Spatial and Graph Summit @

ANALYTICS AND DATA SUMMIT 2020

All Analytics. All Data.
No Nonsense.

February 25-27, 2020

Intro to Oracle Spatial Studio

David Lapp, Product Manager
Oracle Spatial and Graph

Engage with BIWA's Spatial and Graph SIG

- We are a vibrant community of customers and partners that connects and exchanges knowledge online, and at conferences and events.
- Talk with us this week! Look for badges with yellow ribbons
  - **Birds of a feather lunch – Wednesday 12-1pm at the Oracle Café** (look for Spatial & Graph tables)
- Join us – we're seeking new members
  - Engage with thought leaders on innovative spatial and graph use cases

Join us online tinyurl.com/oraclespatialcommunity

LinkedIn Oracle Spatial and Graph group

@oraspatialsig

oraclespatialsig@gmail.com

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Spatial Studio

- Purpose
- Use cases
- Features
- Walkthrough
- Licensing
- Resources

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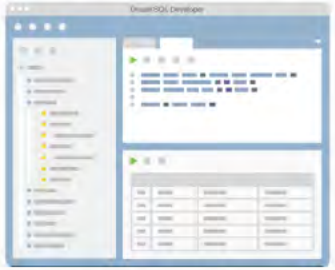
Purpose

Spatial data management, analysis, and processing

Spatial Studio

Self-service
Drag and drop

Traditional access



SQL, PLSQL, Java coding
Some technical expertise

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Use cases

Prepare address and coordinate data for spatial analysis and mapping

- *Geocode customer and competitor address lists*

Visualize data on interactive maps along with other contextual layers

- *Navigate interactive map with customers, competitors, suppliers, sales regions…*

Associate data through spatial relationships

- *Determine the competitors located within a proposed new sales region*

Enrich data with spatial attributes and metrics

- *Enrich customers with their associated sales region and distance from supplier*

Integrate spatial content and analysis results via REST

- *Access customers with enrichments as GeoJSON*

Spatial preparation and handoff to OAC

- *Transfer results to OAC datasets and custom map layers for deeper analytics*

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Features

Data
- Access content from Oracle db
- Load Shapefiles, Spreadsheets, GeoJSON
- Geocode addresses
- Create longitude/latitude index
- Export as CSV, GeoJSON
- Pre-cache vector tiles

Projects
- Combine datasets
- Create and configure visualizations
- Perform Spatial analysis operations
- Save and share results

Developer
- Access analysis SQL
- Integrate published Project
- Access datasets and analyses via REST

Administration
- Console UI
- Configure proxy and service endpoints
- View system status and logs
- Deeper admin outside UI i.e. WLS Console

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Studio walkthrough

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ORACLE Spatial Studio

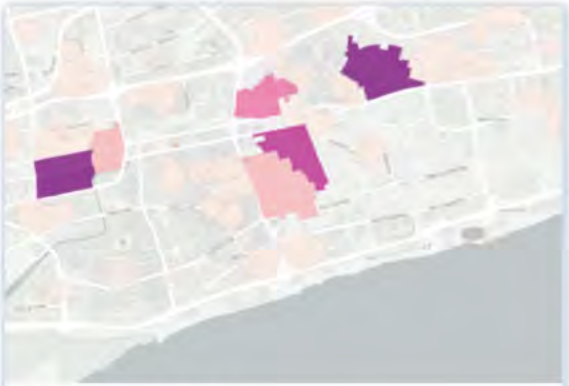
Projects

Create

Projects

sg_sample

with datasets from data.gov.sg



demo_project

with datasets from data.gov.sg

Previously saved Projects

Published projects

Previously saved Published Projects

ORACLE Spatial Studio

Data

Create Studio artifacts

Datasets | Connections

Create

Create

Project | Dataset | Connection

Name	Description	Connection	Last Modifi	
DB0902_DENGUE_CLUSTER	New dataset.	SPATIAL_STUDIO	2019-09-11T13:25:02.130Z	
DB0902_HAWKERCENTRE	New dataset.	SPATIAL_STUDIO	2019-09-11T13:25:28.793Z	
DB0902_KINDERGARTENS	New dataset.	SPATIAL_STUDIO	2019-09-11T14:13:37.961Z	
DB0902_ELDERCARE	New dataset.	SPATIAL_STUDIO	2019-09-11T14:16:37.344Z	
TX_COASTAL_ZONE	New dataset.	SPATIAL_STUDIO	2019-09-12T13:18:42.834Z	
TX_SITES	New dataset.	SPATIAL_STUDIO	2019-09-12T13:20:49.942Z	
TX_REGIONS	New dataset.	SPATIAL_STUDIO	2019-09-12T13:19:13.289Z	

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Data

Create

Datasets

Name	odified Date
DB0902_DENGUE_CLUSTER	-11T13:25:02.130Z
DB0902_HAWKERCENTRE	-11T13:25:28.793Z
DB0902_KINDERGARTENS	-11T14:13:37.961Z
DB0902_ELDERCARE	-11T14:16:37.344Z
TX_COASTAL_ZONE	-12T13:18:42.834Z
TX_SITES	-12T13:20:49.942Z
TX_REGIONS	-12T13:19:13.289Z

Create Connection

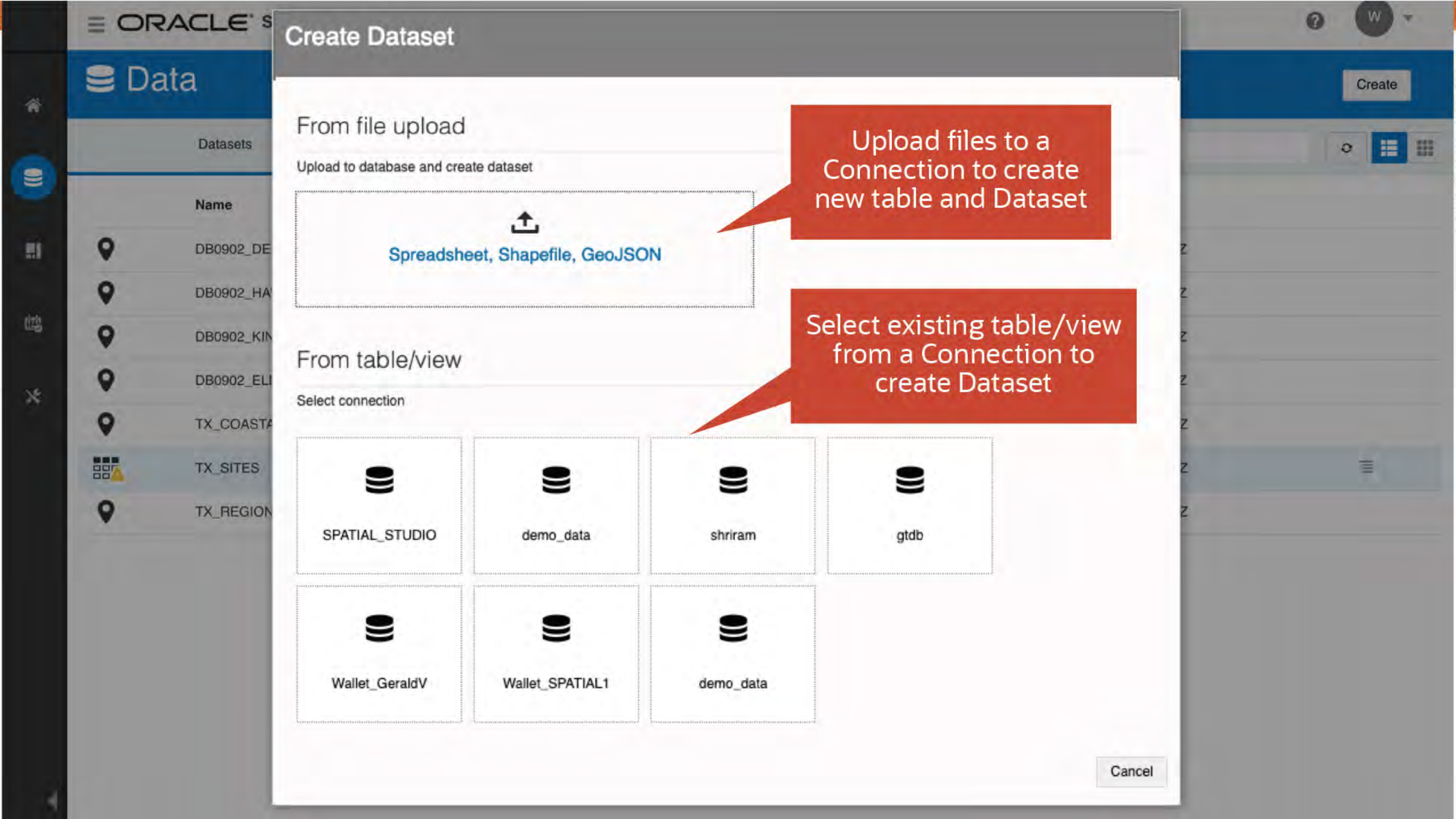
Define connections to traditional and Autonomous databases

Select a connection type

Oracle Database

Oracle Autonomous Database

Cancel


ORACLE
Data
Create
Datasets
Name
DB0902_DE
DB0902_HA
DB0902_KIN
DB0902_ELI
TX_COASTA
TX_SITES
TX_REGION
Create Dataset
From file upload
Upload to database and create dataset
Spreadsheet, Shapefile, GeoJSON
Upload files to a Connection to create new table and Dataset
From table/view
Select connection
Select existing table/view from a Connection to create Dataset
SPATIAL_STUDIO
demo_data
shriram
gtdb
Wallet_GeraldV
Wallet_SPATIAL1
demo_data
Cancel

ORACLE Spatial Studio

Data

Create

Datasets | Connections

Search ...

Name	Description	Connection	Last Modified Date
DB0902_DENGUE_CLUSTER	New dataset.	SPATIAL_STUDIO	2019-09-11T13:25:02.130Z
DB0902_HAWKERCENTRE	New dataset.	SPATIAL_STUDIO	2019-09-11T13:25:28.793Z
DB0902_KINDERGARTENS	New dataset.	SPATIAL_STUDIO	2019-09-11T14:13:37.961Z
DB0902_ELDERCARE	New dataset.	SPATIAL_STUDIO	2019-09-11T14:16:37.344Z
TX_COASTAL_ZONE	New dataset.	SPATIAL_STUDIO	2019-09-12T13:18:42.834Z
TX_SITES	New dataset.	SPATIAL_STUDIO	2019-09-12T13:20:49.942Z
TX_REGIONS	New dataset.	SPATIAL_STUDIO	2019-09-12T13:19:13.28

- Properties
- Create Project
- Add to Active Project
- Delete Dataset
- Export Dataset
- Dataset Cache
- Prepare
  - Geocode Addresses
  - Clear Address Geocode
  - Create Lon/Lat Index
  - Drop Lon/Lat Index

Prepare addresses or coordinates

https://129.213.161.27:8001/spatialstudio/?root=data#

TX_SITES: Geocode Addresses

Use address attributes to create geometries

Setup | Status

TX_SITES

Verify or adjust geo-attributes to be used to geocode

Address geocoding setup

Geo-type	Column	Values
Address	ADDRESS_LINE1	1144 N Stemmons Fwy, 1820 HWY 290 W, 3000 E. Main St.
City	CITY	Austin, BRENHAM, DECATUR, Houston, Lewisville, ODESSA
Postal/Zip Code	ZIP	75067, 75711, 76234, 76567, 77025, 77833, 78751
State/Province	STATE	TX
-------- Select --------	VENDOR_NAME	Appel Ford-Mercury Inc., Griffith Ford Inc., KK Ford LP
-------- Select --------	PHONE	2212900, 4467377, 454-3711, 498-0421, 5979331, 627-1011
-------- Select --------	AREA_CODE	432, 512, 713, 903, 940, 972, 979

Apply | Close

ORACLE Spatial Studio

Data

Create

Datasets | Connections

Search ...

Name	Description	Connection	Last Modified Date
DB0902_DENGUE_CLUSTER	New dataset.	SPATIAL_STUDIO	2019-09-11T13:25:02.130Z
DB0902_HAWKERCENTRE	New dataset.	SPATIAL_STUDIO	2019-09-11T13:25:28.793Z
DB0902_KINDERGARTENS	New dataset.	SPATIAL_STUDIO	2019-09-11T14:13:37.961Z
DB0902_ELDERCARE	New dataset.	SPATIAL_STUDIO	2019-09-11T14:16:37.344Z
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TX_SITES	New dataset.	SPATIAL_STUDIO	2019-09-12T13:20:49.942Z
TX_REGIONS	New dataset.	SPATIAL_STUDIO	2019-09-12T13:19:13.289Z

Properties
Create Project
Add to Active Project
Delete Dataset
Export Dataset
Dataset Cache
Prepare

Pre-cache
Purge Cache

Pre-cache very large datasets

ORACLE Spatial Studio

Data

Create

Datasets

Name
DB0902_DENGUE_
DB0902_HAWKER
DB0902_KINDERG
DB0902_ELDERCA
TX_COASTAL_ZON
TX_SITES
TX_REGIONS

Pre-cache

Draw the bounding box (Press Shift and start dragging the mouse):

Bounding Box: -106.92675906419599,26.034835916076887,-90.93066531419466,36.66644963104362

*** Vector tiles will be generated for Zoom Levels 0 through 10

Apply Cancel

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Active Project

Create

Work with Datasets in a Project

Data Elements

- Datasets
  - DB0902_DENGUE_CLUS...
  - DB0902_HAWKERCENTRE
  - DB0902_KINDERGARTENS
  - DB0902_ELDERCARE
- Analyses

demo_project

Layers List

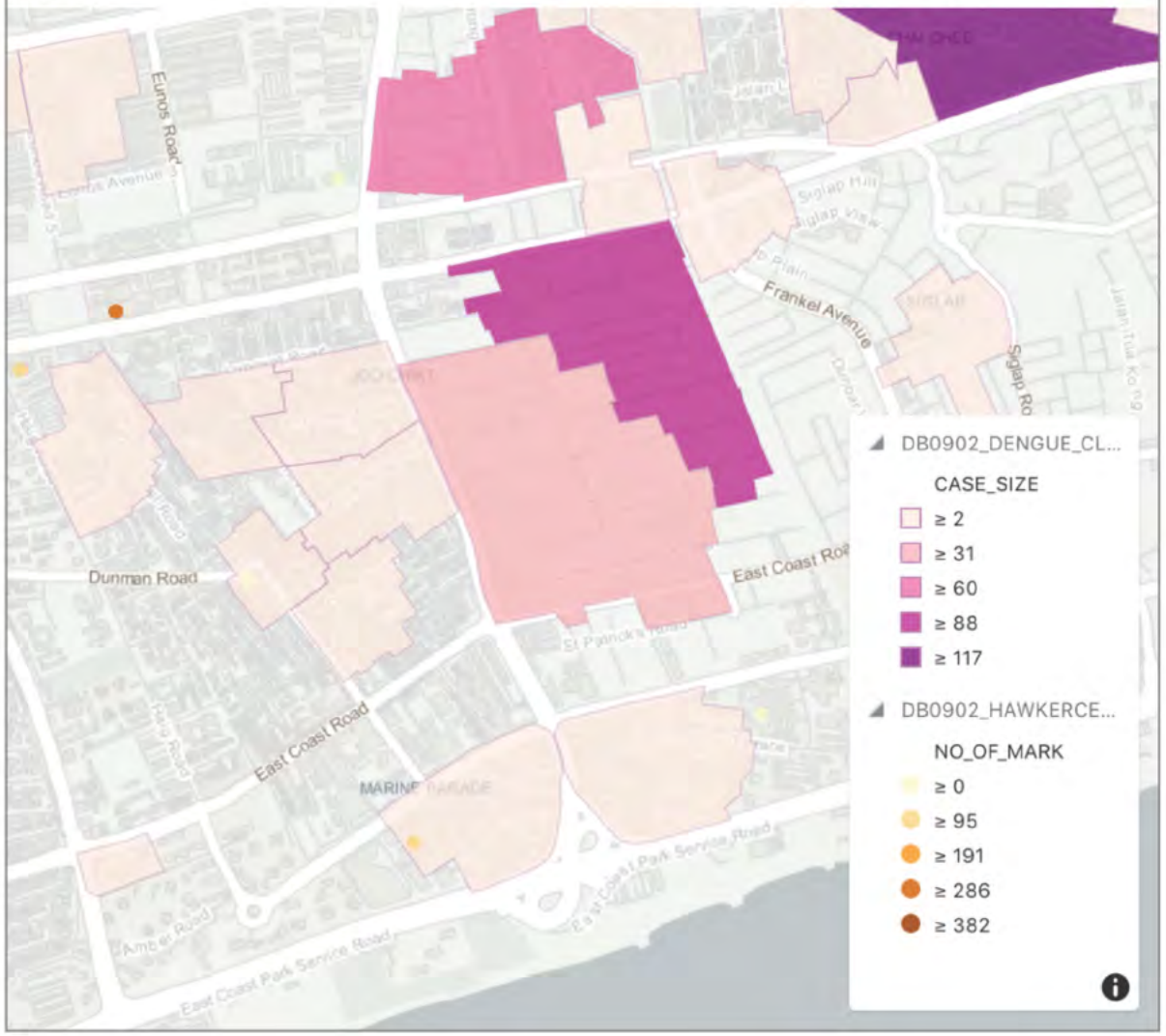
Data

- DB0902_HAWKERCENTRE
- DB0902_DENGUE_CLUSTER

Background

- Oracle OSM Positron

sg_data



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Active Project

Create

Data Elements

- Datasets
  - DB0902_DENGUE_CLUS...
  - DB0902_HAWKERCENTRE
  - DB0902_KINDERGARTENS
  - DB0902_ELDERCARE
- Analyses

demo_project

Layers List

Data

- DB0902_HAWKERCENTRE
- DB0902_DENGUE_CLUSTER

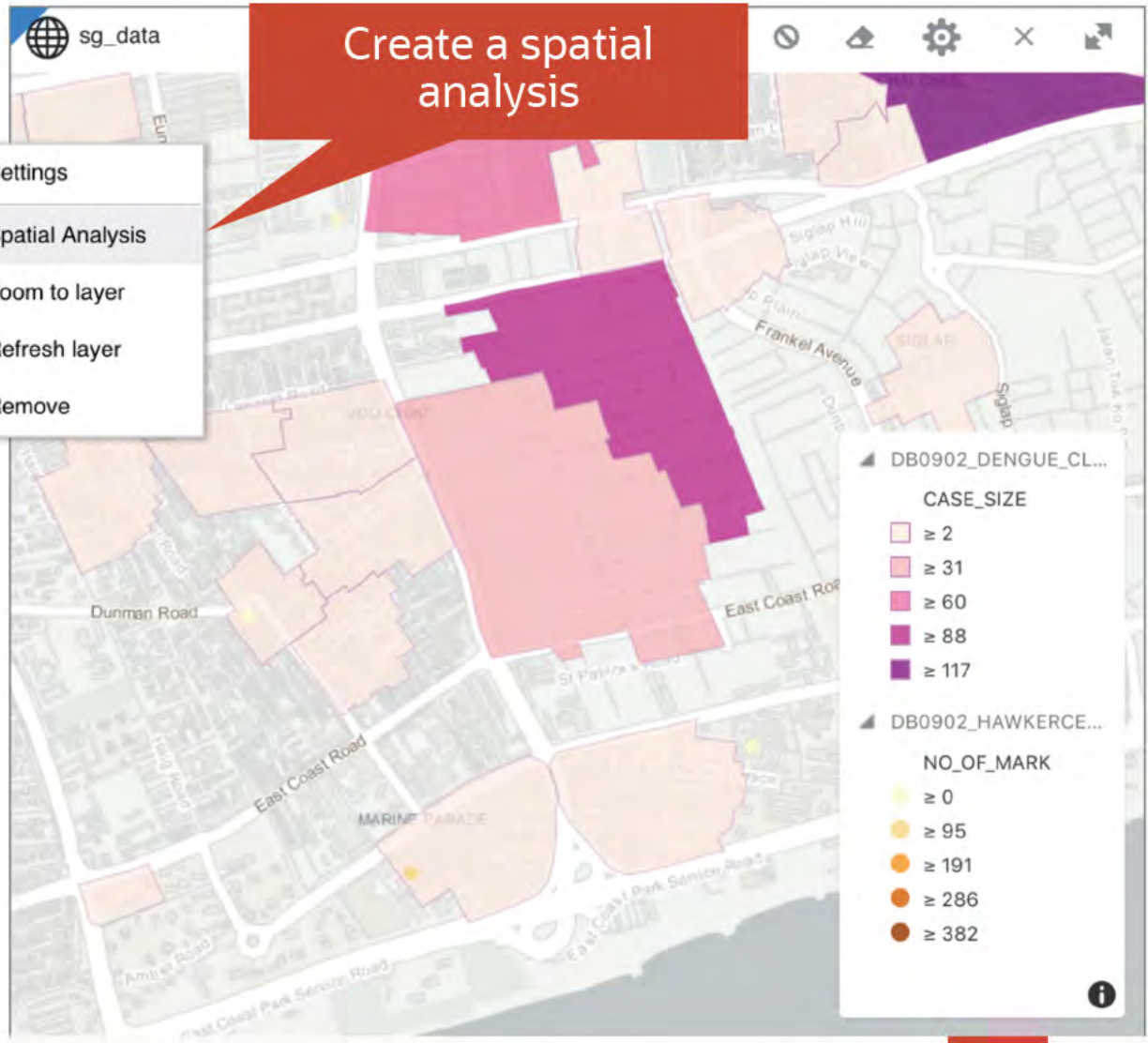
Background

- Oracle OSM Positron

Settings
Spatial Analysis
Zoom to layer
Refresh layer
Remove

sg_data

Create a spatial analysis



Spatial Analysis Operations

All | Filter | Combine | Transform | Measure

Search

Return shapes that interact with the minimum bounding rectangle of another
SDO_FILTER
More information

Return shapes nearest to another
SDO_NN
More information

Return shapes having spatial relationships to another
SDO_RELATE
More information

Select Spatial analysis to perform

Return shapes having any spatial interaction with another
SDO_ANYINTERACT
More information

Return shapes that contain another
SDO_CONTAINS
More information

Return shapes that are inside another
SDO_INSIDE
More information

Return shapes that overlap another
SDO_OVERLAPS
More information

Return shapes within a specified distance of another
SDO_WITHIN_DISTANCE
More information

Returns elements filtered by non spatial rules
ATTRIBUTE FILTER
More information

Advanced

Return shapes covered by another
SDO_COVEREDBY
More information

Return shapes that cover another
SDO_COVERS
More information

Return shapes equal to another
SDO_EQUAL
More information

Return shapes that are on another
SDO_ON
More information

Return shapes that overlap another with disjoint boundaries
SDO_OVERLAPBDYDISJOINT
More information

Return shapes that overlap another with interacting boundaries
SDO_OVERLAPBDYINTERSECT
More information

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Active Project

Create

Data Elements

Datasets

- DB0902_DENGUE_CLUS...
- DB0902_HAWKERCENTRE
- DB0902_KINDERGARTENS
- DB0902_ELDERCARE

Analyses

- DENGUE_CLUSTER_RU...

demo_project

Layers List

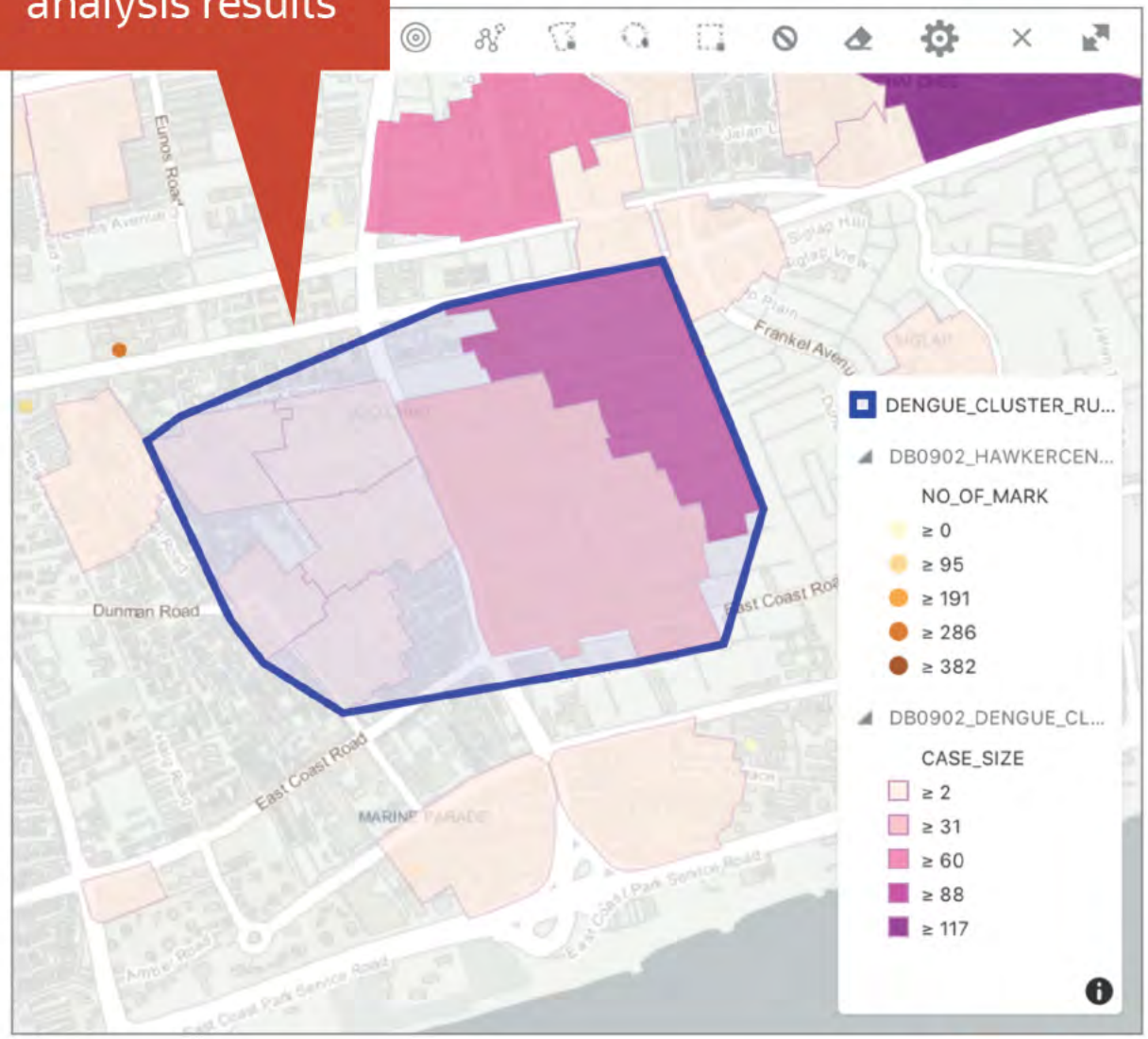
Data

- DENGUE_CLUSTER_RUBBERBAND_A...
- DB0902_DENGUE_CLUSTER
- DB0902_HAWKERCENTRE

Background

- Oracle OSM Positron

View Spatial analysis results



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Create

Dataset Properties - DENGUE_CLUSTER_RUBBERBAND_AREA

Metadata | Columns

Dataset ID	77d08742a57f4acd9e97f22d8857d6a6
* Name	DENGUE_CLUSTER_RUBBERBAND_AREA
Description	Spatial Analysis dataset.
Owner	weblogic
Datasource ID	ORACLE_SPATIAL_STUDIO_CONNECTION
Datasource Type	database
Node Path	database://{data}{schema}{ORACLE_SPATIAL_STUDIO
GeoJSON Endpoint	https://129.213.161.27:8001/spatialstudio/api/v1/js
SQL	SELECT SDO_AGGR_CONVEXHULL(SDOAGGRTYPE("t1"."GEOM", 0.05)) AS "GEOMETRY", '1' AS "23b2dc39-3caa-408c-a5de-908d0ac69e66" FROM "DB0902_DENGUE_CLUSTER" "t1" WHERE "t1"."STUDIO_ID" IN (156, 81, 18, 152, 157, 16, 22)

Statistics Status	COLLECTED
Last Statistics Time	2019-09-12T14:02:51Z
Number of Rows	7

Update Statistics

Analysis REST endpoint and underlying SQL

Apply | Cancel

DB0902_DENGUE_CL...
CASE_SIZE
≥ 2
≥ 31
≥ 60
≥ 88
≥ 117

DB0902_HAWKERCEN...
NO_OF_MARK
≥ 0
≥ 95
≥ 191
≥ 286
≥ 382

DENGUE_CLUSTER_RU...

https://129.213.161.27:8001/spatialstudio/?root=project&projid=fa83452471b376ff493fef76cecca33e#

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View active and past Jobs

Jobs

Create

Active | Past

Type	Object	Created By	Status	Start Time	End Time
Gather DataSets stats batch 2 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM
Gather DataSets stats batch 3 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM
Gather DataSets stats batch 1 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM
Gather DataSets stats batch 4 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM
Gather DataSets stats batch 5 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM
Gather DataSets stats batch 6 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM
Gather DataSets stats batch 7 of 7			DONE	Yesterday, 5:04 AM	Yesterday, 5:04 AM

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Console

Create

Settings | System Status | Service Logs | About

Service URLs

* Geocoding Service URL: http://maps.oracle.com/geocoder/gcserver

* Geocoding Batch Size: 500

Administrative info and functions

Web Proxy

Use Proxy

Proxy Server:

Proxy Server Port: 0

Proxy Requires Login

Proxy User Name:

Proxy User Password:

Update Settings

Demo

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Licensing and Delivery

- Bundled with Oracle Spatial
- Included at no extra cost with Oracle database licenses and cloud plans
  - Oracle Database SE2 and EE
  - Oracle Database Cloud Services (all editions)
  - Oracle Autonomous Database (including Free Tier)
- Available as
  - Download from https://www.oracle.com/downloads
    - Deployable JEE application (WebLogic)
    - Self-contained Quickstart
  - App on the Cloud Marketplace https://cloudmarketplace.oracle.com/marketplace
    - BYOL for WebLogic
    - Free Quickstart and Metered WebLogic are planned

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Resources

https://www.oracle.com/database/technologies/spatial-studio.html

Database /

Oracle Spatial Studio

Spatial Analytics and Maps. Fast and Easy.

Oracle Spatial Studio is a self-service web application that makes it easy for users to create interactive maps and perform spatial analysis on their business data.

Get Started with Oracle Spatial Studio →

Download Oracle Spatial Studio →

What's New

Demo: Oracle Spatial Studio (11:00)

FAQ: Oracle Spatial Studio

Presentation: Oracle Spatial and Graph in Oracle Database 19c (PDF)

Documentation

- Oracle Spatial Studio Guide
- Oracle Spatial Studio FAQ
- Oracle Spatial and Graph Developer's Guide
- Oracle Database 19c
- Oracle Database Products

Related Resources

- Oracle Autonomous Database
- Oracle Database 19c
- Oracle Database Cloud Service
- Oracle Database Express Edition
- Oracle Fusion Middleware

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Get started

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Doc

FAQ

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