ArcSDE Admin Tools

Jim Jarvis – ArcSDE Specialist

Intro to Generic Tools

jjarvis@esri.com

Alan Jackson – Software Product Management

Special Topics

ajackson@esri.com

Agenda:

- ArcSDE Fundamentals
- Database Design
- Overview of ArcSDE administration tools

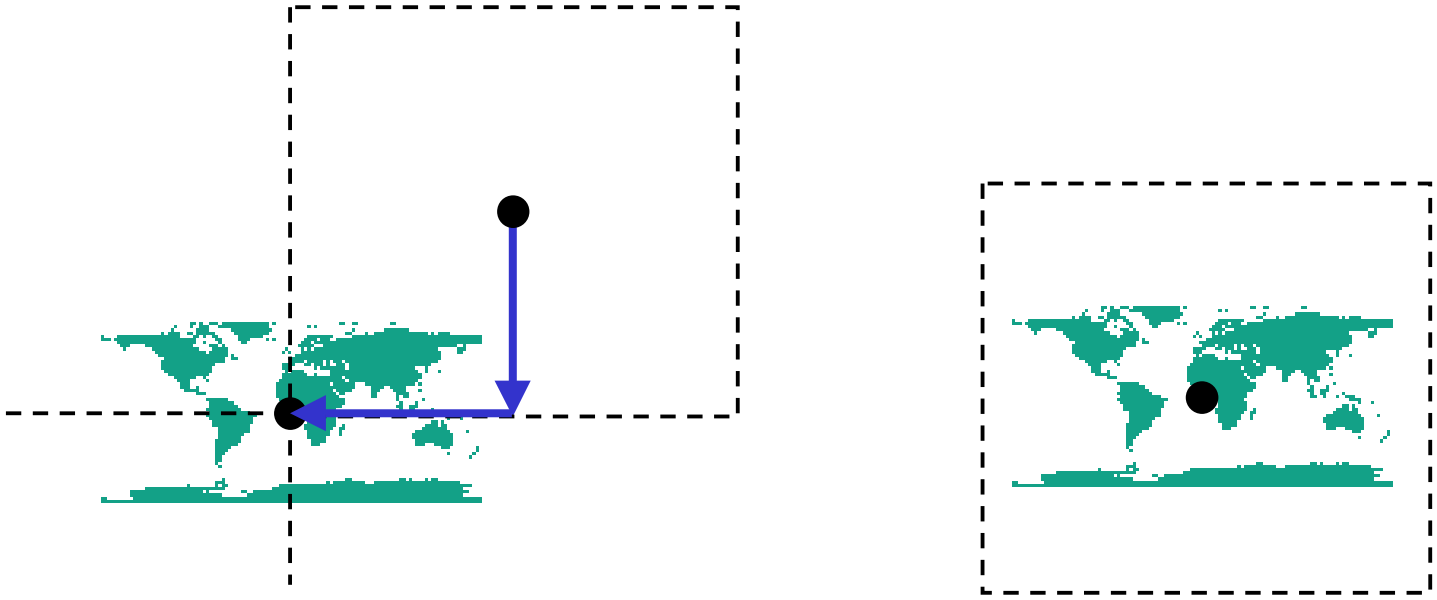
Fundamentals

- Loading Parameters
  - -XY offset, Scale
  - -Commit interval
  - -Dbtune
  - -Grid Sizing

XY offset, Scale

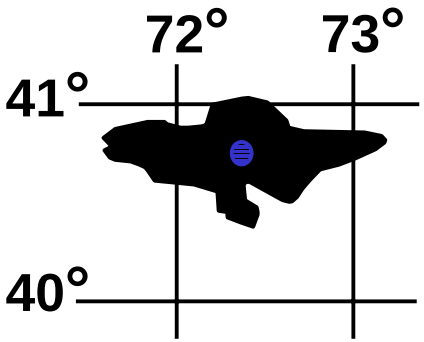
```
shp2sde -o create

[-x <xoffset,yoffset,xyscale>]
```

XY Coordinate Offset



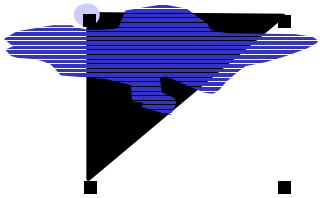
- **Goals:**
  - **All data in positive coordinate space**
  - **Provide equal room to grow on all sides**
- **Solution:**
  - **Find distance between data and integer system centers**
  - **Offset coordinates by this distance**

Scale



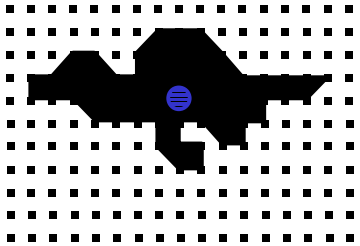
Andizhan, Uzbekistan

72.36° 40.81°



Integer - no scale

72° 41°

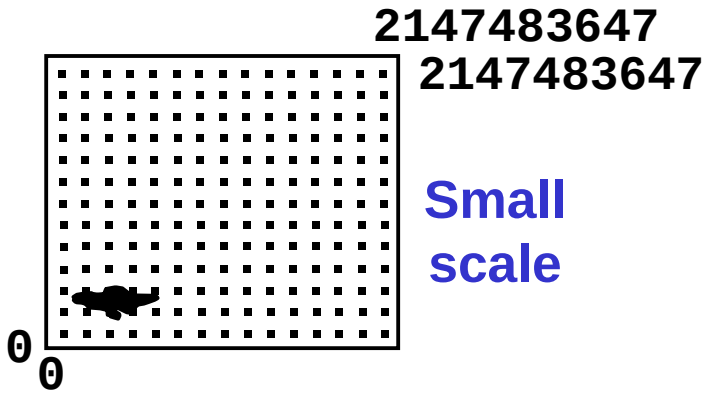


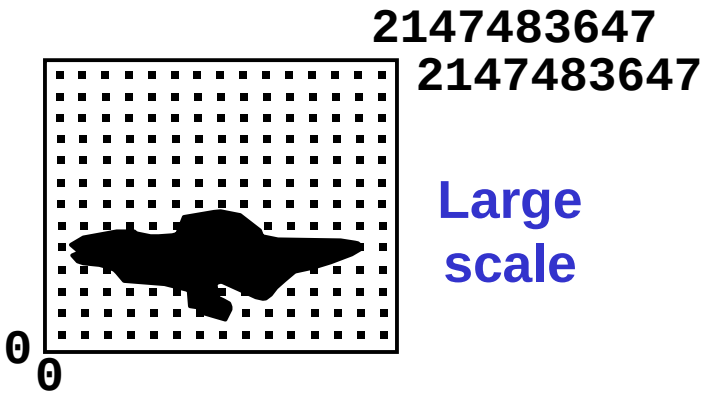
Integer - scale of 10

72.4° 40.8°

- ArcSDE stores geometry in integer format
  - Coordinates snap to nearest integer location
- Applying scale avoids loss of data
  - Larger scales allow higher resolution

Characteristics of integer coordinates





- Finite number of possible coordinates
- Larger scale factor consumes more coordinate / storage space
- Choose smallest scale that supports data's resolution
  - Cannot alter after layer creation
  - Allow for update with higher resolution data

Commit Interval

```
shp2sde -o create

[-c <commit_interval>]
```

Populating the layer

- RDBMS stores uncomitted work in temporary space
- Comitting transaction frees temporary space
- Committing transaction takes time
- Delay commit as long as possible without exhausting temporary space
- Full temporary space causes the database to rollback the transaction (i.e., load fails).

DBTune

```
shp2sde -o create

[-k <config_keyword>]
```

Dbtune.sde

- Controls allocation and placement of Tables

Oracle

```
##<KEYWORD>

DSET_TABLESPACE          DCW
TEMP_TABLESPACE          TEMP
INDEX_TABLESPACE         DCW_IXF

F_INIT                   40960
F_NEXT                   40960
F_IX1_INIT               40960
F_IX1_NEXT               40960
A_TBLSP                  DCW
A_INIT                   40960
A_IX1_INIT               40960
S_TBLSP                  DCW_IX

END
```

SQL Server

```
##DEFAULTS

F_IX1_FILL               75

S_IX1_CLUSTER            1

S_IX2_CLUSTER            0

S_IX1_FILL               75

S_IX2_FILL               75

END
```

Building the DBtune File (Some tools for Oracle/UNIX)

- **LI_num:** Returns the layer number from the database.
- **Layergetsize:** Analyzes the layers and returns a DBtune **KEYWORD** entry.
- **Extents:** Returns the allocated extents for each layer.

```
select segment_name,count(*) from user_extents
group by segment_name;
```

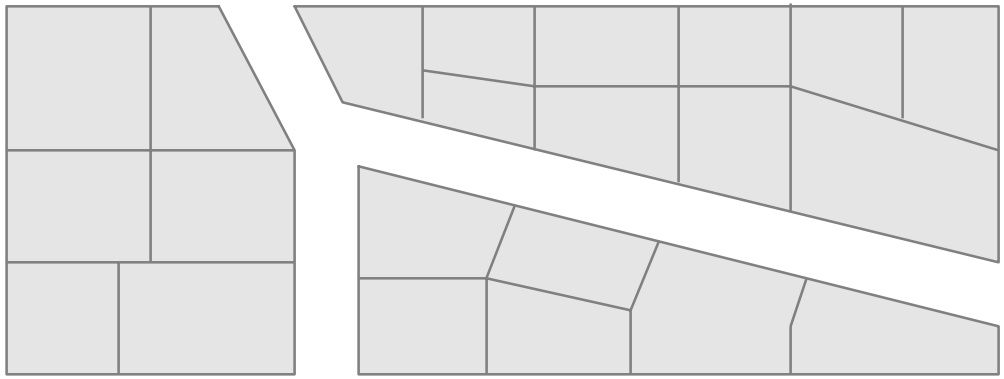
Grid Sizing (Spatial Index)

```
shp2sde -o create

-g <grid_size>
```

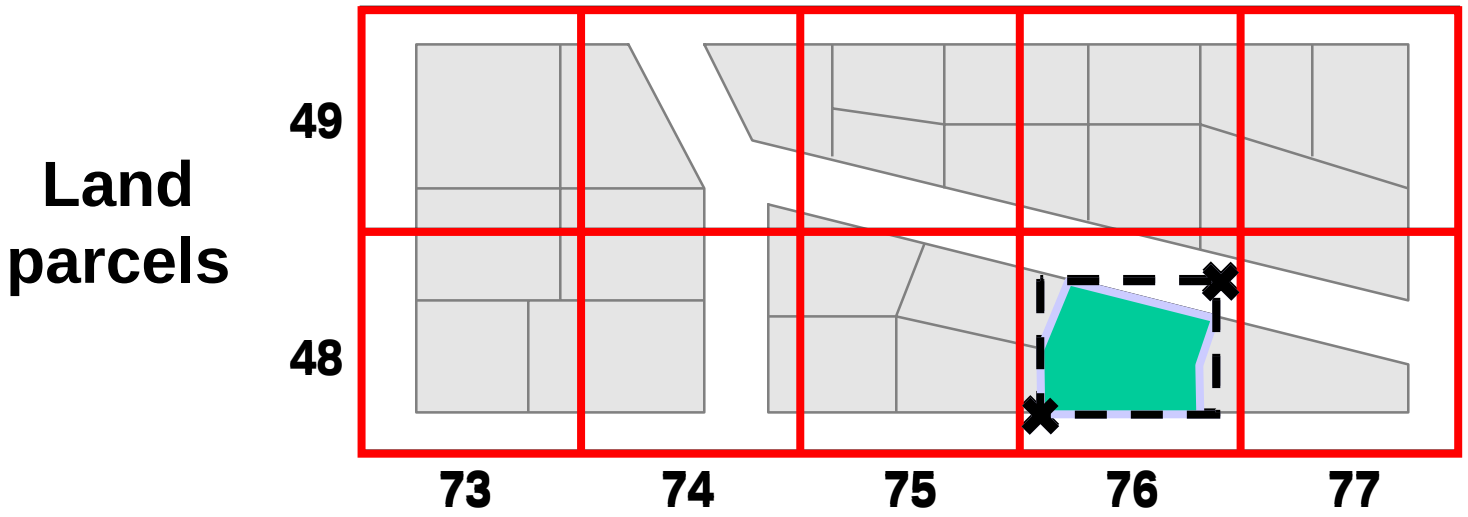
Spatial Index Grids

- Used by ArcSDE to speed retrieval of Features
- Ignored if viewing full extent of Layer
- Have at least one Grid entry for each feature in your Layer
- Incorrect sizing creates large index tables

Query a Land Parcels Layer



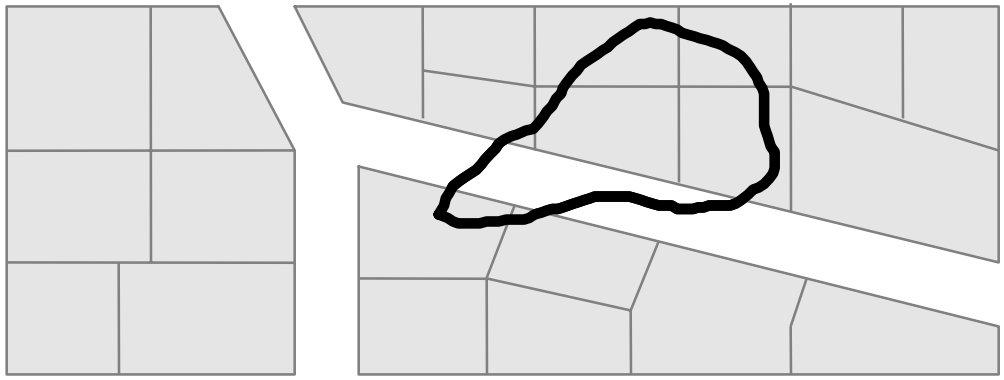
Spatial index components



- Grid tiles
  - Two numbers in indexed columns
- Shape envelope
  - Two coordinates (four numbers) in indexed columns
- Shape
  - Many coordinates in binary column

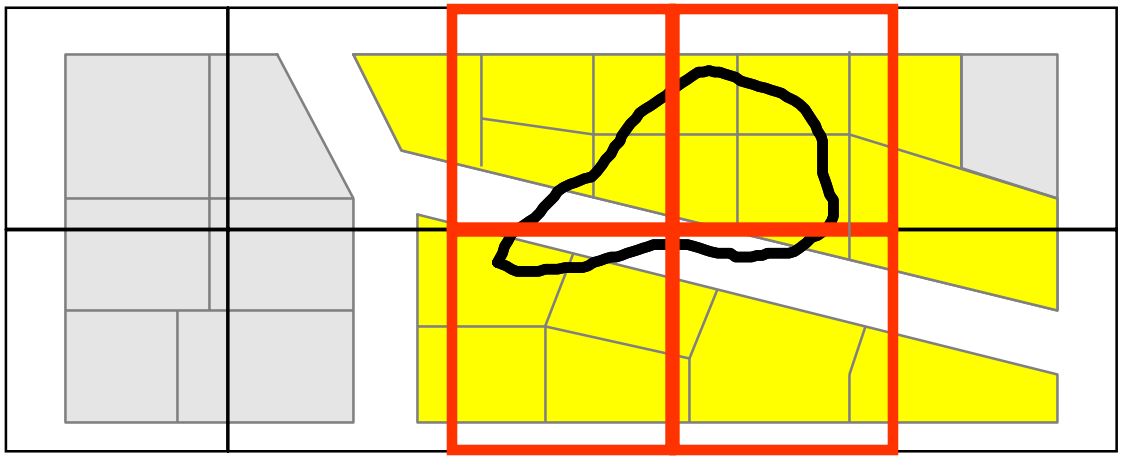
Client submits a spatially-constrained query

"retrieve all land parcels that overlap a ruptured storage tank's contamination plume"



Server determines which parcels share an index grid with the plume

"retrieve all land parcels that overlap a ruptured storage tank's contamination plume"

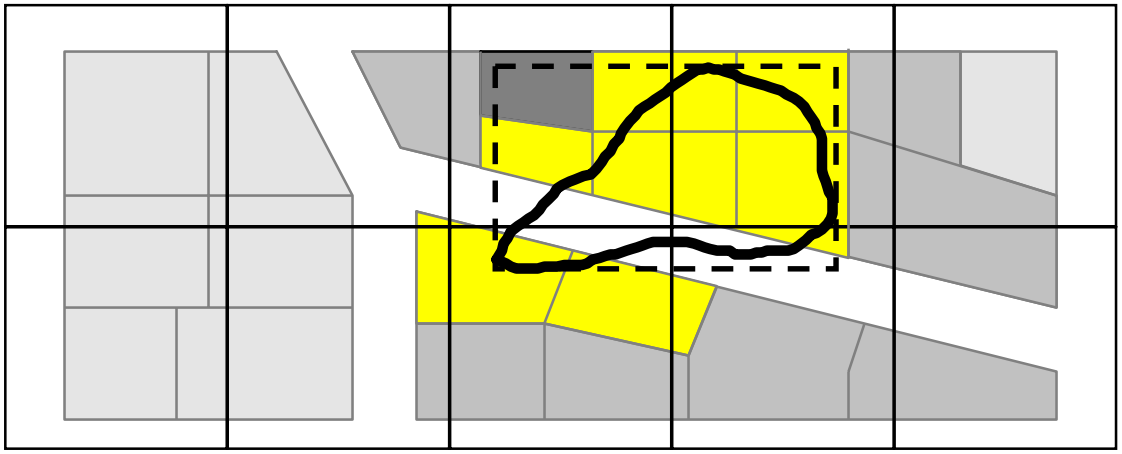


Server finds shapes with overlapping envelopes

"retrieve all land parcels that overlap a ruptured storage tank's contamination plume"

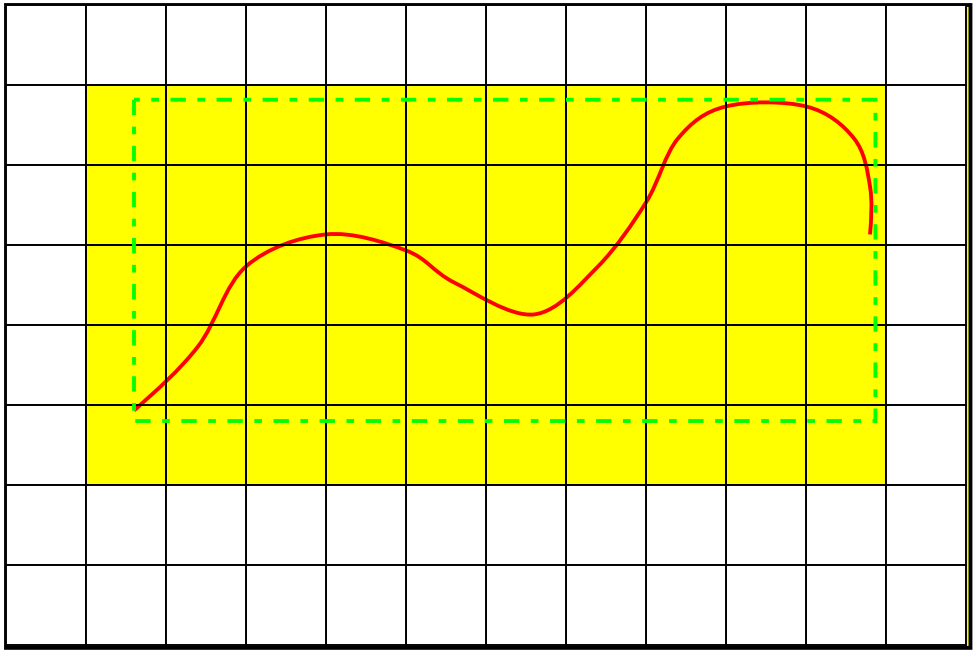
Feature shapes compared to plume shape

"retrieve all land parcels that overlap a ruptured storage tank's contamination plume"



Spatial Index Grids (creation)

- Grid level that's too small
- Created 50 entries in Spatial Index for this feature,



- Feature extent
- Example Feature
- Grid cells
- Grids overlapped by feature extent

Spatial Index Grids (creation)

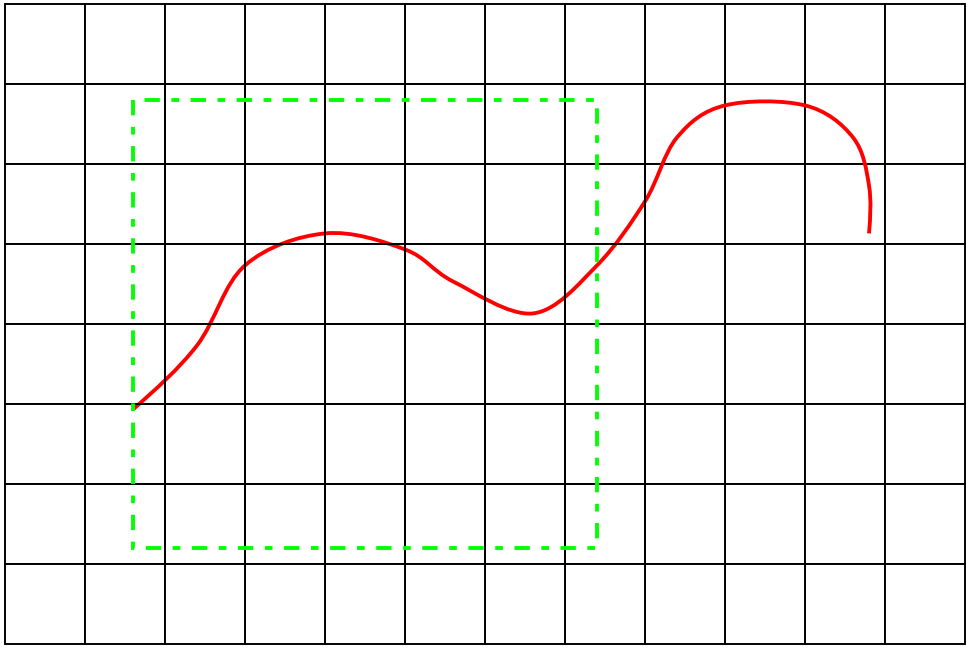
sdelayer -o si_stats

Too Small!

```
Layer 1 Spatial Index Statistics:
Level 1,   Grid Size 200
|-------------------------------------------------------------------|
| Grid Records: 107061                                              |
| Feature Records: 41236                                            |
| Grids/Feature Ratio:  2.60                                        |
| Avg. Features per Grid:  2.99                                     |
| Max. Features per Grid: 33                                        |
| % of Features Wholly Inside 1 Grid: 38.19                         |
|-------------------------------------------------------------------|
|                Spatial Index Record Count By Group                |
| Grids:      <=4    >4    >10    >25    >50    >100   >250   >500  |
|---------- ------ ------ ------ ------ ------ ------ ------ ------ |
| Features:  38308   2928    621    163     60     24      9      3 |
| % Total:      92%     7%     1%     0%     0%     0%     0%     0%|
|-------------------------------------------------------------------|
```

Spatial Index Grids (search)

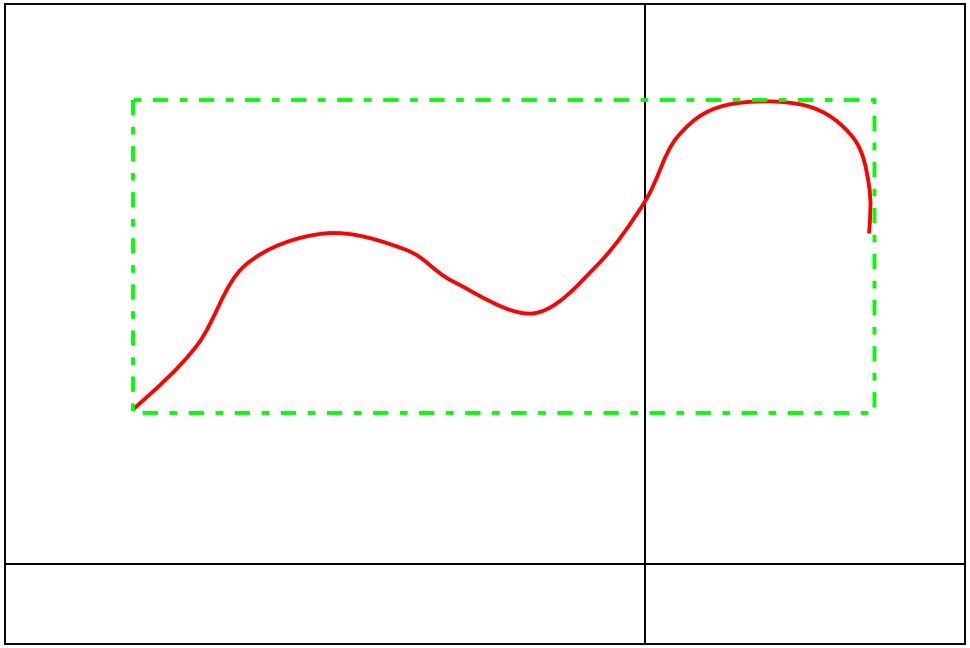
- Grid level that's too small
- First, get all the feature entries for Grid cells in zoom extent (42)
- Then, Extract Feature data from Feature table



- Zoom extent
- Grid cells
- Grid cells selected by zoom
- Example Feature

Spatial Index Grids (resized)

- One Grid set to larger size
- Feature has only two Grid entries
- Smaller Spatial Index size and less to sift through



- Grid cells
- Grids overlapped by feature extent
- Feature extent
- Example Feature

Spatial Index Grids (resized)

sdelayer -o si_stats

Much better!

```
Layer 1 Spatial Index Statistics:
Level 1,   Grid Size 4000
|-------------------------------------------------------------------|
| Grid Records: 43441                                               |
| Feature Records: 41236                                            |
| Grids/Feature Ratio:  1.05                                        |
| Avg. Features per Grid: 283.93                                    |
| Max. Features per Grid: 728                                       |
| % of Features Wholly Inside 1 Grid: 94.94                         |
|-------------------------------------------------------------------|
|                Spatial Index Record Count By Group                |
| Grids:      <=4    >4    >10    >25    >50    >100   >250   >500  |
|---------- ------ ------ ------ ------ ------ ------ ------ ------ |
| Features:  41235      1      0      0      0      0      0      0 |
| % Total:     99%     0%     0%     0%     0%     0%     0%     0%|
|-------------------------------------------------------------------|
```

Grid Recommendations

- Experiment with Grid settings
- First Level Grid should be set to the LARGER of:
  - Your layers average feature size or
  - Your average Querying Area
- Never make grids smaller than your features
- Most of the time one Grid level is enough

Grid Recommendations

- Keep average number of features per grid between 100 and 300
- Try not to let the max number of features per grid exceed 2000 to 4000
- Maintain a high % of Features wholly in 1 Grid (>90% = great, > 80% = good, <80% = change)
- Tuning Grids to a “general” setting works well for most queries.

Exercise Good SQL Habits

- Index Attribute fields you query on
- Indexing both the "where" columns AND the "select" columns helps Business Table Queries in the same way that it helped the S table queries.
- Remember Keys are Order Dependant
- Check Application Logic

Tuning Reality

- You're only as fast as your slowest step.
- Speeding up a faster step WON'T help.

Tuning Focus

- **Things that make a difference:**
  - **Proper Attribute Indexing**
  - **Grid Sizing**
  - **Application Logic**

- **Things that may not make a difference:**
  - **Fragmentation**
  - **Spreading out your I/O**
  - **Oracle fine tuning**

Don’t forget:

Database Design!

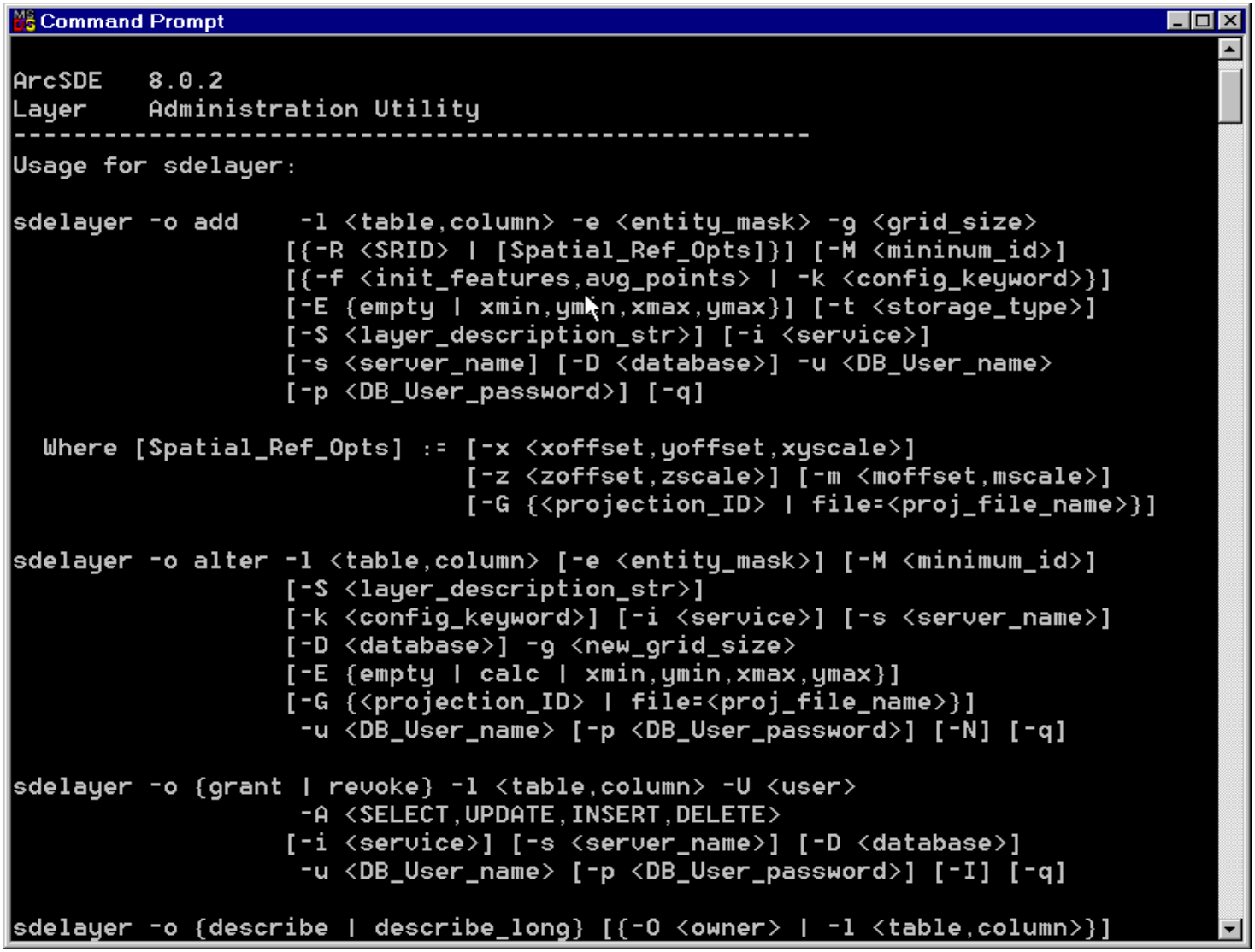
Design Guidlines From "Modeling Our World"

- **Involve users**
- Take it one step at a time
- **Build a team**
- Be creative
- **Create deliverables**
- Keep goals and objectives in focus
- Do not add detail prematurely
- **Document carefully**
- Be flexible
- Plan from your model

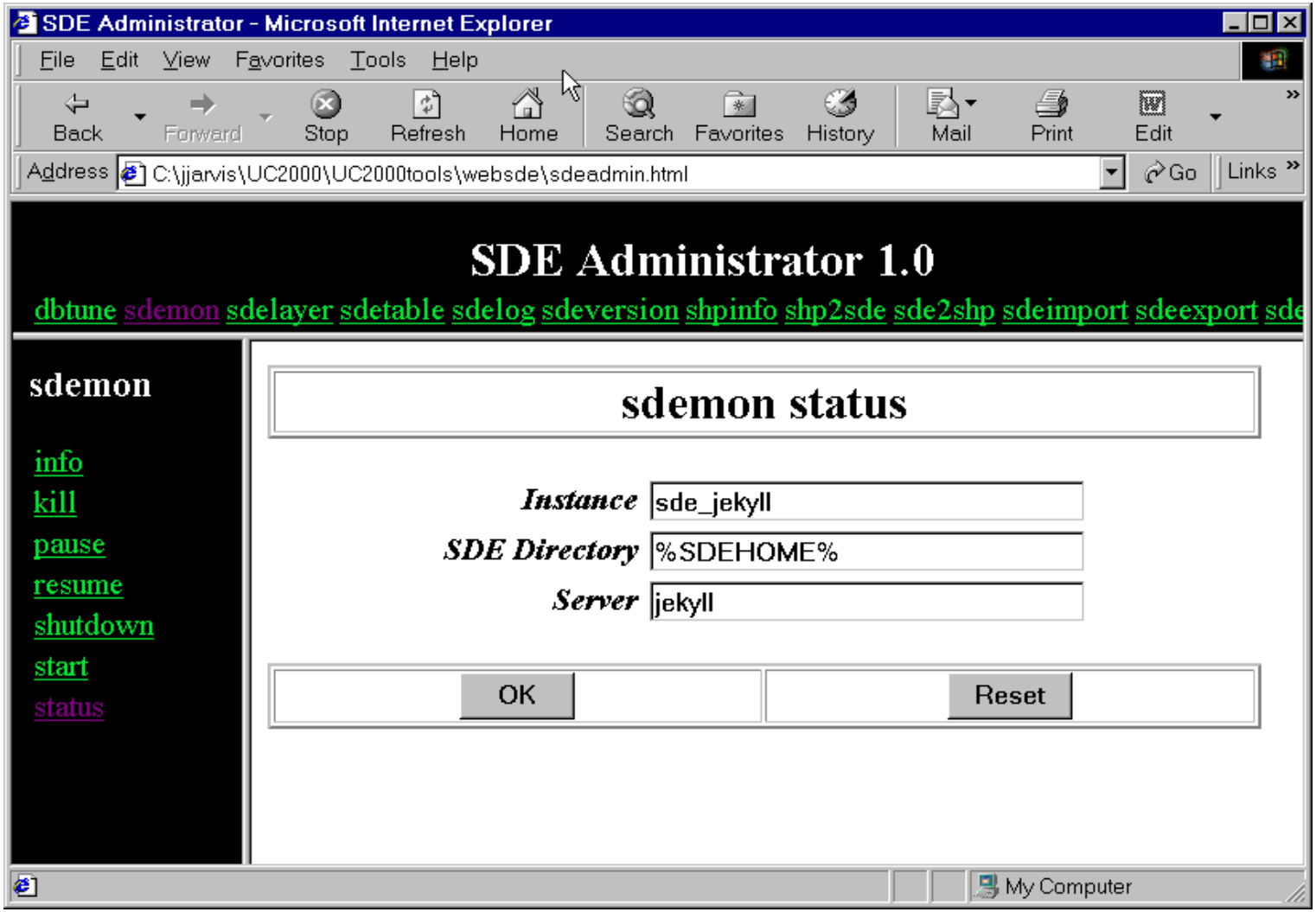
ArcSDE Admin Tools

- Command Line Tools
- WebSDE
- ASI
- Excel tool
- SDA - ESRI Sweden
- FME
- SDEMonitor
- ArcCatalog

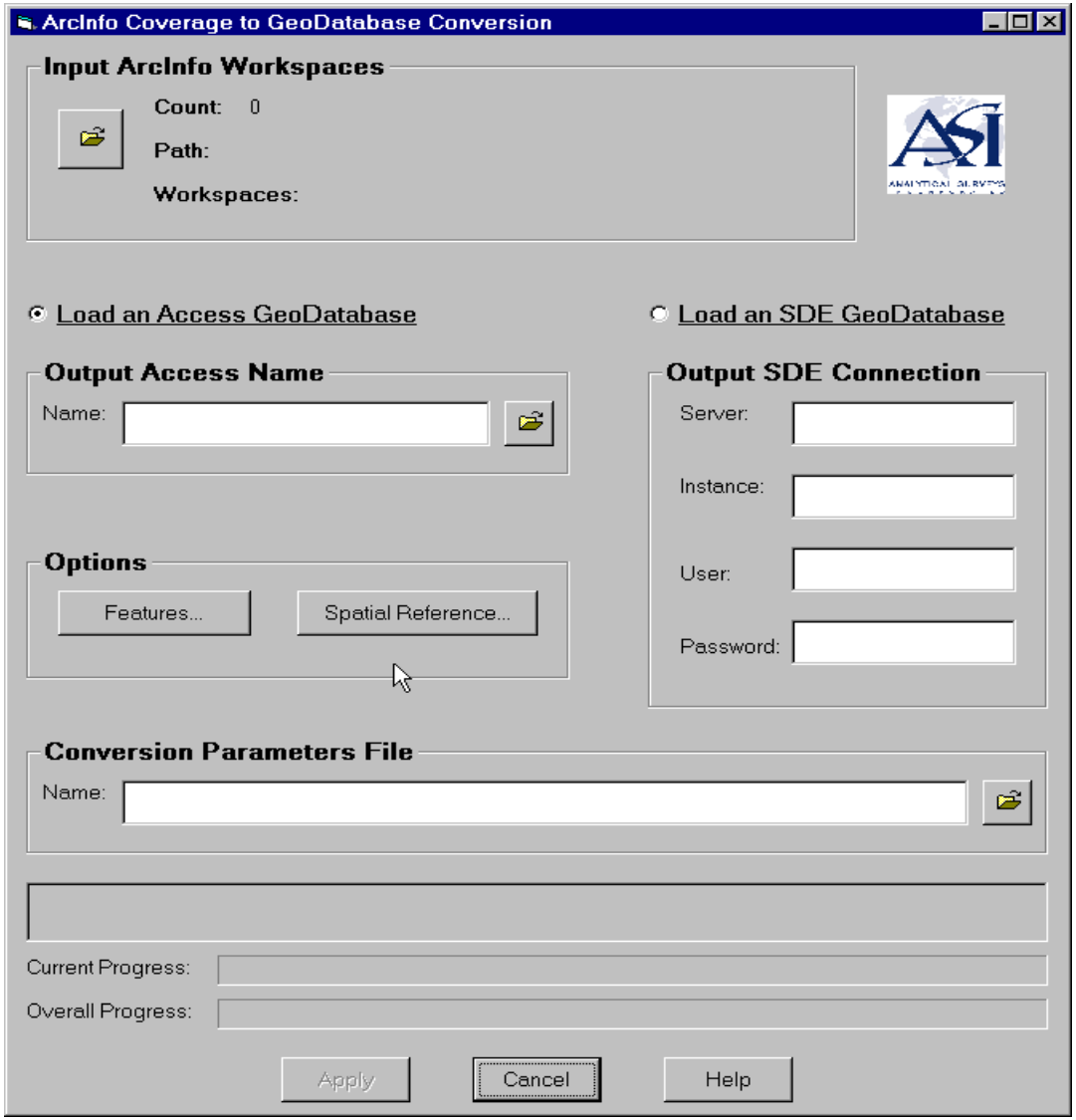
Default ArcSDE Admin Tools



WebSDE


SDE Administrator - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit
Address C:\jjarvis\UC2000\UC2000tools\websde\sdeadmin.html
Go Links
SDE Administrator 1.0
dbtune sdemon sdelayer sdetable sdelog sdeversion shpinfo shp2sde sde2shp sdeimport sdeexport sde
sdemon
info
kill
pause
resume
shutdown
start
status
sdemon status
Instance sde_jekyll
SDE Directory %SDEHOME%
Server jekyll
OK
Reset
My Computer

ASI


ArcInfo Coverage to GeoDatabase Conversion
Input ArcInfo Workspaces
Count: 0
Path:
Workspaces:
Load an Access GeoDatabase
Load an SDE GeoDatabase
Output Access Name
Name:
Output SDE Connection
Server:
Instance:
User:
Password:
Options
Features...
Spatial Reference...
Conversion Parameters File
Name:
Current Progress:
Overall Progress:
Apply
Cancel
Help

Excel Tool

Microsoft Excel - sde_xyscale.xls

File Edit View Insert Format Tools Data Window Help

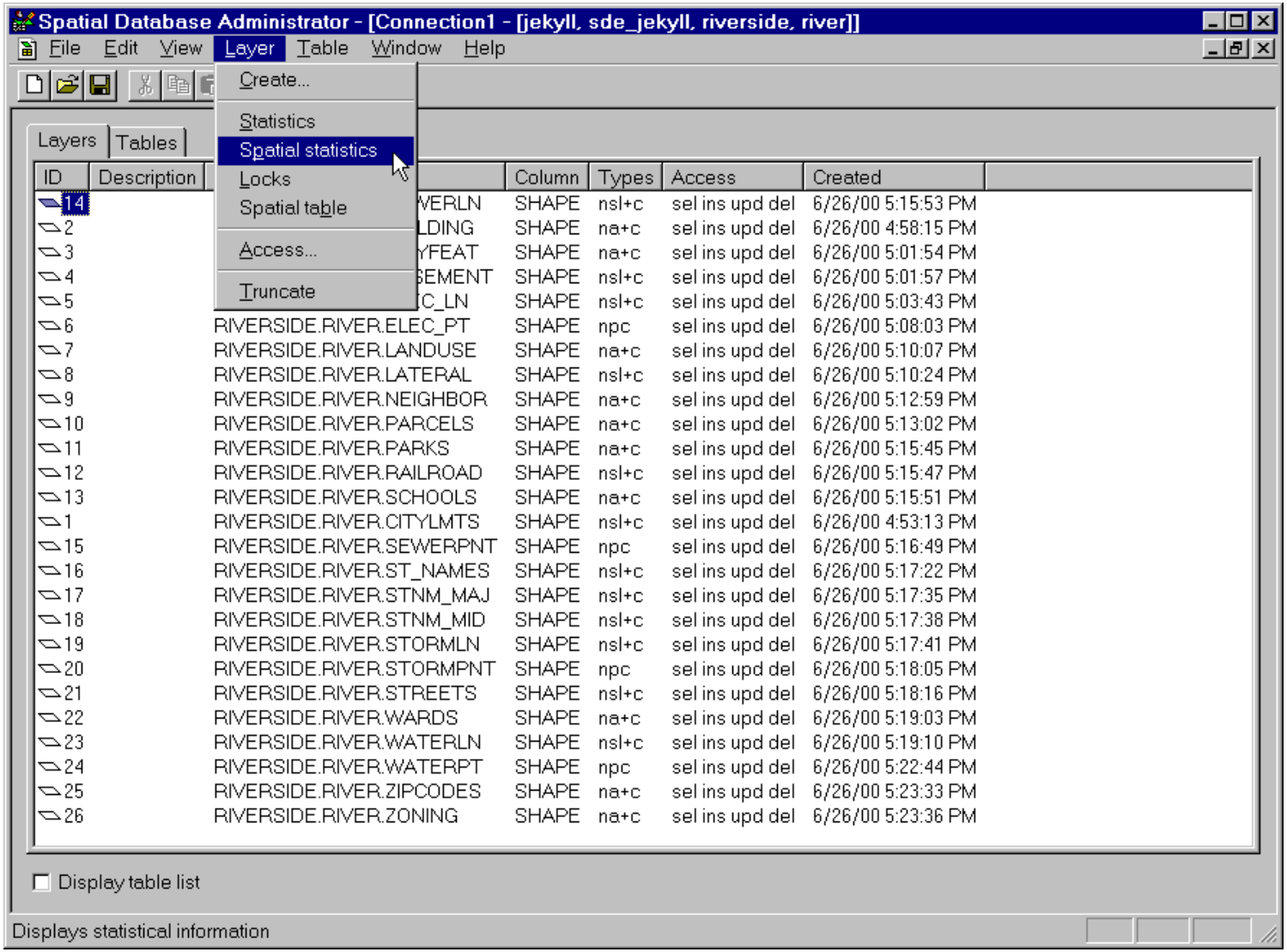
B3 = 6175377.574

	A	B	C	D	E
1	SDE Calculations for X/Y Offset and Scale				
2	*Please enter values in the yellow cells*				
3	**Min X**	6175377.574		X	Y
4	**Max X**	6249534.749	Original Min	6175377.574	2263052.31
5	**Min Y**	2263052.31	Original Max	6249534.749	2316352.575
6	**Max Y**	2316352.575	Offset Min	7415.7175	7415.7175
7			Offset Max	81572.8925	-2248220.875
8	**Buffer Size (%)**	20		x	y
9			Original Rectangle	6175377.574	2263052.31
10	Units Across Max Extent	2147483648		6175377.574	2316352.575
11				6249534.749	2316352.575
12	*Actual Min X*	*6175378*		6249534.749	2263052.31
13	*Actual Min Y*	*2263052.31*		6175377.574	2263052.31
14	*Actual Max X*	*6249535*		x	y
15	*Actual Max Y*	*2316353*	Offset Rectangle	7415.7175	7415.7175
16	*X Extent*	*74157*		7415.7175	60715.9825
17	*Y Extent*	*53300*		81572.8925	60715.9825
18	*Max Extent*	*74157.175*		81572.8925	7415.7175
19	*Buffer Width*	*7415.7175*		7415.7175	7415.7175
20	*Buffered Extent*	*88988.61*			
21					
22	**X Offset**	**6167961.857**			
23	**Y Offset**	**2255636.593**			
24	**Scale**	**23166.8334**			
25					
26	**Grid Size**	**7415**			
27					

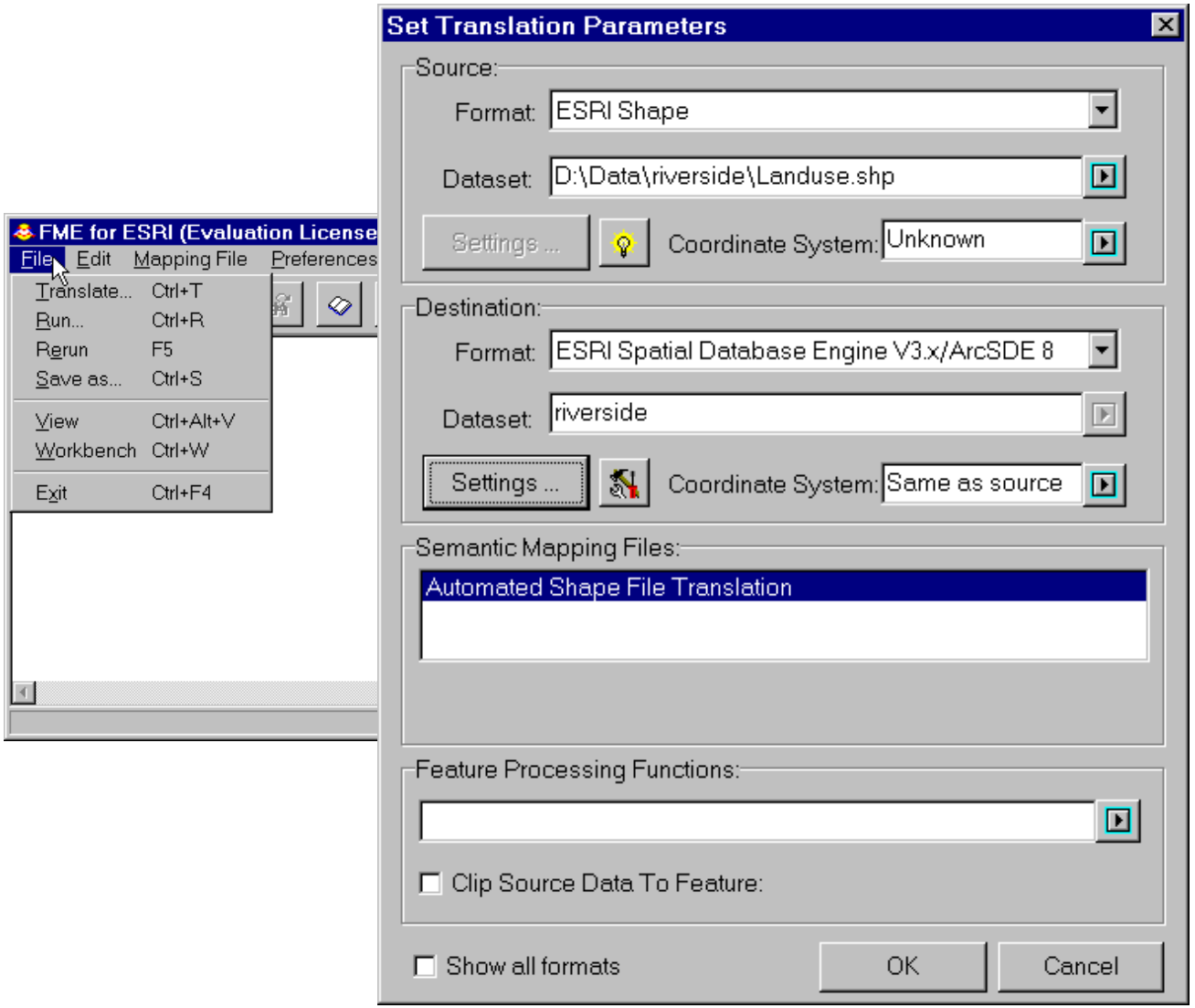
XY Offset and Scale

Ready

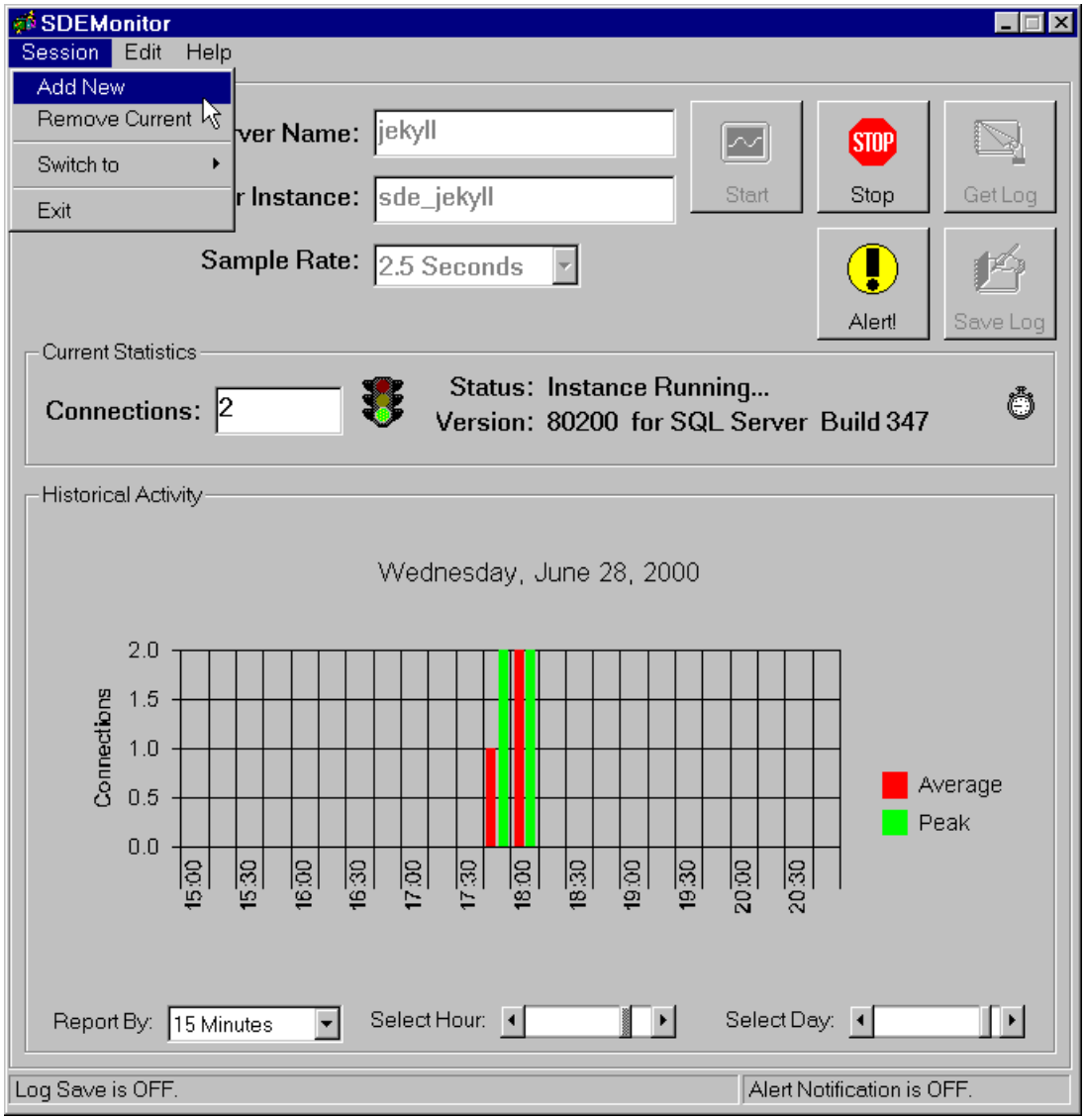
SDA - ESRI Sweden



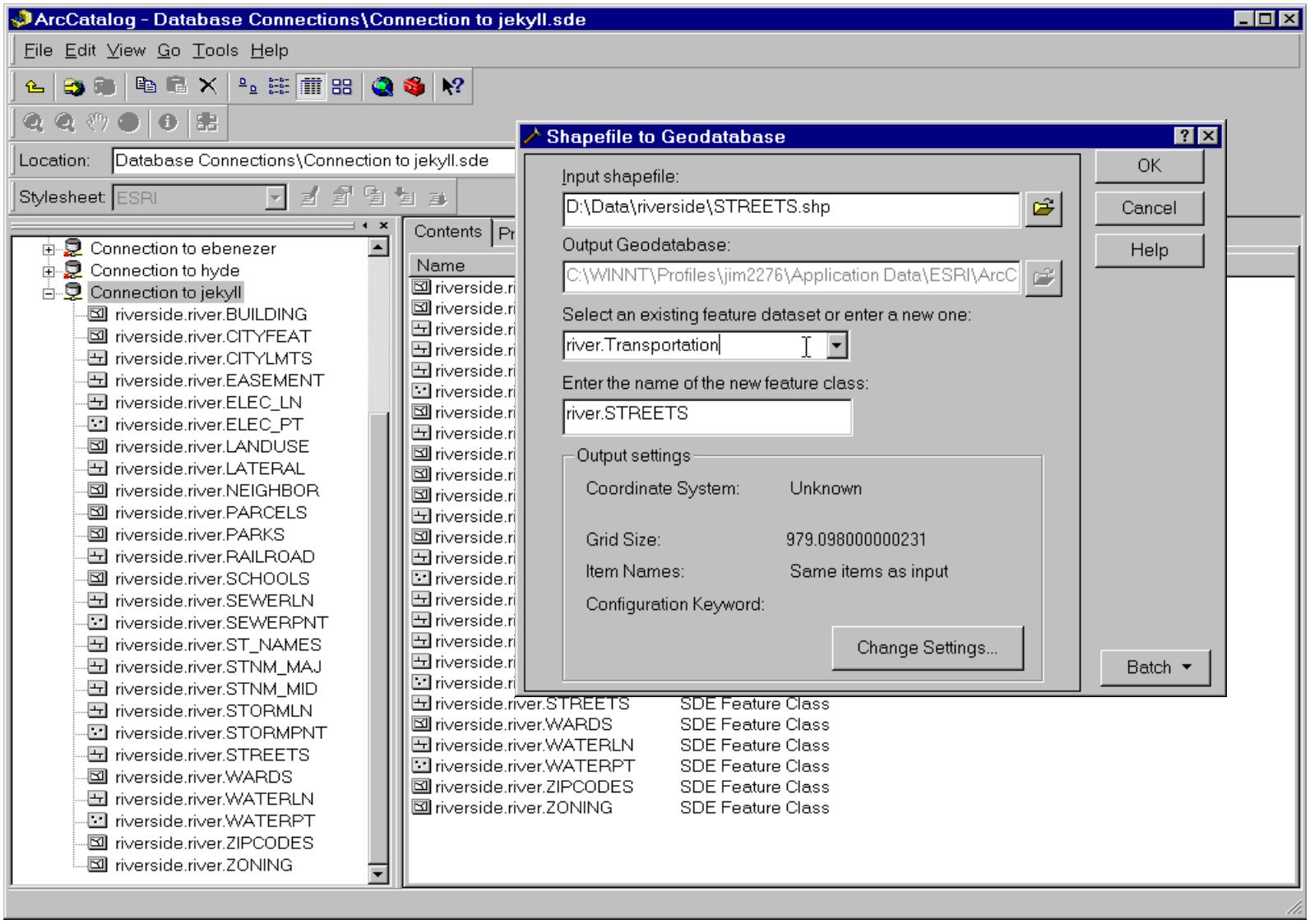
FME-Safe Software



SDE Monitor


SDEMonitor
Session
Edit
Help
Add New
Remove Current
Switch to
Exit
ver Name:
jekyll
r Instance:
sde_jekyll
Sample Rate:
2.5 Seconds
Start
STOP
Stop
Get Log
Alert!
Save Log
Current Statistics
Connections:
2
Status: Instance Running...
Version: 80200 for SQL Server Build 347
Historical Activity
Wednesday, June 28, 2000
Connections
2.0
1.5
1.0
0.5
0.0
15:00
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
19:30
20:00
20:30
Average
Peak
Report By:
15 Minutes
Select Hour:
Select Day:
Log Save is OFF.
Alert Notification is OFF.

ArcCatalog


ArcCatalog - Database Connections\Connection to jekyll.sde
File Edit View Go Tools Help
Location: Database Connections\Connection to jekyll.sde
Stylesheet: ESRI
Connection to ebenezer
Connection to hyde
Connection to jekyll
riverside.river.BUILDING
riverside.river.CITYFEAT
riverside.river.CITYLMTS
riverside.river.EASEMENT
riverside.river.ELEC_LN
riverside.river.ELEC_PT
riverside.river.LANDUSE
riverside.river.LATERAL
riverside.river.NEIGHBOR
riverside.river.PARCELS
riverside.river.PARKS
riverside.river.RAILROAD
riverside.river.SCHOOLS
riverside.river.SEWERLN
riverside.river.SEWERPNT
riverside.river.ST_NAMES
riverside.river.STNM_MAJ
riverside.river.STNM_MID
riverside.river.STORMLN
riverside.river.STORMPNT
riverside.river.STREETS
riverside.river.WARDS
riverside.river.WATERLN
riverside.river.WATERPT
riverside.river.ZIPCODES
riverside.river.ZONING
Contents
Name
riverside.river.STREETS SDE Feature Class
riverside.river.WARDS SDE Feature Class
riverside.river.WATERLN SDE Feature Class
riverside.river.WATERPT SDE Feature Class
riverside.river.ZIPCODES SDE Feature Class
riverside.river.ZONING SDE Feature Class
Shapefile to Geodatabase
Input shapefile:
D:\Data\riverside\STREETS.shp
Output Geodatabase:
C:\WINNT\Profiles\jim2276\Application Data\ESRI\ArcC
Select an existing feature dataset or enter a new one:
river.Transportation
Enter the name of the new feature class:
river.STREETS
Output settings
Coordinate System: Unknown
Grid Size: 979.098000000231
Item Names: Same items as input
Configuration Keyword:
Change Settings...
OK
Cancel
Help
Batch

Utility locations

Free ArcSDE resources at:

http://www.esri.com/devsupport/devconn/sde

ArcSDE Admin Tools

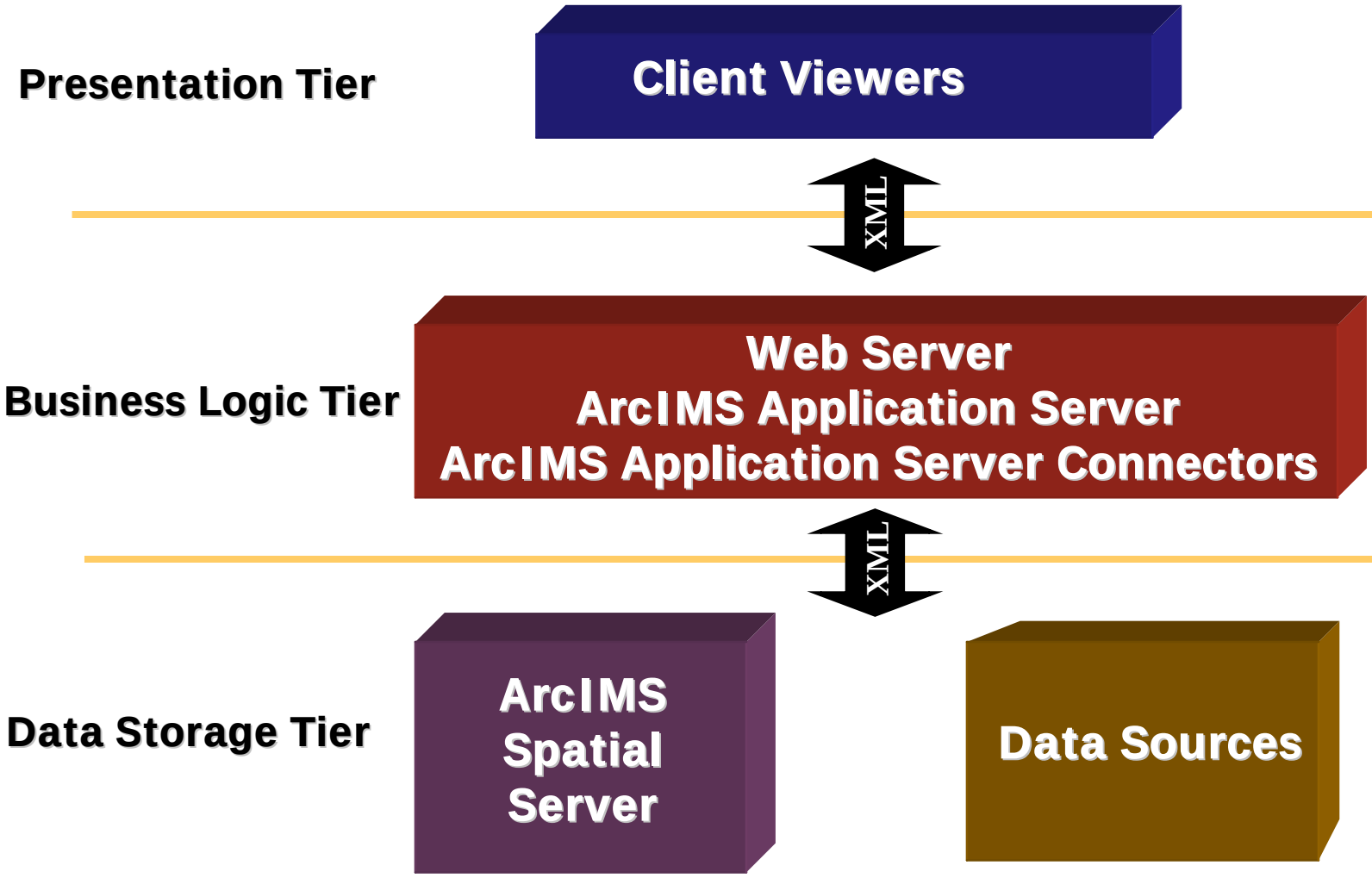
Special Administration Tasks: ArcIMS, Replication/Failover, Oracle 8i Spatial

ArcSDE 8.1 Highlights

Alan Jackson-Internet Services
ajackson@esri.com

ArcSDE and ArcIMS

ArcIMS Is a Multitier System



ArcXML

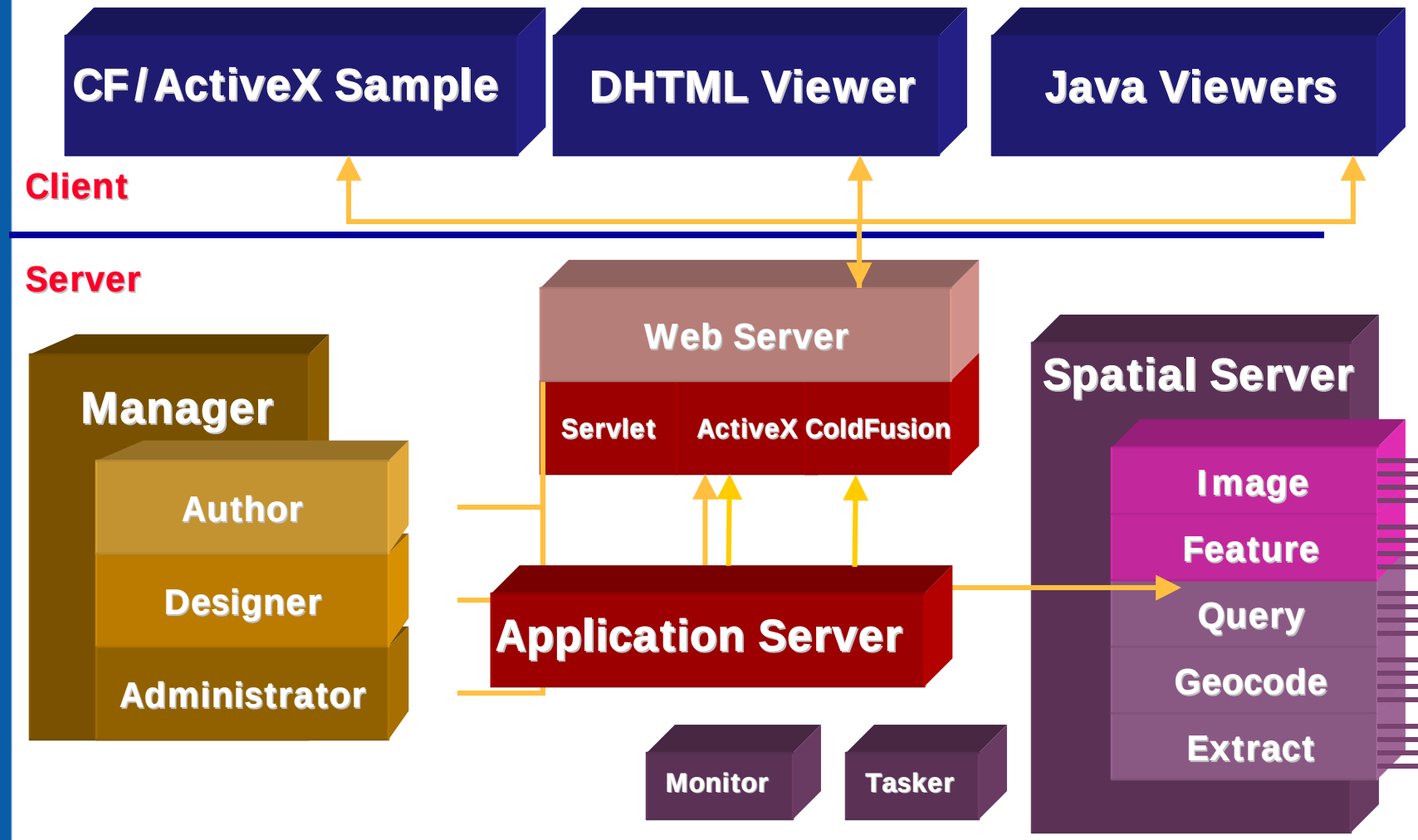
- **ArcXML is ArcIMS's XML interface.**

  It provides a common interface into the services provided by ArcIMS.

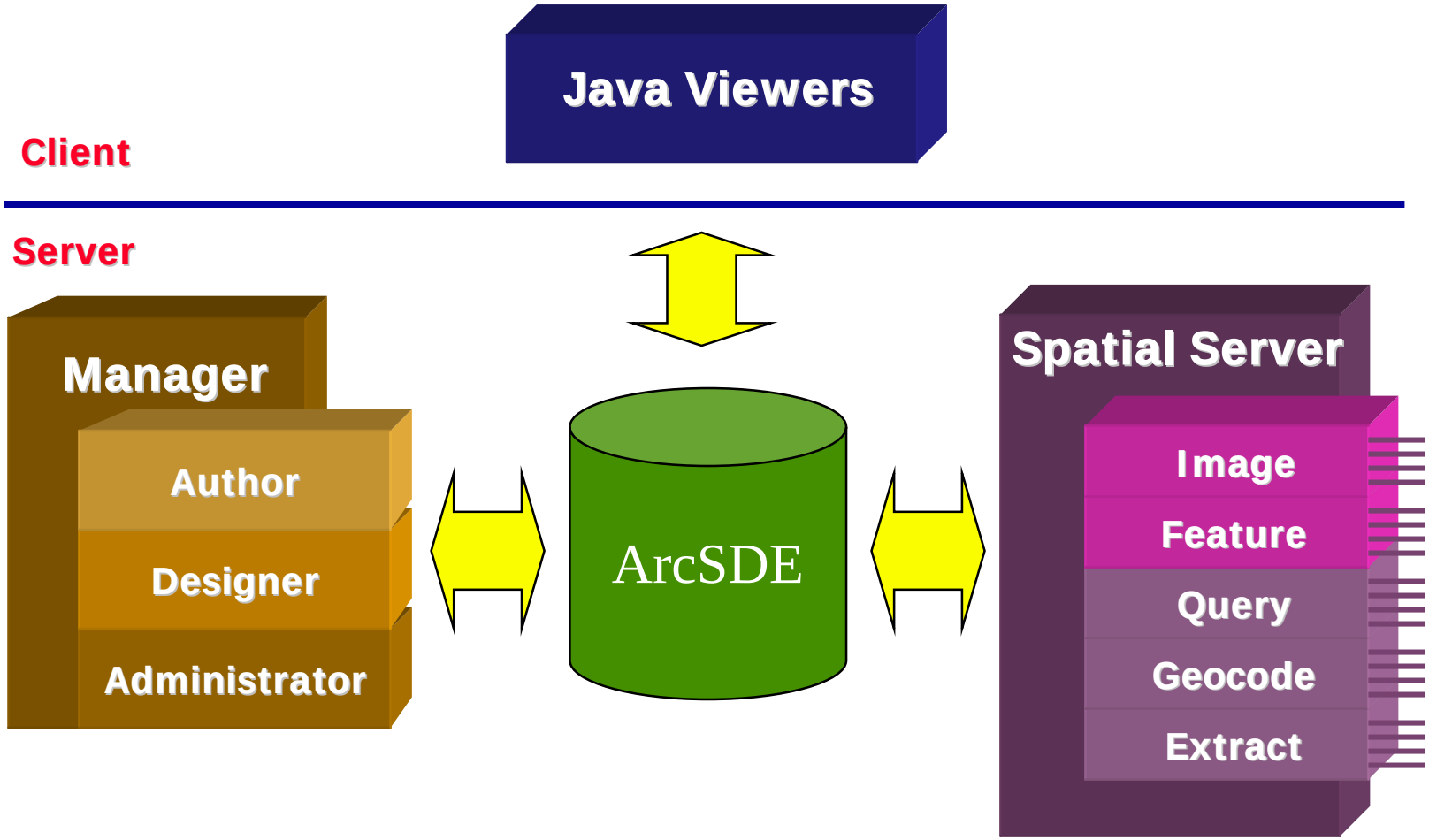
- **MapService**

  A collection of AXL commands that create a map. Similar to a project file in ArcView.

ArcIMS Components



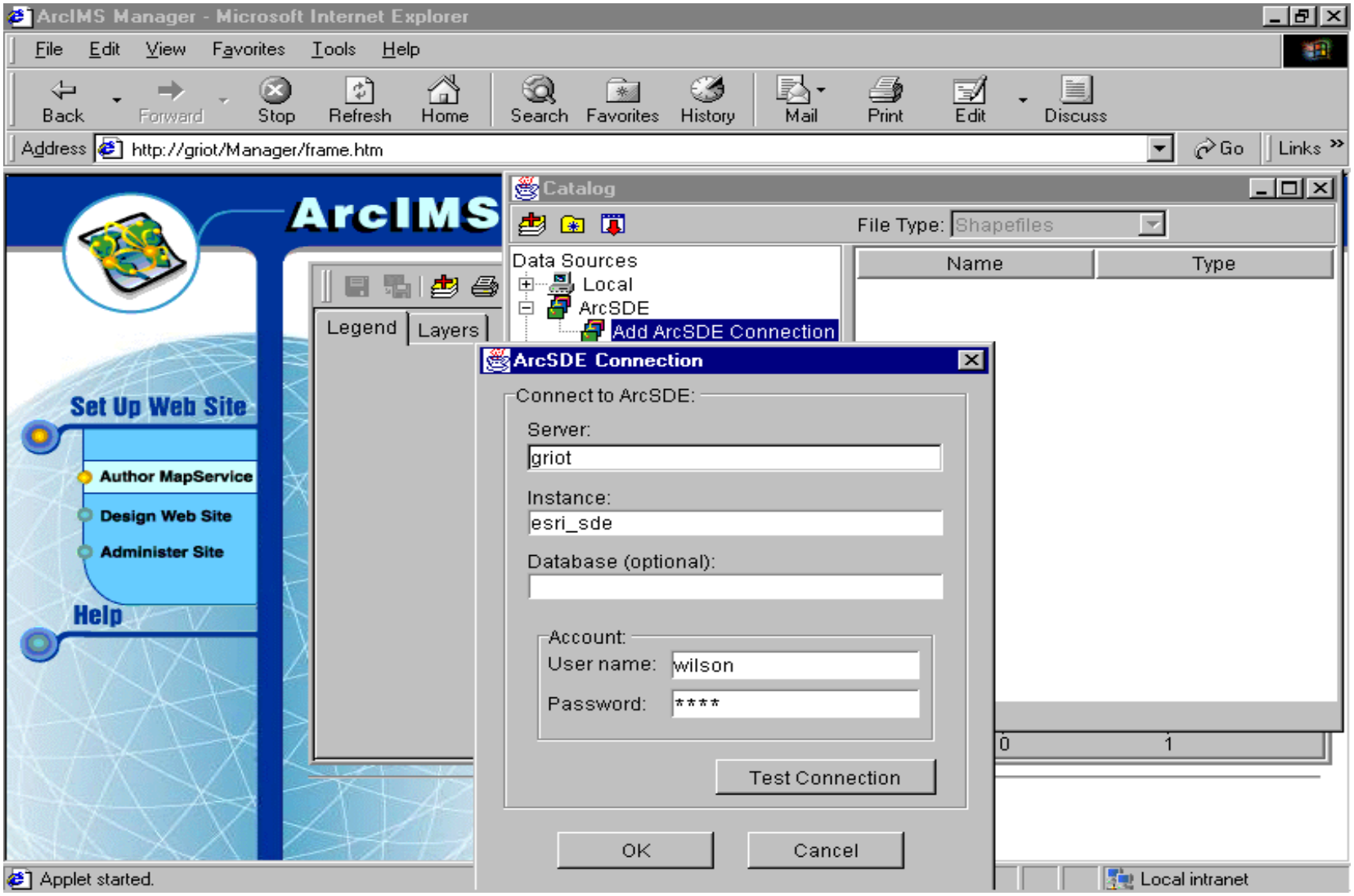
ArcIMS Components with ArcSDE



Spatial Servers & ArcSDE

- Uses ArcSDE for Coverages and ArcSDE as data sources
- ArcIMS is a read-only client of ArcSDE.
  - Reads SDE 3.x vector layers
  - Reads ArcSDE 8.x vector and raster layers
  - Does not currently read geodatabases
- One ArcSDE connection is needed for each instance of an ArcIMS spatial server.
- ArcSDE connections are persistent
- Multiple connections can be shared.

Loading ArcSDE layers



Loading Images from ArcSDE

All image loading is through AXL

ArcIMS 3.0 supports ArcSDE Raster data in version 8.0.2

For ArcSDE images specify:

SDEWORKSPACE: the user/password values are actually for the owner of the raster data within SDE

LAYER: Specify that the layer is an image type

DATASET: Specify the proper SDE Workspace. The name value must be in the format "*<Owner>.<Table_Name>.<Raster_Column*. Type:

select owner,table_name,raster_column from SDE.Raster_Columns

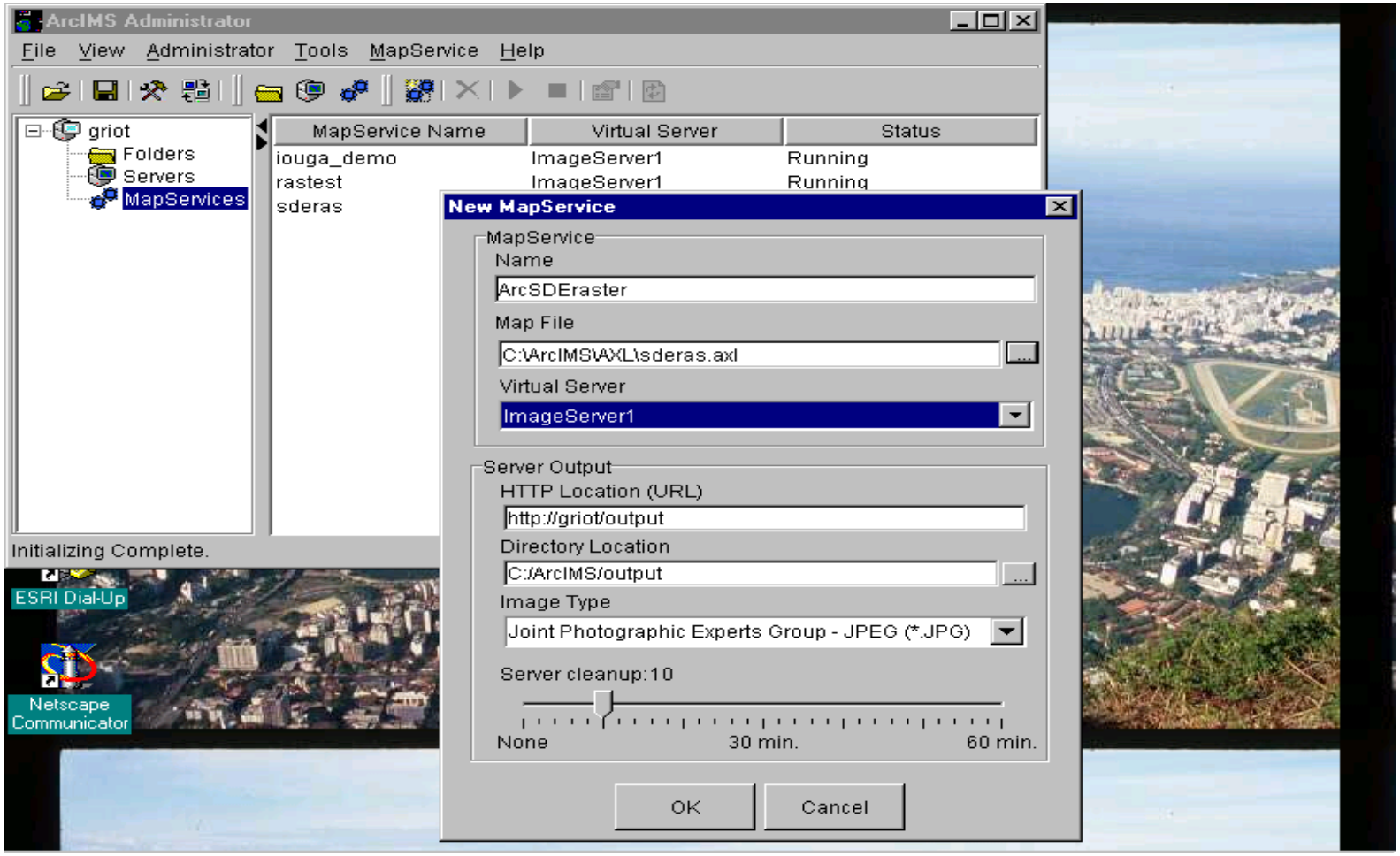
to find the owner, table name, and name of the raster column.

ENVELOPE: The extent that will initially be drawn from the raster table you specify. ArcIMS will use this extent to query for appropriate rasters from the raster table. If there are spatially contiguous tiled rasters within the raster table, only the necessary parts of those tiles will be retrieved to draw the raster.

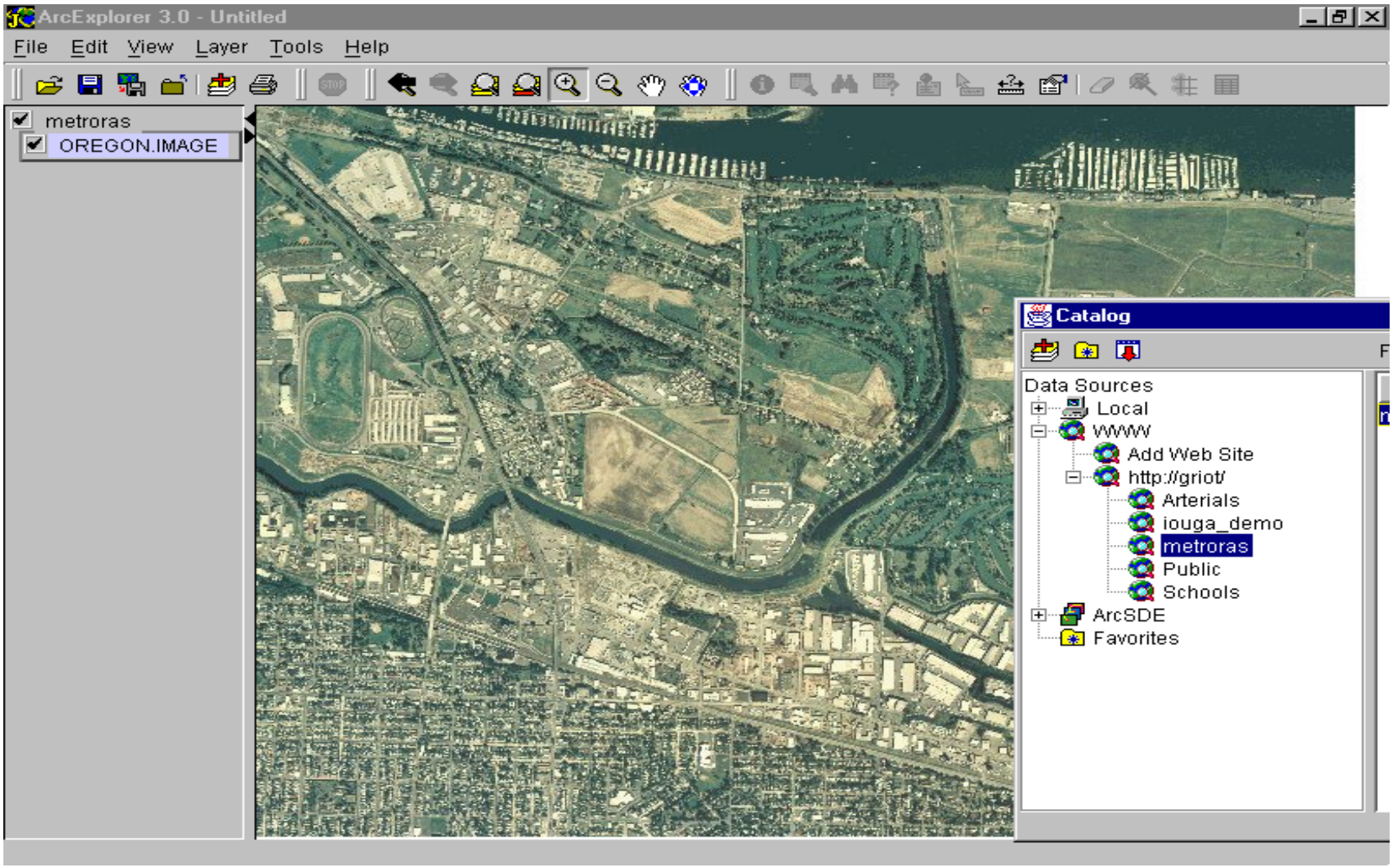
Creating a Service Using Images from ArcSDE

```
<?xml version="1.0" encoding="Cp1252"?>
 <ARCXML VERSION="1.0.1">
  <CONFIG>
   <MAP>
    <PROPERTIES>
     <ENVELOPE minx="7500179" miny="511214" maxx="7827281“
    maxy="833584"/>
    </PROPERTIES>
    <WORKSPACES>
    <SDEWORKSPACE name="sde_ws-0" server="entropy" instance="esri_sde"
    database="" user="metro_vectors" encrypted="true“ password="UIUX" />
    </WORKSPACES>
    <LAYER type="image" name="SDERASTER" visible="true" >
     <DATASET workspace="sde_ws-0" name="RASTER.OREGON.IMAGE" />
    </LAYER>
   </MAP>
  </CONFIG>
</ARCXML>
```

Creating a Service Using Images from ArcSDE



Displaying Images in ArcSDE



How Many Connections?

- Connections to ArcSDE are used for
  - Query Server-required with ImageServer
  - Geocoding Server-if used in MapService
  - Extraction Server-if used in MapService

- 4 ImageServer instances → 4 ArcSDE connections
- 4 QueryServer instances → 4 ArcSDE connections

8 ArcSDE connections

Connection Sharing

- For Image Server only
- Use connection sharing to reduce the number of ArcSDE connections
- Sharing is set to 2 by default
- To share connections

  1. Edit the aimsms.cfg file.

     The file is located at <ArcIMS Installation Directory>\Server\etc on NT and $AIMSHOME/Server/etc on UNIX.

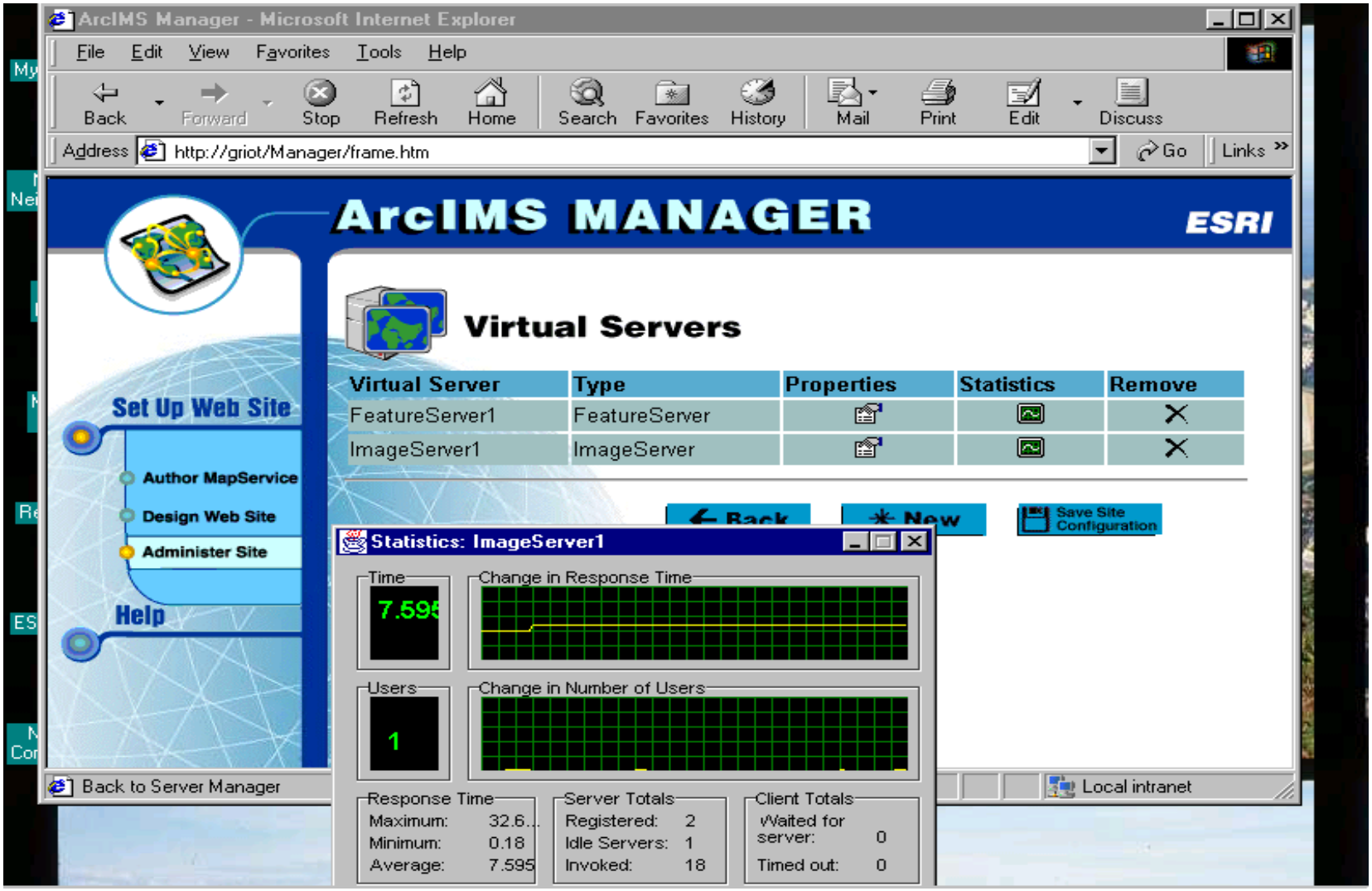
  2. Set the connectionsharing variable

     connectionsharing = “3“

  3. Stop and restart ArcIMS for the change to take effect.

- Originally developed for users with limited number of ArcSDE connects.
- ArcSDE connects are now unlimited.
- Connections are shared on threads in services.
  - Connections are not shared between services
  - Only similar connects are shared.

Monitoring Performance



Monitoring Messages

$ARCIMSHOME/Server/log directory:

- **Shows the ArcXML requests and response infromation**
- **Includes error messages from ArcSDE**

sde.errlog

- **Error messages from ArcSDE are always reported in the ArcSDE errorlog file**

giomgr.log

Messages from the giomgr.

RDMBS logs

- **SQL Server: mssql7/log/errorlog**
- **Oracle:ORCALRT for alerts**
- **DB2: db2diag.log**
- **Informix: ol_<database name>.log**

ArcIMS Server log contents

[Tue Jun 13 09:14:51 2000][462 489 INFO1] SERVICE: reg
[Tue Jun 13 09:14:51 2000][462 489 INFO2] AXL Parse Time: 0.010000s
There are 3 steps in parsing the Axl

- Build a tree from the AXL
- Create objects AXL needs
- Interpret the AXL objects. The objects are made available to the Spatial Server

The AXL Parse time is the total time to complete all three steps
[Tue Jun 13 09:14:51 2000][462 489 INFO2] RENDERER SETUP: 0.000000s
[Tue Jun 13 09:14:51 2000][462 489 INFO2] FEATURE LAYER: KERRMCGEE.VALID_PIPES
[Tue Jun 13 09:14:52 2000][462 489 INFO2] DATA SEARCH TIME: 0.701000s
Time to prepare and send the query with it's attribute and spatial constraints.
[Tue Jun 13 09:15:09 2000][462 489 ERROR] SE_stream_fetch : The specified coordinate exceeds the valid coordinate range
[Tue Jun 13 09:15:09 2000][462 489 INFO2] SR FEATURES PROCESSED: 8478
[Tue Jun 13 09:15:09 2000][462 489 INFO2] DATA RETRIEVAL TIME: 17.385000s
Time to fetch and draw the data
[Tue Jun 13 09:15:09 2000][462 489 INFO2] TOTAL PROCESSING TIME: 18.086000s
Total to prepare, send, fetch and draw the data.
[Tue Jun 13 09:15:09 2000][462 489 INFO2] OUTPUT TIME: 0.060000s
Time spent to generate image file.
[Tue Jun 13 09:15:09 2000][462 489 INFO3] RESPONSE:

```
<?xml version="1.0"?>
<ARCXML version="1.0">
<RESPONSE>
<IMAGE>
<ENVELOPE minx="344816.831000000470000" miny="5743678.860000000300000" maxx="741447.900999999610000"
      maxy="5923965.710000000000000" />
<OUTPUT file="C:\ArcIMS\output\reg_GRIOT4624894.jpg" url="http://griot/output/reg_GRIOT4624894.jpg" />
</IMAGE>
</RESPONSE>
</ARCXML>
```

Spatial Server and ArcSDE Reviewed

- ArcSDE connections equal the number of Spatial Server instances.
- Additional connections to ArcSDE are needed for the Query, Geocoding, and Extract Servers.
- Use connection sharing to reduce the number of ArcSDE connections.
- Raster images in ArcSDE are supported through AXL

Replication

Oracle and SQL Server

Replication

"…is the process of copying and maintaining database objects, such as tables, in multiple databases that make up a distributed database system.""

Introduction to Replication, *Oracle 8i Replication*

http://technet.oracle.com/docs/products/oracle8i/doc_index.htm

Replication: Oracle

Oracle: OnmiReplicator by LakeView.

http://www.lakeviewtech.com/

Tested with Oracle 8.1.5
Is able to replicate:
Simple feature classes
Geometric networks with complex and simple edges

Replication: SQL Server

"…allows you to make duplicate copies of your data, move those copies to different locations, and synchronize the data automatically so that all copies have the same data values."

Overview of Replication, SQL Server Books OnLine

Replication: SQL Server

ArcSDE 8.0.x supports snapshot replication.
Subscribers are read only
Refresh is periodic (high latency)
Advantages:
Gives users autonomy
Moves processing off read/write servers
Requires:
Entire snapshot sent across the network
Individual tables must have user assigned
Tables must not be locked
Setup:`
Wizard in SQL Server Enterprise Manager->Tools->Wizards-> Replication
Use Data Transformation Services Wizard to setup tables to be replicated

Failover

- Oracle and SQL Server

Failover: SQL Server

Defined as:

Two servers (nodes) and a shared disk appear as one server on the network.

One node is defined as primary and the other is secondary.

Requirements:

Microsoft Cluster Server/Microsoft Distributed Transaction Coordinator

ArcSDE on primary node in shared disk

One copy of license manager on each node

One copy of sentinel key on each node

ArcSDE and license manager must be registered as cluster resources

Result:

Cluster aware applications will run properly

Failover: Oracle

Oracle Parallel Server

We have done preliminary work with Oracle Parallel Server

- **At ArcSDE 8.0.2 the support is readonly**
- **At ArcSDE 8.1 the support will be read/write**

We are working in the Unix environment

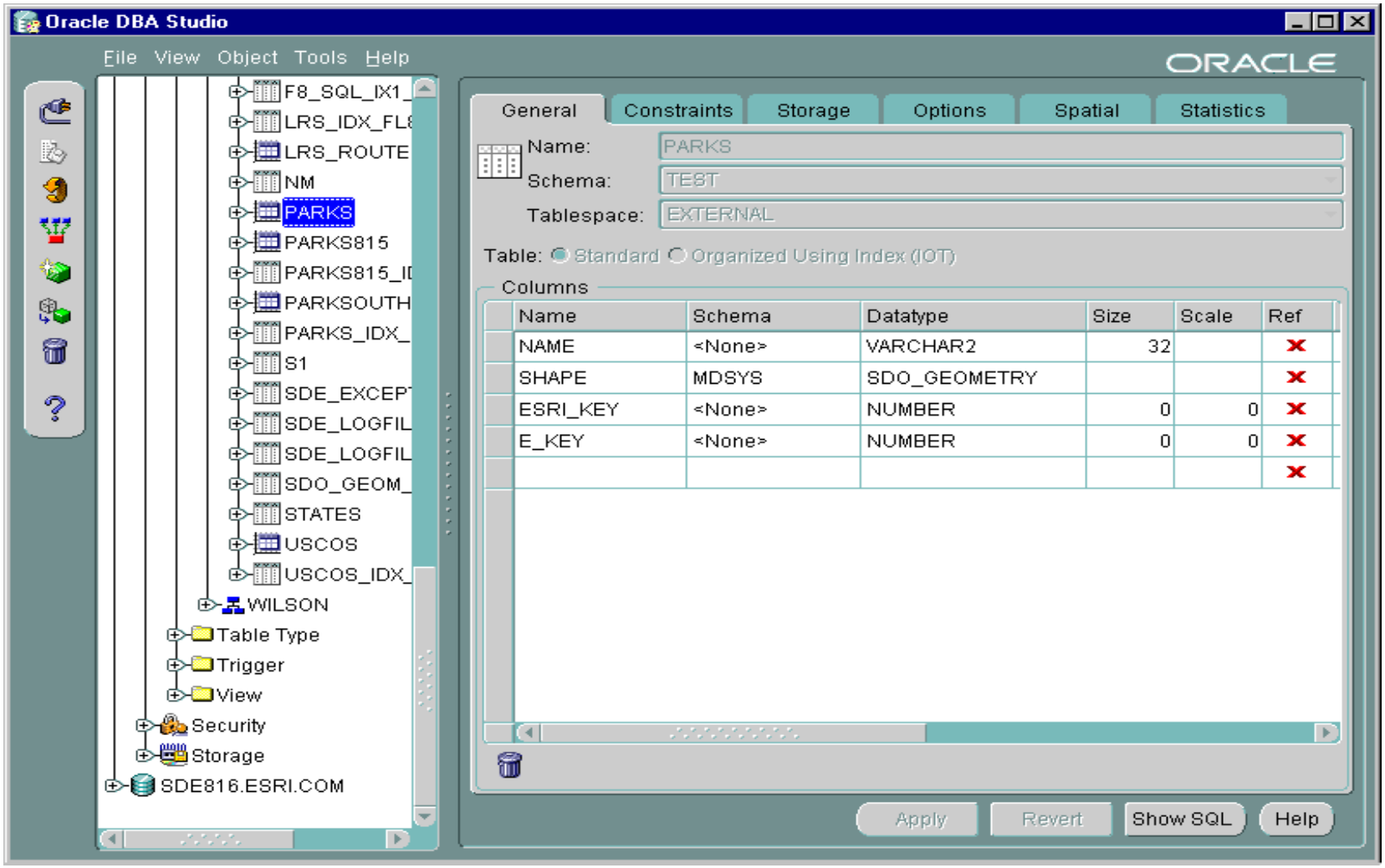
We are encouraged by the results so far

Oracle 8i Spatial

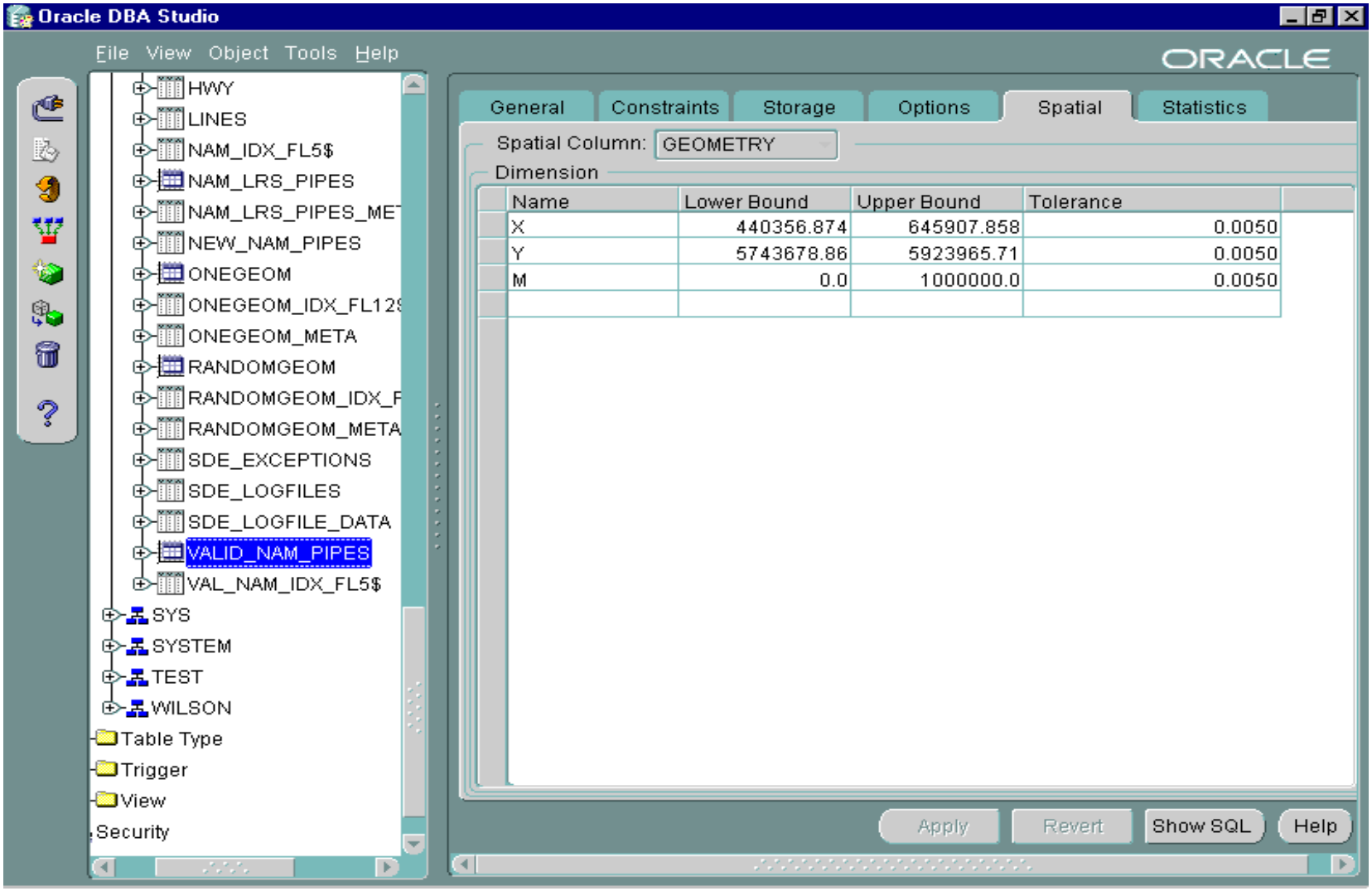
Oracle 8i Spatial

- Supports an object type of Spatial at 8.1.5/8.1.6
- Stores each “feature” in one row
- Stores geometry for each feature in one column
- Layer information is stored in one row of a metadata table
- Data can be loaded through:
  SQL
  shp2sde using SDO_GEOMETRY keyword
  cov2sde using SDO_GEOMETRY keyword
  ArcTool Box using SDO_GEOMETRY keyword
  ArcCatalog using SDO_GEOMETRY keyword
- Use Oracle Enterprise Manager to administrate
- Layers are indexed using SQL or (at Oracle 8.1.6) the Spatial Index Advisor

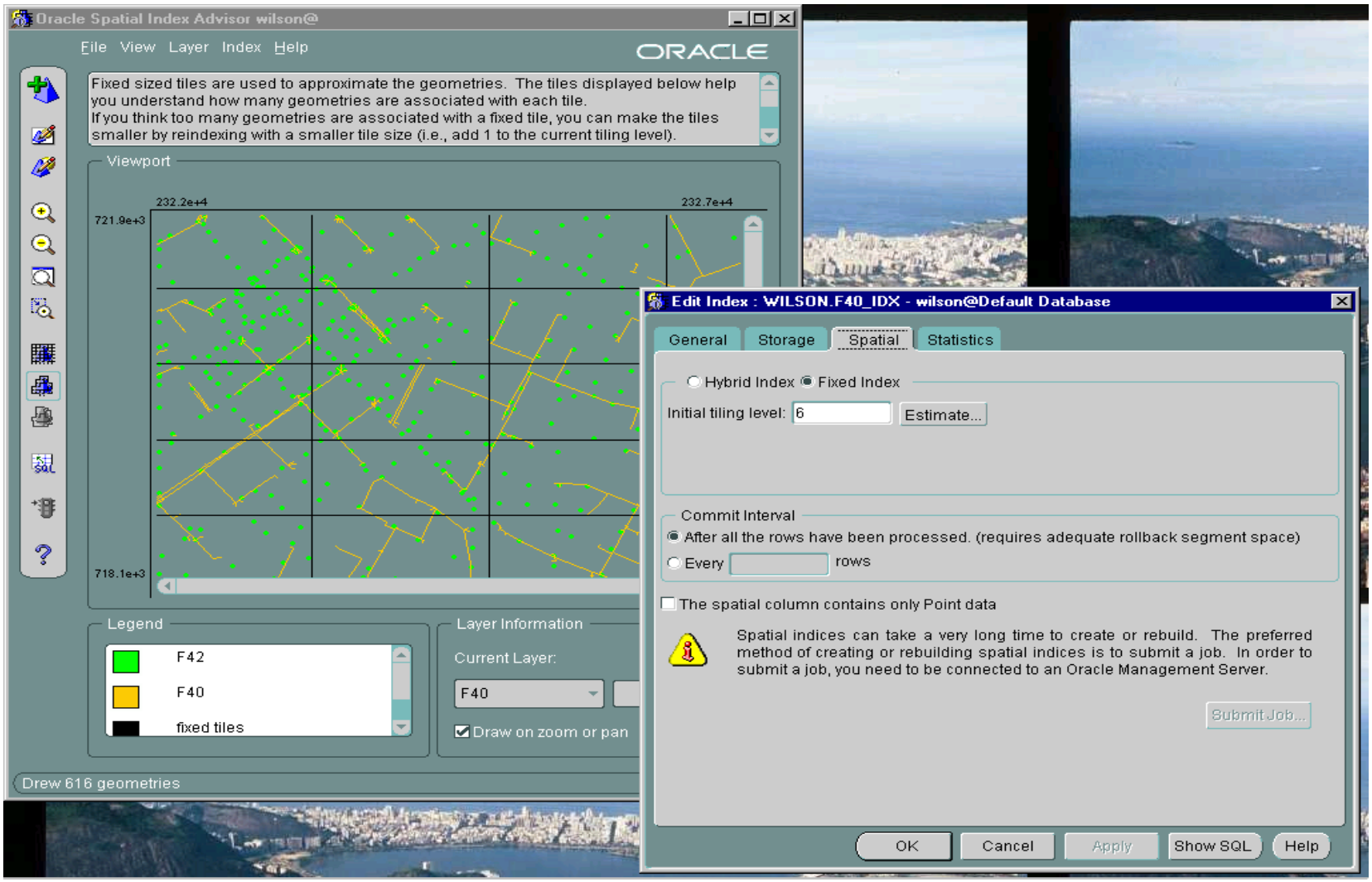
Oracle 8i Spatial



Oracle 8i Spatial



Oracle 8i Spatial



ArcSDE 8.0.2 Patch

A patch for Arcinfo/ArcSDE 8 will be released in August.

You will be able to download the patch from:

http://arconline.esri.com

QFE's (Quick Fix Engineering) will also be available from this site

however download the QFE only if you MUST have the fixes in the patch. DO NOT DOWNLOAD QFE's in any other case.

Descriptions of the fixes included in the QFE's are on this site.

ArcSDE 8.1

ArcSDE 8.1

Procedure for upgrading from 8.0.x to 8.1 betas ONLY

Oracle

run sdesetupora8i (Oracle 8i) or sdesetupora80 (Oracle 80x)

SQL Server

run sdesetupmssql

At final release the upgrade will be automatic.

ArcSDE 8.1

Direct connect to RDBMS, no ArcSDE middleware
Support for transaction based replication in SQL Server
Planned support for replication and failover in Oracle
    Support both long raw and binary lobs as storage types
Support for replication and failover in Informix
DBTUNE is a table in the RDBMS
Support for Red Hat linux 6.5 (client and server)
Imagery
    LZ77 compression (2:1 ratio)
    Image loader in ArcToolbox
        ArcToolBox->Import to Geodatabase->Raster to Geodatabase
    64 bit pixel depth
    image mask
    color table
    statistics and histograms
Native Java client

Image Conversion

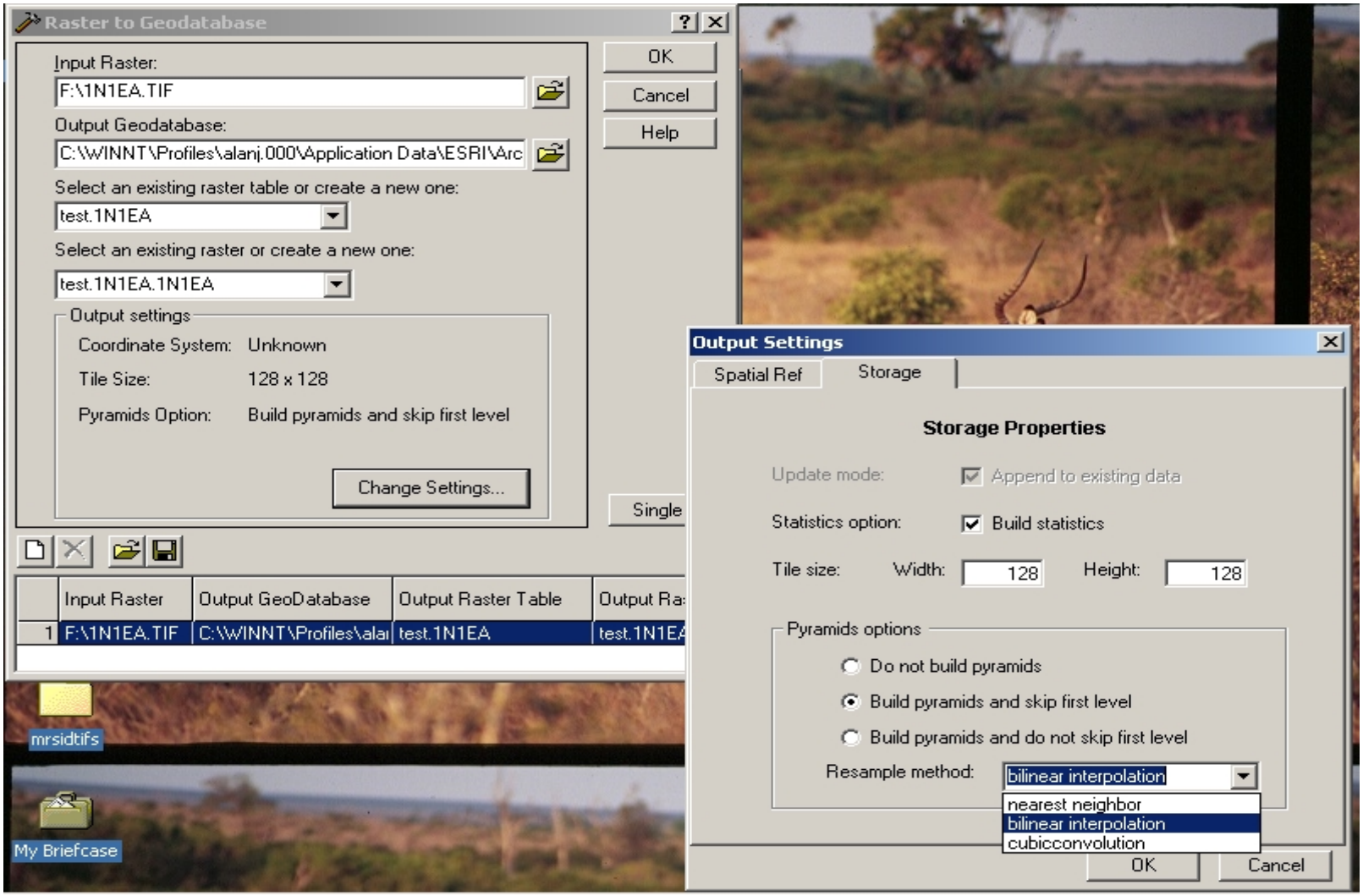


Image Conversion

New administration commands for imagery stored in ArcSDE 8.1

sderaster. A utility for describing and managing rasters. Works much like sdelayer and sdetable except that it is for raster layers.

sde2bsq. A utility for exporting raster images in ArcSDE 8.1 to bsq.

Image Conversion

D:\raster viewer>sderaster -o describe -l oregon,image -i esri_sde -s entropy -u raster -p go -V

Connecting to server entropy, instance esri_sde, as user raster
Raster Layer Description ....: <None>
Table Name .....: RASTER.OREGON
Raster Column .....: IMAGE
Raster Layer ID .....: 1
Minimum Raster ID .....: 1
Creation Date .....: Wed Mar 29 17:54:20 2000
User Privileges .....: SELECT, INSERT, DELETE, UPDATE
Raster Layer Configuration ..: DEFAULTS
Coordinate System .....:

PROJCS["WGS_1984_UTM_Zone_11N",GEOGCS["GCS_WGS_1984",DATUM["D_WGS_1984",SPHEROID["WGS_1984",6378137,298.257223563]],PRIMEM["Greenwich",0],UNIT["Degree",0.0174532925199433295]],PROJECTION["Transverse_Mercator"],PARAMETER["False_Easting",500000],PARAMETER["False_Northing",0],PARAMETER["Central_Meridian",117],PARAMETER["Scale_Factor",0.9996],PARAMETER["Latitude_Of_Origin”,0],UNIT["Meter",1]]

Direct Connect

How does it work ?

- The server functionality is running "in process" within ArcMap/ArcCatalog
- No intermediate application server process runs between ArcCatalog/ArcMap and the RDBMS
- ArcSDE code/technology is used to accomplish the connection

How do I get it ?

- All ESRI products that support a Geodatabase connection will ship with direct connect. Oracle 8i and SQL Server 7.x initially, Informix and DB2 at beta 2,
- Users will always be able to obtain a READONLY connection if the application license requirements are satisfied (Requires an ArcSDE server license.)
- ArcSDEConnects are not checked out when direct connect is used.

What happens to ArcSDE ?

- Existing ArcSDE application server architecture is still supported
- To obtain a READ/WRITE connection, the ArcSDE Server Package must be purchased.
- Direct connect works only with ArcInfo/ArcSDE 8.1.

Direct Connect

Can I run the ArcSDE server and use direct connect on the same instance simultaneously ?

- **Yes.**

Does direct connect support vector and raster data ?

- **Yes.**

How are applications affected ?

- **Application programs are affected only in the way that instance information is specified. No other changes are required.**

Where are error messages sent ?

- **Error messages are sent to sde.errlog. Direct Connect will find an etc directory under ArcSDE or Arcexe81 and write messages into the sde.errlog file.**

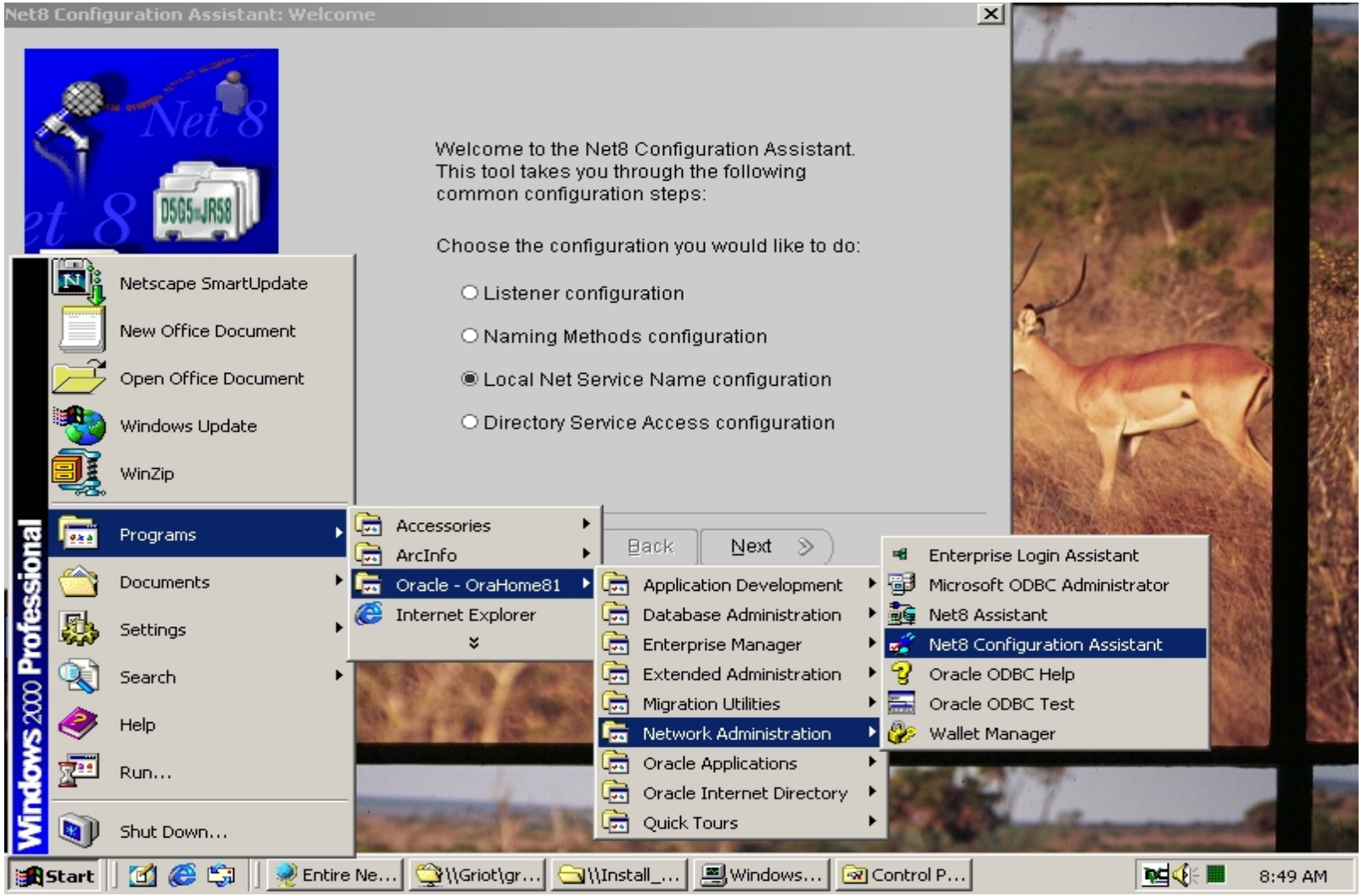
Setting up direct connect

Oracle

- **The Net8 Configuration Assistant can be used to setup a service.**
- **The service points to the Oracle instance on a remote machine**
- **Use the service name in place of the Oracle instance name in applications**
  - **For example when connecting to an Oracle instance in the password field type: password@servicenname and in instance name type: sde:oracle**

To create the service
On NT:
Oracle -> Network Administration -> Net8 Configuration Assistant
On Unix type:
$ORACLE_HOME/bin/netca
Then select
Local Net Name Service Configuration
Type any name for a Service name
Select TCP as the protocol
Type the host name (the name of the server on which the Oracle instance resides)
Test the connection. Always test the connection.

Oracle Service Setup



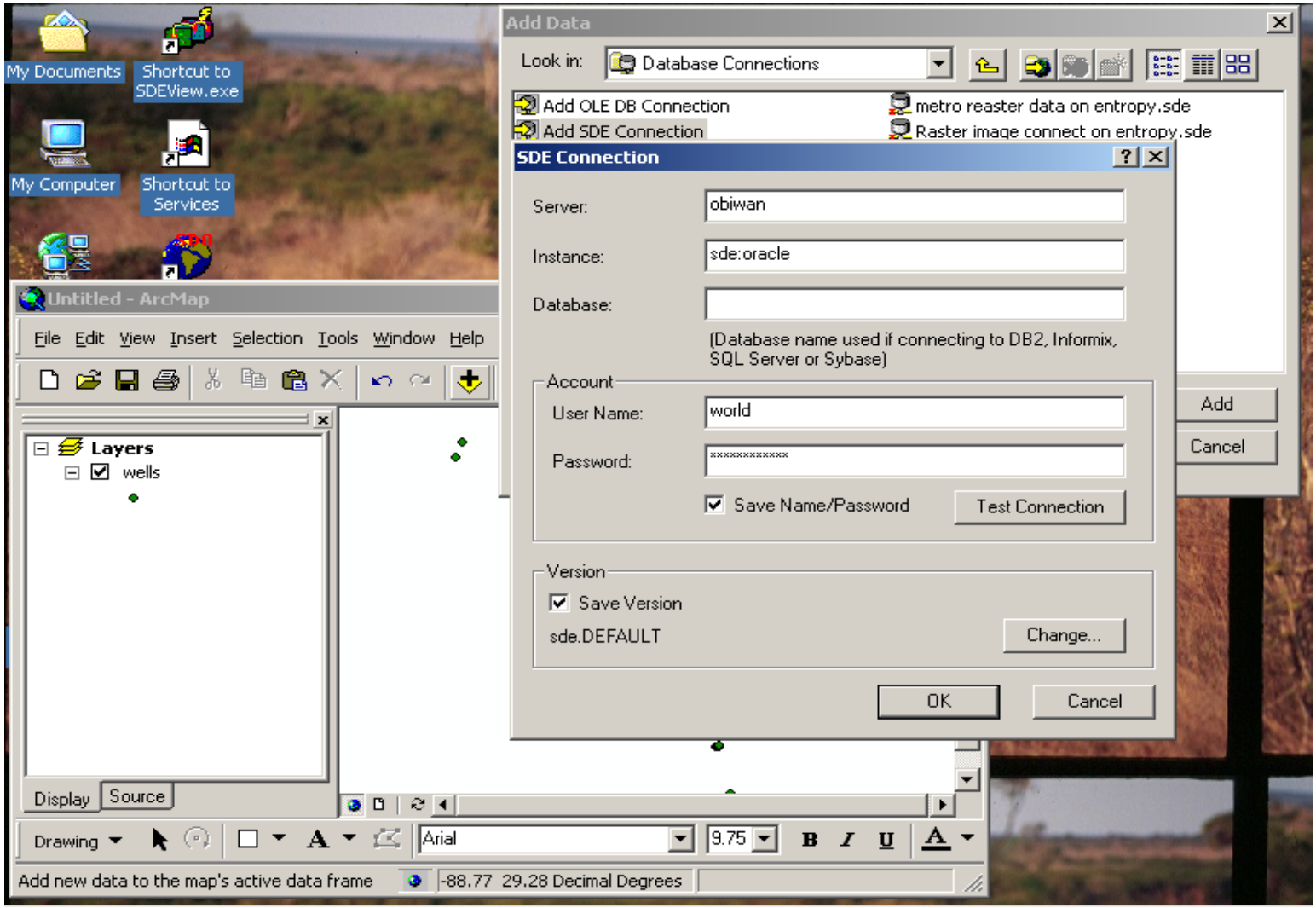
Setting up direct connect

SQL Server

No special setup.

Type: sde:sqlserver:servername as instance name

Login using Direct Connect



For more information

Arcinfo Island
System Integration island
ArcSDE online:
http://www.esri.com/devsupport/arcsde/samples/arcsde_online/sdehelp.htm
ArcIMS Online:
http://arconline.esri.com/arconline/index.cfm?PID=6
Oracle 8i Spatial
Booth 952 in the Exhibit Pavilion
http://www.oracle.com/database/options/spatial/
OmniReplicator
www.lakeviewtech.com
Microsoft:
Booth 232 in the Exhibit Pavilion
http://www.microsoft.com/sql/default.htm
LZ77 compression:
http://users.anderson.edu/~spoon/compression.htm


geography
gis
esri
our global network
ESRI