

ORACLE®

S P A T I A L

May 2012

Oracle Spatial User Conference

A horizontal banner with a red background and a black border. The background features a faint, stylized map of a city with various neighborhood names like "Cherrydale", "Lyon Village", "Colonial Village", "Roslyn", "Dominion", and "Radnor Heights" visible. The text "Oracle Spatial User Conference" is centered in the banner in a large, white, sans-serif font.

Oracle Spatial User Conference

May 23, 2012
Ronald Reagan Building and International Trade Center
Washington, DC USA



David Lapp

Principal Sales Consultant
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Oracle Server Technologies



Advanced Business Intelligence

OBIEE 11g Mapping and Spatial Analytics



Program Agenda

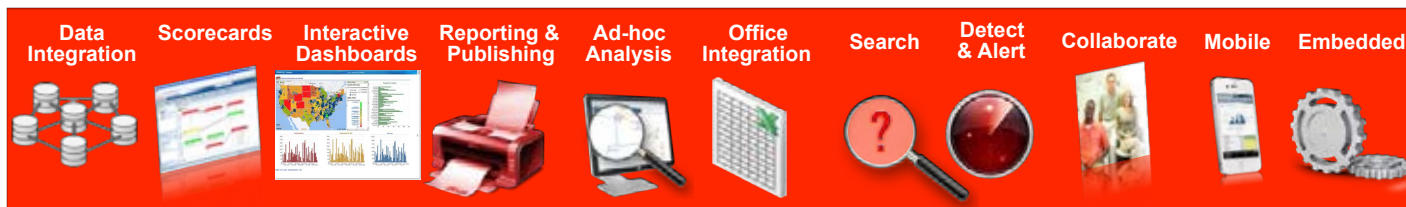
- OBIEE 11g product overview
- OBIEE 11g geospatial overview
 - Map Views and Spatial Analytics
- Configuring Map View Layers
- Configuring Map View Background Maps
- Configuring Spatial Analytics in OBIEE 11g

Current production version OBIEE 11.1.1.6.0



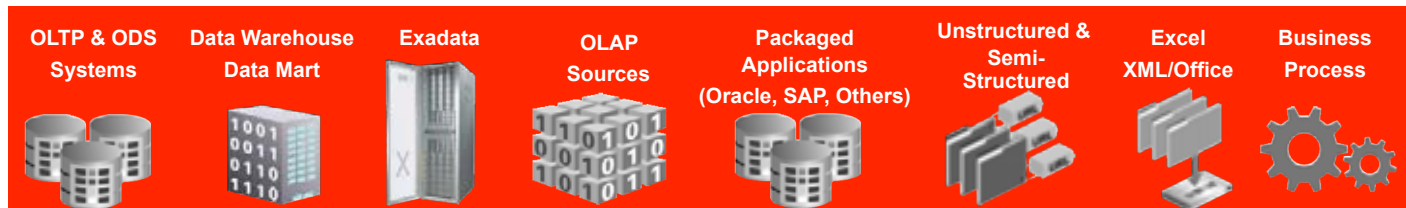
OBIEE product overview

Oracle Business Intelligence Enterprise Edition 11g



Common Enterprise Information Model

- Common Metadata Foundation across all Data Sources
- Common Security, Access Control, Authorization, Auditing
- Common Request Generation and Optimized Data Access Services
- Common Clustering, Workload Management, & Deployment
- Common Systems & Operational Lifecycle Management





OBIEE 11g Map View feature

Thematic Map Visualizations

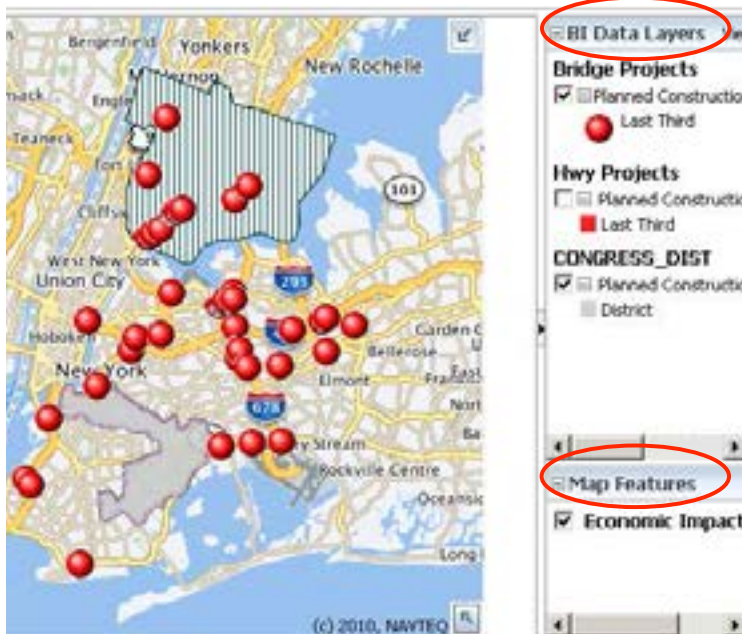


- Thematic map visualization of any analysis that includes geography
- Simple configuration, no coding required
- Inherits OBIEE functionality such as Ad Hoc, Drilling, Action Framework, Master-Detail Linking etc

OBIEE Map View **Layers**

Manage map components and associate geographic layers

Name	Description	Location
ARRA_LINES_BUFF_WIDE		nyd
Bridge Projects		nyd
CONGRESS_DIST		nyd



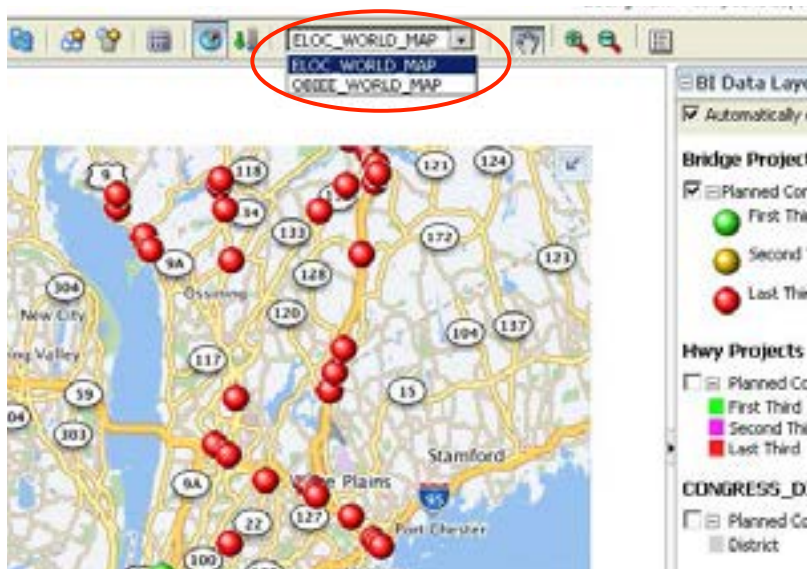
- Dynamic, interactive
- “BI Data Layers”
 - Tied to OBIEE model
 - Thematic rendering of OBIEE analysis results
- “Map Features”
 - Not associated with OBIEE model
 - Provides additional context
- Configured through simple Web GUI



OBIEE Map View **Background Maps**

Manage map components and associate geographic layers to I

Name	Description	Location
ELOC_WORLD_MAP		obiee_navteq/EL
OBIEE_WORLD_MAP		obiee_navteq/OE



- Map Tile Caches
- Internal (MapViewr)
- Bing
- Oracle eLocation
- WMS
- Nokia
- ...and the other household name

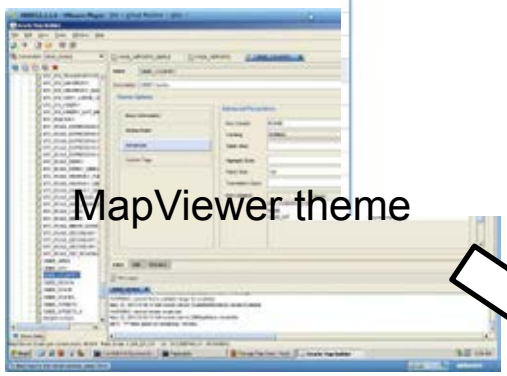
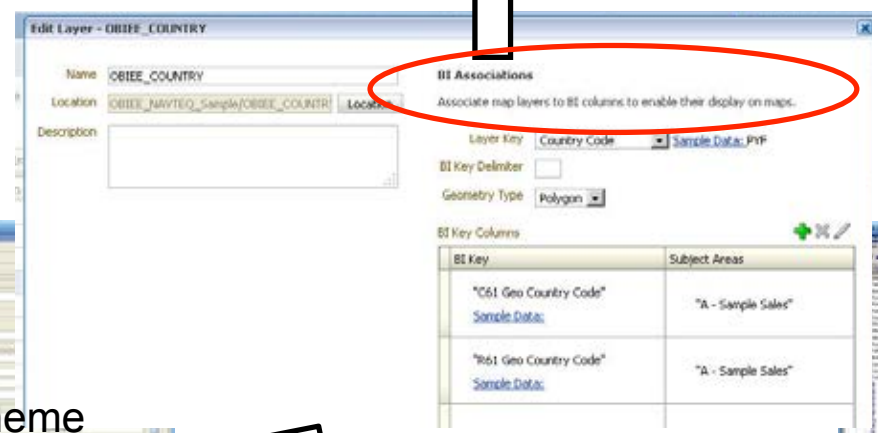
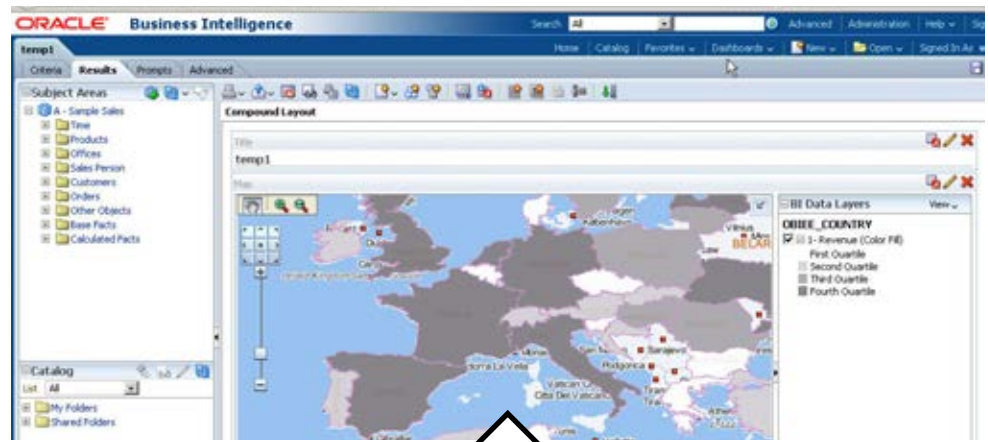


D E M O N S T R A T I O N

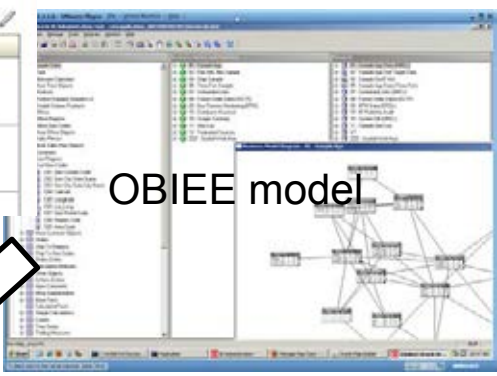
Map View Layer and Background Map Configuration



Layer and background map config



MapViewer theme



OBIEE model





Theme to use as non-BI layer

A screenshot of the Oracle Map Builder application running in a VMware Player. The application window is titled "OBIEE11.1.1.6 - VMware Player" and "Oracle Map Builder". The interface includes a menu bar (File, Edit, View, Tools, Window, Help), a connection dropdown set to "obiee_navigate", and two active layers: "WOM_AIRPORTS_SIMPLE" and "WOM_AIRPORTS". The main map area displays a world map with numerous airport locations marked by yellow airplane icons and labeled with names such as "PORTLAND INTL AIRPORT", "SAN FRANCISCO INTL AIRPORT", "OAKLAND INTL AIRPORT", "HONOLULU INTL AIRPORT", "DARWIN INTERNATIONAL AIRPORT", "ALICE SPRINGS AIRPORT", "ADELAIDE AIRPORT", "MELBOURNE INTERNATIONAL AIRPORT", "WELLINGTON AIRPORT", "AUCKLAND INTERNATIONAL AIRPORT", "CHRIST CHURCH INTERNATIONAL AIRPORT", "BRISBANE AIRPORT", "GOLD COAST AIRPORT", "CARRIBE INTERNATIONAL AIRPORT", "AEROP. INTL. GOV. ANDRÉ-FRANÇO MONTEIRO", "AEROPORTO INTERNACIONAL DO GALFÃO", "WELINGTON AIRPORT", "DURBAN INTERNATIONAL AIRPORT", "PERTH AIRPORT-DOMESTIC", "EAST LONDON AIRPORT", "KUALA LUMPUR INTERNATIONAL AIRPORT", "CHANGI INTERNATIONAL AIRPORT", "SENEGAL AIRPORT", "TAIPEI AIRPORT", "LETISTE BURGAS", "DOMODEDOVO AIRPORT", "SHEPHERD T. V. AIRPORT", "VUKOVO AIRPORT", "ROVANIEMI LENTONASEMA", "BERGEN LUFTHAVN FLESLAND", "BODØ LUFTHAVN", "SHANNON AIRPORT", "LYNDEN PARKING INTL AIRPORT", "OWEN ROBERTS INTL AIRPORT", "TED STEVENS ANCHORAGE INTL AIRPORT", "BERGEN LUFTHAVN FLESLAND", "HONOLULU INTL AIRPORT", "PORTLAND INTL AIRPORT", "SAN FRANCISCO INTL AIRPORT", "OAKLAND INTL AIRPORT", "HONOLULU INTL AIRPORT", "DARWIN INTERNATIONAL AIRPORT", "ALICE SPRINGS AIRPORT", "ADELAIDE AIRPORT", "MELBOURNE INTERNATIONAL AIRPORT", "WELLINGTON AIRPORT", "AUCKLAND INTERNATIONAL AIRPORT", "CHRIST CHURCH INTERNATIONAL AIRPORT", "BRISBANE AIRPORT", "GOLD COAST AIRPORT", "CARRIBE INTERNATIONAL AIRPORT", "AEROP. INTL. GOV. ANDRÉ-FRANÇO MONTEIRO", "AEROPORTO INTERNACIONAL DO GALFÃO", "WELINGTON AIRPORT", "DURBAN INTERNATIONAL AIRPORT", "PERTH AIRPORT-DOMESTIC", "EAST LONDON AIRPORT", "KUALA LUMPUR INTERNATIONAL AIRPORT", "CHANGI INTERNATIONAL AIRPORT", "SENEGAL AIRPORT", "TAIPEI AIRPORT", "LETISTE BURGAS", "DOMODEDOVO AIRPORT", "SHEPHERD T. V. AIRPORT", "VUKOVO AIRPORT", "ROVANIEMI LENTONASEMA". The left sidebar shows a list of layers, with "WOM_AIRPORTS" selected. The bottom status bar shows "MapViewer Scale (per screen inch): 46.814 Ratio Scale: 1:204,221,121 (X: -151,905,303) (Y: 121,873,302)". The taskbar at the bottom shows the Start button, several open applications including "Mapbuilder", "Oracle BIEE Home - Moz...", and "Oracle Map Builder", and the system clock showing "9:34 AM".



Import but do not
associate with BI
column

OBIEE11.1.1.6 - VMware Player File - Virtual Machine - Help -

Manage Map Data - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Manage Map Data +

bi:7001/analytic/saw_d/ManageMapData

ORACLE Business Intelligence Search All Advanced Administration Help -

Administration

Manage Map Data

Manage map components and associate geographic data to map layers.

Layers Background Maps Imagery

Name	Description
AIRPORTS	
CEEE_AREA	
CEEE_CITY	
CEEE_COUNTRY	
CEEE_REGION	
CEEE_STATE	
SF ATM's	
SF Banks	
SF Blocks	
SF Business Facilities	
SF Exhibition Centers	
ZIPs	

Edit Layer - AIRPORTS

Name: AIRPORTS

Location: CEEE_NWITEQ/WOM_AIRPORTS Location

Description:

BI Associations

Associate map layers to BI columns to enable their display on maps.

Layer Key: NAME Select Data: ceee ceee ceee ceee

BI Key Delimiter:

Geometry Type: Point

BI Key Columns

BI Key	Subject Areas

Show Qualified Names

Help OK Cancel



Associate with background map(s)

OBIEE11.1.1.6 - VMware Player

Manage Map Data - Mozilla Firefox

bl:7001/analytica/iam-df/ManageMapData

ORACLE Business Intelligence

Administration

Manage Map Data

Manage Map con

Layers

Name
ELOC_WORLD
OBIEE_LONDON
OBIEE_SF_MAP
OBIEE_SYDNEY
OBIEE_WORLD
OBIEE_WORLD
OBIEE_WORLD
WMS_TDECAC

Edit Background Map - OBIEE_WORLD_MAP

Name: OBIEE_WORLD_MAP

Location: OBIEE_NAVTEO_SAPPHIRE/OBIEE_WORLD Location

Description:

Interactive BI Layers

For each layer, select the zoom levels at which associated BI data can display

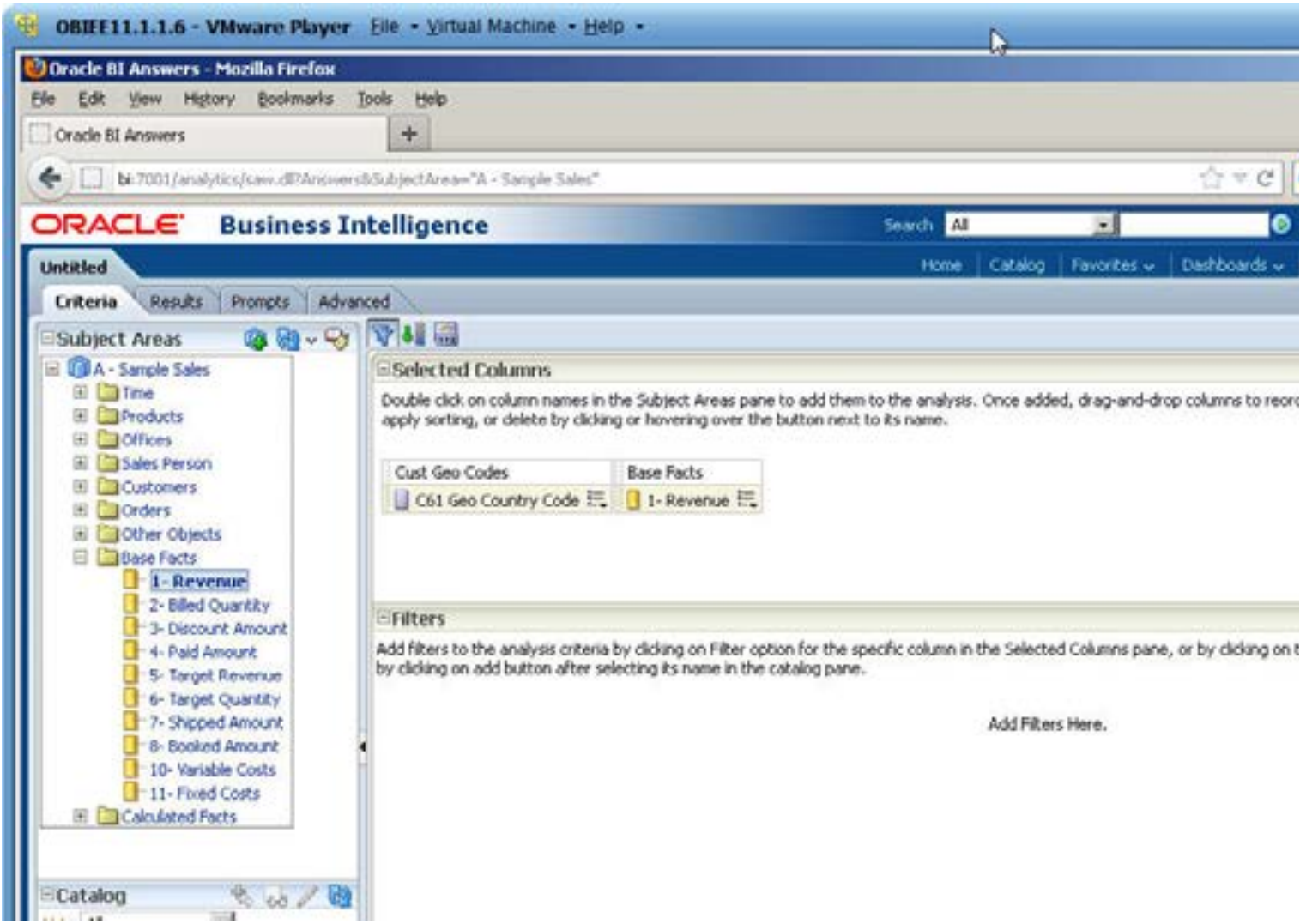
	Zoom Level															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
OBIEE_CITY																
AIRPORTS																
OBIEE_STATE																
OBIEE_COUNTRY																
OBIEE_AREA																
OBIEE_REGION																

© 2010, NAVTEO

OK Cancel

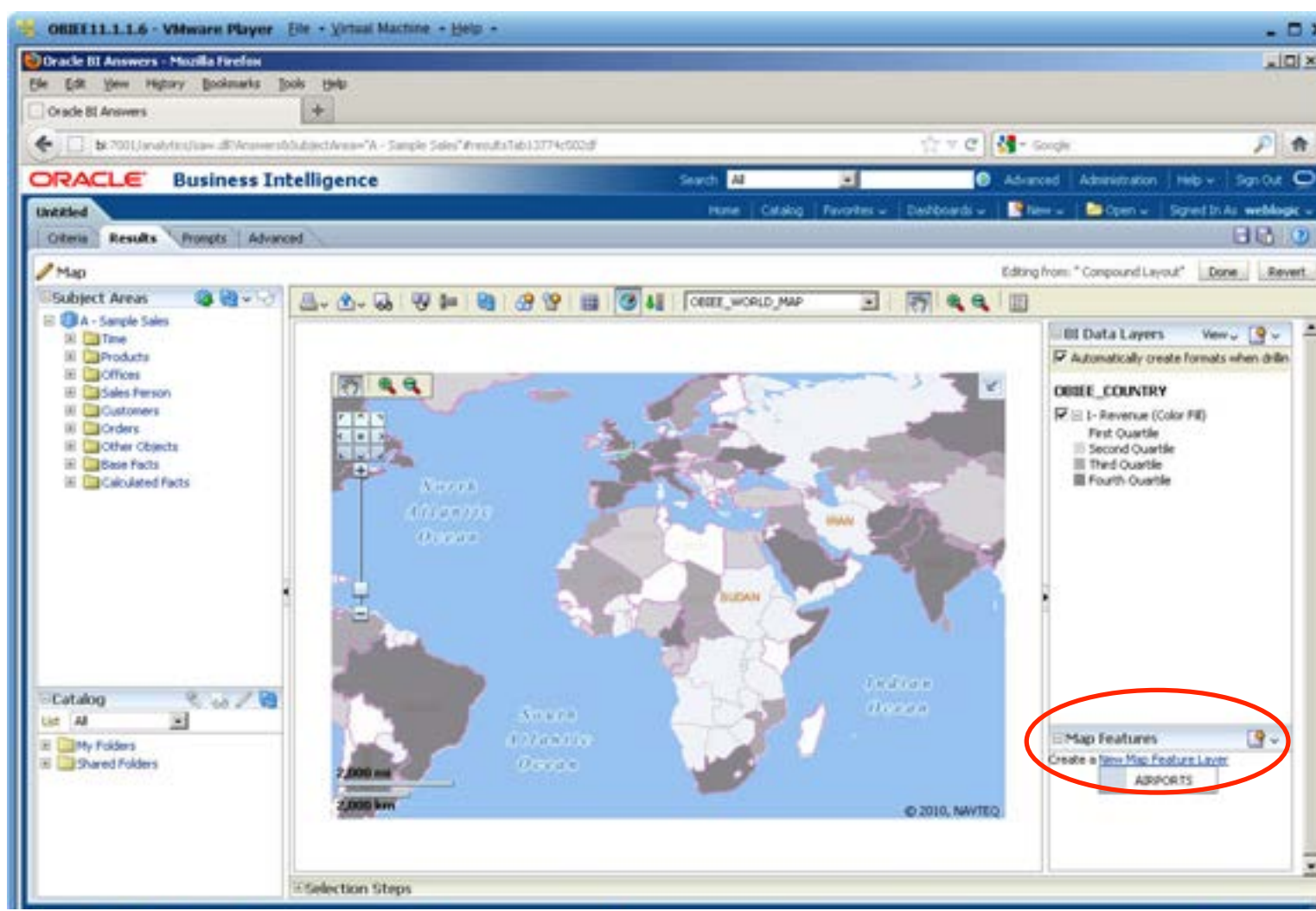


Normal analysis with geographic dimension





Map offers “Map Features” since there is now a non-BI layer configured





Map Feature added

A screenshot of the Oracle BI Answers interface running in a Mozilla Firefox browser. The browser title is "OBIEE11.1.1.6 - VMware Player". The page shows a "Compound Layout" with a central map of Europe. The map is overlaid with numerous yellow circular markers, each containing a black crosshair, representing data points. To the right of the map is a "BI Data Layers" panel. Under the heading "OBIEE_COUNTRY", there are four options: "1- Revenue (Color Fill)", "First Quartile", "Second Quartile", "Third Quartile", and "Fourth Quartile". Below these, there is a "Map Features" section with a checked box next to "AIRPORTS". A red circle is drawn around the "Map Features" section. The interface also includes a "Subject Areas" tree on the left, a "Catalog" panel, and a "Views" panel at the bottom left. The bottom of the browser window shows "Selection Steps".



Hosted and WMS background map config

OBEE11.1.1.6 - VMware Player File • Virtual Machine • Help •

OracleAS MapViewer Admin - Mozilla Firefox

localhost:7001/mapviewer/faces/admin/face_admin.jspx

ORACLE 11g
FUSION MIDDLEWARE MAPVIEWER

Location, Location, Location

Manage MapViewer | Manage Map Tile Layers

• Create
• Manage

TIP You must first specify where the map tile images will come from. Choose

Select type of map source: **Internal**

Internal
External
Oracle eLocation
Bing Maps
Google Maps

Continue

Copyright (c) 2002, 2011, Oracle. All rights reserved.

Name: **Oracle World Map**

Data Source: **URBES_SAV/TEL_Samples**

Base Map: **ORCLD_MAP**

Background: transparent

Tile storage:

Name: **Internal Services**

Data Source: **geodata**

Map source URI: **http://imgsrc1.google.com/maps/vt**

Request method: **HTTP GET**

Adapter class:

Name: **elocation_map**

Data Source: **geodata**

Properties:

Select name	value
tile_layer_name	elocation_mercatorworld_map

SRID: **54004**

Min X: -2.0037508E7
Max X: 2.0037508E7

Name: **google_map**

Data Source: **geodata**

Properties:

Select name	value
tile_url	http://maps.google.com/maps/vt
key	AIzaSyD...
map_type_values	Hybrid, Shaded, Satellite
map_type_names	Road, Hybrid, Shaded, Aerial

SRID: **3785**

Name: **bing_map**

Data Source: **geodata**

Properties:

Select name	value
tile_url	http://ecn.dev.virtualearth.net/map
key	esPIV5xSeouCVH1ZR2Hf3aly0...
map_type_values	MV BingTileLayer, TYPE_ROAD, M...
map_type_names	Road, Hybrid, Shaded, Aerial

SRID: **3785**

OBIEE11.1.1.6 - VMware Player File - Virtual Machine - Help -

Oracle BI Presentation Services Administration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Oracle BI Presentation Services Administration +

localhost:7001/analytics/saw_d87Admin

ORACLE Business Intelligence Search All

Administration Home Catalog Favorites Dashboard

Oracle Business Intelligence Product Version 11.1.1.6.0 (Build 1201040800 32-bit)

Physical Presentation Catalog Path E:\oracle\sw_home\instances\instance3\bfoundation\OracleBIPresentationServicesComponent\coreapplication_obips1\catalog\SampleApp\root

Oracle BI Server Data Source coreapplication_OH1938185103

Available Paging Memory (MB) 2469

Available Virtual Address Space (MB) 1762

Maintenance Mode is currently off.

Security

Manage Catalog Groups
Create, edit and delete Catalog Groups.

Manage Privileges
Manage privileges and rights given to users and groups.

Map Data Management

Manage Map Data
Manage layers, background maps and images.

Marketing

Manage Marketing Jobs
View background marketing jobs and database cache results

Manage Marketing Defaults
Manage the default settings such as Default

Session Management

Manage Sessions
View Oracle Business Intelligence session information including active users and queries.

Import Background Maps

Look in: geodata

Available Maps: BING_MAP, ELOCATION_MAP, GOOGLE_MAP, WMS_TILECACHE

Previewing ELOCATION_MAP

© 2010 Oracle Corp; Data © 2010 NAVTEQ

Help OK Cancel

VTED_SAMPLE/OBIEE_LONDON_MAP A - Sample Sales

Import Background Maps

Look in: geodata

Available Maps: BING_MAP, ELOCATION_MAP, GOOGLE_MAP, WMS_TILECACHE

Previewing BING_MAP

Help OK Cancel

VTED_SAMPLE/OBIEE_LONDON_MAP A - Sample Sales

Import Background Maps

Look in: geodata

Available Maps: BING_MAP, ELOCATION_MAP, GOOGLE_MAP, WMS_TILECACHE

Previewing GOOGLE_MAP

Help OK Cancel



WMS Background Map

- The OpenGIS® Web Map Service Interface Standard (WMS) provides a simple HTTP interface for requesting geo-registered map images from one or more distributed geospatial databases.
- Supported as MapViewer a tilecache source
- Can therefore be an OBIEE background map

National Atlas WMS is used for this demo

Technical Information About the National Atlas Web Map Service

These instructions are for Web map services (WMS) consumers who want to connect to nationalatlas.gov™ using Open Geospatial Consortium (OGC) protocols for interoperability and access. Anyone can connect to the National Atlas of the United States® by supplying valid OGC parameter values to our Web services uniform resource locator (URL).

An Introduction to National Atlas Web Map Services is also available.

Accessing the Capabilities File

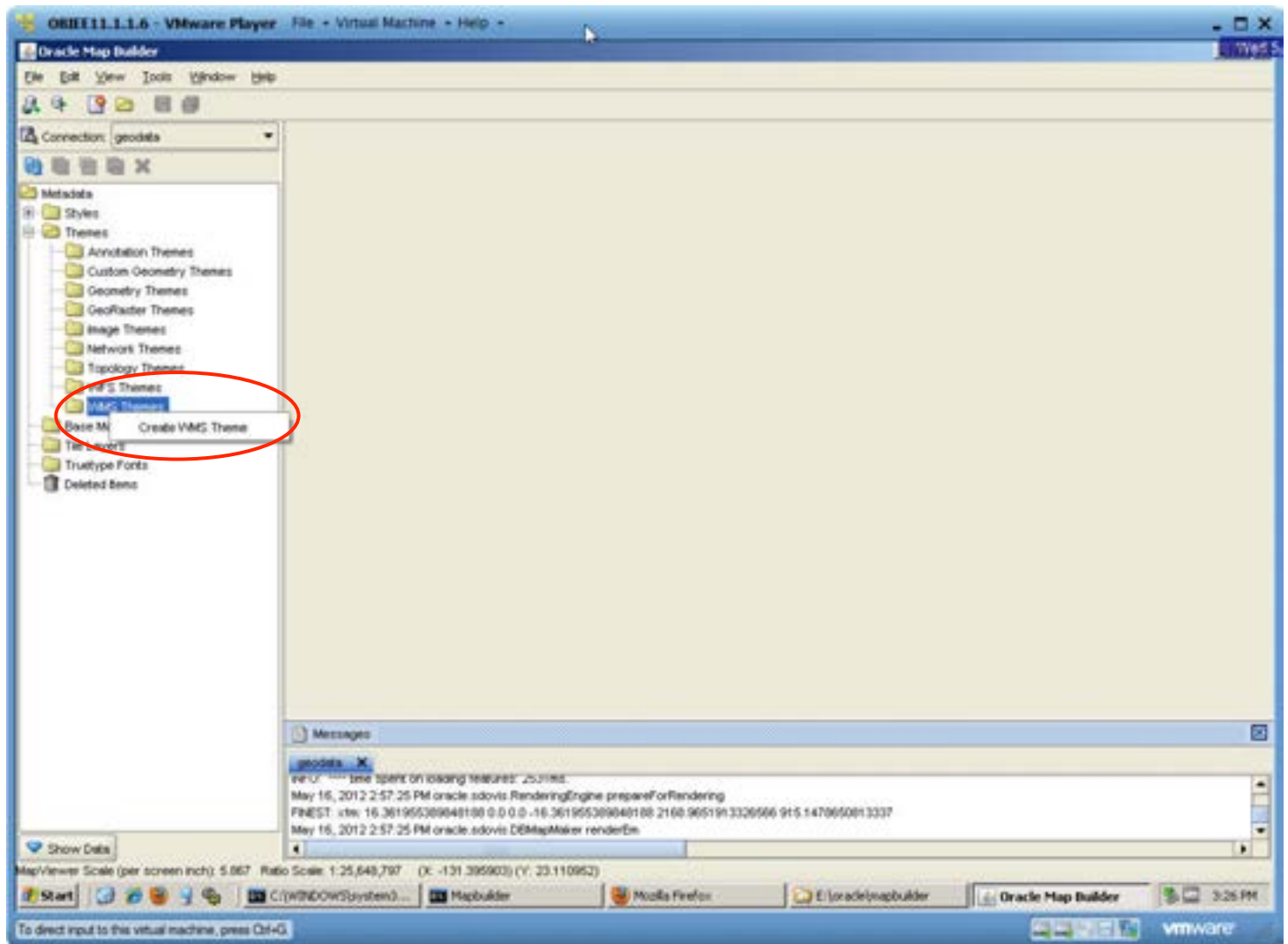
The National Atlas WMS currently contains over 2,400 individual layers. A single capabilities file for all layers is available, but because it is quite a large file, we have also grouped the layers into broad categories that correspond to the chapters of the National Atlas. Use the online addresses in Table 1 to access the capabilities file for the categories of interest to you.

Category	URL	Size
Agriculture	http://webservices.nationalatlas.gov/wms/agriculture?SERVICE=WMS&REQUEST=GetCapabilities	31 KB
Biology	http://webservices.nationalatlas.gov/wms/biology?SERVICE=WMS&REQUEST=GetCapabilities	1.55 MB
Boundaries	http://webservices.nationalatlas.gov/wms/boundaries?SERVICE=WMS&REQUEST=GetCapabilities	10 KB
Climate	http://webservices.nationalatlas.gov/wms/climate?SERVICE=WMS&REQUEST=GetCapabilities	78 KB
Environment	http://webservices.nationalatlas.gov/wms/environment?SERVICE=WMS&REQUEST=GetCapabilities	9 KB
Geology	http://webservices.nationalatlas.gov/wms/geology?SERVICE=WMS&REQUEST=GetCapabilities	51 KB
Government	http://webservices.nationalatlas.gov/wms/government?SERVICE=WMS&REQUEST=GetCapabilities	48 KB
History	http://webservices.nationalatlas.gov/wms/history?SERVICE=WMS&REQUEST=GetCapabilities	11 KB
Map Reference	http://webservices.nationalatlas.gov/wms/map_reference?SERVICE=WMS&REQUEST=GetCapabilities	11 KB
People	http://webservices.nationalatlas.gov/wms/people?SERVICE=WMS&REQUEST=GetCapabilities	454 KB
Transportation	http://webservices.nationalatlas.gov/wms/transportation?SERVICE=WMS&REQUEST=GetCapabilities	9 KB
Water	http://webservices.nationalatlas.gov/wms/water?SERVICE=WMS&REQUEST=GetCapabilities	144 KB
All Layers	http://webservices.nationalatlas.gov/wms?SERVICE=WMS&REQUEST=GetCapabilities	2.30 MB

Table 1. Overview of National Atlas Capabilities File

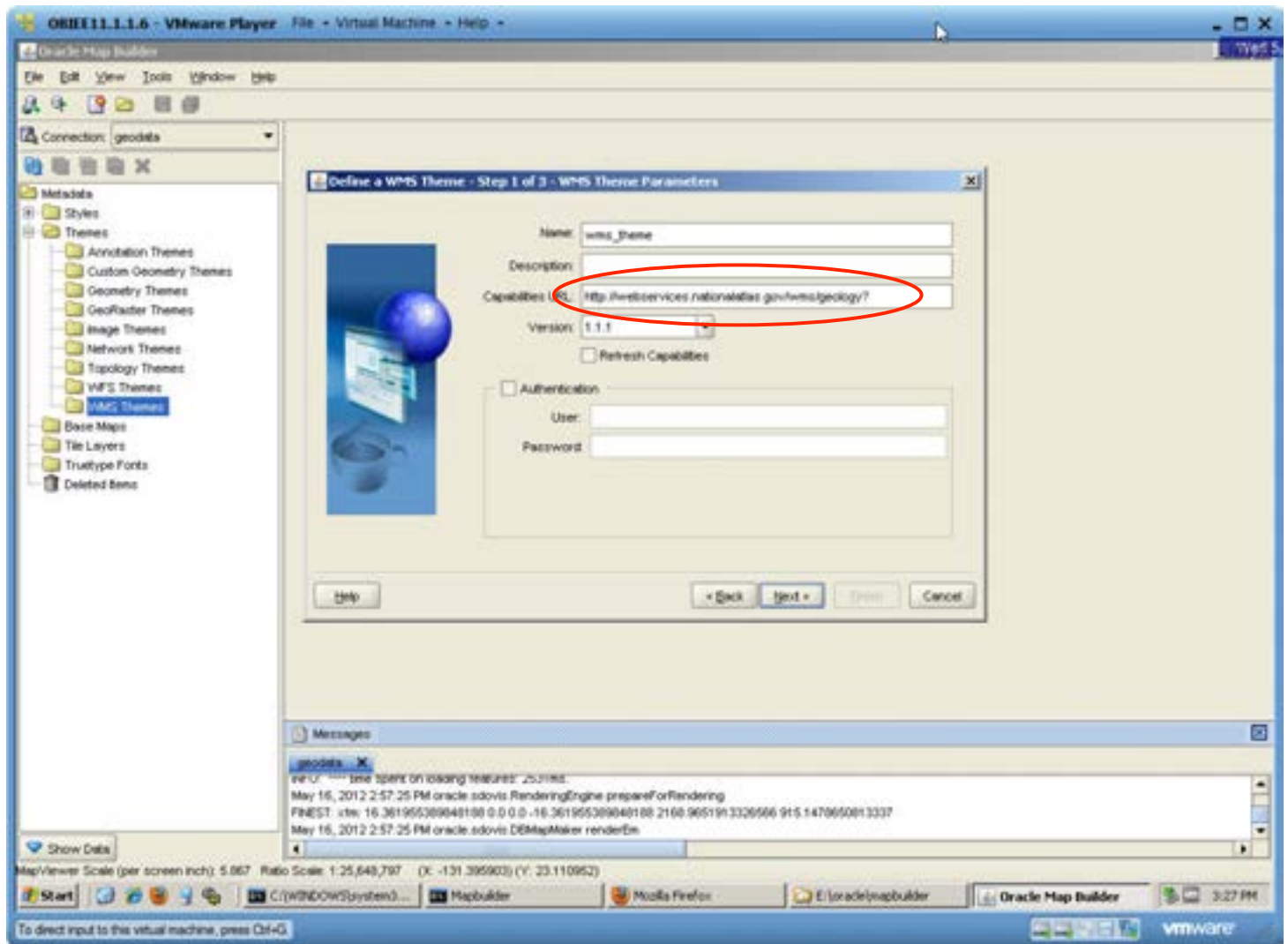


Create WMS Theme in Map Builder



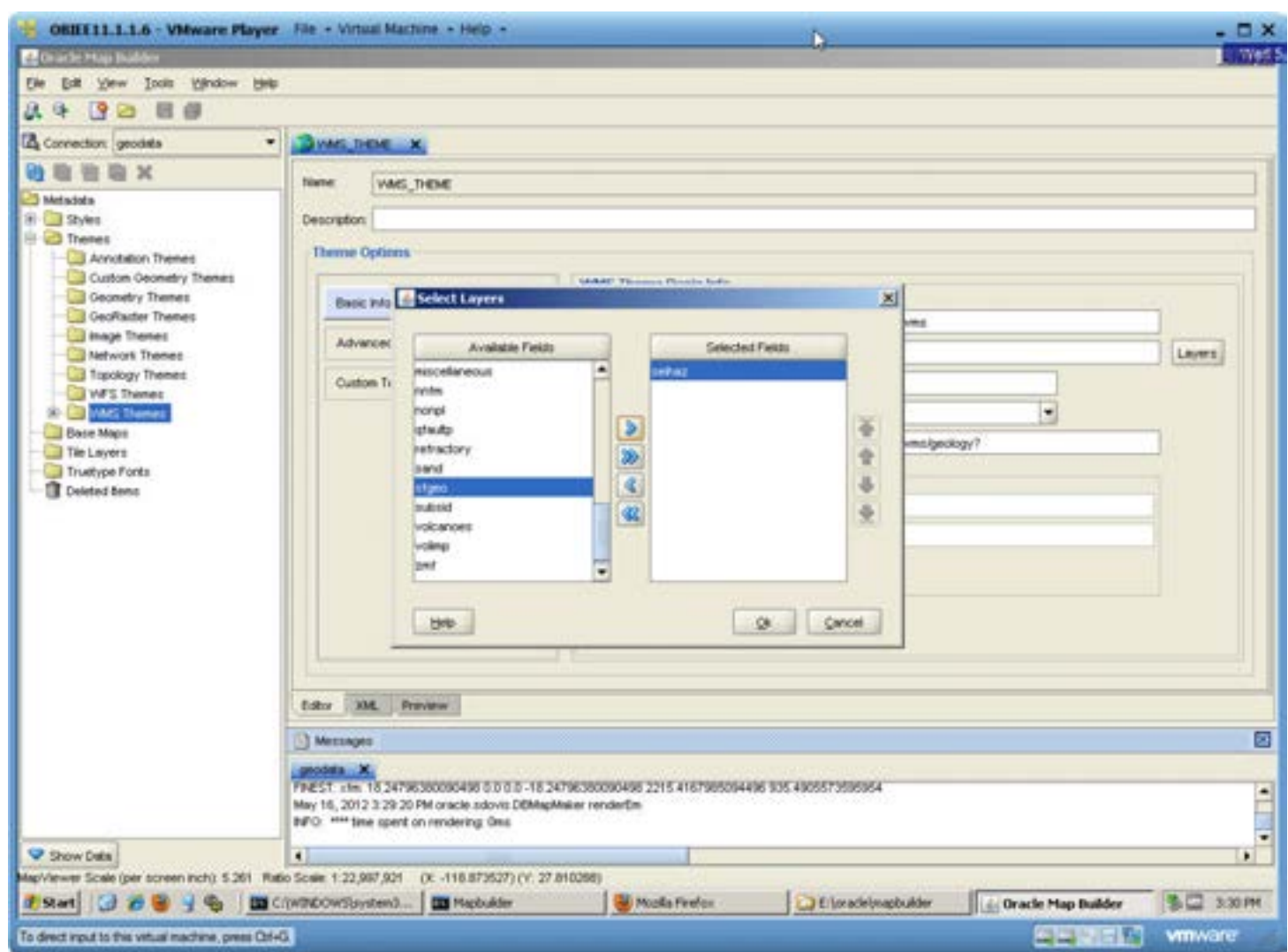


Create WMS Theme in Map Builder



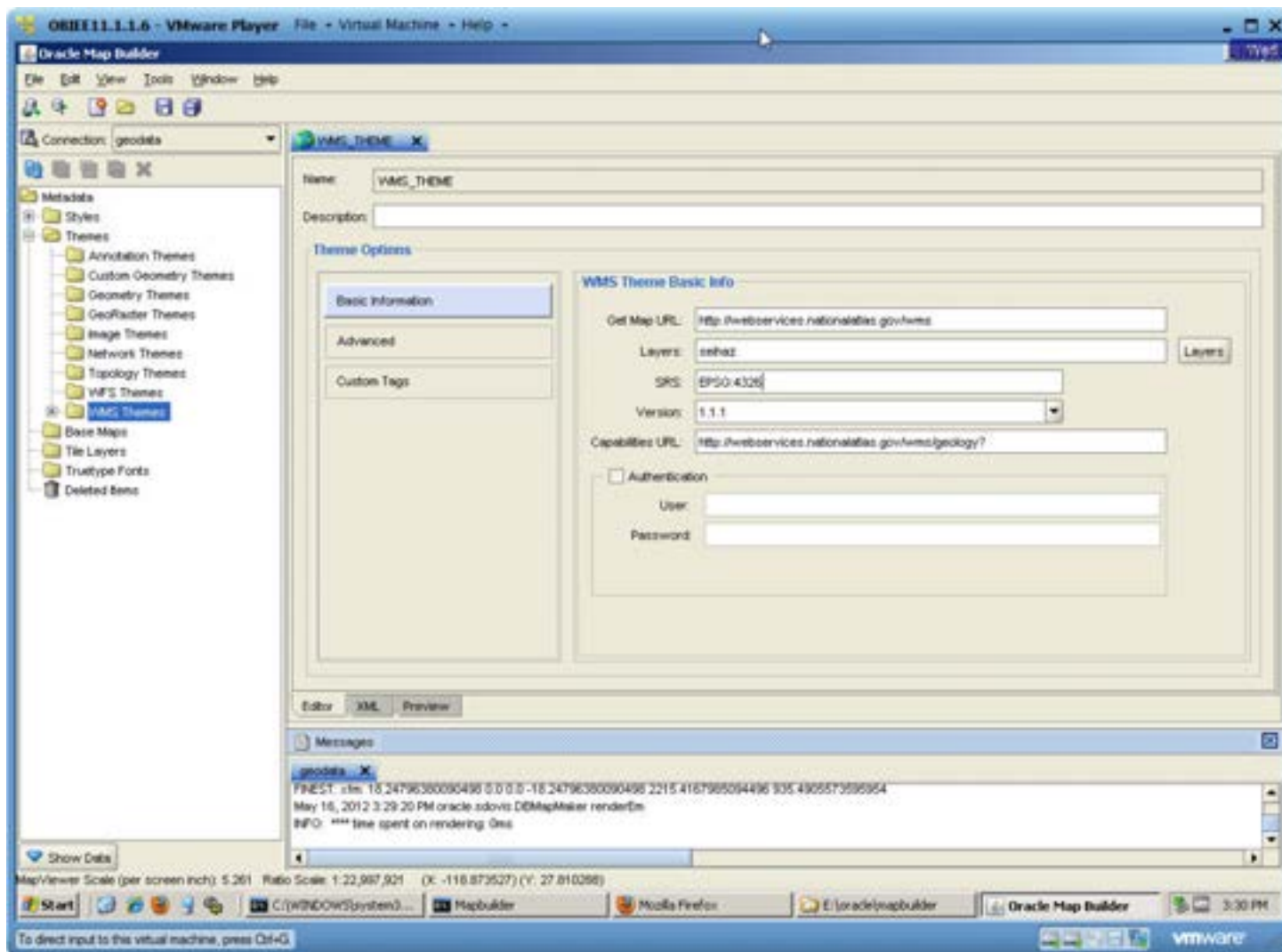


Create WMS Theme in Map Builder



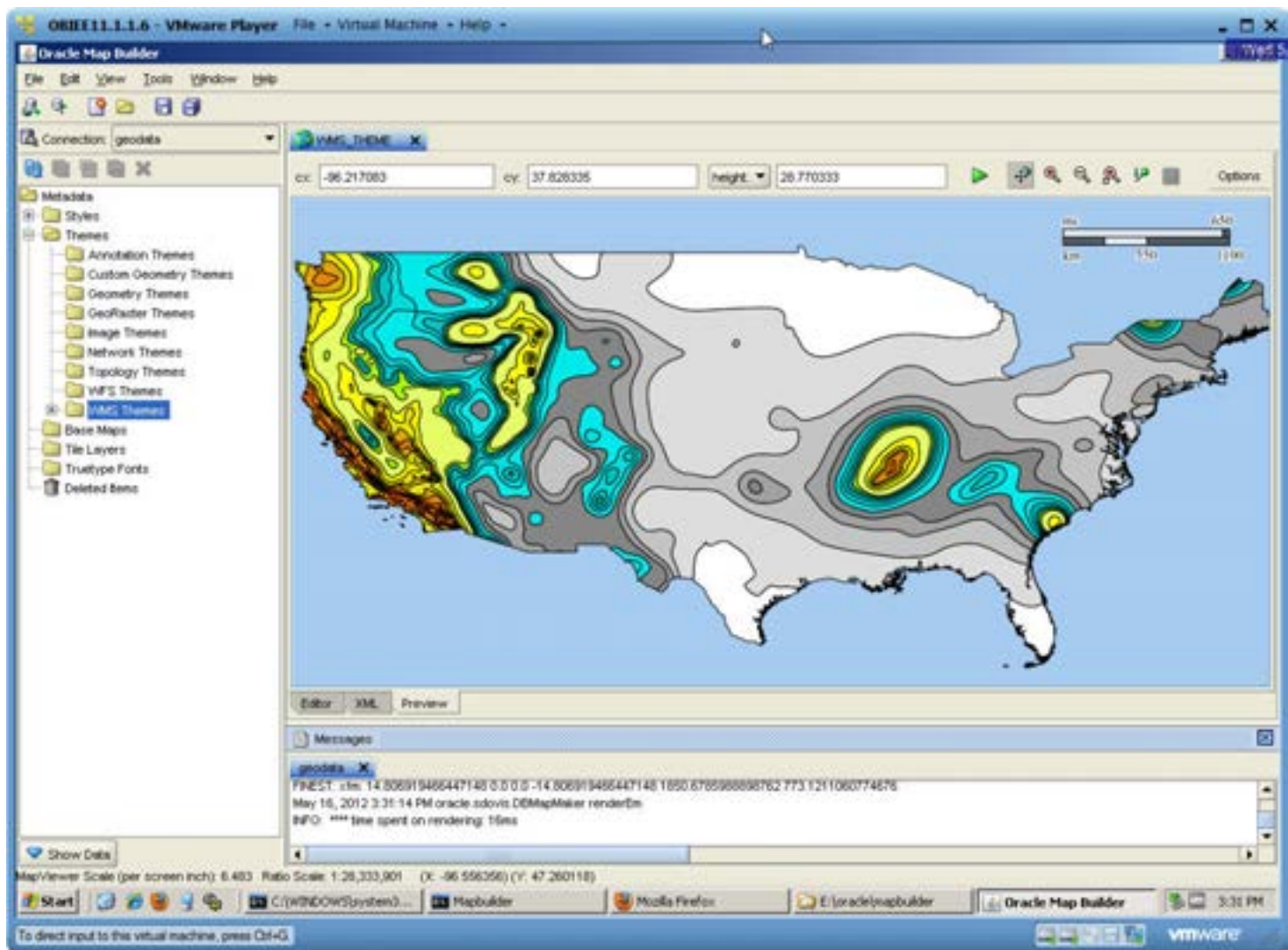


Create WMS Theme in Map Builder





Create WMS Theme in Map Builder





Create WMS Base Map in Map Builder

The screenshot shows the Oracle Map Builder application running in a VMware Player. The main window displays a map of the United States with a topographic overlay. A dialog box titled "Define a Base Map - Step 1 of 2 - Base Map Parameters" is open, showing a preview of a globe and a map. The dialog box contains the following fields:

- Name:
- Description:

The dialog box also has "Help", "< Back", "Next >", "Finish", and "Cancel" buttons. The background application shows a connection to "geodata" and a WMS_THEME. The status bar at the bottom indicates the MapViewer Scale (per screen inch): 6.004, Ratio Scale: 1:26,239,656, and coordinates (X: -129.335057) (Y: 39.775672). The taskbar shows the Start button and several open applications, including Oracle Map Builder.

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Create WMS Base Map in Map Builder

OBIEE11.1.1.6 - VMware Player File - Virtual Machine - Help

Oracle Map Builder

File Edit View Tools Window Help

Connection: geodata WMS_THEME X

cc: -96.217083 cy: 37.828335 height: 20.770333

Define a Base Map - Step 2 of 2 - Base Map Themes

Theme Names

WMS_THEME

Theme Name	Min Scale	Max Scale	Scale Mode
WMS_THEME			RATIO

Help < Back Next > Finish Cancel

Messages

geodata X

FINEST: xfm: 15.989892240718935 0.0 0.0 -15.989892240718935 2064.8853263887087 834.8256082938168
May 16, 2012 3:34:05 PM oracle.sdoovis.DEMapMaker.renderEm
INFO: **** time spent on rendering: 0ms

Show Data

MapViewer Scale (per screen inch): 6.004 Ratio Scale: 1:26,239,656 (X: -129.335057) (Y: 39.775672)

Start C:\WINDOWS\system32... Mapbuilder C:\WINDOWS\system32... mapviewer_admin - Mod... E:\oracle\mapbuilder Oracle Map Builder 4:36 PM

To return to your computer, press Ctrl+Alt.

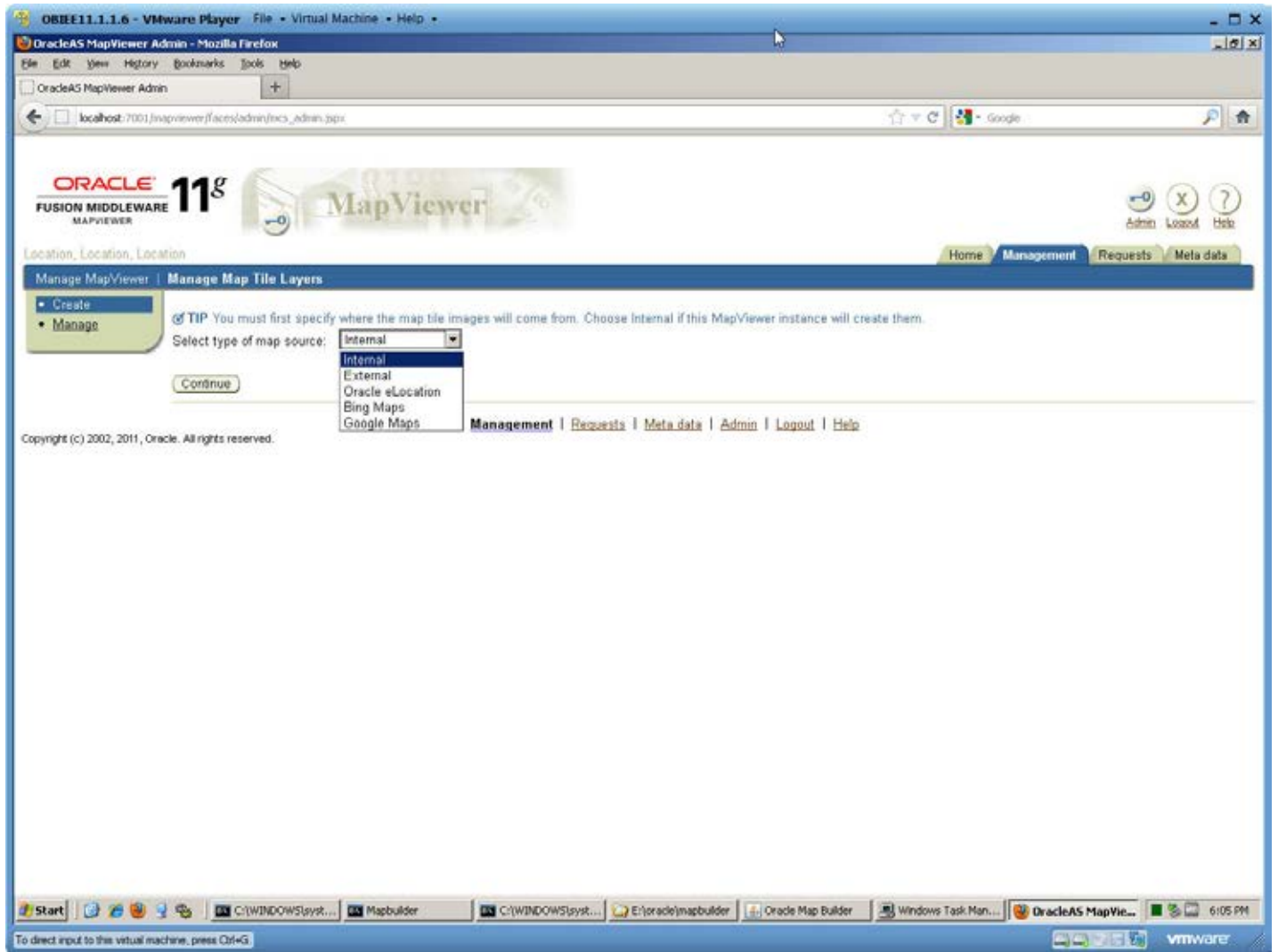


Create WMS Base Map in Map Builder

A screenshot of the Oracle Map Builder application running in a VMware Player. The window title is "OBIEE11.1.1.6 - VMware Player". The application interface includes a menu bar (File, Edit, View, Tools, Window, Help), a toolbar, and a main map area. On the left, a tree view shows a hierarchy of themes and base maps, with "WMS_BASEMAP" selected under "Base Maps". The main map area displays a topographic map of the United States with a color-coded elevation overlay. The map is titled "WMS_THEME" and "WMS_BASEMAP". The map viewer shows coordinates: cc: -96.217083, cy: 37.828335, and height: 28.770333. A scale bar is visible in the top right of the map area, showing 0, 500, and 1000 meters. At the bottom, a status bar displays "MapViewer Scale (per screen inch): 6.004 Ratio Scale: 1:26,239,656 (X: -116.080503) (Y: 52.02505)". The taskbar at the bottom shows the Start button and several open applications, including "Mapbuilder", "mapviewer_admin - Mod...", and "Oracle Map Builder". The system clock shows "4:39 PM".

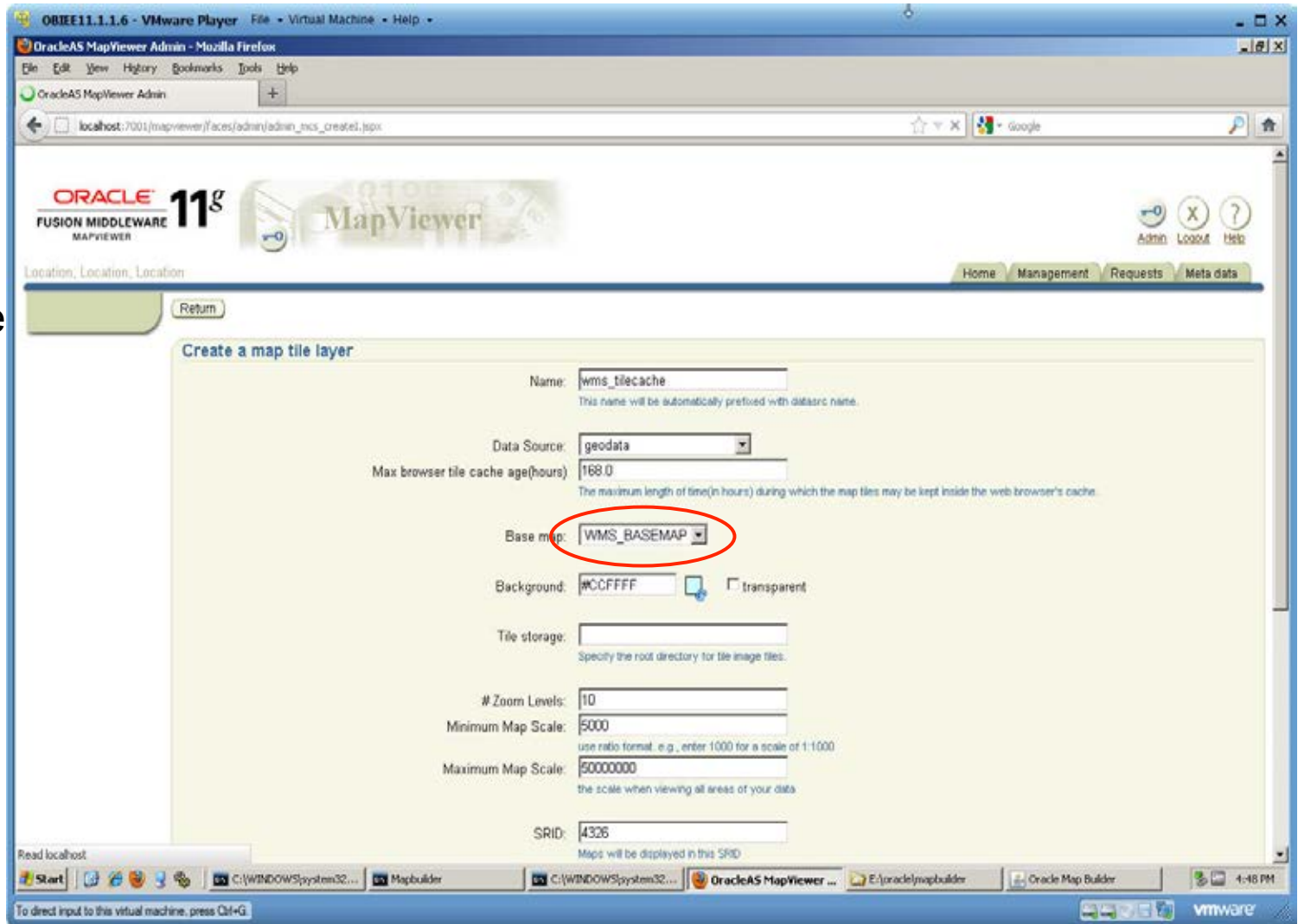


Create WMS
Tilecache in
MapViewer web
console (or in
Map Builder)





Create WMS tile layer in MapViewer web console (or in Map Builder)





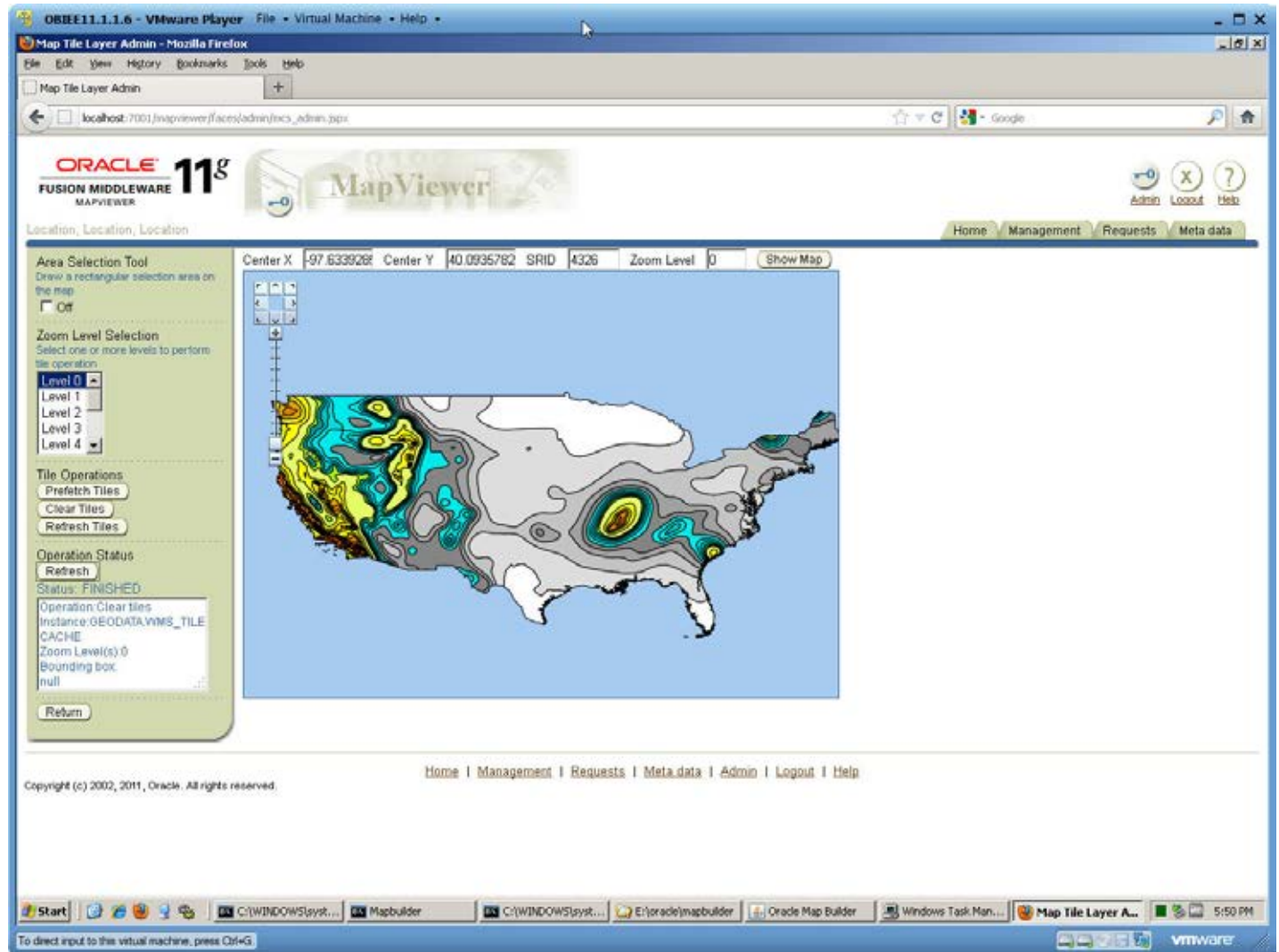
Create WMS tile layer in MapViewer web console (or in Map Builder)

The screenshot shows the OracleAS MapViewer web console interface. The browser address bar indicates the URL is localhost:7001/mapviewer/faces/admin/admin_mcs_createf.jspx. The page title is "OracleAS MapViewer Home - Mozilla Firefox". The Oracle logo and "11g FUSION MIDDLEWARE MAPVIEWER" are visible at the top. The navigation menu includes "Home", "Management", "Requests", and "Meta data". The "Management" tab is active, and the "Manage Map Tile Layers" section is selected. A message states "New map tile layer created successfully!". Below this, there is a "Managing Map Tile Layers" section with a "Refresh" button. A table titled "Existing map tile layers" is displayed, with columns for "Select Name", "Data Source", "Base map", "Zoom levels", "Internal", "Tile width", "Tile height", and "Online". The row for "WMS_TILECACHE" is highlighted with a red circle. The table contains the following data:

Select Name	Data Source	Base map	Zoom levels	Internal	Tile width	Tile height	Online
<input type="checkbox"/> DENVER2_4_CORETEXT	DENVER_FLOORPLAN	DENVER2_4_TESTCORE_CORETEXT	5	true	256	256	true
<input type="checkbox"/> DENVER2_4_FURNITURE	DENVER_FLOORPLAN	DENVER2_4_TESTCORE_FURNITURE	5	true	256	256	true
<input type="checkbox"/> DENVER2_4_MAP	DENVER_FLOORPLAN	DENVER2_4_ALL	5	true	256	256	true
<input type="checkbox"/> FLOORPLAN_TILECACHE	DENVER_FLOORPLAN	DENVER2_4_ALL	10	true	256	256	true
<input checked="" type="checkbox"/> WMS_TILECACHE	GEODATA	WMS_BASEMAP	10	true	256	256	true
<input type="checkbox"/> CUSTOMER_MAP	MVDEMO	CUSTOMER_MAP	10	true	256	256	true
<input type="checkbox"/> DEMO_MAP	MVDEMO	DEMO_MAP	10	true	256	256	true
<input type="checkbox"/> ELOC_WORLD_MAP	OBIEE_NAVTEQ		19	false	256	256	true
<input type="checkbox"/> GOOGLE_MAP_TEST	OBIEE_NAVTEQ		19	false	256	256	true
<input type="checkbox"/> OBIEE_LONDON_MAP	OBIEE_NAVTEQ	WORLD_MAP	8	true	256	256	true
<input type="checkbox"/> OBIEE_SF_MAP1	OBIEE_NAVTEQ	WORLD_MAP	8	true	256	256	true
<input type="checkbox"/> OBIEE_SYDNEY_MAP	OBIEE_NAVTEQ	WORLD_MAP	8	true	256	256	true
<input type="checkbox"/> OBIEE_WORLD_MAP	OBIEE_NAVTEQ	WORLD_MAP	16	true	256	256	true
<input type="checkbox"/> OBIEE_WORLD_MAP_FAST	OBIEE_NAVTEQ	WORLD_MAP_FAST	10	true	256	256	true



Create WMS tile layer in MapViewer web console (or in Map Builder)





Associate WMS
tile layer with map
layers in OBIEE

The screenshot shows the Oracle BI Presentation Services Administration web interface. The browser window title is "Oracle BI Presentation Services Administration - Mozilla Firefox". The address bar shows "localhost:7001/analytics/saw.dll?Admin". The page header includes the Oracle logo and "Business Intelligence". The main content area is titled "Administration" and lists several management categories:

- Administration**: Oracle Business Intelligence Product Version 11.1.1.6.0 (build 120104.0800 32-bit). Physical Presentation Catalog Path: E:\oracle\mw_home\instances\instance3\bfoundation\OracleBI\PresentationServicesComponent\core\application_obips1\catalog\SampleApp\root. Oracle BI Server Data Source: coreapplication_OH1938185103. Available Paging Memory (MB): 2469. Available Virtual Address Space (MB): 1762. Maintenance Mode is currently off.
- Security**:
 - Manage Catalog Groups**: Create, edit and delete Catalog Groups.
 - Manage Privileges**: Manage privileges and rights given to users and groups.
- Session Management**:
 - Manage Sessions**: View Oracle Business Intelligence session information including active users and queries.
 - Manage Agent Sessions**: View Agent session information including Agent state and recipients.
- Maintenance and Troubleshooting**:
 - Manage Device Types**: Create, edit, view or delete Device Types.
 - Toggle Maintenance Mode**: Maintenance Mode is currently off.
 - Reload Files and Metadata**: Reload XML message files, refresh server metadata, and clear caches.
 - Issue SQL**: Issue SQL directly to Oracle BI Server.
 - Scan and Update Catalog Objects That Require Updates**: Scan the catalog and update any objects that were saved with earlier versions of Oracle Business Intelligence.
- Map Data Management** (circled in red):
 - Manage Map Data**: Manage layers, background maps and images.
- Marketing**:
 - Manage Marketing Jobs**: View background marketing jobs and database cache result sets.
 - Manage Marketing Defaults**: Manage the default settings such as Default Campaign Load Format and Default Global Audience for Marketing.
- BI Publisher**:
 - Manage BI Publisher**: Manage BI Publisher data sources, scheduler configuration, delivery destinations, and runtime properties.

The Windows taskbar at the bottom shows the Start button, several icons, and the system tray with the time 6:13 PM. The VMware Player window title is "OBIEE11.1.6 - VMware Player".



Associate WMS
tile layer with map
layers in OBIEE

The screenshot shows the Oracle Business Intelligence (OBIEE) 'Manage Map Data' interface. The main window displays a table with the following data:

Name	Description	Location	Associated Subject Areas
ELOC_WORLD_MAP		OBIEE_NAVTEQ_SAMPLE/ELOC_WORLD_MAP	A - Sample Sales
FLOORPLAN_TILECACHE		DENVER_FLOORPLAN/FLOORPLAN_TILECACHE	Energy Infrastructure
OBIEE_LONDON_MAP		OBIEE_NAVTEQ_SAMPLE/OBIEE_LONDON_MAP	A - Sample Sales
OBIEE_SF_MAP1		OBIEE_NAVTEQ_SAMPLE/OBIEE_SF_MAP1	
OBIEE_SIDNEY_MAP		OBIEE_NAVTEQ_SAMPLE/OBIEE_SIDNEY_MAP	
OBIEE_WORLD_MAP		OBIEE_NAVTEQ_SAMPLE/OBIEE_WORLD_MAP	
OBIEE_WORLD_MAP_FAST		OBIEE_NAVTEQ_SAMPLE/OBIEE_WORLD_MAP_FAST	
OBIEE_WORLD_MAP_GOOGLE		OBIEE_NAVTEQ_SAMPLE/OBIEE_WORLD_MAP_GOOGLE	

An 'Import Background Maps' dialog box is open, showing a list of available maps under 'Look in: geodata'. The 'WMS_TILECACHE' option is selected. A preview of the WMS_TILECACHE map is shown on the right side of the dialog box.



Associate WMS
tile layer with map
layers in OBIEE

The screenshot shows the Oracle Business Intelligence Enterprise Edition (OBIEE) interface. The main window is titled "Manage Map Data - Mozilla Firefox" and displays the "Manage Map Data" page. A dialog box titled "Edit Background Map - WMS_TILECACHE" is open, showing the configuration for a WMS tile layer. The dialog includes fields for Name, Location, and Description, and a section for "Interactive BI Layers" with a zoom level selector. The zoom level is currently set to 1. The dialog also features a map preview showing a topographic map of a coastal region. The background interface shows a list of map layers on the left, including "WMS_TILECACHE". The bottom of the screen shows the Windows taskbar with the Start button and several open applications, including "E:\oracle\mapbuilder" and "Manage Map Data - M...". The system clock shows 6:19 PM.



The screenshot shows the Oracle Business Intelligence interface. At the top, the URL is localhost:7001/analytics/saw.dll?Answers&path=%2Fshared%2F_Demo%2FExample1#criteriaTab13757bdc741. The main header is "ORACLE Business Intelligence". Below it, there are tabs for "Criteria", "Results", "Prompts", and "Advanced". The "Criteria" tab is active, showing a "Subject Areas" pane on the left with a tree view containing "A - Sample Sales" and sub-items like "Time", "Products", "Offices", "Sales Person", "Customers", and "Orders". The "Selected Columns" pane on the right shows "Ship To Geo Codes" and "Base Facts" with "R63 Geo City State City Name" and "1 - Revenue" selected. Below the panes is a map view. The map shows a geographical view of the United States with red circular markers indicating data points. A toolbar at the top of the map view includes a dropdown menu with "WMS_TILECACHE" selected and circled in red. On the right side, there is a "BI Data Layer" pane with "Automatically c" checked and "OBIEE_CITY" selected. Below it, there are two data points: "1 - Revenue" with a value of 105727.93 and "33267.65". At the bottom of the map, there is a scale bar showing "500 mi" and "1,000 km".

Create Analysis,
render map View,
select WMS
background map.



Spatial Analytics with OBIEE

Office to Customer Distance
Time run: 8/24/2011 11:51:29 PM

D1 Office: Casino Office

	Distance in Meters	1- Revenue
Addison Hurd	5,165	10,296
Arentina Downey	8,375	60,655
Bertha Oddell	8,090	30,295
Biddy Ross	6,993	81,645
Colburn Tillman	5,583	11,929
Enos Silvis	12,573	61,305
Geraldine Gentle	3,483	3,371
Henry	4,286	1,691

- Supplements and weaves together the native analytic capabilities of OBIEE with location-based analyses.
- Configured by invoking Oracle Spatial features through supported straightforward OBIEE integration mechanisms.
- Proximity, nearest nbr, within distance, topological operators, geocoding etc etc
- Seamless with other OBIEE data and can be rendered in any OBIEE view (table, chart, map etc)

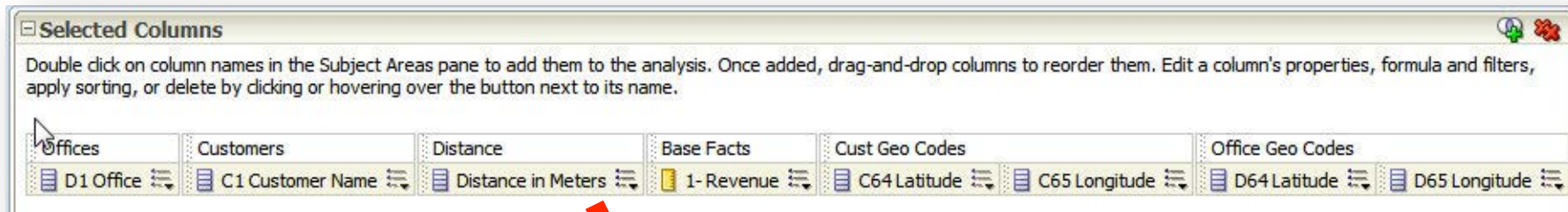


Spatial Analytics Scenario 1

Scenario 1: Column in an analysis based on *Spatial function*

Example: Analysis columns include `Customer`, `Distance_To_Nearest_Store`,...

Approach: Define location-based column using `EVALUATE()` function to ship query to Spatial



EVALUATE(Oracle Spatial functions accepting BI column values...)

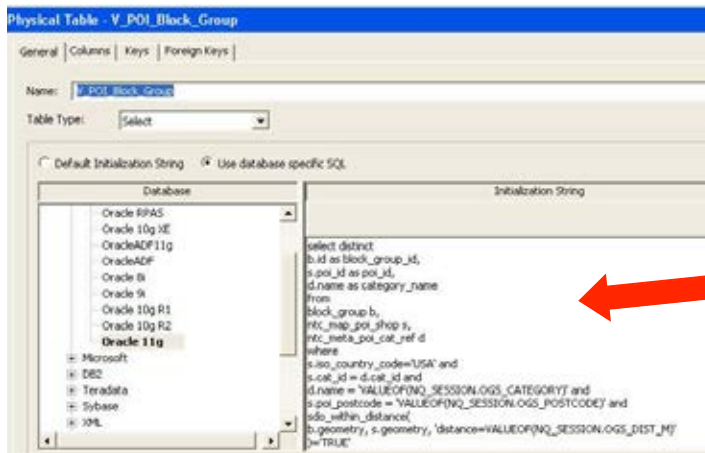


Spatial Analytics Scenario 2

Scenario 2: Data source in OBIEE model based on *Spatial query*

Example: OBIEE model includes table **Stores_Near_Customer**

Approach: Define the OBIEE data source as a view that accepts variables sent from the dashboard via user-driven prompts (i.e., **Customer**, **Distance**)



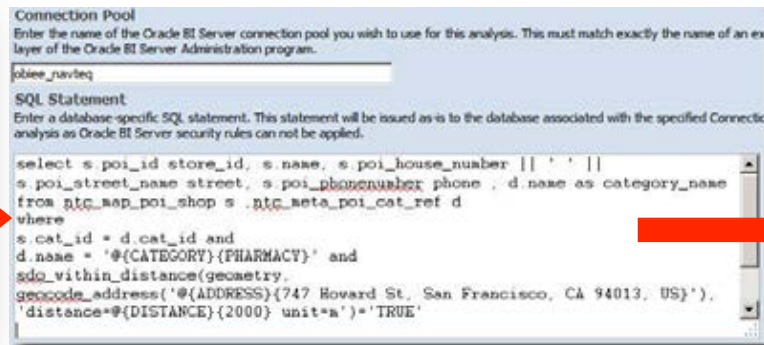
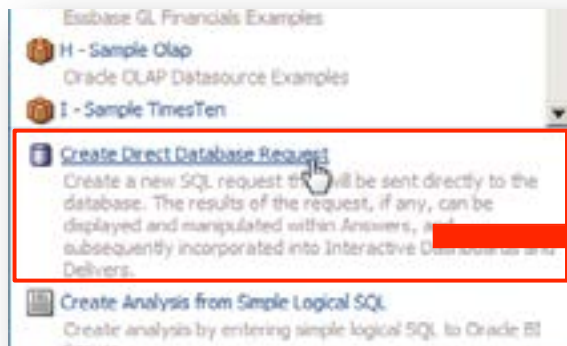


Spatial Analytics Scenario 3

Scenario 3: *Spatial query* within OBIEE dashboard, not tied to OBIEE model

Example: Select all stores within user defined distance of an address

Approach: Define the query using the “Create Direct Database Request” feature in OBIEE, and include references to variables set by dashboard prompts





D E M O N S T R A T I O N

Spatial Analytics using EVALUATE() and OBIEE variables



Scenario 1 – using EVALUATE()



Create stored function

A screenshot of the Oracle SQL Developer interface. The left-hand pane shows a tree view of the database schema, with the "ZIP2NEARESTHOTEL" function highlighted under the "Functions" folder. The main editor window displays the SQL code for creating the function. The code is as follows:

```
create or replace
function Zip2NearestHotel (zipIn varchar2)
return varchar2 deterministic as
nearestHotel varchar2(100);
begin
select b.name into nearestHotel
from
obiee_navteq.usa_zip5_polys a, obiee_navteq.ntc_map_poi_hotel b
where postalcode = zipIn
and sdo_nn(b.geometry, a.geometry, 'sdo_num_res=1') = 'TRUE';
return nearestHotel;
end;
```



Confirm it works

A screenshot of the Oracle SQL Developer interface. The main window displays a query in the SQL editor:

```
select postalcode, Zip2NearestHotel(postalcode)
from obiee_navteq.usa_zip5_polys
```

The query results are shown in a table below the editor. The table has two columns: "POSTALCODE" and "ZIP2NEARESTHOTEL(POSTALCODE)". The results are as follows:

POSTALCODE	ZIP2NEARESTHOTEL(POSTALCODE)
1 94117	CASA LOMA HOTEL
2 94133	GRAND PACIFIC HOTEL
3 95409	ARGONAUT HOTEL
4 94128	COMFORT INN & SUITES-SAN BRUNO
5 94111	PACIFIC TRADEWINDS
6 94806	DOCKSIDE BOAT & BED



Invoke Spatial function with EVALUATE()

The screenshot shows the Oracle BI Answers web interface. The browser title is "Oracle BI Answers - Mozilla Firefox". The address bar shows the URL: localhost:7001/analytics/saw.dll?Answers&path=%2Fshared%2F_Demo%2FDLapp%2Fevaluate%2Fexample#criteriaTab1376167Feb. The page header includes "ORACLE Business Intelligence" and a search bar. The main content area is titled "evaluate example" and has tabs for "Criteria", "Results", "Prompts", and "Advanced". On the left, there is a "Subject Areas" tree with "A - Sample Sales" expanded, showing sub-areas like "Time", "Products", "Offices", "Sales Person", "Customers", "Orders", "Other Objects", "Base Facts", and "Calculated Facts". The "Selected Columns" pane shows "Office Geo Codes" and "D67 Geo Postal Code". The "Nearest Hotel" column is circled in red. Below this, the "Column Formula" tab is active, showing the formula: `EVALUATE('Zip2NearestHotel(%Y) AS CHAR, "Office Geo Codes"."D67 Geo Postal Code")`. This formula is also circled in red, with a red arrow pointing from the "Nearest Hotel" column to it. Other settings include "Folder Heading" as "Office Geo Codes", "Column Heading" as "EVALUATE('Zip2NearestHotel", and "Aggregation Rule" as "Default (None)".



Our location-based column could be based on any much more involved Spatial operations.

A screenshot of the Oracle BI Answers interface running in a Mozilla Firefox browser. The browser window title is "ORIEE11.1.1.6 - VMware Player". The Oracle BI Answers page shows a "Compound Layout" with a table. The table has two columns: "D67 Geo Postal Code" and "Nearest Hotel". The "Nearest Hotel" column is circled in red. The table contains 14 rows of data, including hotel names like "RADISSON HOTEL - SAN FRANCISCO I", "ALPINE MOTEL - DALY CITY", and "MONTE CRISTO HOTEL".

D67 Geo Postal Code	Nearest Hotel
94005	RADISSON HOTEL - SAN FRANCISCO I
94014	ALPINE MOTEL - DALY CITY
94015	MONTE CRISTO HOTEL
94030	BEST WESTERN-EL RANCHO INN & S
94044	MARINE VIEW MOTEL
94066	BUDGET MOTEL
94080	BEST WESTERN-SAN FRANCISCO INT
94102	SIR FRANCIS DRAKE HOTEL
94103	WESTIN-SAN FRANCISCO MARKET ST
94104	MANDARIN ORIENTAL-SAN FRANCISC
94105	COURTYARD-SAN FRANCISCO DOWNTO
94107	CLEBIA'S PLACE
94108	ALLISON HOTEL
94109	ARGONAUT HOTEL
94110	ALBERT HOTEL
94111	PACIFIC TRADEWINDS
94112	AMAZON MOTEL



EVALUATE()
Spatial
examples in
SampleApp

The screenshot shows the Oracle BI EE 11.1.1.5 Samples Application - General Index page. The page is organized into several sections:

- 0. Overview**
 - 0.1 General Index
 - 0.2 Configuration
- 1. Quick Demos**
 - 1.1 Simple Demo Dashboard
 - 1.2 Financials Demo (Essbase)
- 2. Functional Examples**
 - 2.10 Descriptive Stats
 - 2.11 Comparative Analysis
 - 2.12 Trending
 - 2.20 Financials
 - 2.21 Financials
- 3. Analysis and Dashboards**
 - 3.10 Query Building
 - 3.20 Report Views
 - 3.30 Map Views
 - 3.40 Dashboard Design
 - 3.50 Mobile Styles
 - 3.60 Other Front Ends
- 4 Actionable Intelligence**
 - 4.1 Actions
- 6. Published Reporting**
 - 6.1 Published Reporting
- 7. Source Agnostic Server Features**
 - 7.1 Logical Modelling
 - 7.2 Logical Aggregations
 - 7.3 Physical Layer Features
 - 7.4 Users and Security
- 8. Source Specific Features**
 - 8.1 Oracle Relational Database
 - 8.2 Oracle Essbase
 - 8.3 Oracle OLAP
 - 8.4 Oracle Data Mining
 - 8.5 Oracle Geospatial**
 - POI to Block Distance
 - Address to POI Distance
 - Point to Point Distance
 - Office to Customers
 - Point to Landmark
 - Distance Inside SQL
 - 8.6 TimesTen
 - 8.7 Flat Files
 - 8.8 SSAS



This example constructs geometries from coordinates and feeds into function

Oracle BI Interactive Dashboards - B.5 Oracle Geospatial - Mozilla

ORIEE11.1.1.6 - VM... File - Virtual Machine - Help

Business Intelligence Instance Oracle BI Catalog Oracle BI Interactive Dashboards - 8.5 O...

localhost:7001/analytics/saw.d/Dashboard

ORACLE Business Intelligence Search All Advanced Administration Help Sign

B.5 Oracle Geospatial Home Catalog Favorites Dashboards New Open Signed In As...

Business in Distance Range Blocks in Distance Range Range to Landmark **Cust Distance SF** Geocode SQL Cust Distance Lon Cust Distance Syd

Point to Point Distance : Office to Customers [Return to Main Index page](#)

Page Information (click to collapse or expand)

Description : On this dashboard, OBIE calculates the distance between offices location and customers of these offices. Select offices in the city, and see the list of the customers show on the map with their distance offices.

City San Francisco

Office Figueras Office Mills Office

Apply | Reset

Office to Customer Distance
Time run: 5/18/2012 4:24:33 PM

D1 Office: Figueras Office

	Distance in Meters	Revenue
Carey Krider	2948.10	96211.22
Elaine Hsieh	2842.97	50303.57
Erna Barajas	2443.45	39234.03
Gideon Duke	2051.35	25173.65
Joel Mane	2459.60	38446.98
Leta Dobson	2374.67	51303.76
Marla Libby	1403.34	39620.98
Osrin Baley	2900.00	25073.62
Sara Johnson	2443.45	57352.27
Grand Total	2385.21	382720.09

2 mi
5 km

© 2010, NAVTEQ

Analyze - Edit - Refresh - Print - Export - Copy

BI Data Layers

- C65 Longitude,C64 Latitude
- Customers (Variable Shape)
- Customers
- Customers
- D65 Longitude,D64 Latitude
- Office (Variable Shape)
- Office
- Office



Scenario 2: using Spatial SQL-based source and session variables



Physical source is Spatial SQL with variables

The screenshot shows the Oracle BI Administration Tool interface. The 'Physical' pane on the right lists various data sources, with 'Hotels_Within_Distance' circled in red. The main pane shows the configuration for this table, including the 'Initialization String' which contains a SQL query with variables.

Physical Table - Hotels_Within_Distance

General | Columns | Keys | Foreign Keys

Name: Hotels_Within_Distance

Table Type: Select

Default Initialization String Use database specific SQL

Database	Initialization String
Oracle 11g	<pre>select postalcode, name from obiee_navteq.ntc_map_poi_hotel b, obiee_navteq.usa_zip5_polys a where a.postalcode= VALUEOF(NQ_SESSION.ZipVariable) and sdo_within_distance(b.geometry, a.geometry, 'distance=VALUEOF(NQ_SESSION.DistanceVariable) unit=MILE')=TRUE'</pre>



Confirm it works
(based on
variable defaults)

A screenshot of the Oracle Business Intelligence interface. The browser window shows the URL localhost:7001/analytcs/saw.cdf?Answers&path=%2Fshared%2F_Demo%2FDLapp%2Frepository%2Fvariable%2Fexample#criteriaTab1376119. The interface displays a table titled "repository variable example" with columns "Zip" and "Hotel Name". The table contains 14 rows of data. A red circle highlights the "Hotel Name" column, and a red arrow points from the "Hotels Within Distance" subject area in the left pane to the table.

Zip	Hotel Name
94022	BAYHILL INN
	BEST WESTERN-EL RANCHO INN & SUITES
	BEST WESTERN-SAN FRANCISCO INTL
	BUDGET MOTEL
	CLARION HOTEL-SAN FRANCISCO INTL
	COMFORT INN & SUITES-SAN BRUNO
	COMFORT INN & SUITES-SF INTL
	COURTYARD-SAN FRANCISCO INTL
	DAYS INN-SAN FRANCISCO INTL WEST
	FOUR POINTS-SAN FRANCISCO INTL
	GATEWAY INN & SUITES
	GOOD NITE INN SF INTL AIRPORT
	HOLIDAY INN EXPRESS HOTEL & SUITES
	HOLIDAY INN-SAN FRANCISCO INTL



Create prompt for Zip and Distance that will set variables

The screenshot shows the Oracle BI Answers interface in Mozilla Firefox. The main window displays a "zip and distance prompt" with a table for "Page 1" containing "D67 Geo Postal Code" and "Distance (Miles)". Two dialog boxes are open for configuration. The "Edit Prompt: D67 Geo Postal Code" dialog has "Prompt For Column" set to "Office Geo Codes", "D67 Geo Post.", "Label" as "D67 Geo Postal Code", "Operator" as "is equal to / is in", and "User Input" as "Choice List". Under "Options", "Choice List Values" are listed as 94005, 94014, 94015, 94030, 94044, and null. The "Set a variable" dropdown is set to "Request Variable" and "DistanceVariable". The "Edit Prompt: Distance (Miles)" dialog has "Prompt For Column" set to "1", "Label" as "Distance (Miles)", "Operator" as "is equal to / is in", and "User Input" as "Slider". Under "Options", "Slider Values" are set to "Within Specific Limits" with a lower limit of 0 and an upper limit of 20. The "Set a variable" dropdown is set to "Request Variable" and "DistanceVariable". Both "Request Variable" and "DistanceVariable" options in the dropdowns are circled in red.



Results are dynamic based on passing prompt values to physical layer

Distance (Miles) 1

Zip	Hotel Name
94014	ALPINE MOTEL-DAILY CITY
	AMAZON MOTEL
	BRIDGEPOINT INN DAILY CITY
	DAYS INN-SAN FRANCISCO-INTL
	EL CAMINO INN
	FRANCISCAN MOTEL
	GENEVA MOTEL
	HAMPTON INN-SAN FRANCISCO-DAILY CITY
	MISSION INN
	MONTE CRISTO HOTEL
	MOTORVILLE MOTEL
	ROYAL INN
	ROYAL PALACE INN
	TOWN MOTEL
	TRAVELERS INN-SOUTH SAN FRANCISCO

Distance (Miles) 4

Zip	Hotel Name
94014	555 HAIGHT GUEST HOUSE
	AARTS CO-OPERATIVE HOTEL
	AARTS HOTEL
	AIRI HOTEL
	ACER HOTEL
	ADANTE HOTEL
	ADELAIDE INN
	ADMIRAL HOTEL
	ADA HOTEL
	ADR TRAVEL HOTEL
	AIRPORT INN-SAN FRANCISCO
	ALBERGO HOTEL VERONA
	ALBERT HOTEL
	ALBION HOUSE
	ALDRICH HOTEL
	ALL STAR HOTEL
	ALLEN HOTEL
	ALLISON HOTEL
	ALPINE MOTEL-DAILY CITY
	AMAZON MOTEL
	AMERICA HOTEL
	AMERICANA INN
	AMERICAS BEST VALUE INN-PACIFICA
	AMERICAS BEST VALUE INN-SAN FRAN
	AMET HOTEL
	AMSTERDAM INN
	ANDREWS HOTEL
	ARANDA HOTEL
	ARCHBISHOP'S MANSION
	ARTISTS INN BED & BREAKFAST
	ARTMAR HOTEL
	ASCOT HOTEL
	BAHALIA HOTEL-SAN FRANCISCO
	BALDWIN HOTEL
	BALDWIN HOUSE
	BAWBY HOTEL



Physical layer/variable examples in SampleApp

The screenshot shows the Oracle BI EE 11.1.1.5 Samples Application - General Index page. The page is organized into several sections, each containing a list of links to various reports and dashboards. A red circle highlights the '8.5 Oracle Geospatial' section, which includes the following links:

- POI to Block Distance
- Address to POI Distance
- Point to Point Distance
- Office to Customers
- Point to Landmark
- Distance Across SQL
- POI to Block Distance



This example includes a custom function that invokes the Spatial Geocoder

The screenshot shows the Oracle BI Administration Tool interface. The top pane displays a tree view of the BI environment, including Presentation, Business Model and Mapping, and Physical layers. The Physical layer shows a table named 'V_POI_In_Range_Business' circled in red. The bottom pane shows the table's properties, including a custom 'Initialization String' circled in red. The initialization string is a SQL query that uses the 'SDO_WITHIN_DISTANCE' function to filter points based on their distance from a session's location.

Physical Table - V_POI_In_Range_Business

Name: V_POI_In_Range_Business

Table Type: Select

Initialization String

```
select
poi_id,
name,
cat_id
from NTC_MAP_POI_BUSINESS
where
sdo_within_distance(geometry, gncode_address(VALUEOF(NQ_SESSION.OGS_ADDRESS)),
distance=VALUEOF(NQ_SESSION.OGS_DIST_M) unit=m)=TRUE
```



This example includes a custom function that invokes the Spatial Geocoder

Oracle BI Interactive Dashboards - 0.5 Oracle Geospatial - Mozilla

OBIFE11.1.1.6 - VM... File - Virtual Machine - Help

Business Intelligence Instance Oracle BI Catalog Oracle BI Interactive Dashboards - 0.5 O...

localhost:7001/analytics/saw.dll?Dashboard

ORACLE Business Intelligence Search All Advanced Administration Help Sign Out

0.5 Oracle Geospatial Home Catalog Favorites Dashboards New Open Sign In As weblogic

Business in Distance Range Blocks in Distance Range Range to Landmark Cust Distance SF Geocode SQL Cust Distance Lon Cust Distance Syd

Address to Points of Interests (POIs) Distance [Return to Main Index page](#)

Page Information (click to collapse or expand)

Description: Description: In this example, OBIFE is generating Oracle geospatial queries to retrieve information on Point of Interest that reside within a given distance range of a specific address. Type in or select a San Francisco address, and select a distance range on the slider, the report will return all ATMs, Banks, Business Facilities and Exhibition Centers within that range of the selected address.

Type in or Select Address: 747 Howard St, San Francisco, CA 94103, US

Set Distance Range: 100 200 300 400 500

Apply Reset

Business POI in Distance Range
Time run: 5/18/2012 4:24:24 PM

Business POI in a range of 500 meters of address : 747 Howard St, San Francisco, CA 94103, US

	POI Id
ATM	18
BANK	5
BUSINESS FACILITY	5
CONVENTION/EXHIBITION CENTRE	4
Grand Total	32

Category name	POI Name	Full Address	POI_ID_Bus
ATM	BANK OF AMERICA	33 NEW MONTGOMERY ST, SF, CA 94105	17498258
		346 3RD ST, SF, CA 94103	30218199
		65 HAWTHORNE ST, SF, CA 94105	17498244
	710 MARKET ST, SF, CA 94102	17498252	
	CALIFORNIA SAVINGS BANK	800 MARKET ST, SF, CA 94102	30229400
	CITIBANK	9 HEARNY ST, SF, CA 94105	17505673
	KRYTEL FEDERAL CREDIT UNION	75 HAWTHORNE ST, SF, CA 94105	17502564
	PATELCO CREDIT UNION	156 2ND ST, SF, CA 94105	32025499
		646 HOWARD ST, SF, CA 94105	17504841
		666 FOLSOM ST, SF, CA 94102	17504840
	TRANS PACIFIC NATIONAL BANK	55 2ND ST, SF, CA 94105	30229610
	WASHINGTON MUTUAL	1 STOCKTON ST, SF, CA 94105	17504365
		700 MARKET ST, SF, CA 94102	17498138
	WELLS FARGO	2 GRANT AVE, SF, CA 94105	32027490

BI Data Layers View

- SF ATMs
 - ATMs (Variable Shape)
 - ATMs
 - ATMs
- SF Banks
 - Banks (Variable Shape)
 - Banks
 - Banks
- SF Business Facilities
 - Bus. Facility (Variable Shape)
 - Bus. Facility
 - Bus. Facility
- SF Exhibition Centers
 - Exhib Centers (Variable Shape)
 - Exhib Centers
 - Exhib Centers

1,000 ft 200 m © 2010, NAVTEQ



In OBIEE 11g

- Interactive drillable thematic mapping is turn-key feature
- Full arsenal of Oracle Spatial location analysis is easily integrated



Resources

- OBIEE SampleApp “*Source Specific Features > Oracle Geospatial*”
<http://www.oracle.com/technetwork/middleware/bi-foundation/obiee-samples-167534.html>
- Collaborate 2012 *Spatial Analytics Workshop*
<http://www.oracle.com/technetwork/database/options/spatial/overview/resources/ioug-collab12-idx-1609532.html>
- OBIEE Documentation *Configuring Mapping and Spatial Information*
http://docs.oracle.com/cd/E23943_01/bi.1111/e10541/configmap.htm
- OBIEE Documentation *Creating Map Views*
http://docs.oracle.com/cd/E23943_01/bi.1111/e10544/creatingviews.htm#sthref165

Q&A