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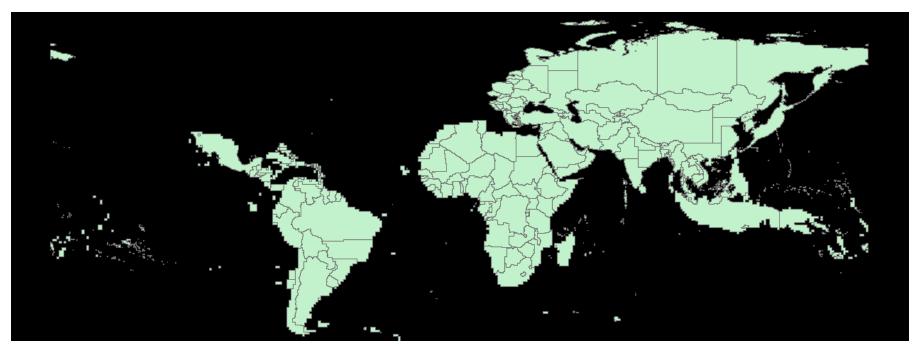
L3HARRIS AUTO-TEST SUITE

A PostGIS Success Story for STL PostGIS Day 2019

Large-Scale Data



- L3Harris was a prime contractor for two-thirds of the world during the Foundation Geospatial Content Management (FGCM) contract
- L3Harris is now prime contractor for the other third of the world for Janus Project 7
- Auto-Test Suite (ATS) has been used successfully to automate QC processes and corrective tasks for all of these AOIs:



Large-Scale Data Problems



So. Much. Data.

FGCM Region A = 204.5 GB

FGCM Region C = 144.1 GB

Janus Region 215 = 289 GB

Extremely Common/Prevalent Problems Solved with PostGIS

Line/Area Feature Merge Failures
Finding Gaps & Slivers

Change DetectionLine-Line Over/Undershoots

Scale/Matching ScaleCreating Metadata Surfaces

– Metrics– Missing Volumetric Attribution

Portrayal Tables
Validations/Corrections of Geometry

Large-Scale Data Solutions



~67,000 function calls for geoprocessing in L3Harris Janus code repository

- PostGIS functions address many repetitive tasks, freeing up analysts to create, analyze, and QC data
- Processes that take seconds to complete with ST geometry take milliseconds with PG

Feature Analysis Matching Engine (FAME)

- Finds geometric differences between two datasets using vertex and line matching with variable tolerances (angle, distance, and general proximity)
- Develop pinpoints for enrichment, bidding, analysis, prescriptive data management

Large-Scale Data Solutions



- Metrics
 - Multithreaded searching by tile, mosaics of databases
 - PostgreSQL, PostGIS, Multi-threaded geo-analysis
- Line Feature Merge Failure Fix
 - Fully-automated solution addresses nearly 100% of LFMF with impressive accuracy
 - Features not addressed by automation are written to a pinpoint table
 - Saved hundreds of hours on recent contract
- Area-Area Gaps & Slivers Detection
 - Indexing with PostGIS decreased search time and improved the number of true-positive calls generated for analyst review
- Cost Benefits
 - Free & open source

Large-Scale Data Solutions – QA Tool



- ~47,000,000 features in the largest Region A AOI
 - Traditional QC Checks: ~138hr
 - Harris Attribute and Topology Checks (HATCH): 21hr
- ~31,000,000 features in the second-largest Region A AOI
 - Traditional QC Checks: ~168hr
 - Harris Attribute and Topology Checks (HATCH): 20hr
- ~8,500,000 features in the largest Region C AOI
 - Traditional QC Checks: ~156hr
 - Harris Attribute and Topology Checks (HATCH): 16hr



Questions/Comments