



ANALYTICS AND DATA TechCasts

Oracle Analytics & Spatial Studio

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Using OAC and Spatial Studio to create custom map layers in Oracle Analytics



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Future & Past TechCasts:



Nov 17th

Data Mesh Panel

Presented by **Edelweiss
Kammermann**



Dec 8th

Innovation by Women with Oracle Technology

Presented by **Abi Giles-Haigh, Heli
Helskyaho, Debra Lilley, Melli
Annamalai, Edelweiss Kammermann**

TechCast Archive

| 2022 | | 2021 | 2020 | 2019 | |
|--------|--|--------------|------|-----------------------|------------------------|
| Date | Title | Presenter(s) | | Replay | Download(s) |
| Jan 20 | Integrating Data Silos with Linked Data in Oracle Database | Martien Vos | | Video | Slides |

Submit a topic to share at <https://andouc.org/techcasts/>



Formerly called the BIWA Summit with the Spatial and Graph Summit
Same great technical content...new name!

www.andouc.org





Save the Date Analytics and Data Oracle User Community Summit 2023



March 14, 15, 16, 2023
Oracle Conference Center
Redwood Shores, California

andouc.org for more details

Early Bird registration ends 1/31





We Have Merch!

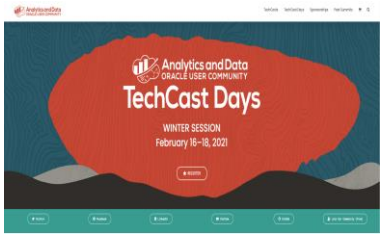
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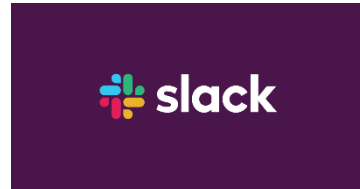


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Website

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<https://paper.li/e-1587156323#/>



@AnalyticAndData



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<https://www.facebook.com/AnDOracleUserCommunity>



Spatial + Graph SIG
bit.ly/Spatial-Graph-LinkedIn

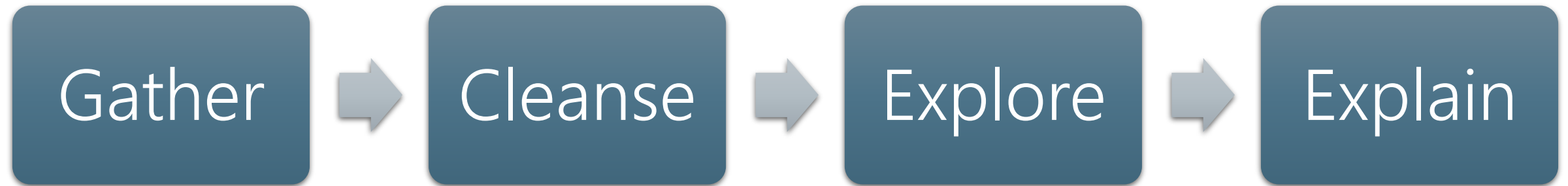
Agenda

- Explore Seamlessly Moving Data Between OAC and Spatial Studio
- Review New Features in Spatial Studio
- Create Spatial Hierarchies
- Demonstrate the Power of Using Both Tools to Better Tell Data Story



Overview - OAC

Life Cycle of Data Visualization



Types of Data Visualization

Exploratory



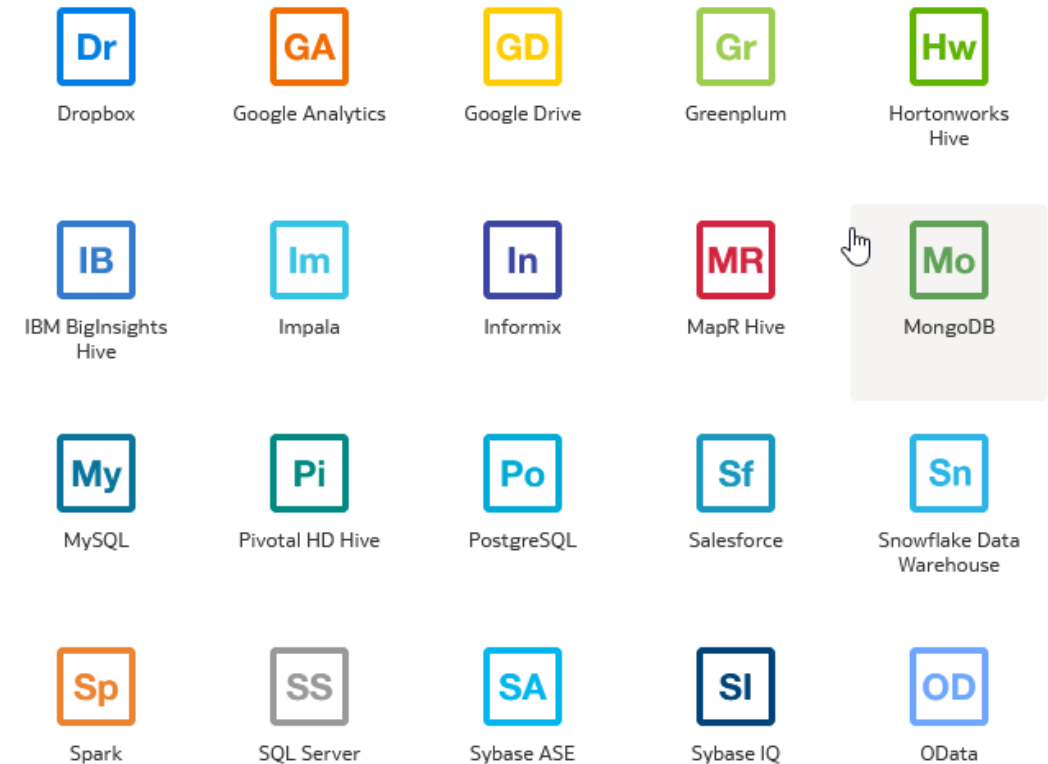
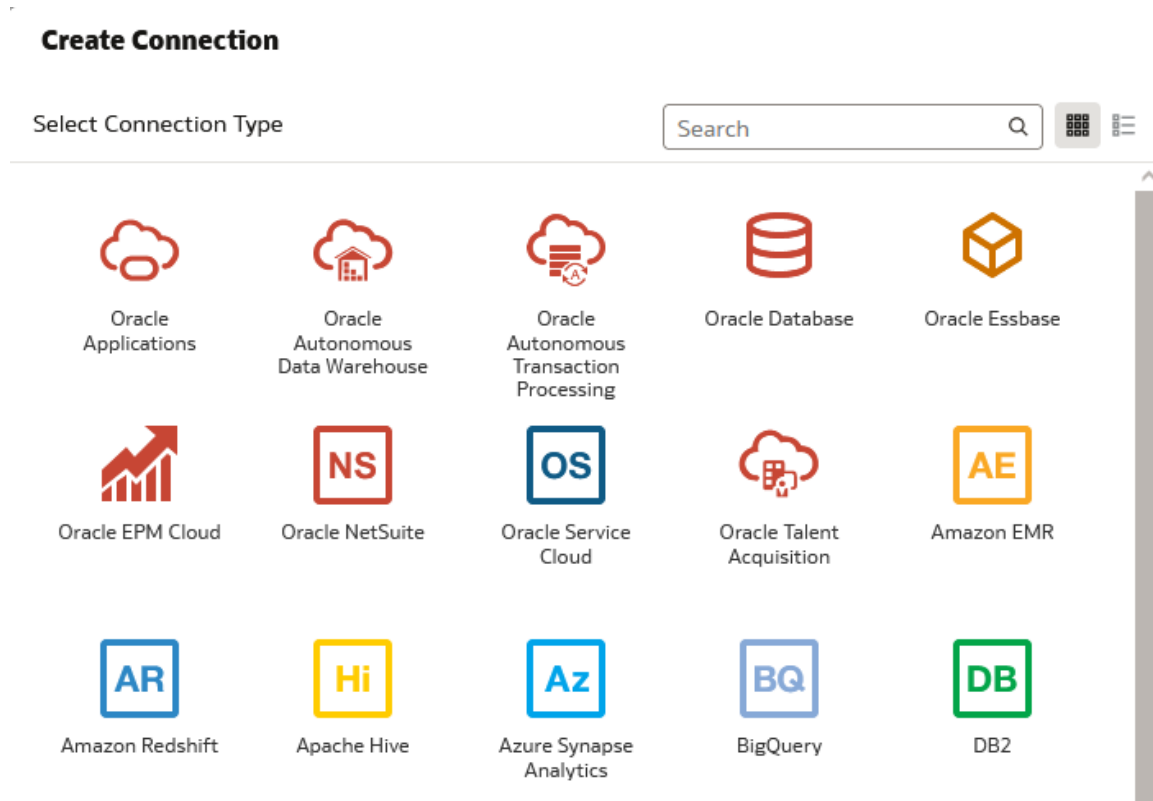
Explanatory



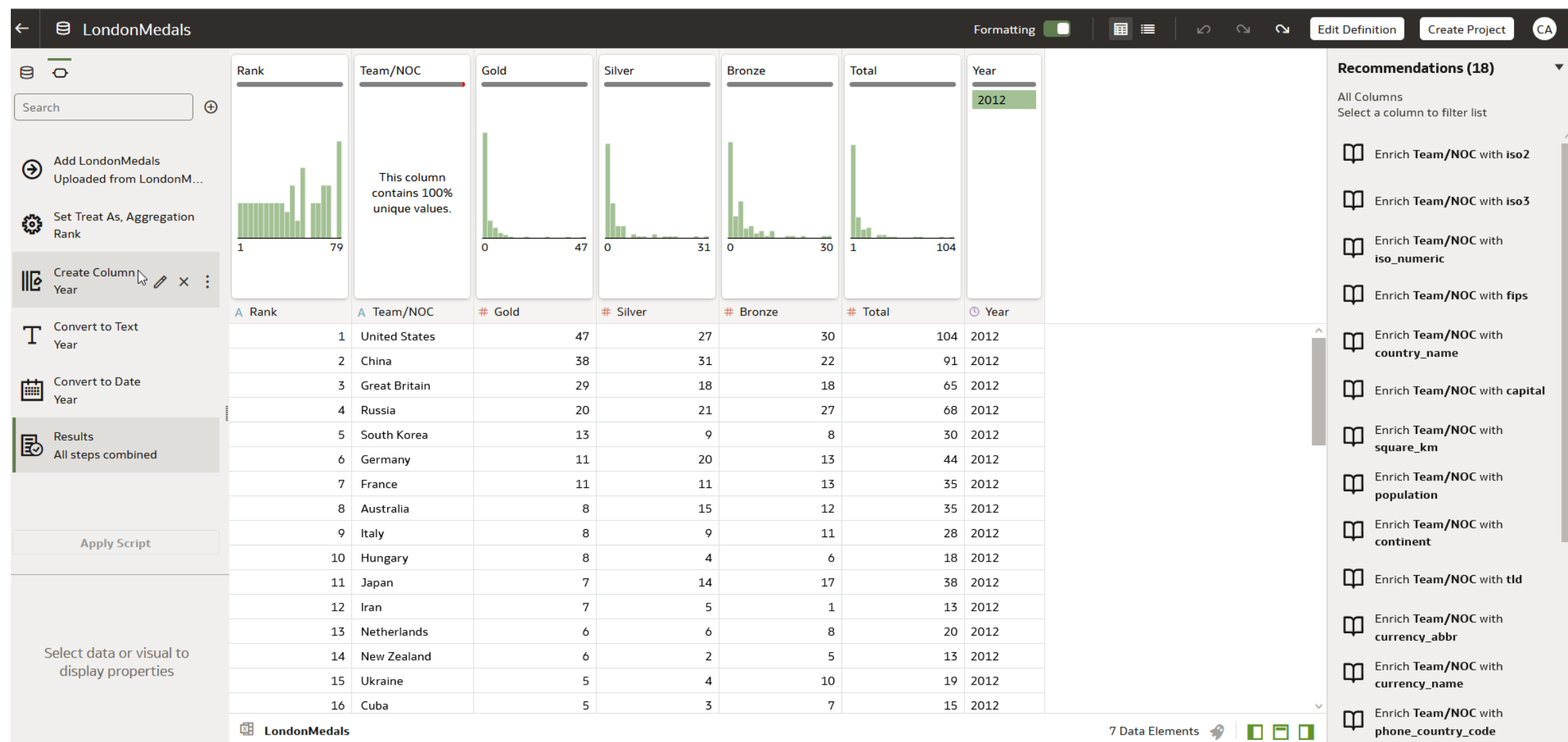


Data Sources

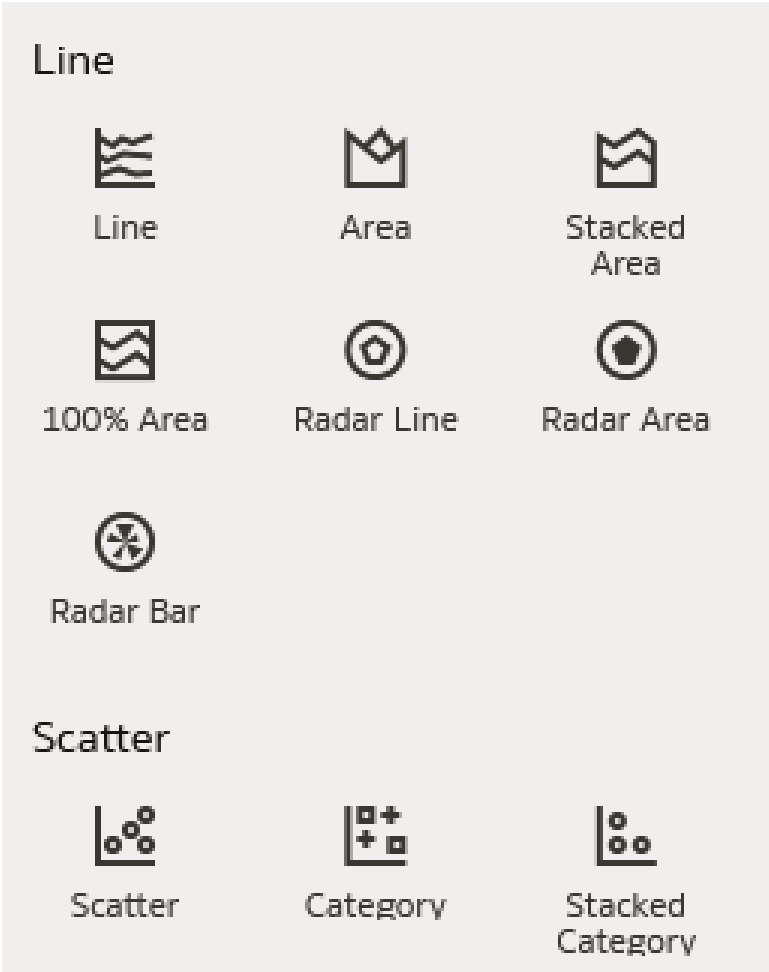
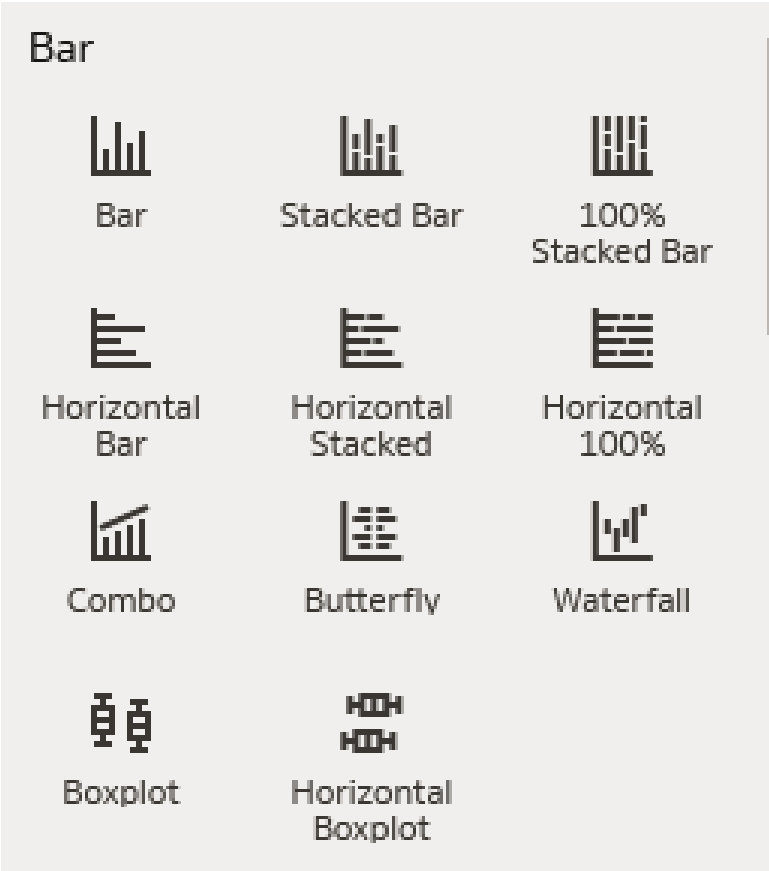
Connect to over 30 different data sources including flat files



Data Set Data Prep



Out of Box Visualizations



Out of Box Visualizations

Pie (+Treemap)



Pie



Donut



Sunburst



Treemap

Grid



Pivot



Table



Correlation
Matrix



Grid Heat
Map



Picto

Network



Network



Circular
Network



Sankey



Tree
Diagram



Chord
Diagram



Parallel
Coordinates

Filter



List Box



List

More



Tile



Map



Tag Cloud



Language
Narrative



Timeline



Spacer















Text Box














Image

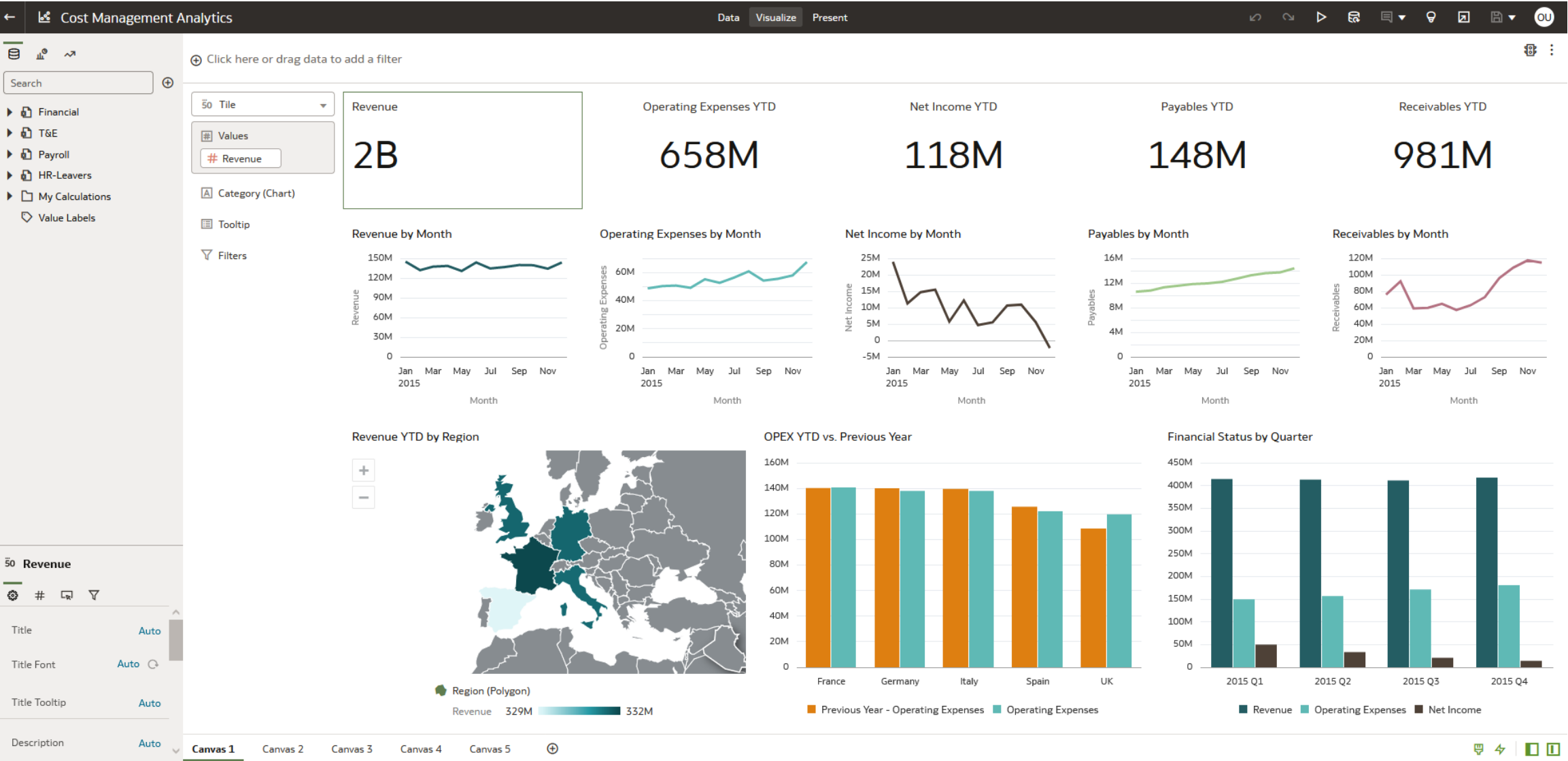
Custom Visualization Extension

Custom Visualizations

| | | |
|--|---|---|
|  Circle Pack |  Calendar Heatmap |  Force Directed |
|  NetworkViz Plugin |  Custom Points Map |  Candlestick Viz Plugin |
|  BoxplotViz Plugin |  Governance Plugin |  Collapsible TreeViz |
|  Elbow Dendrogram |  LinesOnMap Plugin |  RowExpander V2 |

| | | |
|---|--|---|
|  Points Cluster Map |  OrgChart Plugin |  BulletViz Plugin |
|  CustomTile Plugin |  PhoneGridBars Plugin |  Vert Waterfall |
|  ParetoChart Plugin |  ValueHierarchyConvert |  DimPlayer Plugin |
|  Variable Prompt |  QuadrantViz Plugin | |

Interactive Dashboards

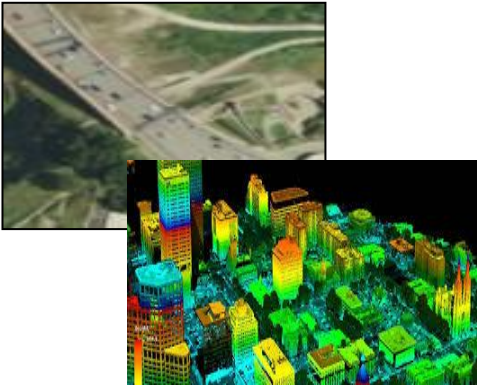


Overview – Spatial Studio

Spatial Data



Locations based on GPS, addresses, commercial map data, sensor readings, etc. These are represented as geometries like points, lines, polygons, circles, and arcs.



Satellite imagery and sensor-based (LiDAR) models



Networks that model road systems, telco, energy, transportation and other infrastructure

Using Spatial Data

It's about location and spatial relationships



Are things in the same location? Who is the nearest?
What tax zone is this in? **Where can deliver in 35 minutes?** What is in my sales territory? Is this built in a flood zone? Do I have a clear **Line of Sight?**
Which part of the road has the most accidents?

Spatial in Oracle Autonomous Database

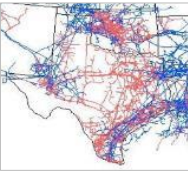
Native Spatial Data Management, Processing, Analysis

Spatial types

Points



Lines



Polygons



Imagery



Spatial analysis through SQL

Filter by proximity ...
Search for nearest...
Join by containment...
Measure area, distance
Much more

Developer access



SQL, PLSQL,
Java, Python,
JavaScript

Self service, no code access



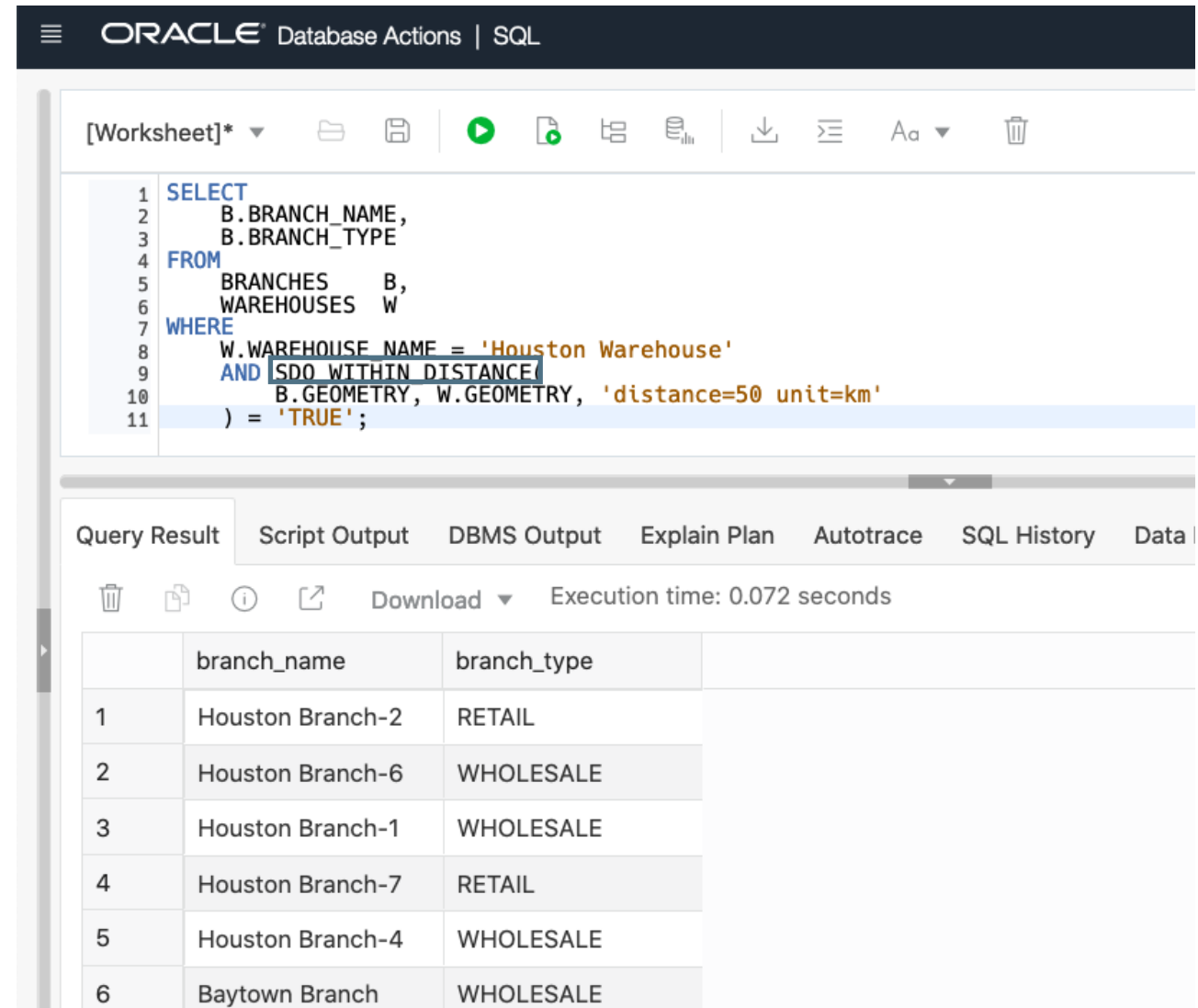
Spatial Studio

Developer access

SQL, PLSQL, Java, etc

example:

- Identify branch locations within 50km of the Houston warehouse
- More coding and/or integration for interactive web maps.



The screenshot displays the Oracle Database Actions | SQL interface. The top toolbar includes icons for saving, running, and other actions. The main area shows a SQL query in a worksheet:

```
1 SELECT  
2   B.BRANCH_NAME,  
3   B.BRANCH_TYPE  
4 FROM  
5   BRANCHES B,  
6   WAREHOUSES W  
7 WHERE  
8   W.WAREHOUSE_NAME = 'Houston Warehouse'  
9 AND SDO_WITHIN_DISTANCE  
10  B.GEOMETRY, W.GEOMETRY, 'distance=50 unit=km'  
11 ) = 'TRUE';
```

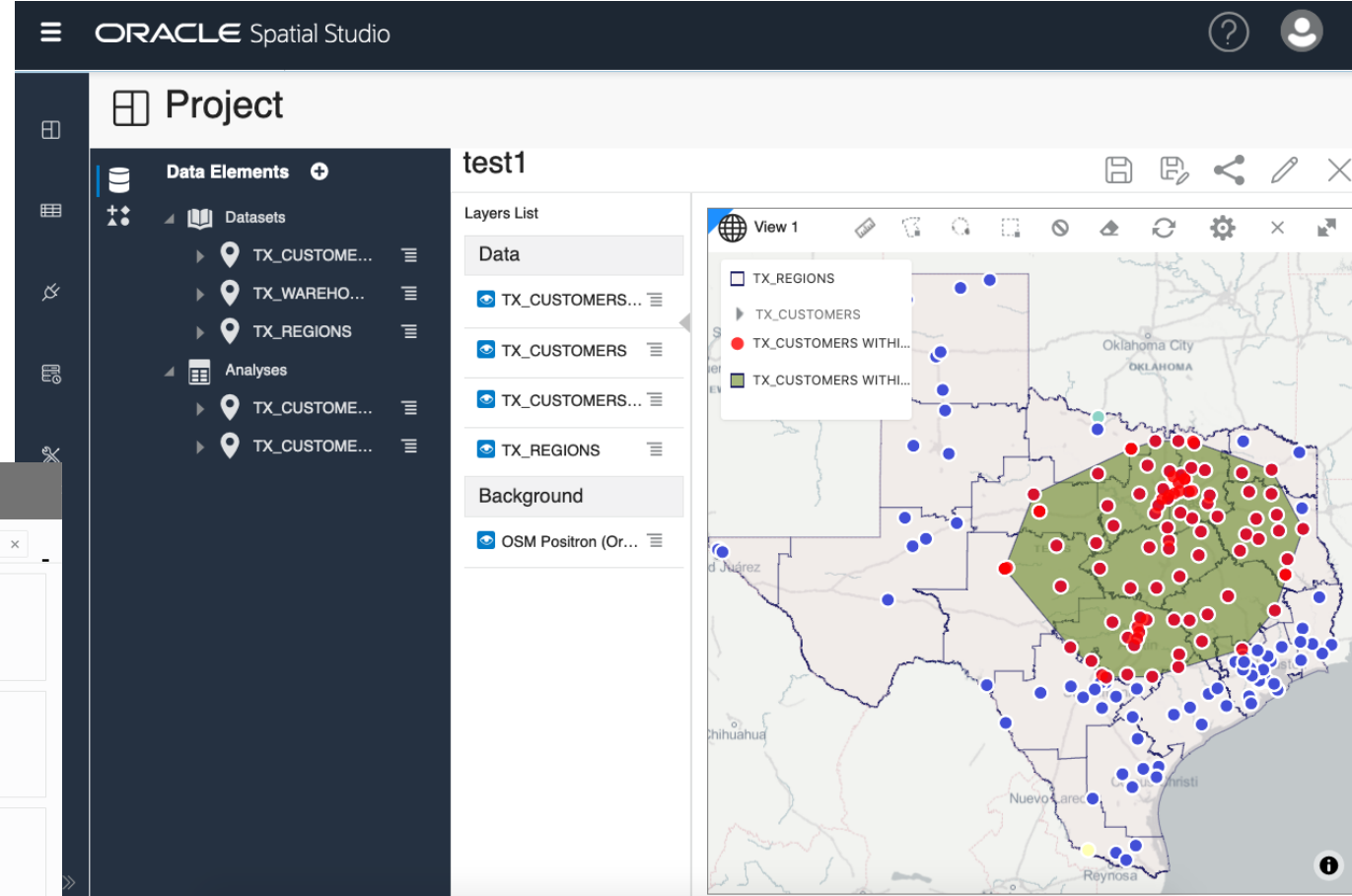
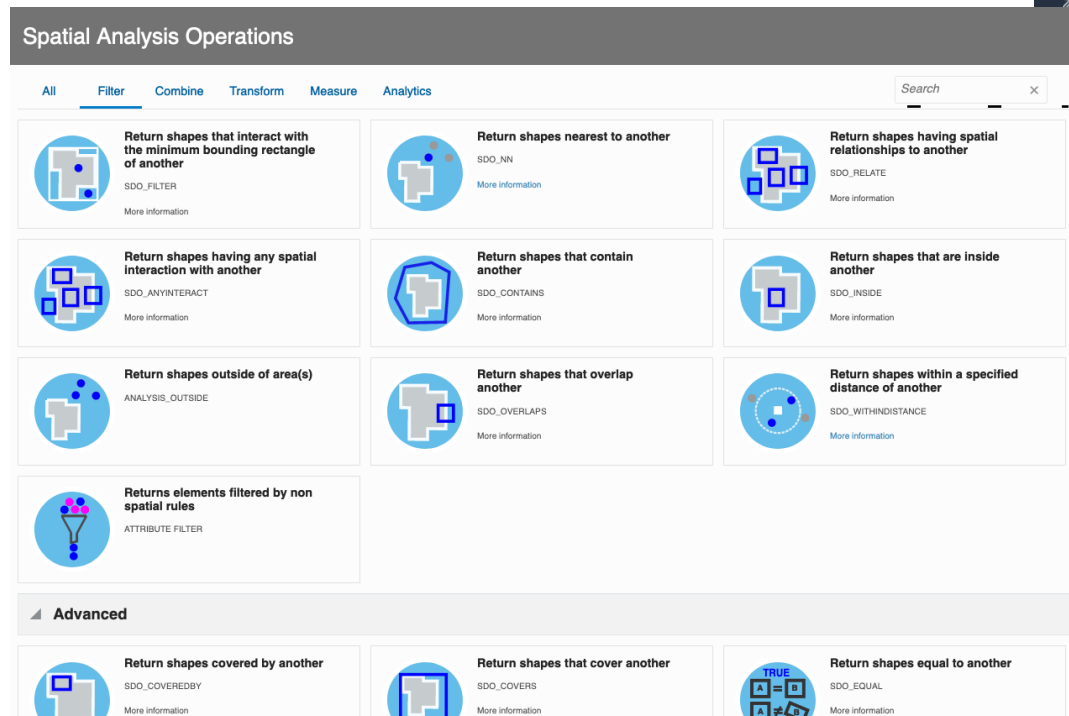
Below the query editor, the 'Query Result' tab is active, showing the execution results. The execution time is 0.072 seconds. The results are displayed in a table with columns 'branch_name' and 'branch_type'.

| | branch_name | branch_type |
|---|------------------|-------------|
| 1 | Houston Branch-2 | RETAIL |
| 2 | Houston Branch-6 | WHOLESALE |
| 3 | Houston Branch-1 | WHOLESALE |
| 4 | Houston Branch-7 | RETAIL |
| 5 | Houston Branch-4 | WHOLESALE |
| 6 | Baytown Branch | WHOLESALE |

Self-service access

Spatial Studio

- Easily create interactive maps and perform spatial analysis
- Works with spatial data in Oracle Database



Oracle Analytics Demo

The Setup

Oracle Analytics Demo

- Review New Datasets
- Loading Data ADW Tables
- 2021 Data Story
- New Data Story



Last Year

Total Insured Properties

360

Insured Value

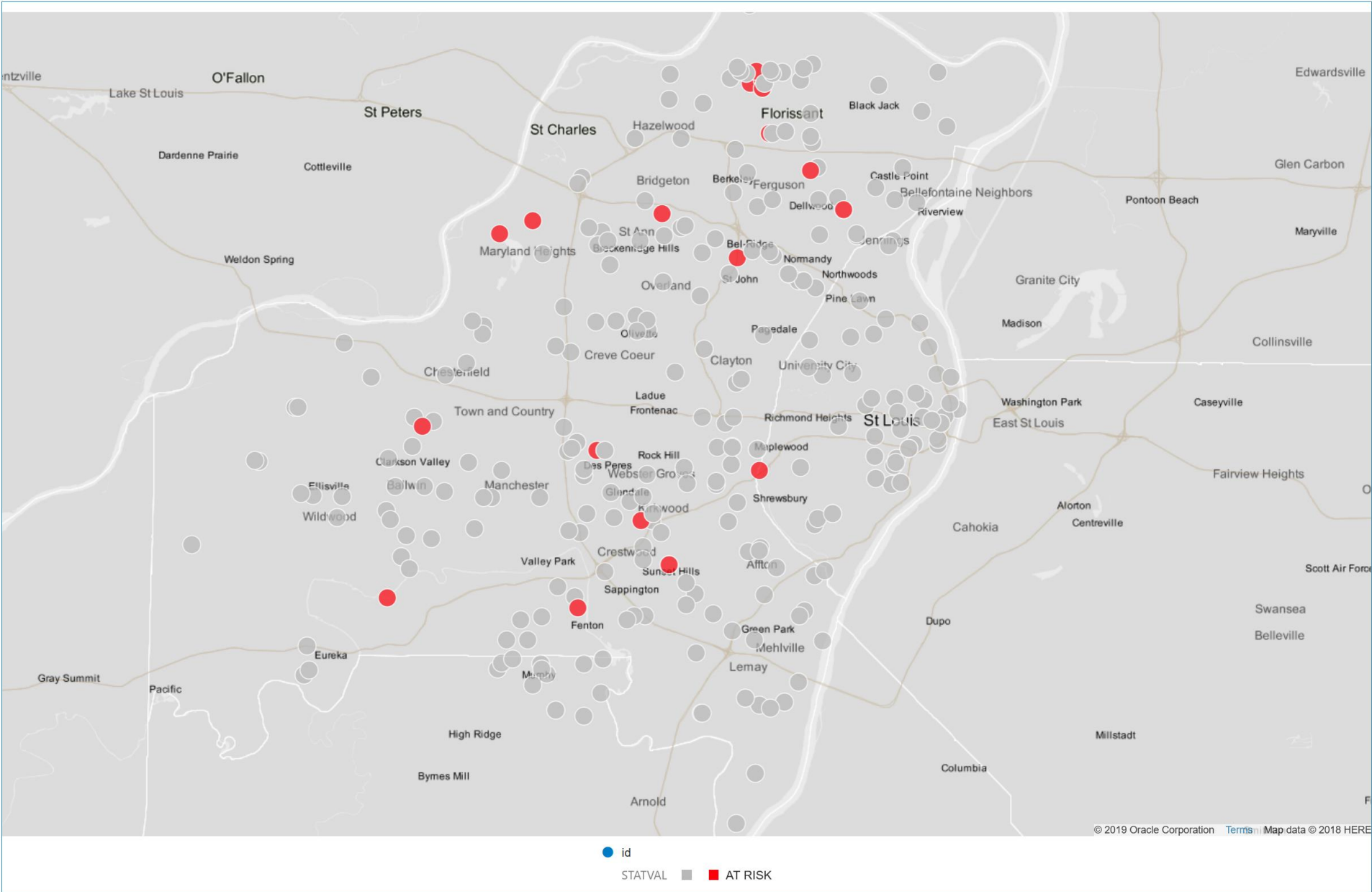
\$78.1M

Properties at Risk

31

Insured Value at Risk

\$6.6M



Recorded Demo

Review Customer and
Supplier Data

Search Everything


Workbooks and Reports


Data


Recent Datasets


Favorite Workbooks


Machine Learning



MO1



mo2



SupplierDistance



New Workbook



ACEADWAUTO



ADW



ATP-Free


48



INSURANCE RPT



ReportExecutionTimeM...



BIPCatalogObjectAuditT...



Map2


Workbooks



MO1


mo2



New Workbook



48



Map2



Map1


Dashboards and Reports



INSURANCE RPT



ReportRuntimeSta...



ReportPerformanc...



ReportExecutionTi...


HourlyConcurrenc...


BIPReportAuditTrail


BIPCatalogObject...


test2 - page 1


test - page 1

Datasets

Spatial Studio Demo


Spatial Data Prep and Analytics

Spatial Studio Demo Topics

- Data Prepping via Spatial Studio
 - Importing Shapefile Data
 - Geocoding Addresses for Customers
 - Creating Custom Regions From Existing Layer
 - Reverse Geocoding for Suppliers
 - Nearest Supplier for Customer
- Staging Studio Data In Tables for OAC



Recorded Demo

A laptop with a black frame and a silver base is shown. The screen is white and displays the text 'Use Spatial Studio to Geocode Addresses and Create Latitude and Longitude'.

Use Spatial Studio to
Geocode Addresses and
Create Latitude and
Longitude

FileEditViewHistoryBookmarksToolsHelp

Oracle Spatial Studio | Datasets

https://132.145.155.242:4040/spatialstudio/index.html?root=datasets

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ORACLE Spatial Studio

?

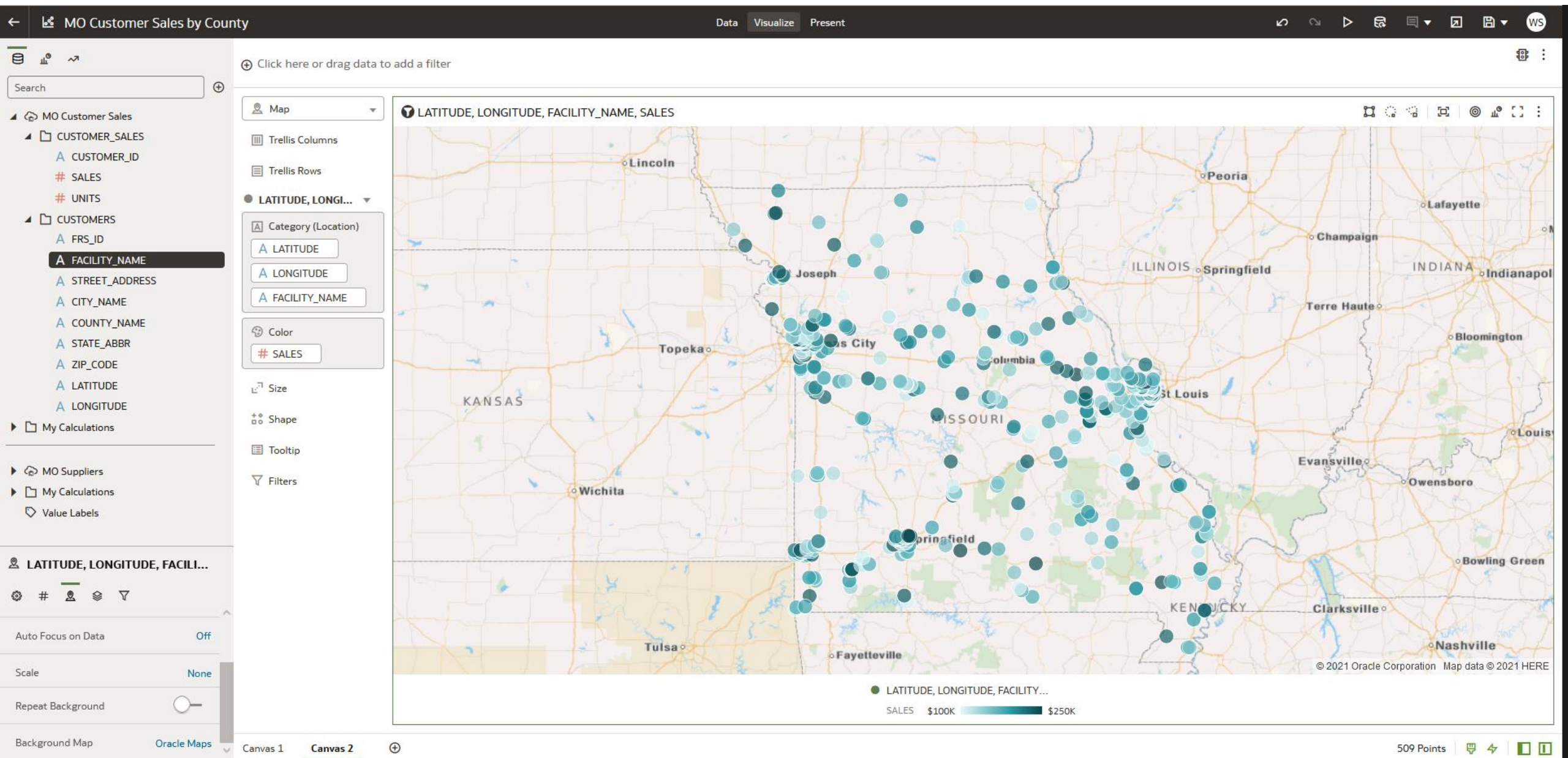
SG

Create Dataset

Search ...

↺

| <input type="checkbox"/> | ↕ | Name ↗ | Public ↕ | Connection ↕ | Last Modified Date ↕ | Description ↕ |
|-------------------------------------|---|----------------------|----------|----------------|--------------------------|---------------|
| <input type="checkbox"/> | 📍 | CUSTOMER_SITES | | ACED_ANALYTICS | 2022-06-10T17:53:25.915Z | ... |
| <input type="checkbox"/> | 📍 | EPA_SITES | | ACED_ANALYTICS | 2022-06-02T23:21:47.973Z | ... |
| <input type="checkbox"/> | 📍 | MO_COUNTY_BOUNDARIES | | ACED_ANALYTICS | 2022-06-02T20:34:33.211Z | ... |
| <input checked="" type="checkbox"/> | 📍 | MO_CUSTOM_REGIONS | | ACED_ANALYTICS | 2022-06-03T00:49:44.320Z | ... |



Recorded Demo

A laptop with a black bezel and a silver base is shown from a slightly elevated front perspective. The screen is white and displays the text 'Import Shapefile for County Boundaries' in a black, sans-serif font. The text is centered on the screen and occupies the upper half of the display area. The laptop is open, and the screen is the primary focus.

Import Shapefile for County
Boundaries

Missouri County Boundaries

← → ↻ <https://data.mo.gov/Demographics/Missouri-County-Boundaries-Map/n34b-fwqr> ☆

data.mo.gov
State of Missouri Data Portal

Help Developers MO.gov | [Sign In](#)

Missouri County Boundaries Map

This data set contains the boundaries of Missouri's 114 counties plus the boundary ▶

[More Views](#) [Export](#) [Discuss](#) [Embed](#) [About](#)

Export

SODA API

Download

Download a copy of this dataset in a static format

Download Geospatial Data

- Original
- KML
- KMZ
- Shapefile
- GeoJSON

Download a non-geospatial file type

- CSV
- CSV for Excel
- CSV for Excel (Europe)
- JSON
- RDF
- RSS



Datasets

Create Dataset

Search ...



| <input type="checkbox"/> | ↕ | Name ↑ | Public ↕ | Connection ↕ | Last Modified Date ↕ | Description ↕ |
|--------------------------|---|----------------|----------|----------------|--------------------------|---------------|
| <input type="checkbox"/> | 📍 | CUSTOMER_SITES | | ACED_ANALYTICS | 2022-06-10T17:53:25.915Z | ... |
| <input type="checkbox"/> | 📍 | CUSTOMERS | | ACED_ANALYTICS | 2022-06-12T19:51:24.795Z | ... |
| <input type="checkbox"/> | 📍 | EPA_SITES | | ACED_ANALYTICS | 2022-06-02T23:21:47.973Z | ... |

Recorded Demo

Use Spatial Studio to Create
6 Custom Regions from
Existing Map Layer of
Missouri Counties

Untitled

Actions Save Close

Data Visualizations

Add Dataset Create Analysis

Datasets

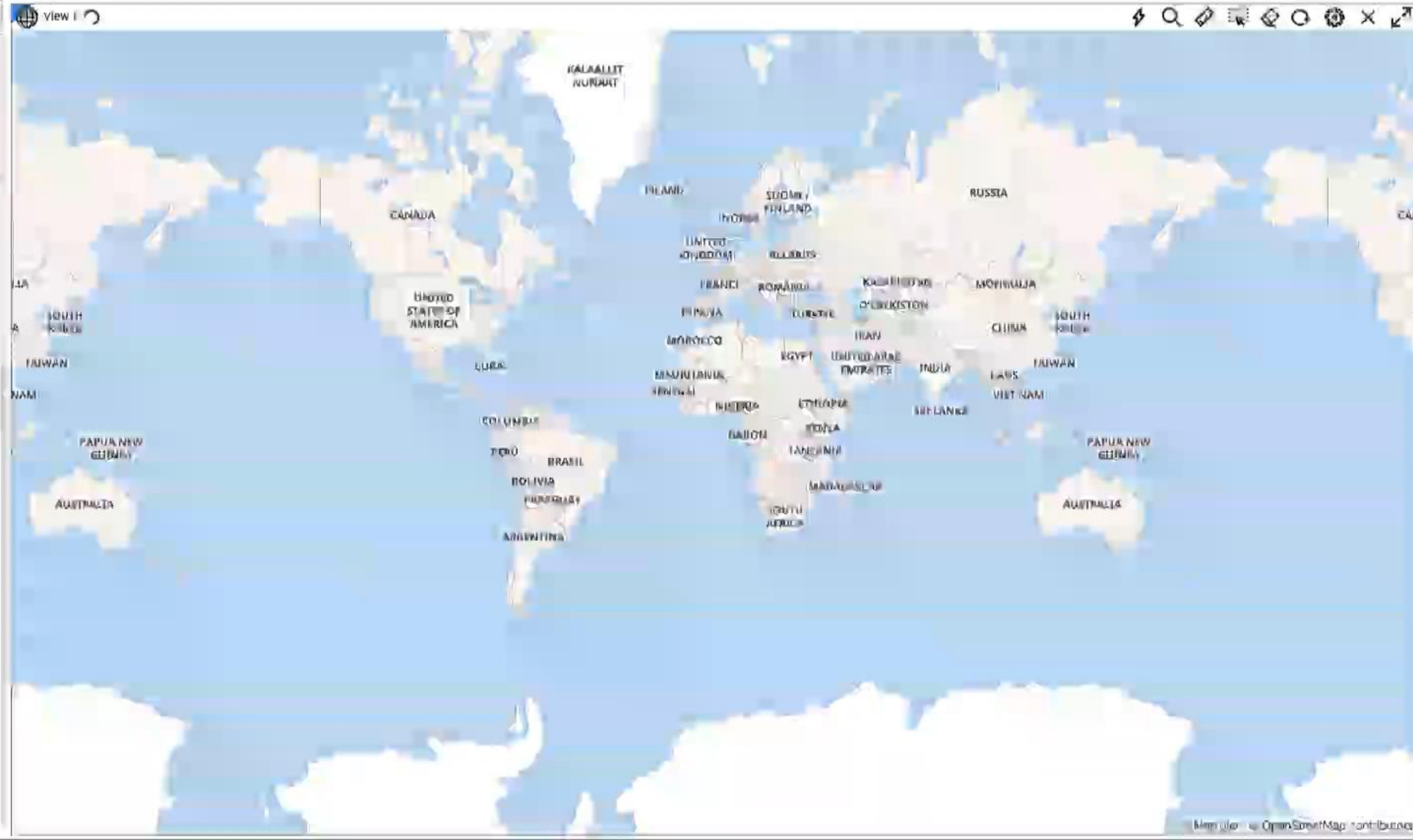
- MD_COUNTY_BOUNDARIES

Analyses

Layers List

Layers Background

No items to display.



Create Custom Regions

ORACLE Spatial Studio

Untitled

Data

Visualizations

View 1

Actions

Save

Close

Add Dataset

Create Analysis

Datasets

MO_COUNTY_BOUNDARIES

Analyses

Layers List

Layers

Background

MO_COUNTY_BOUNDARIES

Combining shape

Combine a set of shapes and append results to existing dataset

Combine shapes in MO_COUNTY_BOUNDARIES.GEOM

Target dataset Append to existing

Append to existing

Create new

Enter new shape attributes...

Only polygon datasets are allowed as source or target. They must have a key column defined.

ORACLE Spatial Studio

Untitled

Data

Visualizations

View 1

Actions

Save

Close

Add Dataset

Create Analysis

Datasets

MO_COUNTY_BOUNDARIES

MO_CUSTOM_REGIONS

Analyses

Layers List

Layers

Background

MO_CUSTOM_REGIONS

MO_COUNTY_BOUNDARIES

Recorded Demo

Use Spatial Analysis to Create
New Table of Counties within
Regions

Create Dataset

Search ... 

| <input type="checkbox"/> | ↕ | Name ↕ | Public ↕ | Connection ↕ | Last Modified Date ↕ | Description ↕ |
|--------------------------|---|----------------------------|----------|----------------|--------------------------|---------------|
| <input type="checkbox"/> | 📍 | MISSOURI_COUNTY_BOUNDARIES | | ACED_ANALYTICS | 2022-06-13T22:50:52.020Z | ... |
| <input type="checkbox"/> | 📍 | MO_CUSTOM_REGIONS | | ACED_ANALYTICS | 2022-06-13T22:51:50.167Z | ... |

Recorded Demo

Find Nearest Supplier for
each Customer

FileEditViewHistoryBookmarksToolsHelp

Oracle Spatial Studio | Datasets

"Sent Items" - wvansluys@gmail.com

https://132.145.159.163:4040/spatialstudio/index.html?root=datasets

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ORACLE Spatial Studio

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Datasets


Create Dataset

Search ...

🔄

| <input type="checkbox"/> | ↕ | Name ↗ | Public ↕ | Connection ↕ | Last Modified Date ↕ | Description ↕ |
|-------------------------------------|---|----------------------------|----------|----------------|--------------------------|---------------|
| <input type="checkbox"/> | 📍 | COUNTY_TO_REGION | | ACED_ANALYTICS | 2022-06-13T23:03:39Z | ... |
| <input type="checkbox"/> | 📍 | CUSTOMERS | | ACED_ANALYTICS | 2022-06-14T00:24:58.236Z | ... |
| <input type="checkbox"/> | 📍 | MISSOURI_COUNTY_BOUNDARIES | | ACED_ANALYTICS | 2022-06-13T22:50:52.020Z | ... |
| <input type="checkbox"/> | 📍 | MO_CUSTOM_REGIONS | | ACED_ANALYTICS | 2022-06-13T22:51:50.167Z | ... |
| <input checked="" type="checkbox"/> | 📍 | SUPPLIERS | | ACED_ANALYTICS | 2022-06-13T23:10:40.526Z | ... |

43

Oracle

Recorded Demo

Reverse GeoCode Address
from Latitude & Longitude



Datasets

Create Dataset

Search ...



| <input type="checkbox"/> | ↕ | Name ↑ | Public ↕ | Connection ↕ | Last Modified Date ↕ | Description ↕ |
|-------------------------------------|---|----------------------------|----------|----------------|--------------------------|---------------|
| <input type="checkbox"/> | 📍 | COUNTY_TO_REGION | | ACED_ANALYTICS | 2022-06-13T23:03:39Z | ... |
| <input type="checkbox"/> | 📍 | CUSTOMER NEAREST SUPPLIER | | ACED_ANALYTICS | 2022-06-14T02:11:40Z | ... |
| <input type="checkbox"/> | 📍 | CUSTOMERS | | ACED_ANALYTICS | 2022-06-14T00:24:58.236Z | ... |
| <input type="checkbox"/> | 📍 | MISSOURI_COUNTY_BOUNDARIES | | ACED_ANALYTICS | 2022-06-13T22:50:52.020Z | ... |
| <input type="checkbox"/> | 📍 | MO_CUSTOM_REGIONS | | ACED_ANALYTICS | 2022-06-13T22:51:50.167Z | ... |
| <input checked="" type="checkbox"/> | 📍 | SUPPLIERS | | ACED_ANALYTICS | 2022-06-13T23:10:40.526Z | ... |

Recorded Demo

A laptop with a black frame and a silver base is shown. The screen is white and displays the text 'Export Map Layers from Spatial Studio as GeoJSON Map Layers for OAC' in a black, sans-serif font. The text is centered on the screen.

Export Map Layers from
Spatial Studio as GeoJSON
Map Layers for OAC



Datasets

Create Dataset

Search ...



| <input type="checkbox"/> | ↕ | Name ↗ | Public ↕ | Connection ↕ | Last Modified Date ↕ | Description ↕ |
|-------------------------------------|---|----------------------|----------|----------------|--------------------------|---------------|
| <input checked="" type="checkbox"/> | 📍 | CUSTOMER_SITES | | ACED_ANALYTICS | 2022-06-10T17:53:25.915Z | ... |
| <input type="checkbox"/> | 📍 | EPA_SITES | | ACED_ANALYTICS | 2022-06-02T23:21:47.973Z | ... |
| <input type="checkbox"/> | 📍 | MO_COUNTY_BOUNDARIES | | ACED_ANALYTICS | 2022-06-02T20:34:33.211Z | ... |
| <input type="checkbox"/> | 📍 | MO_CUSTOM_REGIONS | | ACED_ANALYTICS | 2022-06-03T00:49:44.320Z | ... |

Spatial Studio Recorded Demo Steps

- Load County Boundaries Shapefile
- Geocode Customer
- Create Custom Regions with Spatial Studio
- Spatial Analysis to Table of Counties within Regions
- Spatial Analysis to Table of Nearest Customers to Supplier
- Reverse GeoCode from Latitude and Longitude
- Export Counties and Custom Regions as GeoJSON

Oracle Analytics Demo

Pulling it all together to tell the Data Story

Oracle Analytics Demo

- Import New Map Layers
- Create New Datasets with Spatial Data
- Digging into the Data
- Creating the Data Story



Recorded Demo

A laptop with a black frame and a silver base is shown from a front-facing perspective. The screen is white and displays the text 'Import GeoJSON Map Layers into OAC' in a black, sans-serif font. The text is centered on the screen and is the only content visible on the display.

Import GeoJSON Map Layers
into OAC

FileEditViewHistoryBookmarksToolsHelp

Oracle Analytics

←→↻

https://acedanalytics6-id00fxq33bop-ia.analytics.ocp.oraclecloud.com/ui/dv/?pageid=managemapdata

☆

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←👤MapsWS

Backgrounds

Map Layers


Custom Map Layers

| Include | Name | Description | Default Background | Size | Modified |
|---------|------------------------|-------------|--------------------|---------|--------------|
| ✓ | STL_FLOOD_HAZARD_AREAS | | | 8454 KB | Jun 28, 2021 |
| ✓ | STL_INSURANCE_DATA | | | 45 KB | Jun 28, 2021 |
| ✓ | US Zip Codes.geo | | | 7488 KB | May 4, 2021 |

+ Add Custom Layer (click, or drag and drop GeoJSON file)

System Map Layers

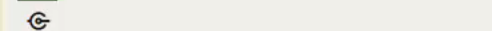
52



Recorded Demo

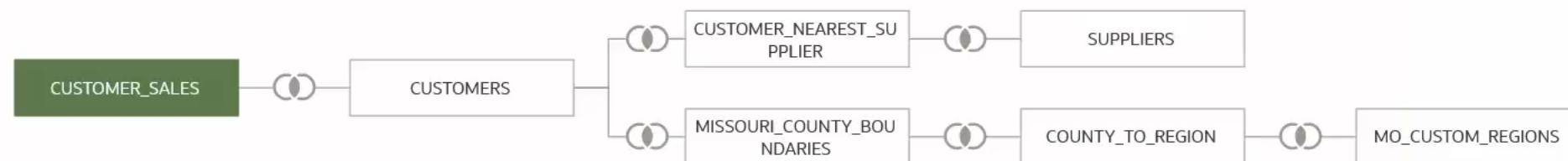
A laptop with a black bezel and a silver base is shown from a front-facing perspective. The screen is white and displays the text "Expanding the Dataset" in a black, sans-serif font. The text is centered horizontally and occupies the upper half of the screen. The laptop is open, and the screen is the primary focus.

Expanding the Dataset

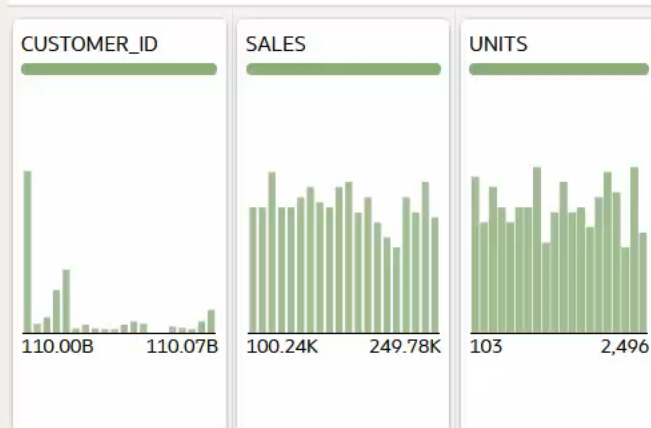


Search

ELIM
EPA3
EPA_SITES
FEBELIM
JUNK
JUNK_SYN
MDRT_39EFB\$
MDRT_3A308\$
MDRT_3A326\$
MDRT_3A408\$
MISSOURI_COUNTY_BOUND...
MO_CUSTOM_REGIONS
REGION_COUNTY
SGTECH\$TABLE4CDC4FFC9...
SGTECH\$TABLEC4976414B...
SGTECH\$TABLEF341D1FOA...
SUPERSTORES_US
SUPPLIER
SUPPLIERS
V_COUNTY_TO_REGION
V_CUSTOMER_NEAREST_SU...



100%



| A CUSTOMER_ID | # SALES | # UNITS |
|---------------|---------|---------|
| 110000440700 | 219,298 | 215 |
| 110000442600 | 229,912 | 2,370 |
| 110035429300 | 147,158 | 488 |
| 110037072100 | 165,362 | 2,424 |
| 110063916400 | 194,802 | 1,045 |
| 110064147800 | 126,607 | 1,450 |
| 110000440103 | 150,303 | 2,365 |

Join Diagram

CUSTOMER_SALES

CUSTOMERS

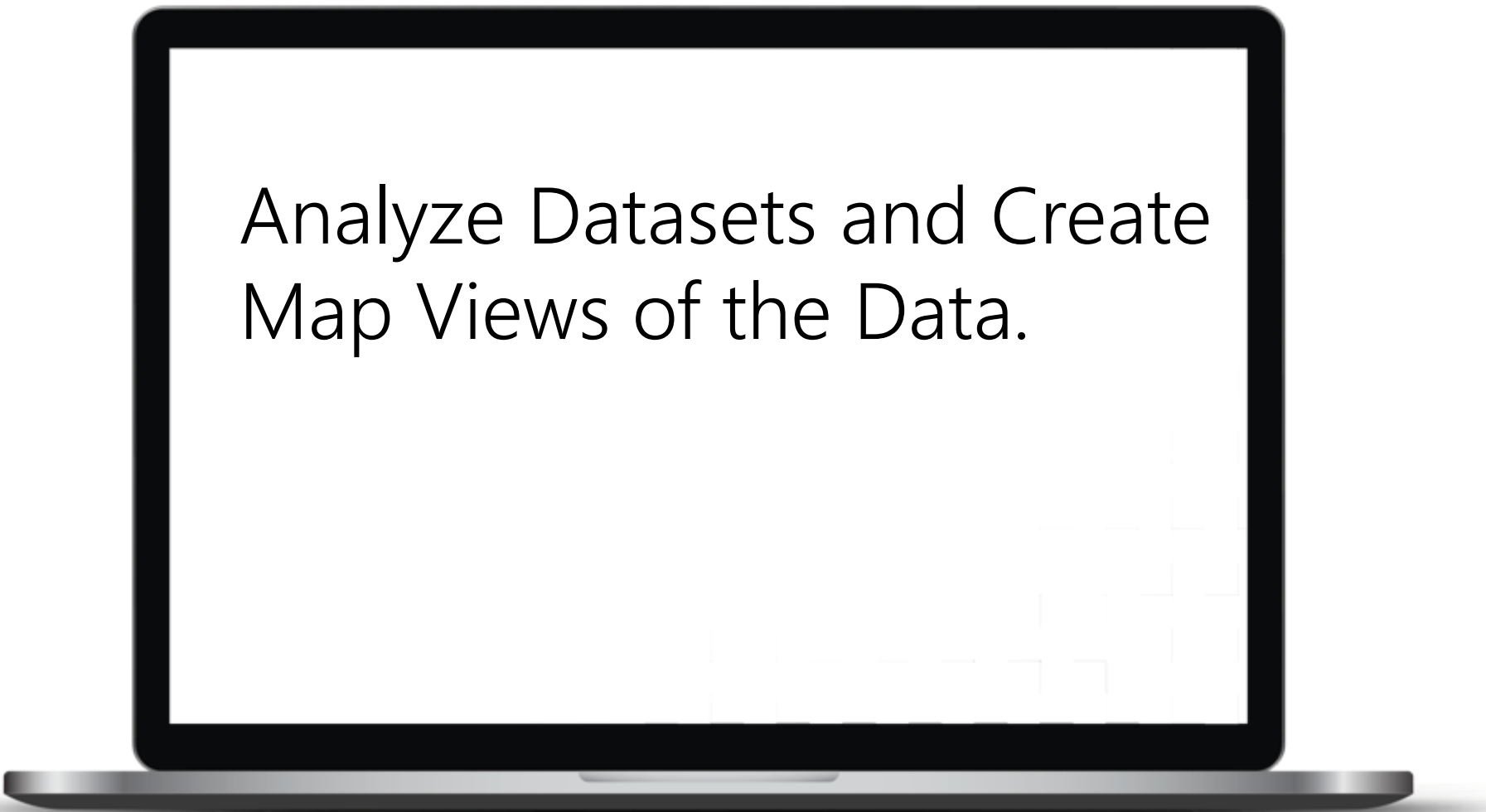
CUSTOMER_NEAREST_S...

SUPPLIERS

MISSOURI_COUNTY_BO...



Recorded Demo

A laptop with a black frame and a silver base is shown from a front-facing perspective. The screen is white and displays the text 'Analyze Datasets and Create Map Views of the Data.' in a black, sans-serif font. The text is centered on the screen.

Analyze Datasets and Create
Map Views of the Data.

Closing Thoughts

Missouri County Boundaries

← → ↺

https://data.mo.gov/Demographics/Missouri-County-Boundaries-Map/n34b-fwqr

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data.mo.gov

State of Missouri Data Portal

Help Developers MO.gov

🌐 🐦 🔍

Sign In

Missouri County Boundaries Map

This data set contains the boundaries of Missouri's 114 counties plus the boundary

📄 📄 📄 📄

More Views Export Discuss Embed About

Export

SODA API

Download

Download a copy of this dataset in a static format

Download Geospatial Data

Original

KML

KMZ

Shapefile

GeoJSON

Download a non-geospatial file type

CSV

CSV for Excel

CSV for Excel (Europe)

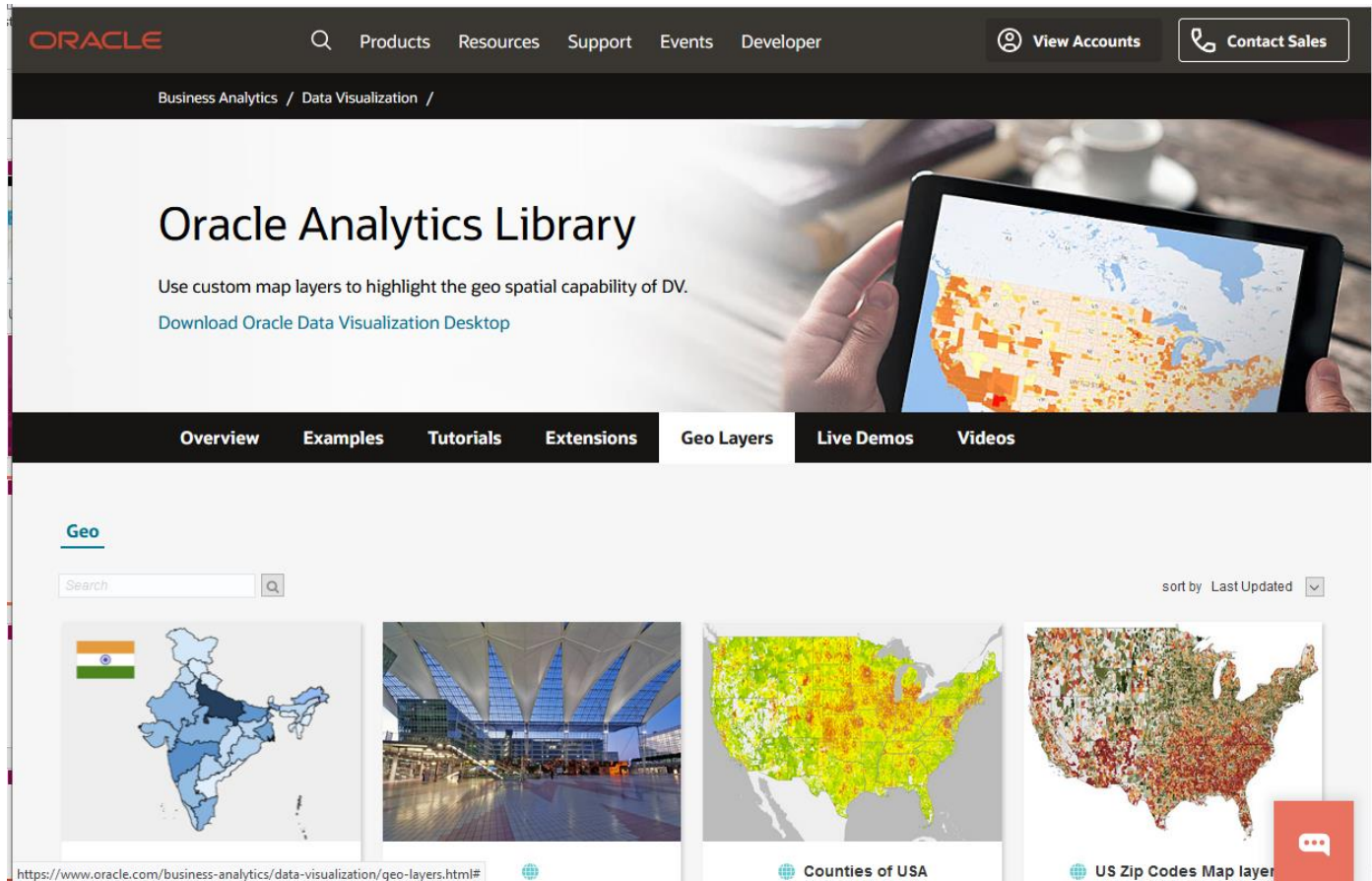
JSON

RDF

RSS



Oracle Geo Layers



<https://www.oracle.com/business-analytics/data-visualization/geo-layers.html>

Learn More – Oracle Tutorials

Get Started

What's New

Tasks

Connect to Data

Visualize Data

Build Reports and Dashboards

Create Pixel-Perfect Reports

Administer

Model Data

Solutions

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Learning Paths

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Oracle Analytics Cloud

Tutorials

Learn about Oracle Analytics Cloud by following these tutorials.

Prepare Data

Transform and Enrich Data

Prepare Data with Regular Expressions

Create Curated Data with Data Flows

Explore Data Flows

Analyze Data

Create Aggregated Data Sets

Implement Incremental Processing in a Data Flow

Reuse a Data Flow

Explore Data

Create Your First Visualization

Create Your First Visualization with Data from an Oracle Autonomous Database

Capture Insights

Build Stories

Administer Oracle Analytics Cloud

Migrate an Oracle Analytics Environment using a Snapshot

Set Up Usage Tracking

Analyze Usage Tracking Data

Leverage Machine Learning

Explain Employee Attrition

Create a Random Sample Data Set and Train a Prediction Model

Inspect and Modify the Model

Apply a Predictive Model

Visualize Data with Maps

Review and Manage Location Matches

Assign Map Layer to Latitude and Longitude Columns

Assign a Map Layer to a Data Column

A large black and white QR code located on the right side of the page, likely linking to the Oracle Analytics Cloud Tutorials page.

The logo for 'argano' features a stylized orange 'A' icon followed by the word 'argano' in a lowercase, sans-serif font.

Oracle LiveLabs

Introduction to Oracle Spatial Studio Workshop

Explore the features of Spatial Studio for self-service spatial analysis and visualization

Workshop length: 2 hours

 Share Workshop Link



Other LiveLabs you might like

21c New Features on Autonomous Database

Produce Your Company's Best Picture with Converged Database Analytics


Load and Analyze Your Data with Autonomous Database

Ways to run this workshop

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 Workshop Outline

 Workshop Details



<https://apexapps.oracle.com/pls/apex/dbpm/r/livelabs/view-workshop?wid=800>

Oracle Analytics YouTube Videos

- OAC 5.5 - Assigning a Map Layer to a Data Column
 - <https://youtu.be/XoBaEAgXPIw>
- OAC 5.6 - Use Images as Custom Backgrounds for Maps
 - <https://youtu.be/BhV2479QQZo>
- OAC 5.8 - Build Heatmaps on top of Custom Images
 - <https://youtu.be/0FdH59SwKWs>
- OAC 5.9 - Integrating WMS Maps (Web Map Service)
 - <https://youtu.be/qqoybk6CTH8>
- OAC 5.9 - Integrating XYZ Tile Maps As Map Backgrounds
 - <https://youtu.be/46UJaAbDzWE>
- OAC 6.0 - Non-Joined Datasets for Oracle Analytics Maps
 - <https://youtu.be/J7OWfko73k>

Map Sources - US

- [data.gov](http://www.data.gov/)

<http://www.data.gov/>

New site for locating U.S. data sources. Within catalog, check out the "Geodata" tab.

- [ArcGIS Online](http://www.arcgis.com/)

<http://www.arcgis.com/>

Provides maps and data for ArcGIS users and the capability to find and share geographic information. The free ArcGIS Online Web application makes it easy to find content published by ESRI, ArcGIS users, and other authoritative data providers as well as upload and share content of your own.

- [U.S. Census](http://www.census.gov/)

<http://www.census.gov/>

<http://www.census.gov/geo/maps-data/data/tiger.html>

Provides map shapefiles and WMS

Map Sources - US

- U.S. Geological Survey: The National Map

<http://nationalmap.gov/viewer.html>

Free downloads of national base layers, as well as other geospatial data layers. Categories include: Places, Structures, Transportation, Boundaries, Hydrography, Orthoimagery, Land Cover, and Elevation.

- U.S. Department of the Interior - National Atlas of the United States

<http://nationalatlas.gov/>

Use the "Map Maker" to create a map online with the map layers or download the raw data for your own analysis. Map layers include agriculture, biology, boundaries, climate, environment, geology, history, people, transportation and water.

- National Historical Geographic Information System (NHGIS)

<http://www.nhgis.org/>

Provides, free of charge, aggregate census data and GIS-compatible boundary files for the United States 1790 to present.

Map Sources - International

- Geo Data Portal - United Nations Environment Programme's (UNEP)
<http://geodata.grid.unep.ch/>
- GeoNetwork - United Nations Spatial Data Infrastructure (UNSDI),
Netherlands Coordinating Office
<http://geonetwork-opensource.org/>

Shapefile Sources

- <http://www.census.gov/geo/maps-data/data/tiger.html>
- <http://downloads.cloudmade.com/>
- <http://koordinates.com/>
- <https://www.ordnancesurvey.co.uk/opendatadownload/products.html>
- <http://www.ordnancesurvey.co.uk/oswebsite/products/os-opendata.html>
- <http://www.naturalearthdata.com/>



Save the Date

Analytics and Data Oracle User Community Summit 2023



March 14, 15, 16, 2023
Oracle Conference Center
Redwood Shores, California

andouc.org for more details

Early Bird registration ends 1/31

