ArcSDE for Java Developers

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ArcSDE 8.1 Java API

• Why are we developing it?
• What is it?
• What can you do with it?
Why another ArcSDE API?

- Ability to develop platform independent ArcSDE client applications
- Allows for faster application development
- Abundance of toolkits
Why a Java API?

- Support ArcExplorer Java effort
- Support ArcIMS ArcSDE clients
- Groundwork for future ESRI Java projects
Overview of the Java API

- 3 packages
  - Client package
    - com.esri.sde.sdk.client
  - Geometry package
    - com.esri.sde.sdk.geom
  - Projections package
    - Com.esri.sde.sdk.proj
Client Package

- Handles communication with an ArcSDE instance
- Pure Java
  - Right down to the socket level transmission layer of ArcSDE
Class Diagram – Server Objects

- SeConnection (from com.esri.sde.sdk.client)
  - getDBMSInfo()

- SeTable (from com.esri.sde.sdk.client)
  - getList(SeTable.class)

- SeLayer (from com.esri.sde.sdk.client)
  - getList(SeLayer.class)

- SeRegistration (from com.esri.sde.sdk.client)
  - Table Registry Entry

- SeLog (from com.esri.sde.sdk.client)

- SeVersion (from com.esri.sde.sdk.client)

- SeState (from com.esri.sde.sdk.client)

- SeRaster (from com.esri.sde.sdk.client)

- SeRasterColumn (from com.esri.sde.sdk.client)

- SeRasterBand (from com.esri.sde.sdk.client)

- SeRowLock (from com.esri.sde.sdk.client)

- SeObjectLock (from com.esri.sde.sdk.client)

- SeLocator (from com.esri.sde.sdk.client)

- SeMetadata (from com.esri.sde.sdk.client)

- SeSpatialReference (from com.esri.sde.sdk.client)
Class Diagram
- Stream Objects
Example Code

Client Package
Geometry Package

- Can Be used with JDBC to work directly with databases
- Partially written in Java/Still using some C functionality through JNI (Java Native Interface)
- Utilized by Client Package
Pure Java and Native code

- Pure Java
  - Create a geometry
    - fromWKT
    - fromWKB
  - Accessor methods
    - is3D, isMeasured
    - getAllPoints

- JNI implementation
  - verification
  - Spatial operations
    - Buffer
    - union
  - Spatial Relations
    - Contains
    - intersects
Platforms

• Requires JDK 1.2.2
• (Java 2 Standard Edition)
  – Windows NT 4.0 Intel(service pack 6a)
  – Compaq Tru64
  – HPUX 11.0
  – IBM AIX 4.3.3
  – SGI IRIX 6.5 (subject to availability of JDK 1.2.2 final)
  – Solaris 2.7
OGC interface hierarchy
Example Code

Geometry Package
Projections Package

- Create your own Coordinate Systems
- Implement your own transformation functions
- JNI implementation
Example Code

Projection Package
What can you build with the ArcSDE Java API?

- ArcSDE client applications that run in a web browser (Java applets)
- Java Applications that manage a versioned database
- JDBC applications that can work directly with databases
availability

- Beta 1 (early July)
- Beta 2 (August/September)
- Final (before the end of 2000)
What’s in Beta 1?
JavaDoc

• Beta 1 documentation available as part of the ArcSDE Developer Help
• And on ArcSDE Online
What to expect in Beta 2
Final Release

- All public interfaces/classes/methods are subject to change until the API goes final with the final release of ArcSDE 8.1
C-API functionality not provided in Java API

- Operations on old Logfile format
- Column binding
- Application development support functions
  - Trace functions for logging client method calls
  - Stable and Ptable for maintaining local cache of geometries and coordinates
geography

our global network
Performance

- fetched 137173 features using java and c api
- They both took between 17 to 19 seconds depending upon network and server load.
Beta 1 files

- Found under $SDEHOME/lib
- Jsde81_sdk.jar
  - Add to CLASSPATH
- libcsg81.so or jsg81.dll
  - Add to library path