8 and SDE 3
  - Editable
  - recs.Updatable returns True
GeoDatabase

• Personal GeoDatabase
  – Unsupported

• Not registered as versioned
  – Editable
  – recs.Updatable returns True
GeoDatabase

- Registered as versioned
  - ReadOnly in MapObjects
  - MO sees DEFAULT version
  - recs.Updatable returns False
  - recs.Edit fails at run-time
Editing the Geodatabase

ArcSDE Feature Class or Feature Dataset

MapObjects
- Edit
- Edit
- ReadOnly

Is it Registered? GDB? Versioned?
- No and No
- Yes and No
- Yes and Yes

ArcMap
- ReadOnly
- ReadOnly
- Edit
Editing

- MO's Recordset object
  - MoveFirst
  - MoveNext
  - EOF

- SDE controls edit management
  - Ignores AllowSharing/AutoFlush

- SDE API
Latest at MapObjects 2.0a

- With Date/Time column present
  - .AddNew is successful
- Set to NULL
  - fld.Value = NULL
- Annotation -- ReadOnly
External tables?
Table object

- Connect to external table
- ReadOnly
- All fields accessible
  - Queries
  - Symbology or Rendering
AddRelate

• Same DBMS instance as layer
  
  ```
  tbl.Server = "SDE80:server"
  tbl.Database = "esri_sde"
  ' tbl.Database = "esri_sde:sde"
  tbl.User = "sde"
  tbl.Password = "sde"
  tbl.Name = "sttab"
  ```
AddRelate (cont'd)

• Use fully-qualified field names

  toFld = "sde.states.state_name"
  frFld = "sde.sttab.state_name"
  lName = "sde.states.shape.polygons"

  Map1.Layers(lName).AddRelate(toFld, tbl, frFld)
ArcSDE8 and Projections

- Metadata in ArcSDE layer's table
- ReadOnly to MO
- To update? Use SDE API
- Rename PE_GRIDS directory
Export to shapefile

- Export method on Recordset
- OK if no Date fields
  - Skip .Value when Null Date
    ' Shapefile dates are populated as yyyy-mm-dd
    tDescSHP.FieldLength(i) = 10
    strDate = '2000-03-14'
    recs.Fields("date").Value = strDate
Deploying

• SDE 3.x only

MoSde302  2.0.1.100  SDE 3.0 support library
MoSde302Table 2.0  SDE 3.0 support library
SDE30  3.0.2.1  SDE 3.0 extension library
Deploying

- **ArcSDE8**
  - **MoSde302**  2.0.1.100 SDE 3.0 support library
  - **MoSde80**  2.0.1.100 ArcSDE 8.0 support lib
  - **SDE80**  3.0.2.1  ArcSDE 8.0 extension lib
  - **PE80**  8.0.1  ArcSDE 8.0 project engine
  - **SG80**  8.0.1  ArcSDE 8.0 shape geometry

(P.S. Remember pe.dll and sg.dll)
Summary

- Connect to ArcSDE8
- Filter / Query
- Edit
- Relate
- MO Developer Connection
  http://www.esri.com/modeveloperconnection