

How to Cope with Geospatial

Introduction for the
Java Developer



GeoTools





This is Hands On Programming

- 1) Find a friend
(or make a new friend)
- 2) Compare machine specifications
- 3) Take the fastest machine and put it on the desk
- 4) There is a DVD being passed around; copy the "GeospatialForJava" folder
- 5) If you succeed you will get a "Quickstart" workbook!



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Introductions

- Jody
 - Australia
 - GeoTools since 2003
 - Spent the first 2 months being unable to compile
- Micheal
 - Randomly helps people
 - A lot of people
 - Perhaps you?



- Australia
- Founded 1994
- Integration
- End to end
 - Solutions
 - Services
 - Support



History of Collaboration and Standards

- GeoTools 1 had more users than documentation
 - Solution was to fire the users; and GeoTools 2 was formed
- GeoTools 2 leans on the OGC standards for documentation
 - So the “best” docs are the standards; and if we don't do something right report a bug
- Other than that we like to just get it done
- DRY Principle is in effect
 - JTS Topology Suite provides Geometry
 - GeoAPI reads standards for us – providing Interfaces



GeoTools

- 1994 - Present
(Really old for Java)
- Started in Leeds University
- OSGeo Project in 2006
- Active / Diverse committers
- Open Source
 - LGPL
- Open Development
 - Public Process
 - Anyone can Play



GeoTools



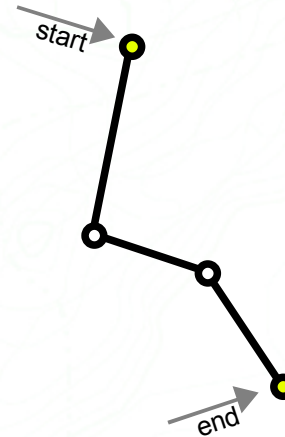
Ground Rules

- Yes that is a pun
- Feature is something in the real world
- When we draw it on Map it is still called a Feature
- The shape it forms on a map is called a Geometry
- The positions we measure are written down using a Coordinate Reference System.
 - like how you write down a distance in meters

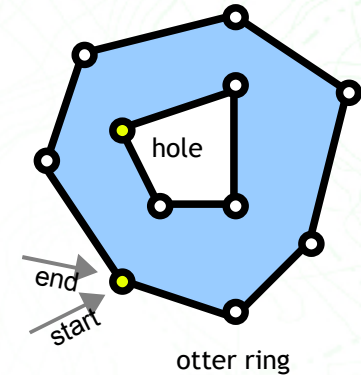
Point



LineString



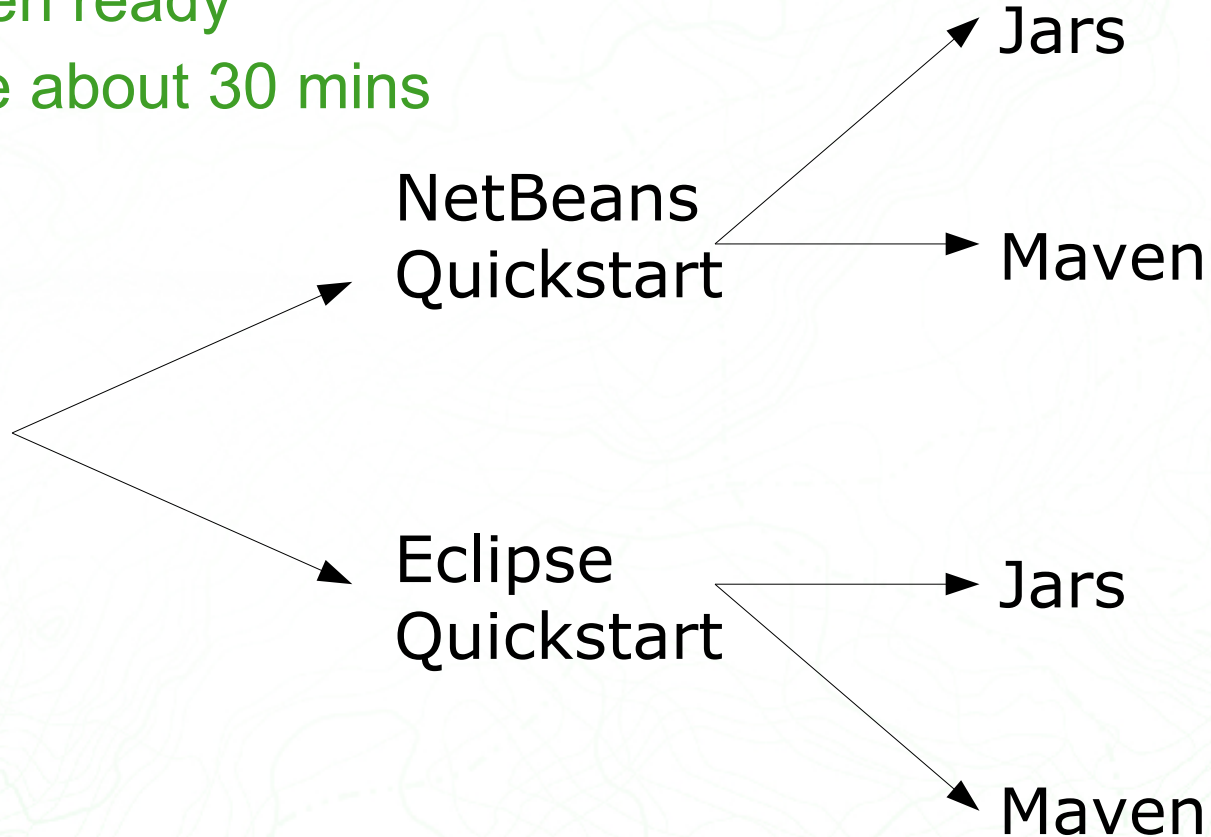
Polygon





Quickstart

- You have two choices to make
- Start when ready
- You have about 30 mins
- 2.6.0





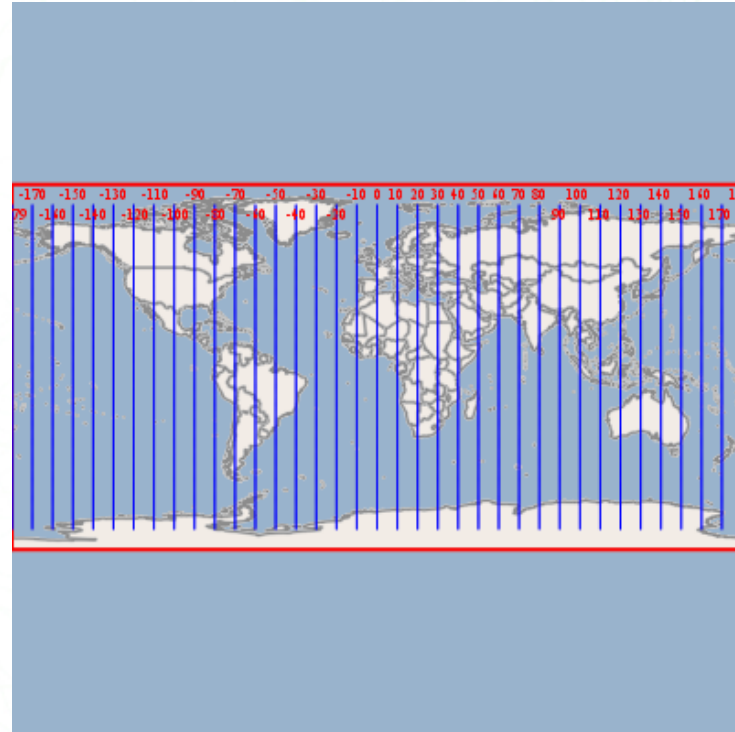
Feature Workbook

- CSV2SHP
- Great example of building features by hand
- Data Model
 - Feature, FeatureType
- Data Access
 - DataStore / FeatureSource / FeatureStore



Geometry CRS Lab

- The Shape of GIS
- And what it means





Filter Workbook

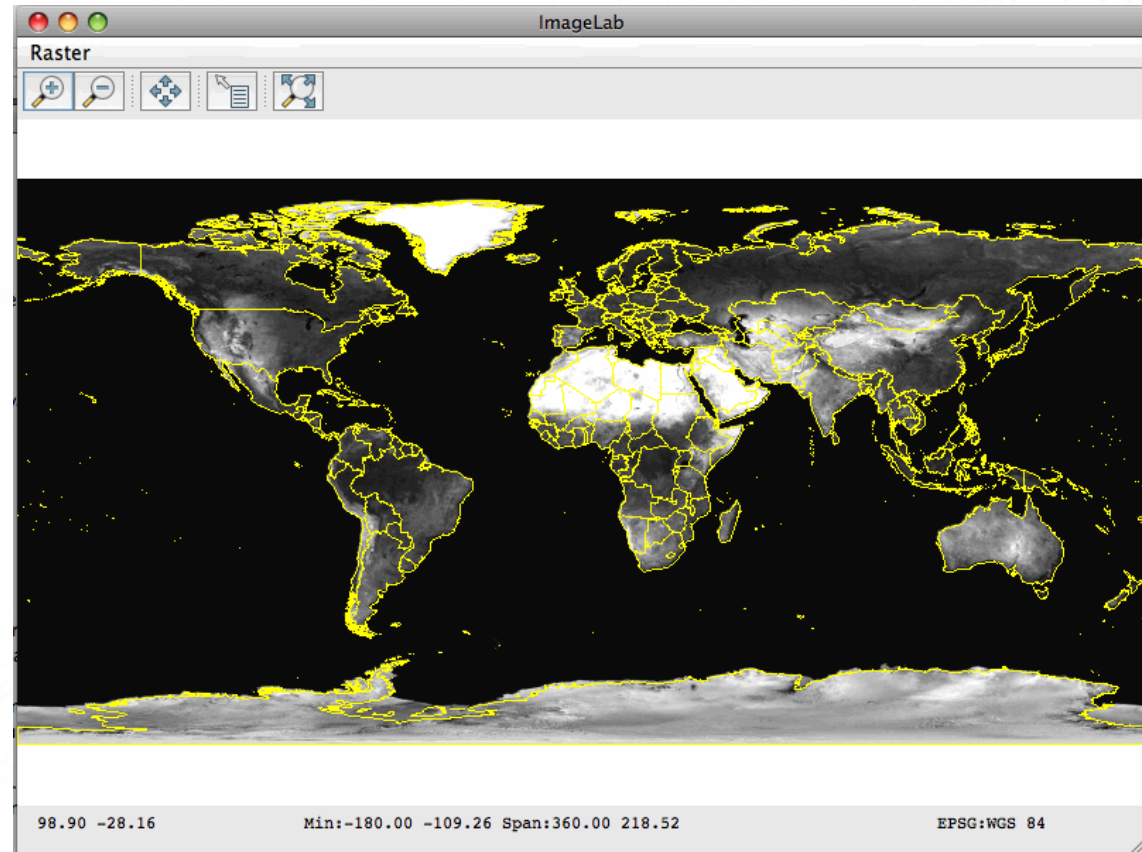
- This is where it get's cool; add hock query against
 - Shapefile
 - PostGIS
 - WFS
- Using the same code!

FeatureId	the_geom	CITY_NAME	GMI_ADMIN	ADMIN_NA...	FIPS_CNTRY	CNTRY_NA...	STATU
cities.1	POINT (10...	Drammen	NOR-BSK	Buskerud	NO	Norway	Provincia
cities.2	POINT (-2...	Dundee	GBR-SCT	Scotland	UK	United Kin...	Other
cities.3	POINT (-4...	Hunterston	GBR-SCT	Scotland	UK	United Kin...	Other
cities.4	POINT (14...	Ronne	DNK-BRN	Bornholm	DA	Denmark	Provincia
cities.5	POINT (69...	Petropavlov...	KAZ-NKZ	North Kaza...	KZ	Kazakhstan	Provincia
cities.6	POINT (-1...	Teesport	GBR-ENG	England	UK	United Kin...	Other
cities.7	POINT (18...	Gdynia	POL-GDN	Gdansk	PL	Poland	Other
cities.8	POINT (11...	Schwerin	DEU-MKV	Mecklenbur...	GM	Germany	Provincia
cities.9	POINT (8.5...	Bremerhav...	DEU-BRM	Bremen	GM	Germany	Other
cities.10	POINT (4.1...	Europoort	NLD-ZHL	Zuid-Holland	NL	Netherlands	Other
cities.11	POINT (2.3...	Dunkirk	FRA-NPC	Nord-Pas...	FR	France	Other
cities.12	POINT (-1...	Southampt	GBR-ENG	England	UK	United Kin...	Other



Image Lab

- Working with raster files
 - Grayscale
 - Color
 - Multi-band





Style Lab

- Going to work on putting a Style together
 - Using a simple dialog
 - From an XML file
 - By hand
- Advanced
 - Dynamically Generate a Style to Show Selection



Thanks!

- Thanks for attending our workshop
- A big thank you to our customers
(who make our involvement possible)
- Workshop feedback at: <http://bit.ly/1Db2TE>