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May 2012

Oracle Spatial User Conference

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Oracle Spatial User Conference

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

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Liujian Qian

Director, Product Development

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Building Applications with Oracle MapViewer

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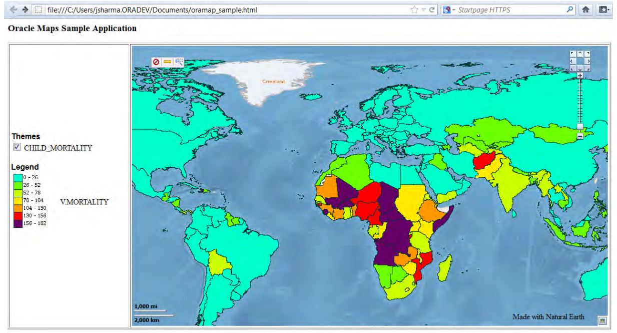
Program Agenda



file:///C:/Users/jsharma.ORADEV/Documents/oramap_sample.html

Startpage HTTPS

Oracle Maps Sample Application

Themes

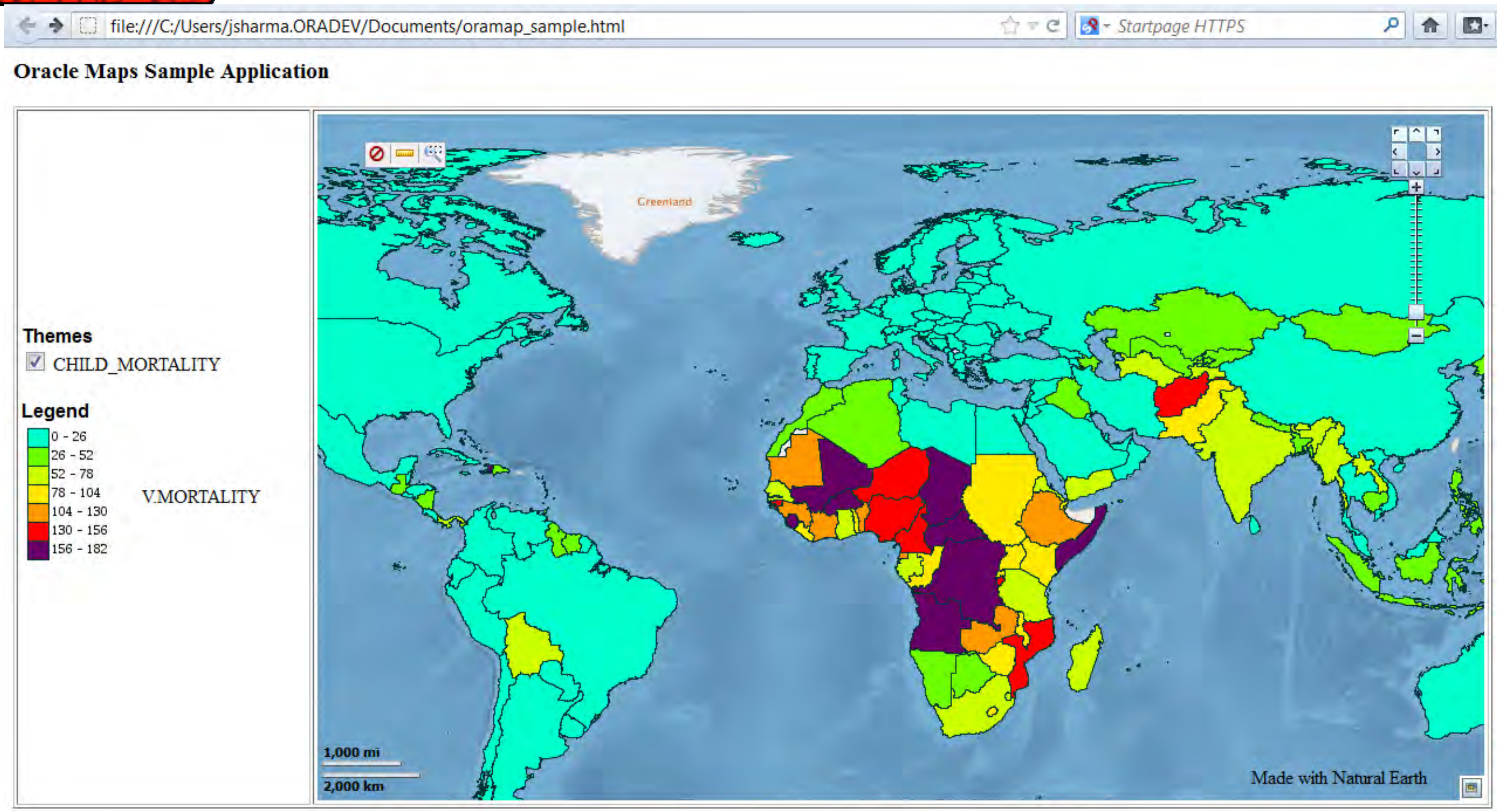
☑ CHILD_MORTALITY

Legend

🟦	0 - 26	V.MORTALITY
🟩	26 - 52	
🟨	52 - 78	
🟨	78 - 104	
🟧	104 - 130	
🟥	130 - 156	
🟪	156 - 182	

- The Result
- MapViewer Overview
- The Steps
  - Prepare spatial content
  - Author maps with MapBuilder
  - Configure MapViewer server
  - Create sample application with MapBuilder
- Next
  - Review Oracle Maps Tutorials

The Goal



file:///C:/Users/jsharma.ORADEV/Documents/oramap_sample.html

Oracle Maps Sample Application

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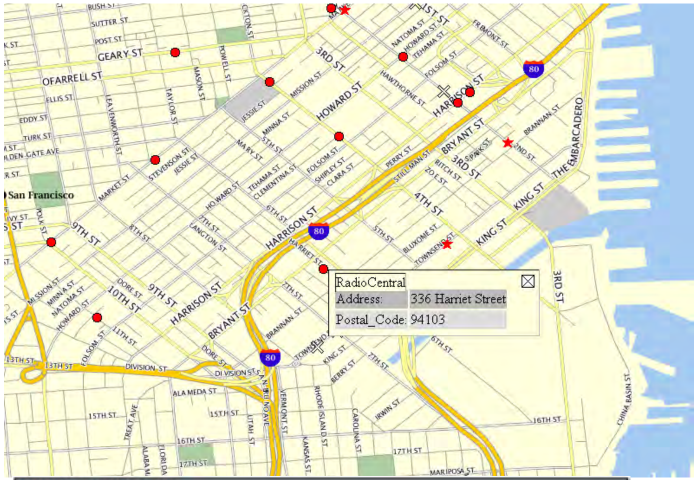
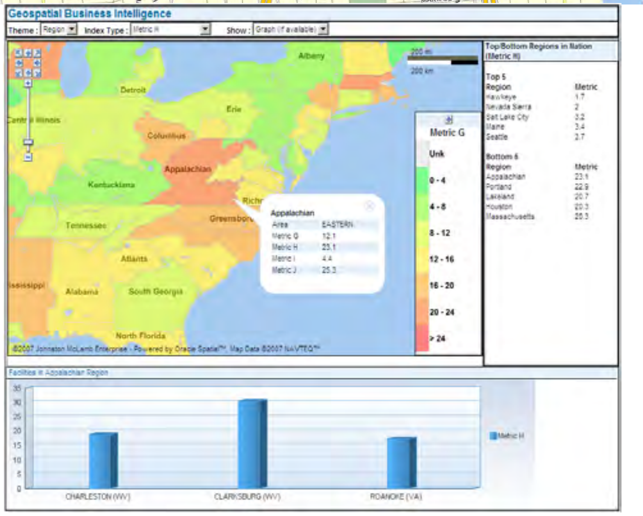
Oracle MapViewer

A standard feature of all Oracle Fusion Middleware editions

- Standards-based J2EE and Java Server Faces component
  - XML/HTTP, Java/AJAX
- Publish spatial data to the web
- Map and feature cache provides smooth scroll (pan, zoom)
- Rich Java, XML, JavaScript APIs provide client side interactivity
- Centrally managed map definitions, symbology, and styling rules



RadioCentral
Address: 336 Harriet Street
Postal_Code: 94103


Geospatial Business Intelligence

Theme : Region Index Type : Metric H Show : Graph (if available)

Appalachian

Area	EASTERN
Metric G	12.1
Metric H	23.1
Metric I	4.4
Metric J	25.3

©2007 Johnston McLamb Enterprise - Powered by Oracle Spatial™, Map Data ©2007 NAVTEQ™

Top/Bottom Regions in Nation (Metric H)

Top 5

Region	Metric
Hawkeye	1.7
Nevada Sierra	2
Salt Lake City	3.2
Maine	3.4
Seattle	3.7

Bottom 5

Region	Metric
Appalachian	23.1
Portland	22.9
Lakeland	20.7
Houston	20.3
Massachusetts	20.3

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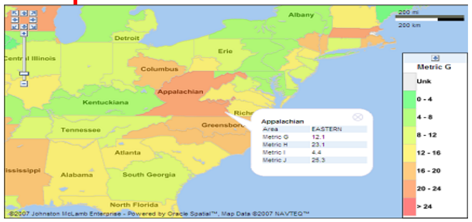
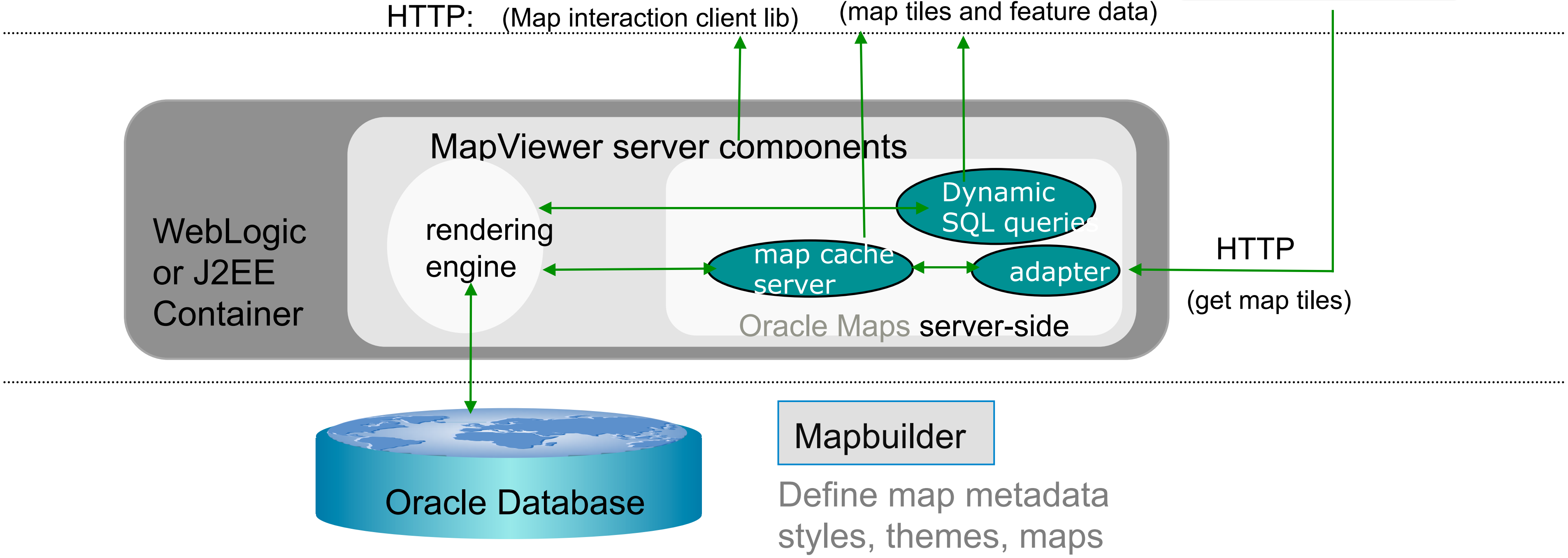
Oracle Mapviewer : architecture

Mapviewer client side



external map providers
eLocation, Nokia, Bing



Mapbuilder

Define map metadata
styles, themes, maps

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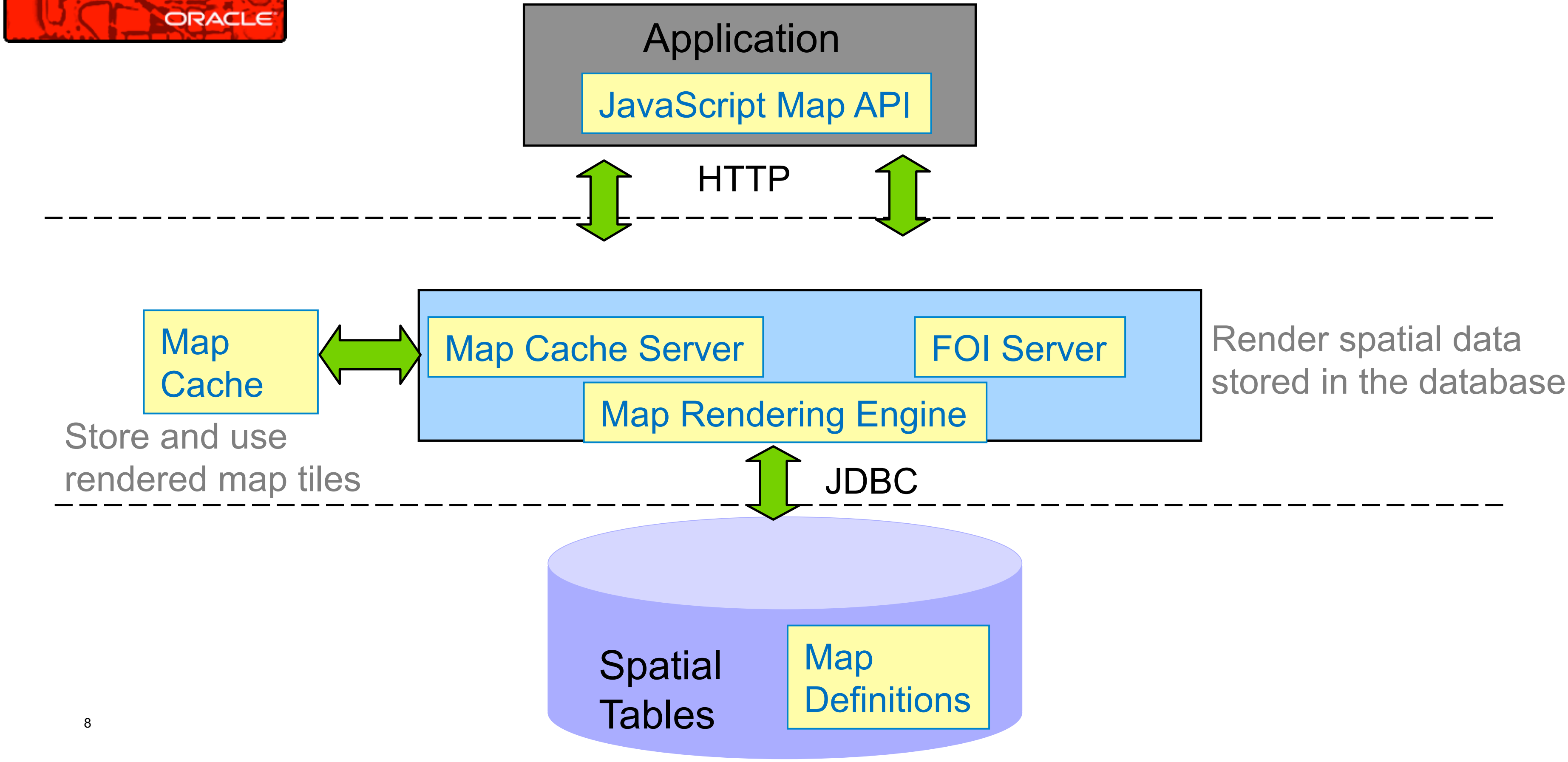
MapViewer Architecture



Render spatial data stored in the database

Store and use rendered map tiles

The Steps

But we’ll go through them backwards (sort of)

- Import and/or prepare spatial data
- Create map metadata (styles, themes, maps, tile cache) with MapBuilder
- Set up MapViewer server (in WLS or some app server)
- Build starter html app with MapBuilder app wizard

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Use the map builder app wizard

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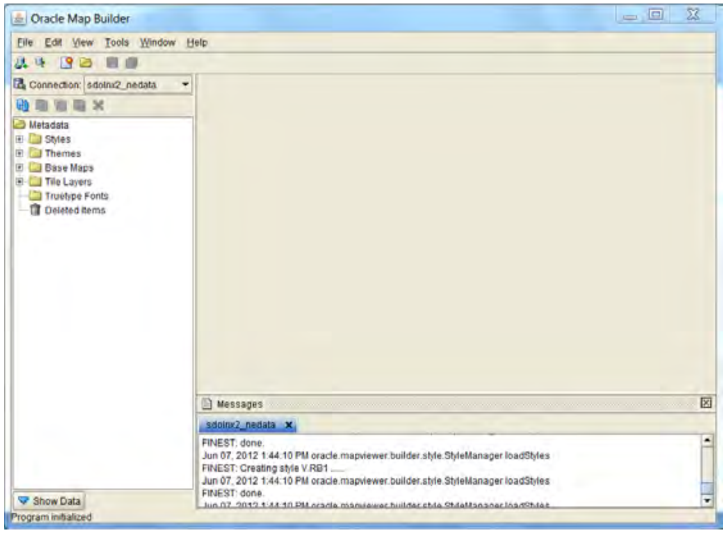
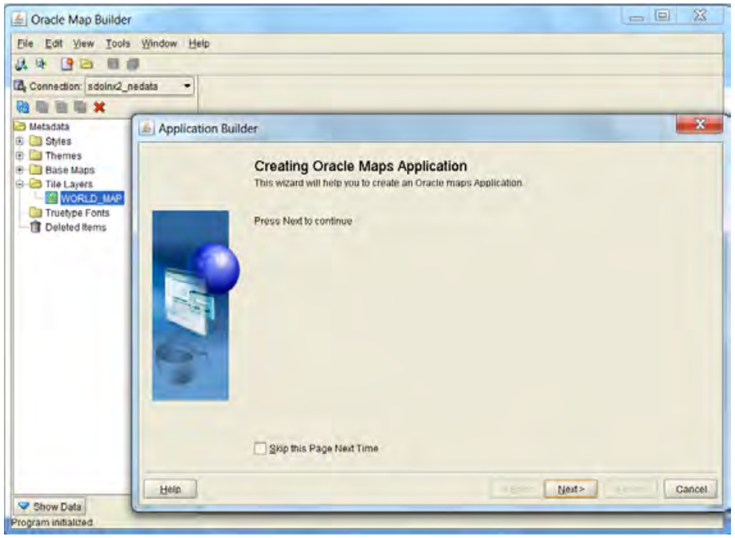
Map Builder has a simple app wizard

- Creates a simple Oracle Maps web app
- Uses the JavaScript slippy mapping API



```
FINEST: done.
Jun 07, 2012 1:44:10 PM oracle.mapviewer.builder.style.StyleManager loadStyles
FINEST: Creating style V.RB1 .....
Jun 07, 2012 1:44:10 PM oracle.mapviewer.builder.style.StyleManager loadStyles
FINEST: done.
Jun 07, 2012 1:44:10 PM oracle.mapviewer.builder.style.StyleManager loadStyles
```

Program initialized



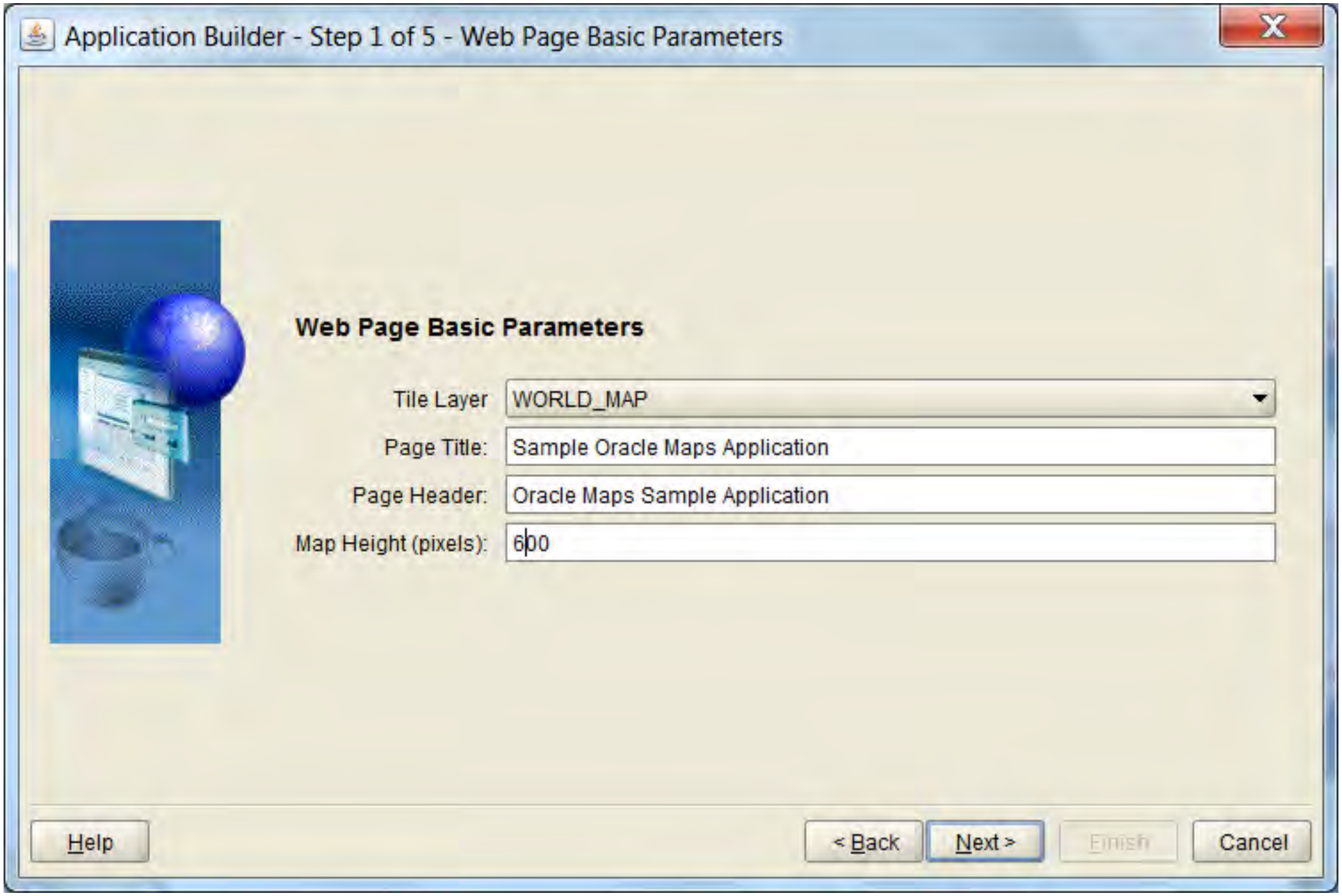
Creating Oracle Maps Application

This wizard will help you to create an Oracle maps Application.

Press Next to continue

□ Skip this Page Next Time

Program initialized



Application Builder - Step 1 of 5 - Web Page Basic Parameters

Web Page Basic Parameters

Tile Layer: WORLD_MAP

Page Title: Sample Oracle Maps Application

Page Header: Oracle Maps Sample Application

Map Height (pixels): 600

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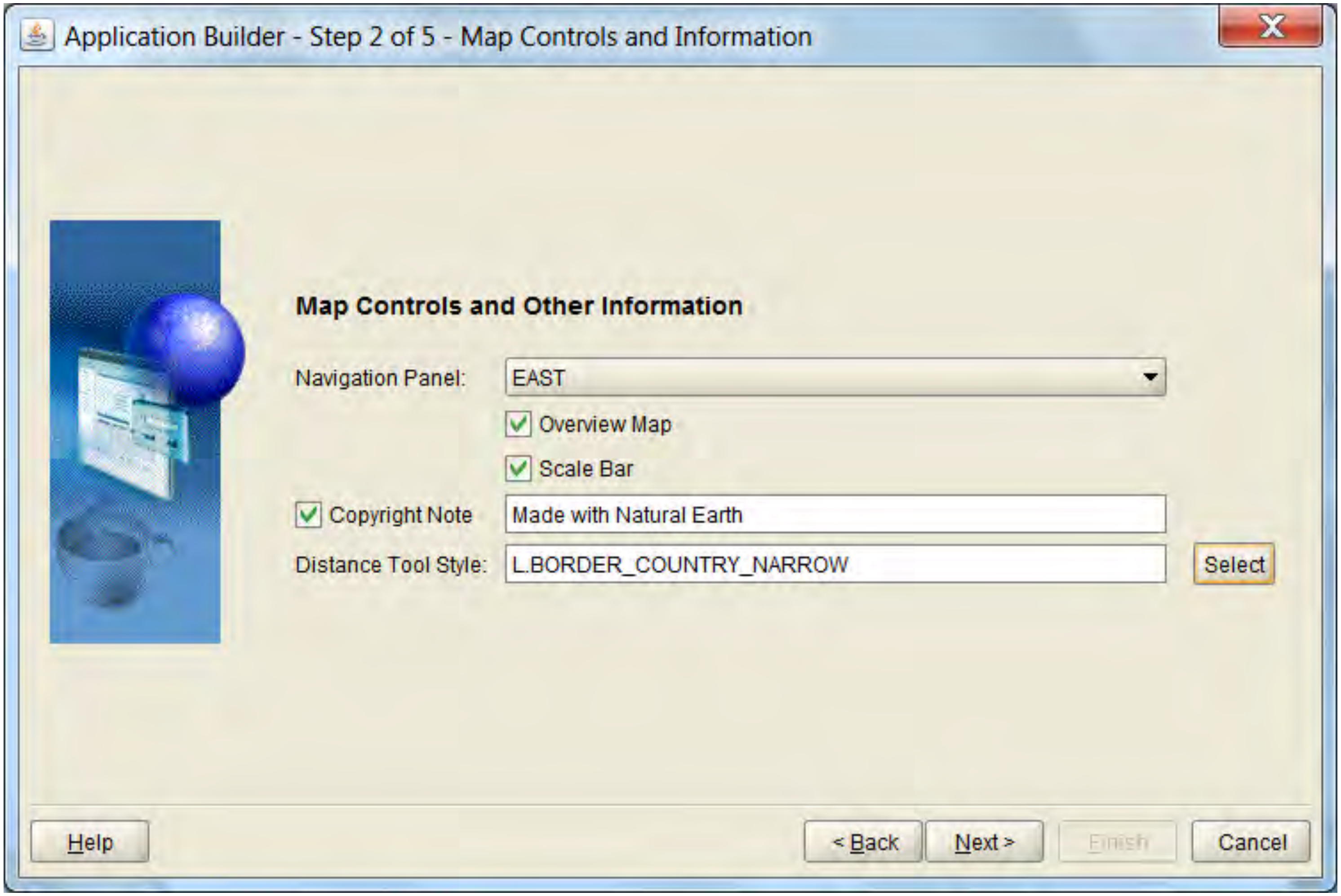


Application Builder - Step 2 of 5 - Map Controls and Information

Map Controls and Other Information

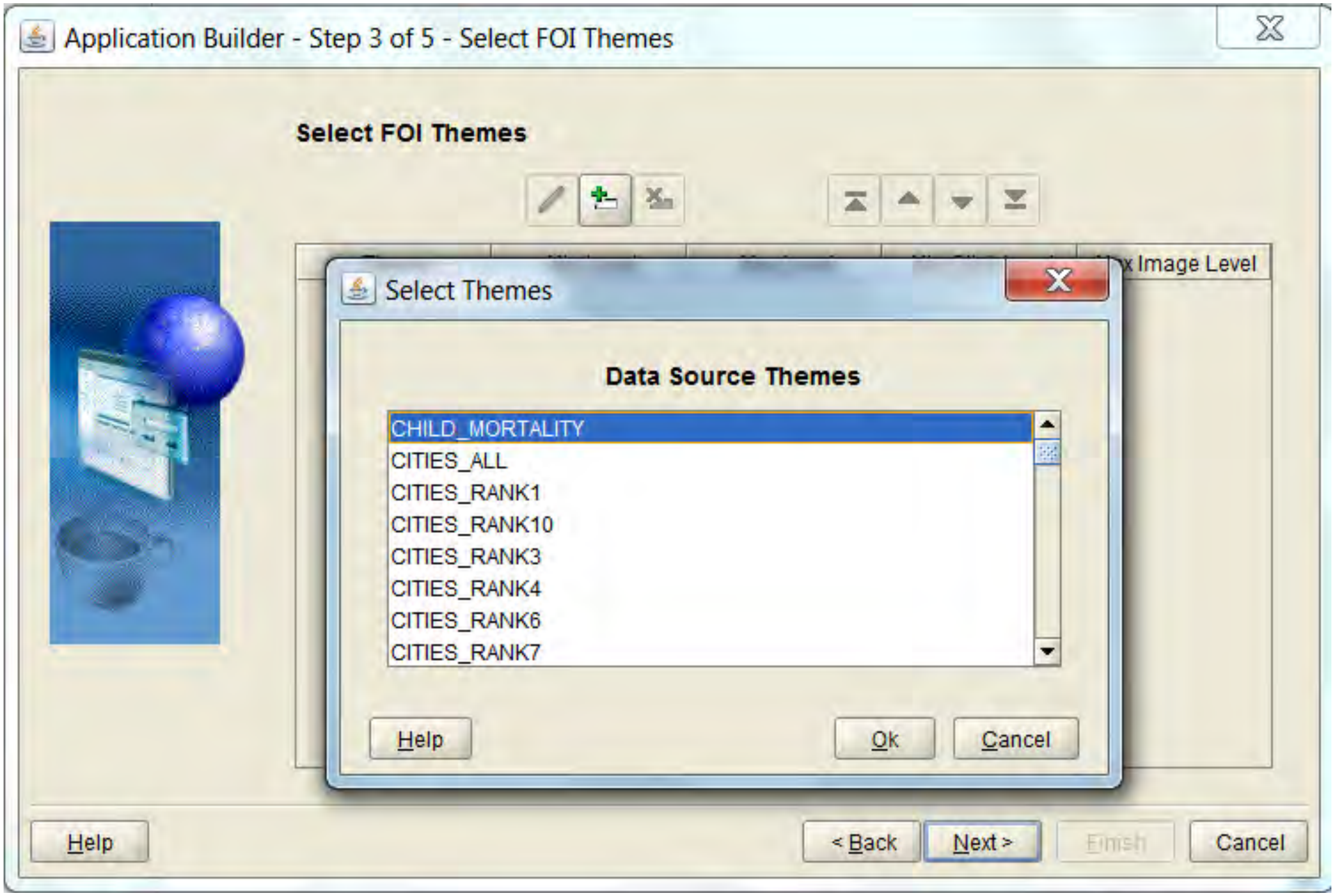
Navigation Panel: EAST

☑ Overview Map

☑ Scale Bar

☑ Copyright Note: Made with Natural Earth

Distance Tool Style: L.BORDER_COUNTRY_NARROW



Data Source Themes

- CHILD_MORTALITY
- CITIES_ALL
- CITIES_RANK1
- CITIES_RANK10
- CITIES_RANK3
- CITIES_RANK4
- CITIES_RANK6
- CITIES_RANK7

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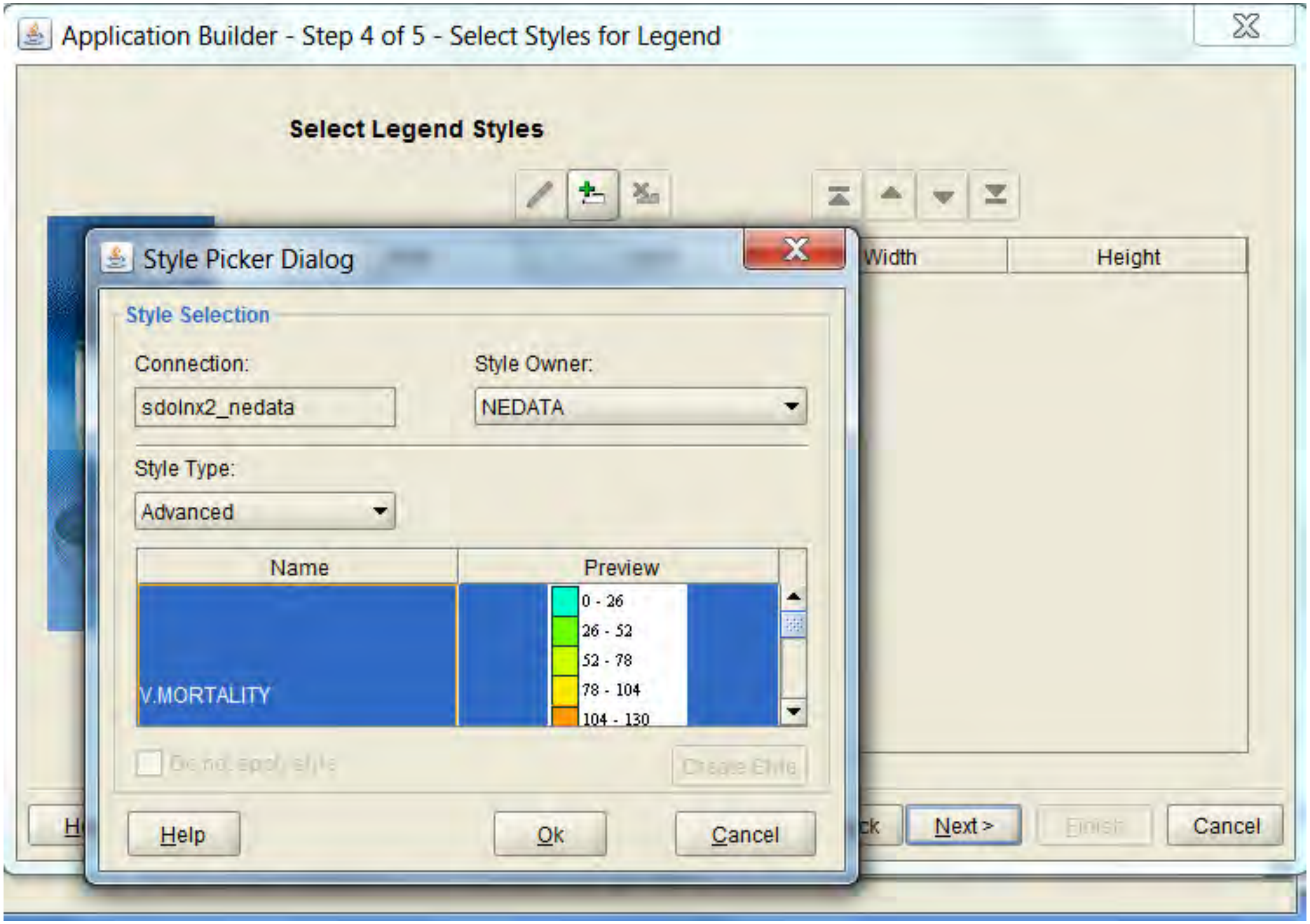

Application Builder - Step 4 of 5 - Select Styles for Legend

Select Legend Styles

Style Picker Dialog

Style Selection

Connection: sdolnx2_nedata

Style Owner: NEDATA

Style Type: Advanced

Name	Preview
V.MORTALITY	0 - 26 26 - 52 52 - 78 78 - 104 104 - 130

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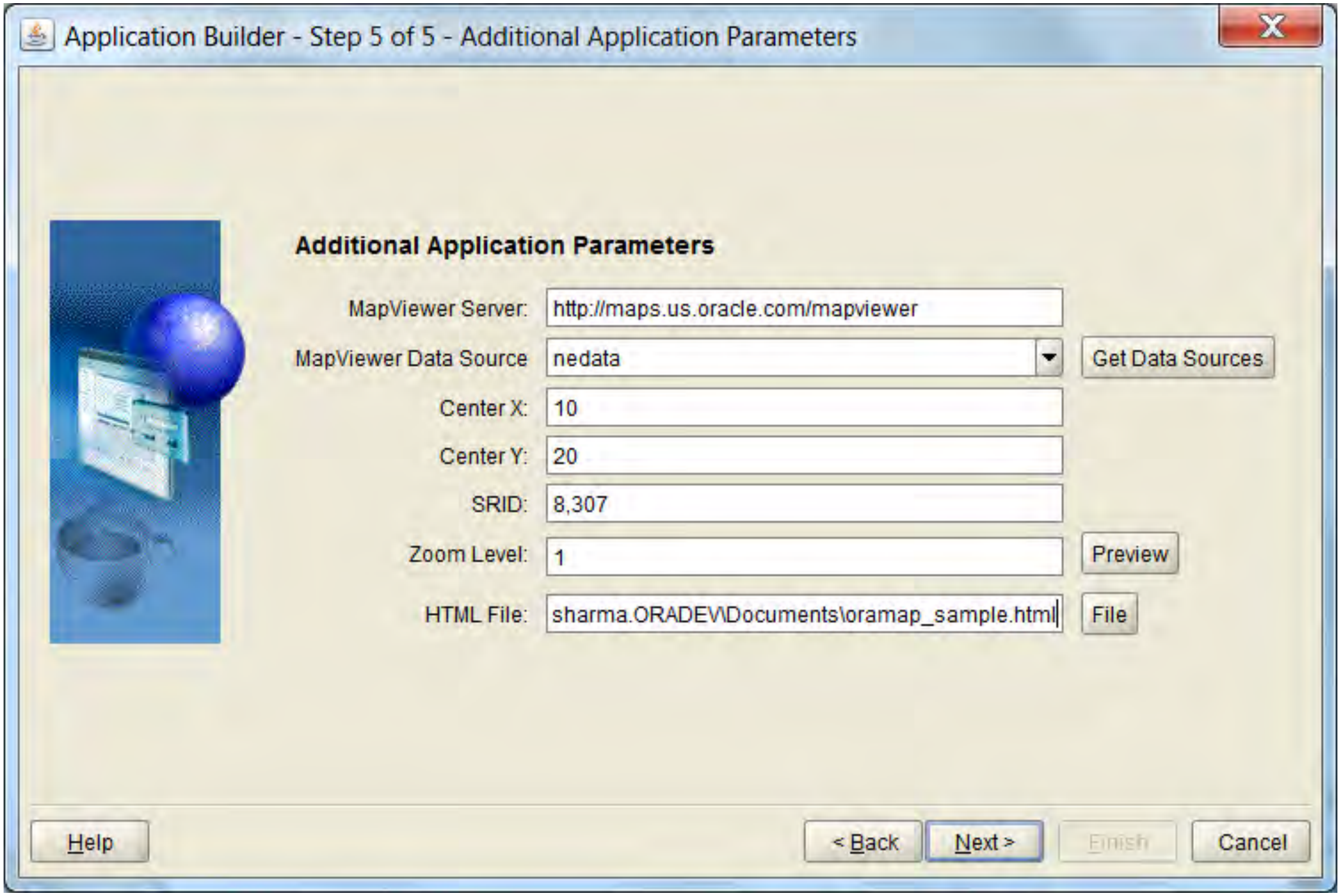

Application Builder - Step 5 of 5 - Additional Application Parameters

Additional Application Parameters

MapViewer Server: http://maps.us.oracle.com/mapviewer

MapViewer Data Source: nedata

Center X: 10

Center Y: 20

SRID: 8,307

Zoom Level: 1

HTML File: sharma.ORADEV\Documents\oramap_sample.html

Snippets of generated code

```
<TITLE> Sample Oracle Maps Application </TITLE>
<!– get the javascript lib  -->
<script language="Javascript" src="http://maps.us.oracle.com/mapviewer/fsmc/jslib/oraclemaps.js
script>
 function showMap()
  { var baseURL  = "http://maps.us.oracle.com/mapviewer";
    var mapCenterLon = 10.0;
    var mapCenterLat =  40.0;
    var mapZoom      =  1;
    var mpoint = MVSdoGeometry.createPoint(mapCenterLon,mapCenterLat,8307);
    mapview = new MVMapView(document.getElementById("map"), baseURL);
    mapview.addMapTileLayer(new MVMapTileLayer("nedata.WORLD_MAP"));
    mapview.setCenter(mpoint);
    mapview.setZoomLevel(mapZoom);
    mapview.addNavigationPanel('EAST');
    addThemeBasedFOI();
    md1 = new MVMapDecoration("Made with Natural Earth",0.8, 0.95,null,null);
    mapview.addMapDecoration(md1);
    addToolBar();

    mapview.display();
```

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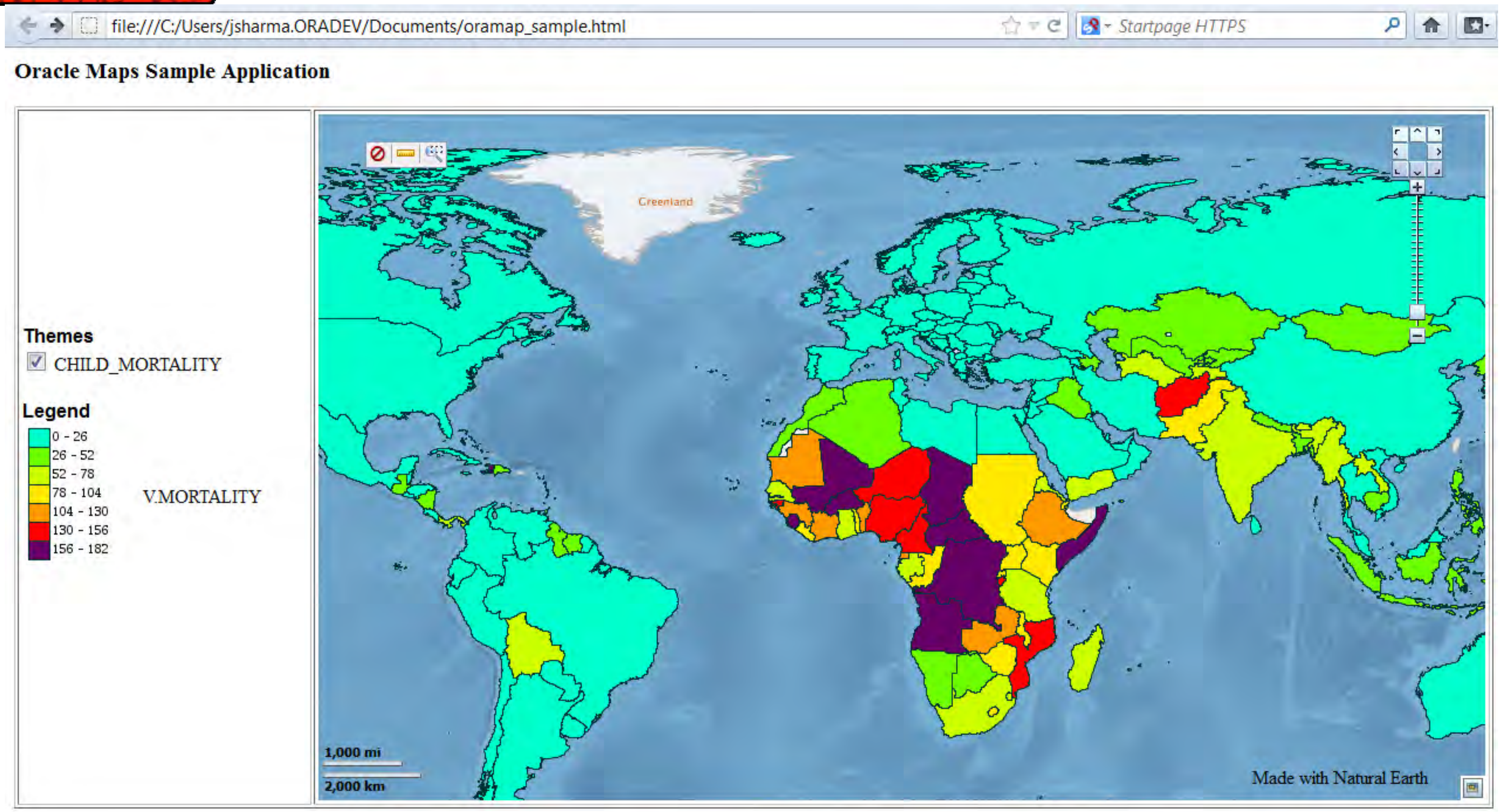
Viewed in a browser



file:///C:/Users/jsharma.ORADEV/Documents/oramap_sample.html

Oracle Maps Sample Application

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Legend

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- 🟩 26 - 52
- 🟩 52 - 78
- 🟨 78 - 104
- 🟧 104 - 130
- 🟥 130 - 156
- 🟪 156 - 182

V.MORTALITY

BUT HOW DO WE GET HERE FROM THERE …

The elements of a MapViewer app

- The javascript library
  - src="http://maps.us.oracle.com/mapviewer/fsmc/jslib/oraclemaps.js"
- The background map (tile layer)
  - MVMapTileLayer("nedata.WORLD_MAP")
- The mapviewer server and its data sources
  - baseURL = "http://maps.us.oracle.com/mapviewer" and “nedata”
- Interactive or dynamic elements (features-of-interest)
  - function addThemeBasedFOI() {
    var themebasedfoi1 = new MVThemeBasedFOI('themebasedfoi1','nedata.CHILD_MORTALITY');
- Other stuff (the html div, events, etc.)

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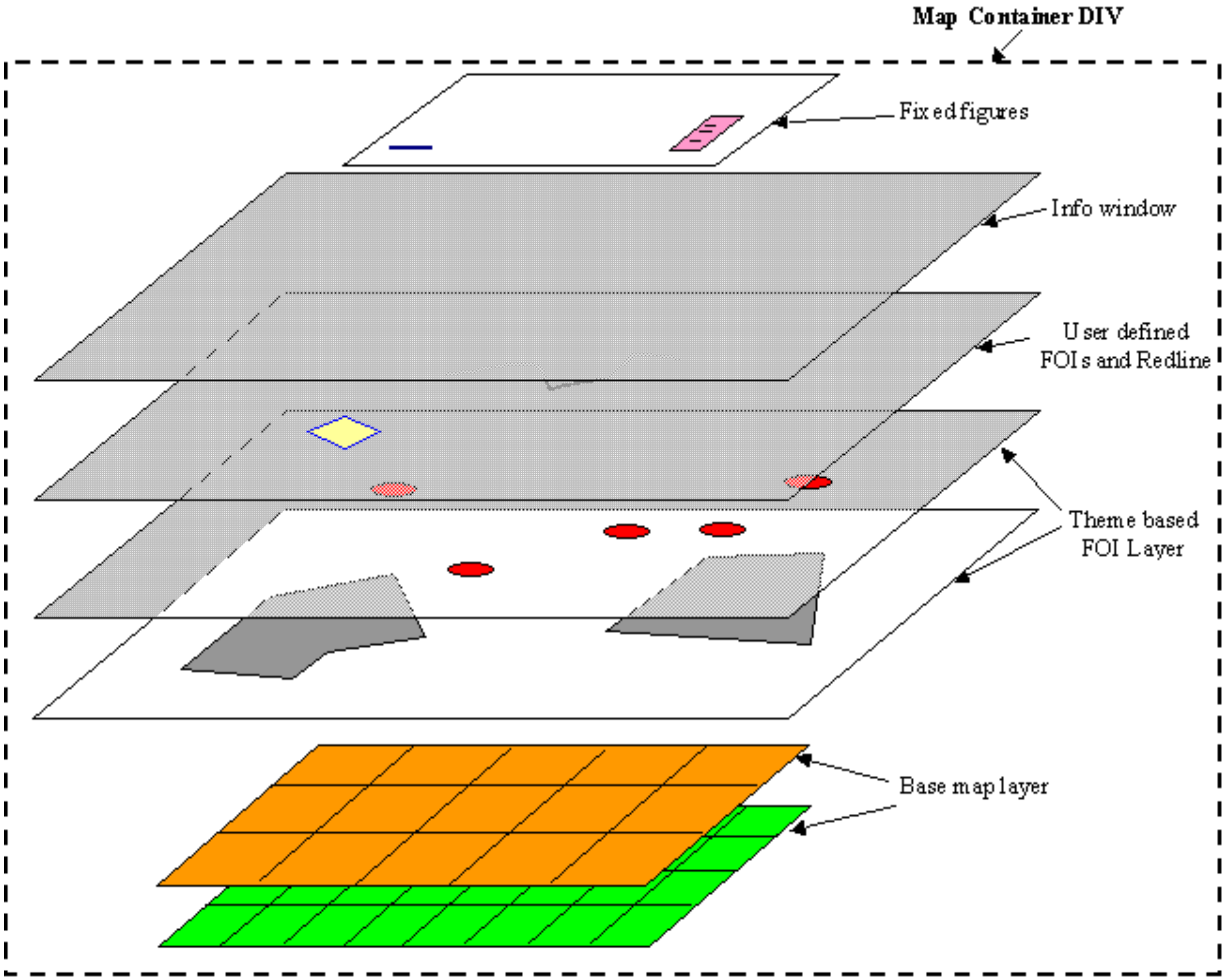
or …



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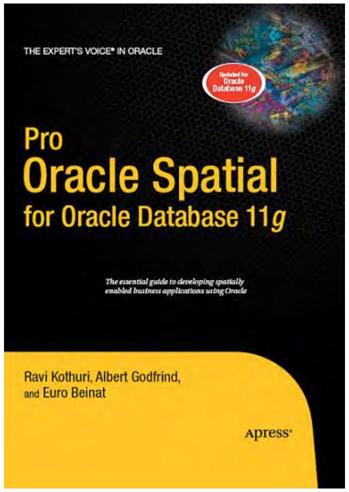
Or maybe, since he’s already written the book on this …
let’s use his workshop material instead.

And ignore minor details like the fact that the examples differ from previous screenshots ….



THE EXPERT'S VOICE® IN ORACLE

Updated for Oracle Database 11g

Pro
Oracle Spatial
for Oracle Database 11g

The essential guide to developing spatially enabled business applications using Oracle

Ravi Kothuri, Albert Godfrind,
and Euro Beinat

Apress®

Oracle Maps : architecture

Oracle Maps is composed of client and server side components.

Client side:

- Comprised of a JavaScript viewing library (called FSMC - Free Scrolling Map Client) and a public API
- Resides inside the browser
- Assembles various contents into a map displayed to the end user
- Talks to server side components through AJAX calls

Server side

- Map Cache server which manages pre-generated base map tiles
- FOI server which creates interactive FOI data for the client
- Both are relying upon the main MapViewer rendering engine

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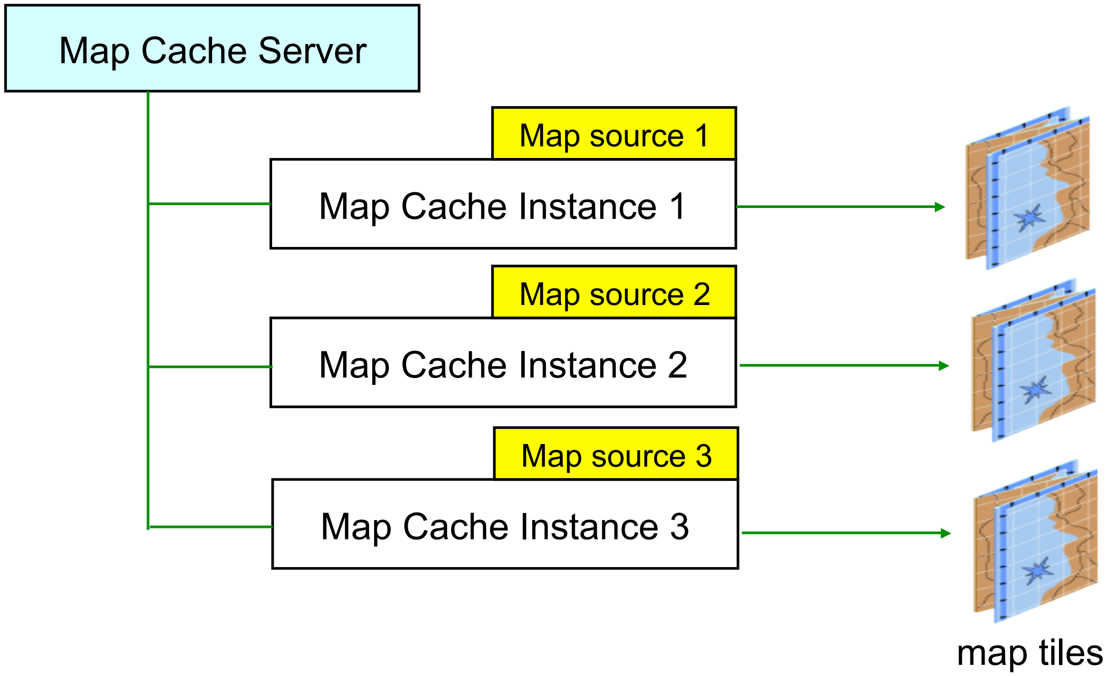
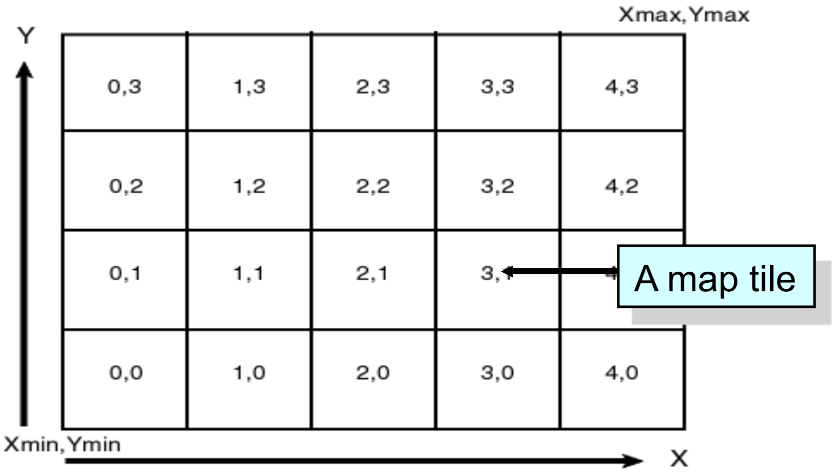
Oracle Maps : map cache server



Map cache server : tiling

- Each map tile in a map cache instance is identified by a mesh code.
- Defined as a pair of integers (Mx, My)
  - Mx specifies the X dimension index of the tile
  - My specifies the Y dimension index of the tile.
- Transparent to the application developer
  - Oracle Maps client viewing lib automatically calculates mesh codes.

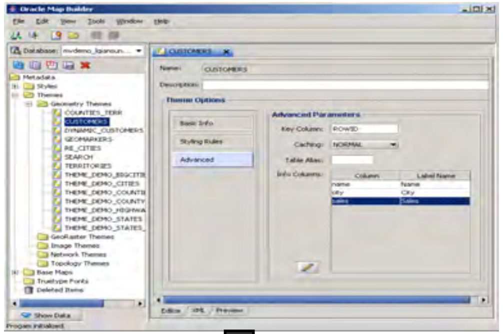
What is Tile Mesh Code?



0,3	1,3	2,3	3,3	4,3
0,2	1,2	2,2	3,2	4,2
0,1	1,1	2,1	3,1	
0,0	1,0	2,0	3,0	4,0

Oracle Maps FOI server

- Any existing geometry theme can be added to the map as a FOI layer
- The FOI server requires zero-configuration; it relies on MapViewer to process a theme, then repackages the theme data into a format that can be interpreted by the client viewing library
- When using MapBuilder to create a predefined theme, you can specify “info columns” in the theme to be displayed in its FOI info-tip windows



Name: CUSTOMERS

Description:

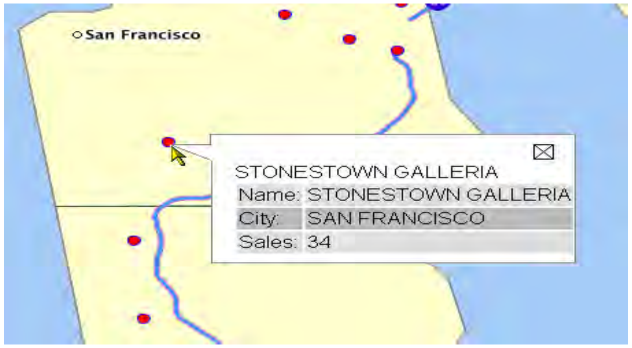
Key Column: ROWID

Caching: NORMAL

Table Alias:

Info Columns:

Column	Label Name
name	Name
city	City
sales	Sales



STONESTOWN GALLERIA

Name:	STONESTOWN GALLERIA
City:	SAN FRANCISCO
Sales:	34

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Create map metadata in Map Builder

Map metadata

- Styles: color, line, marker, area, text, advanced
- Themes: associating styles with base tables
- Base map: a set of themes grouped together
- Tile layer: tiled maps

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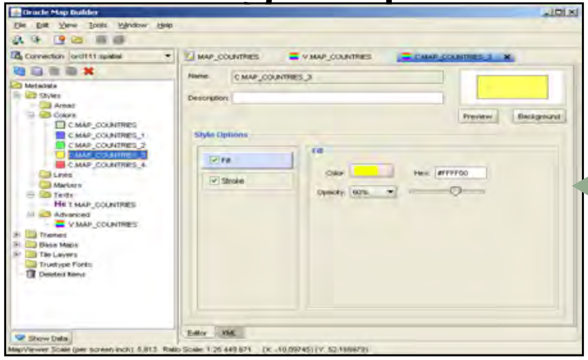
Updating Map Definitions

- Definitions are stored in the database
  - USER_SDO_STYLES
  - USER_SDO_THEMES
  - USER_SDO_MAPS
  - USER_SDO_CACHED_MAPS
- Updated using MapBuilder



Connection: orcl111 spatial

Name: C.MAP_COUNTRIES_3

Description:

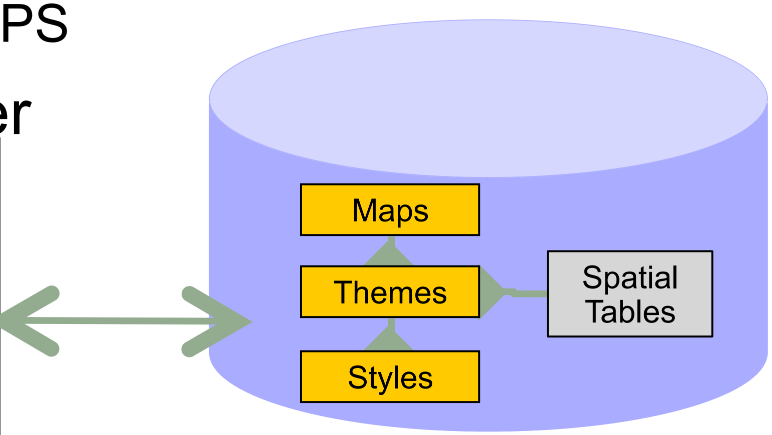
☑ Fill

☑ Stroke

Color: Hex: #FFFF00

Opacity: 60%

MapViewer Scale (per screen inch): 5,813 Ratio Scale: 1:25 449 871 (X: -10.59745) (Y: 52.168979)



Steps for Defining Maps

- First, define the styles you will need
  - Use meaningful names: “C.MAP_COUNTRIES” for the color of countries
- Then define the themes using the styles you defined
- Finally, define the map from the themes
- Can modify styles, themes and maps at any time

USER_SDO_STYLES

- Style information stored in the database
  - Text, colors, line styles, area and fill information, markers
  - Advanced styles for thematic mapping based on a column value
- Includes XML definition of each style
- Can add styles easily using Mapbuilder

```
SQL> describe user_sdo_styles
Name                    Type
----------------------  ------------------
NAME                    VARCHAR2(32)
TYPE                    VARCHAR2(32)
DESCRIPTION             VARCHAR2(4000)
DEFINITION              CLOB
IMAGE                   BLOB
GEOMETRY                MDSYS.SDO_GEOMETRY
```

Pre-defined styles

- Set of styles provided with Mapviewer
- Load sample styles:
  - Script “**defaultstyles.sql**” provided in **$MAPVIEWER_HOME/WEB-INF/admin**
  - Run as your application user
  - Will populate USER_SDO_STYLES

```
SQL> connect scott/*******
SQL> @defaultstyles.sql
```

USER_SDO_THEMES

- Stores user-defined themes
- User specifies:
  - Theme name and description
  - Table name
  - Geometry column name
  - Styling rules in XML based on values in USER_SDO_STYLES

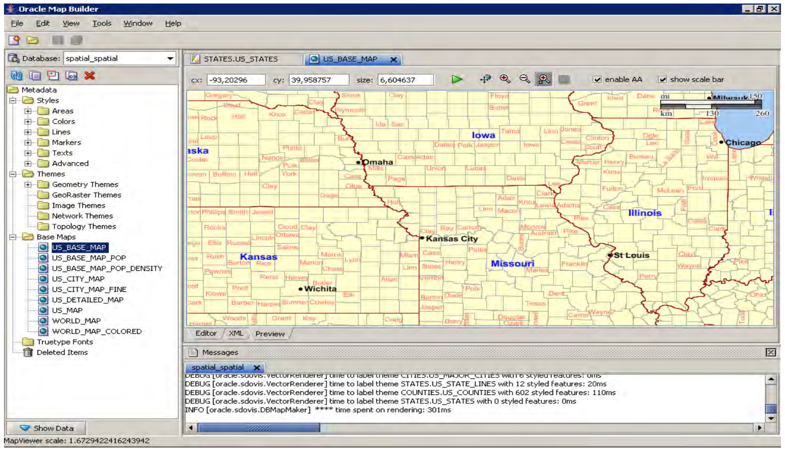
```
SQL> describe user_sdo_themes
 Name                  Type
 ------------------ ---------------
 NAME                  VARCHAR2(32)
 DESCRIPTION           VARCHAR2(4000)
 BASE_TABLE            VARCHAR2(32)
 GEOMETRY_COLUMN       VARCHAR2(2048)
 STYLING_RULES         CLOB
```

USER_SDO_MAPS

- A map is a collection of themes
- User specifies a map name and (optionally) a description
- User specifies an XML definition:
  - Theme names to display
  - Zoom scale information to specify when themes display

```
SQL> describe user_sdo_maps
 Name                    Type
 ------------------- -------------------
 NAME                    VARCHAR2(32)
 DESCRIPTION             VARCHAR2(4000)
 DEFINITION              CLOB
```

Using MapBuilder



Database: spatial_spatial

cx: -93,20296 cy: 39,958757 size: 6,604637 ☑ enable AA ☑ show scale bar

```
DEBUG [oracle.sdovis.VectorRenderer] time to label theme CITIES.US_MAJOR_CITIES with 6 styled features: 0ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATE_LINES with 12 styled features: 20ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme COUNTIES.US_COUNTIES with 602 styled features: 110ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATES with 0 styled features: 0ms
INFO [oracle.sdovis.DBMapMaker]  **** time spent on rendering: 301ms
```

MapViewer scale: 1.6729422416243942

- Stand-alone java tool
- Provided with MapViewer
- Completely autonomous
  - No need to specify any CLASSPATH
- Single self-contained jar file
  - mapbuilder.jar
- Needs a JRE 1.5 or later
- Used to design maps (colors, scales, etc)
- Also used to view data

Start and Connect

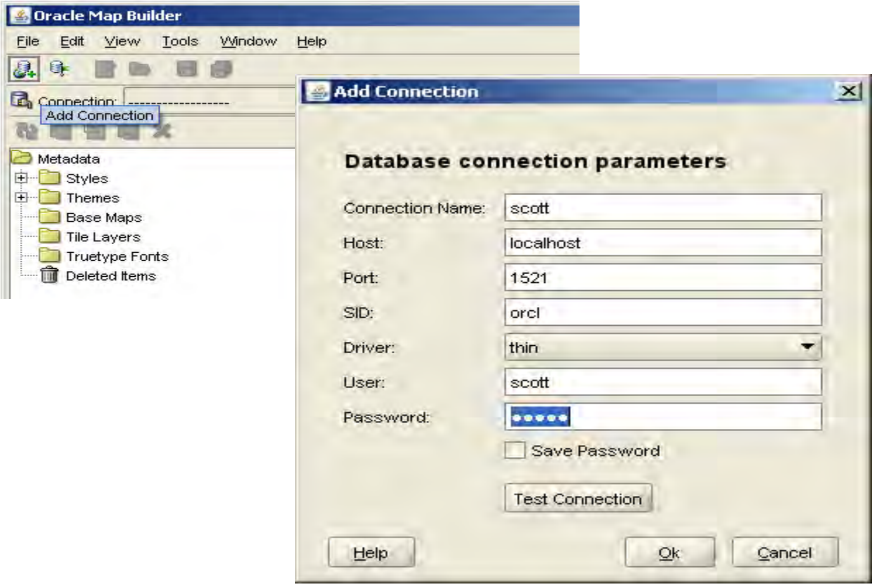
Start MapBuilder

- Run mapbuilder.jar

```
java -jar mapbuilder.jar
```

- On Windows, double-click “mapbuilder.jar” (if your java environment is set up to allow this)

Setup a database connection



Database connection parameters

Connection Name: scott
Host: localhost
Port: 1521
SID: orcl
Driver: thin
User: scott
Password: •••••
□ Save Password

Startup Parameters

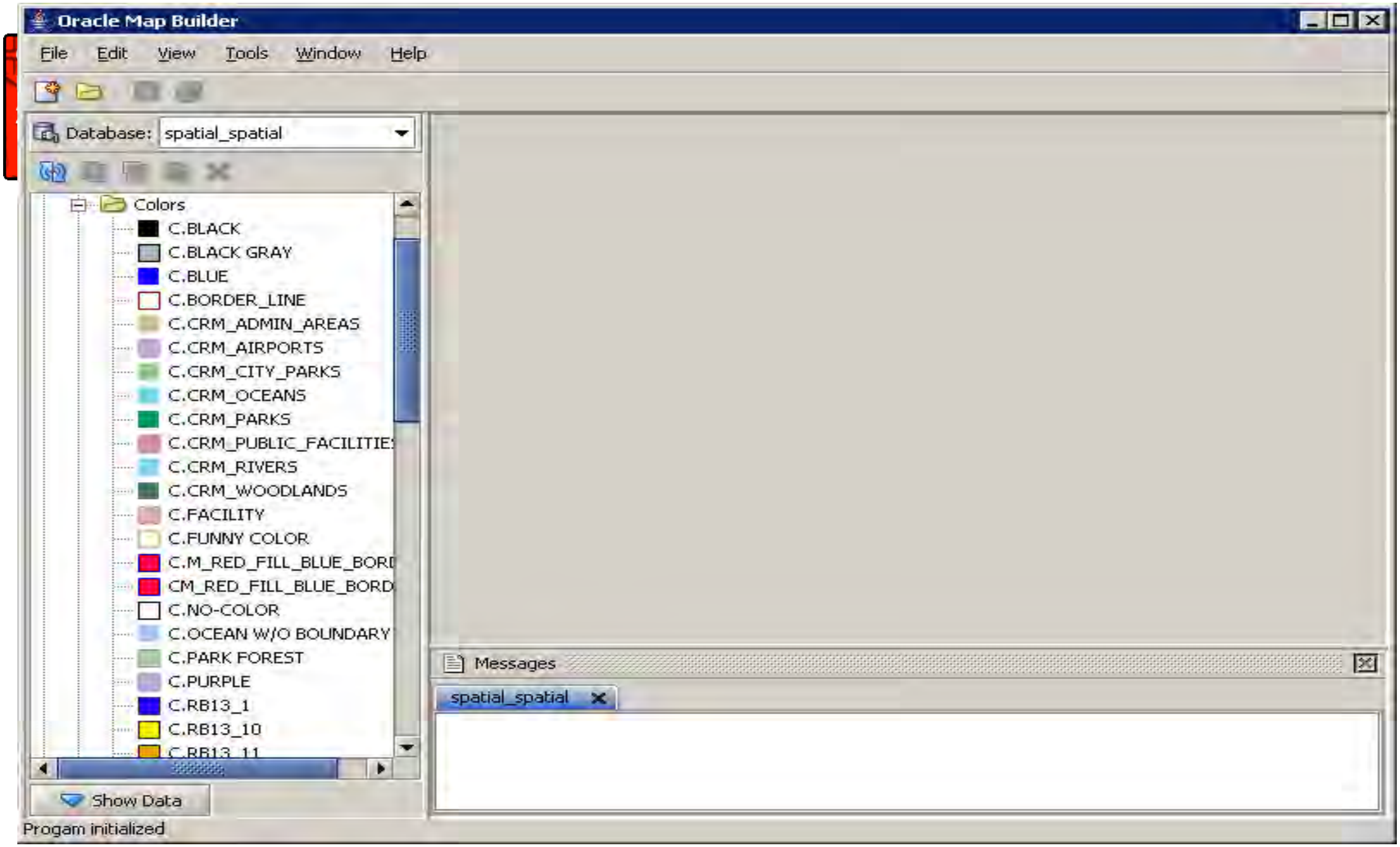
- Specify on the command line

```
java -Xms128m -Xmx256m \
   -Duser.language=EN -Duser.region=US  \
   -Dcom.sun.media.jai.disableMediaLib=true \
   -jar mapbuilder.jar
```

- Some useful parameters
  - **-Xms128m** and **-Xmx256m** to set initial and maximal heap space.
  - **-Dcom.sun.media.jai.disableMediaLib=true**. Use it to get rid of the following error messages

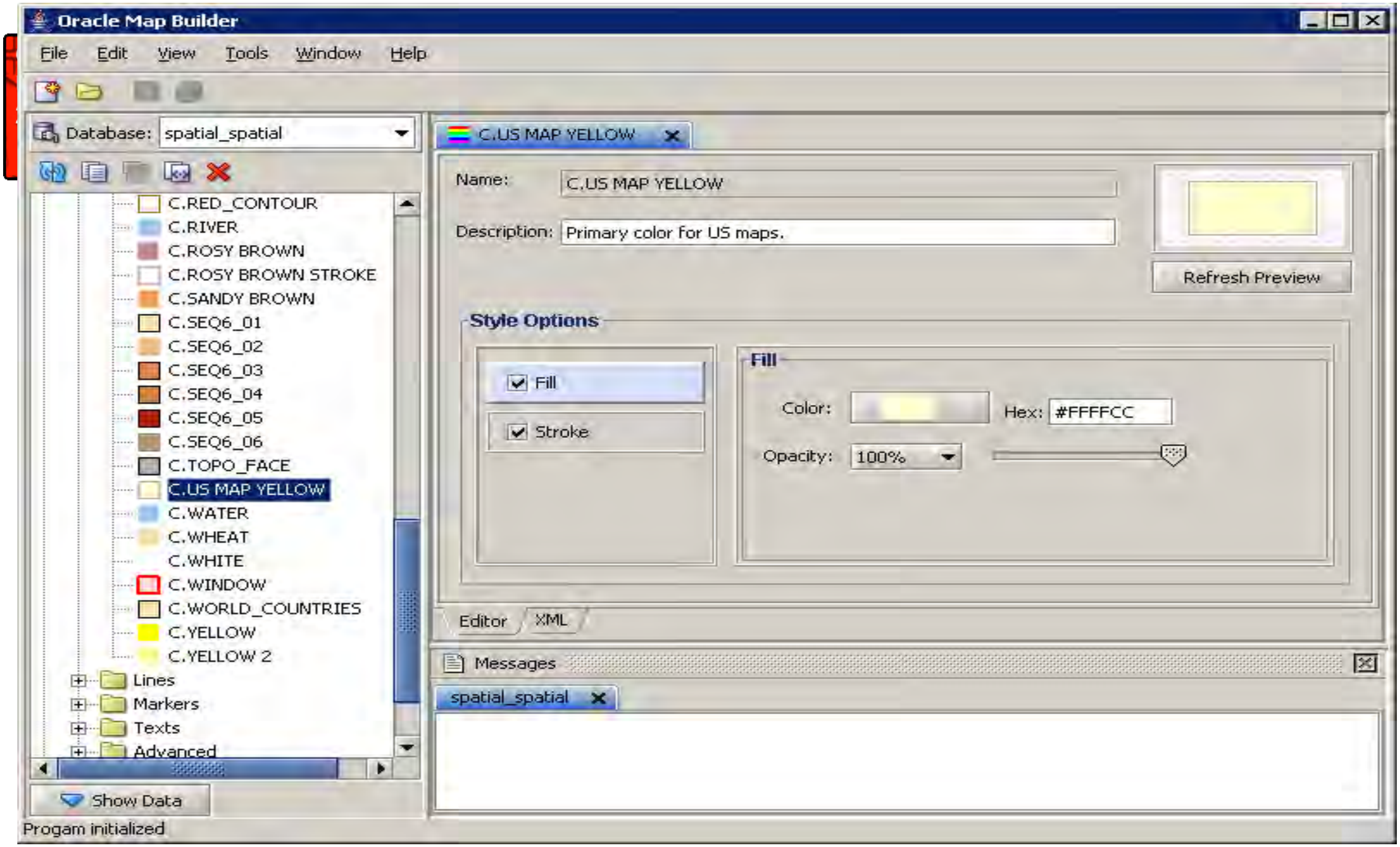
```
Error: Could not find mediaLib accelerator wrapper classes. Continuing in pure Java mode.
Occurs in: com.sun.media.jai.mlib.MediaLibAccessor
java.lang.NoClassDefFoundError: com/sun/medialib/mlib/Image
        at com.sun.media.jai.mlib.MediaLibAccessor$1.run(MediaLibAccessor.java:248)
```

Styles



Database: spatial_spatial

Progam initialized



Database: spatial_spatial

Name: C.US MAP YELLOW

Description: Primary color for US maps.

☑ Fill

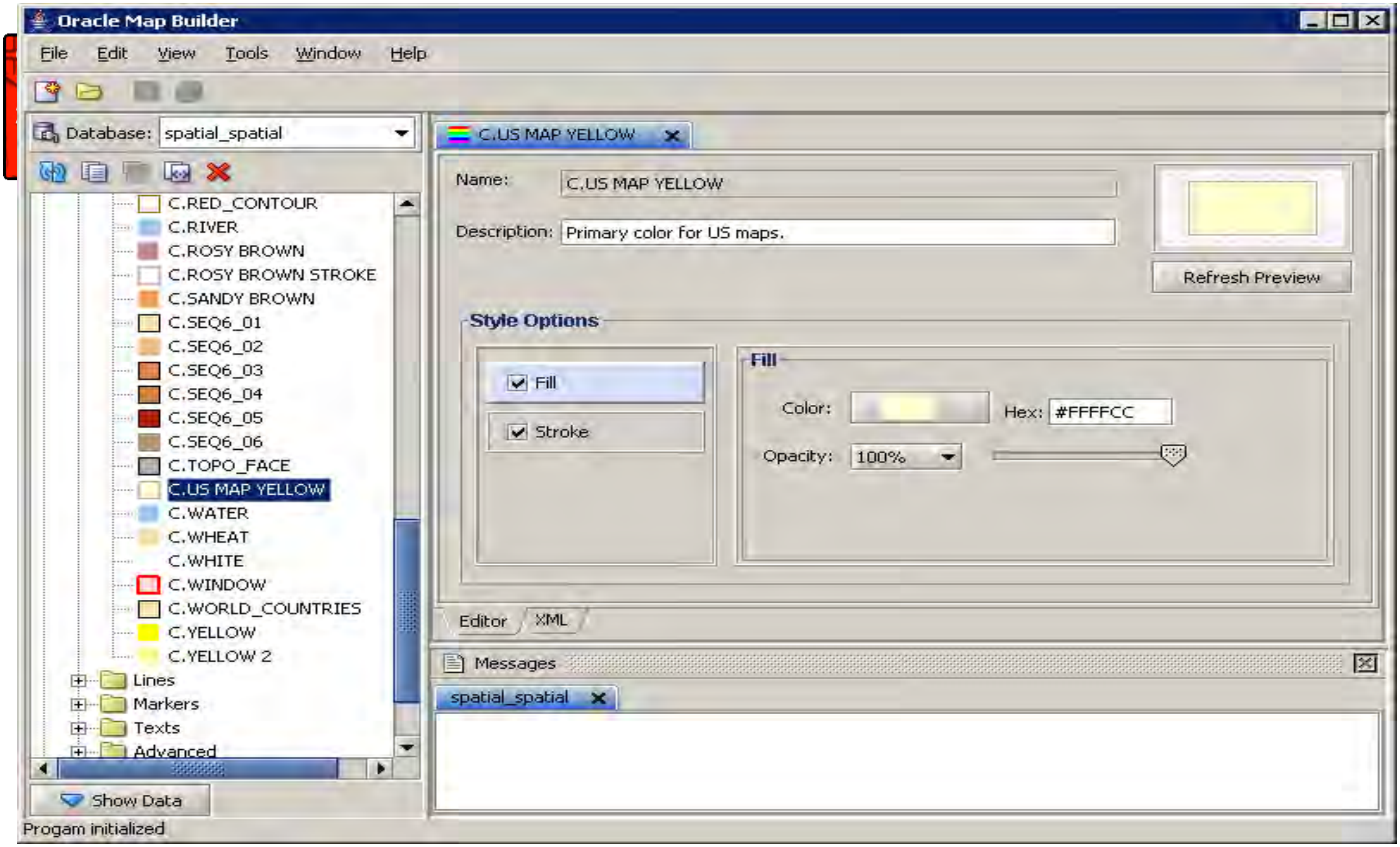
☑ Stroke

Color:

Hex: #FFFFCC

Opacity: 100%

Progam initialized



Database: spatial_spatial

Name: C.US MAP YELLOW

Description: Primary color for US maps.

☑ Fill

☑ Stroke

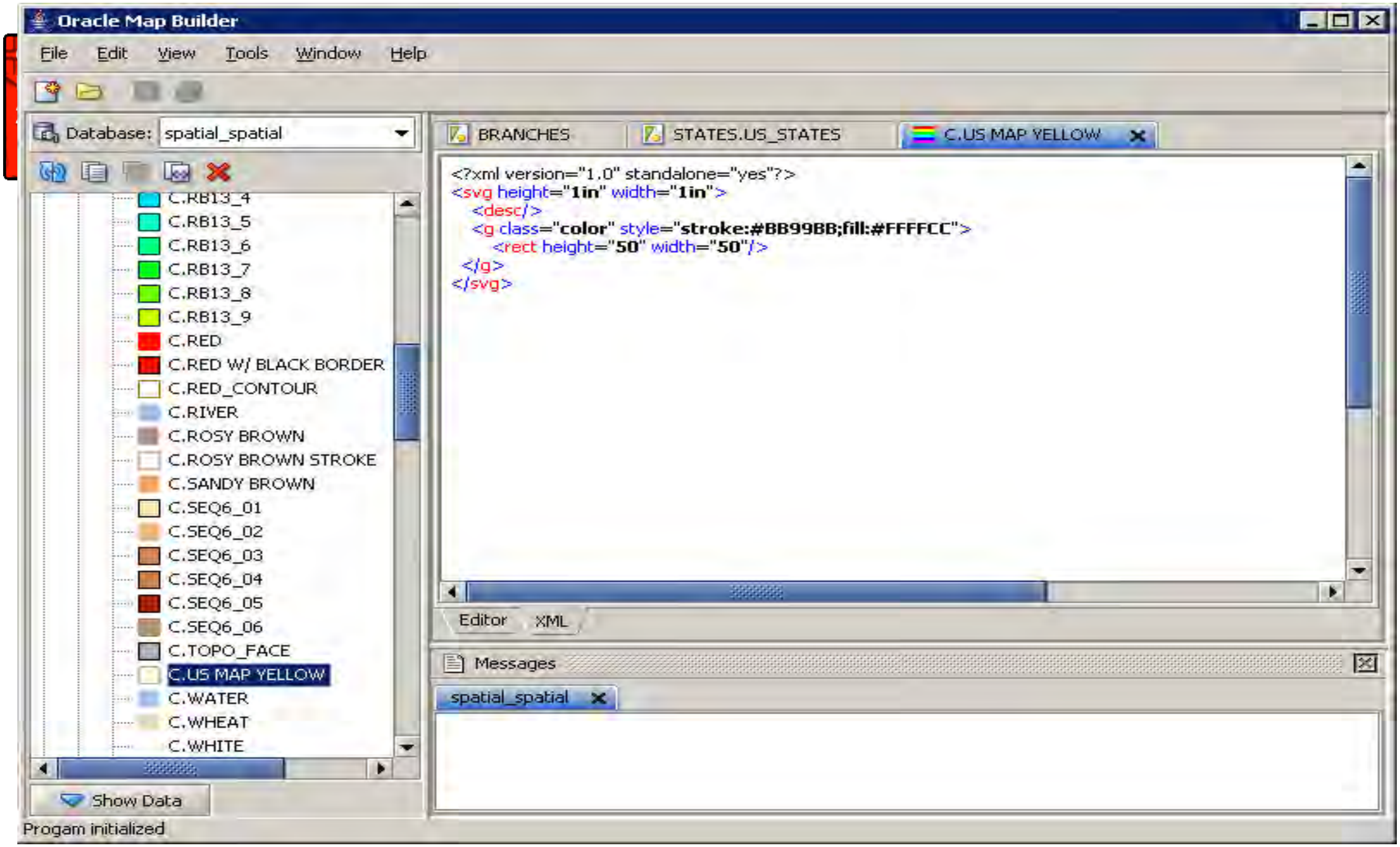
Fill

Color:

Hex: #FFFFCC

Opacity: 100%

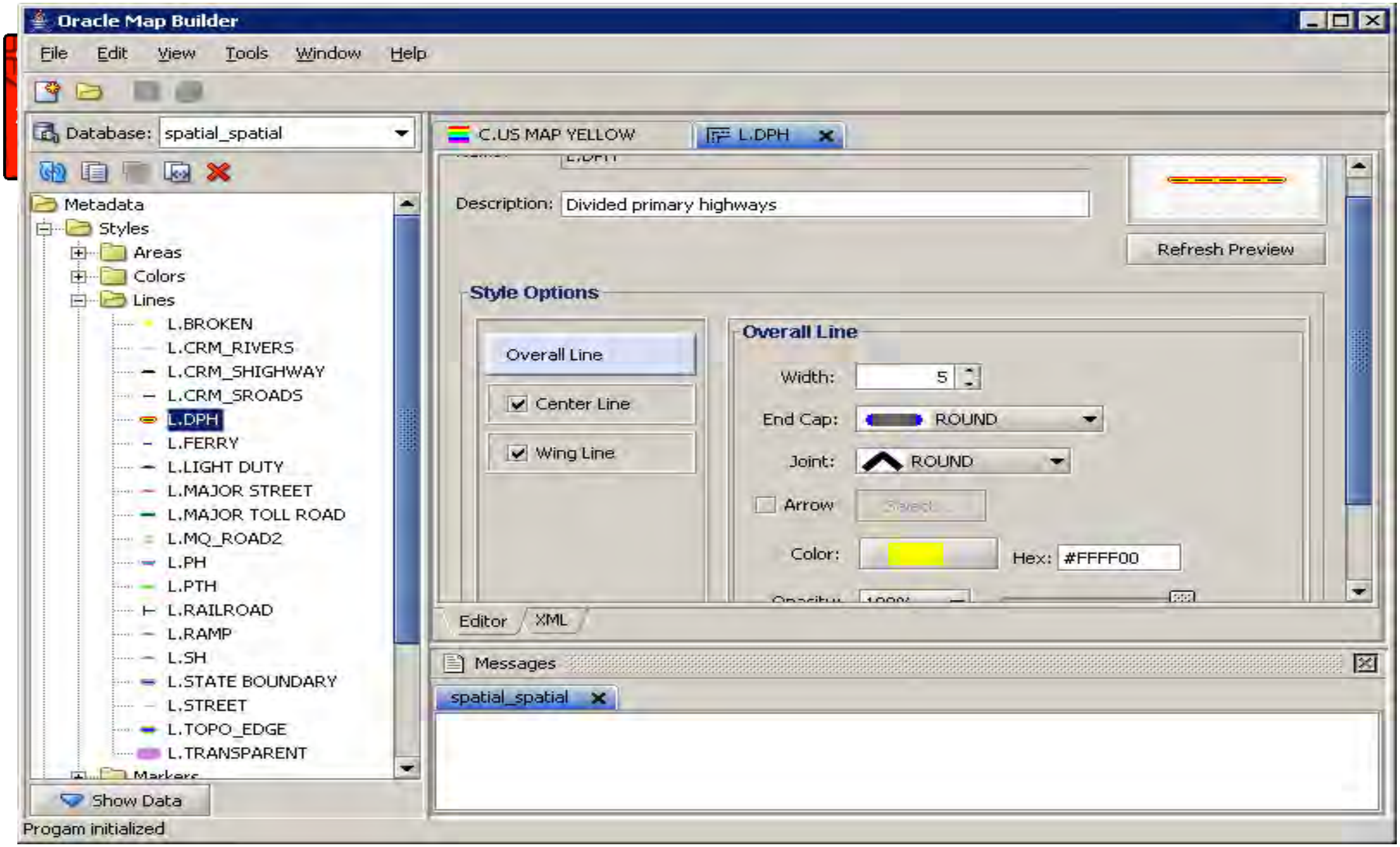
Progam initialized



Database: spatial_spatial

```
<?xml version="1.0" standalone="yes"?>
<svg height="1in" width="1in">
  <desc/>
  <g class="color" style="stroke:#BB99BB;fill:#FFFFCC">
    <rect height="50" width="50"/>
  </g>
</svg>
```

Progam initialized



Database: spatial_spatial

Description: Divided primary highways

Overall Line

☑ Center Line

☑ Wing Line

Width: 5

End Cap: ROUND

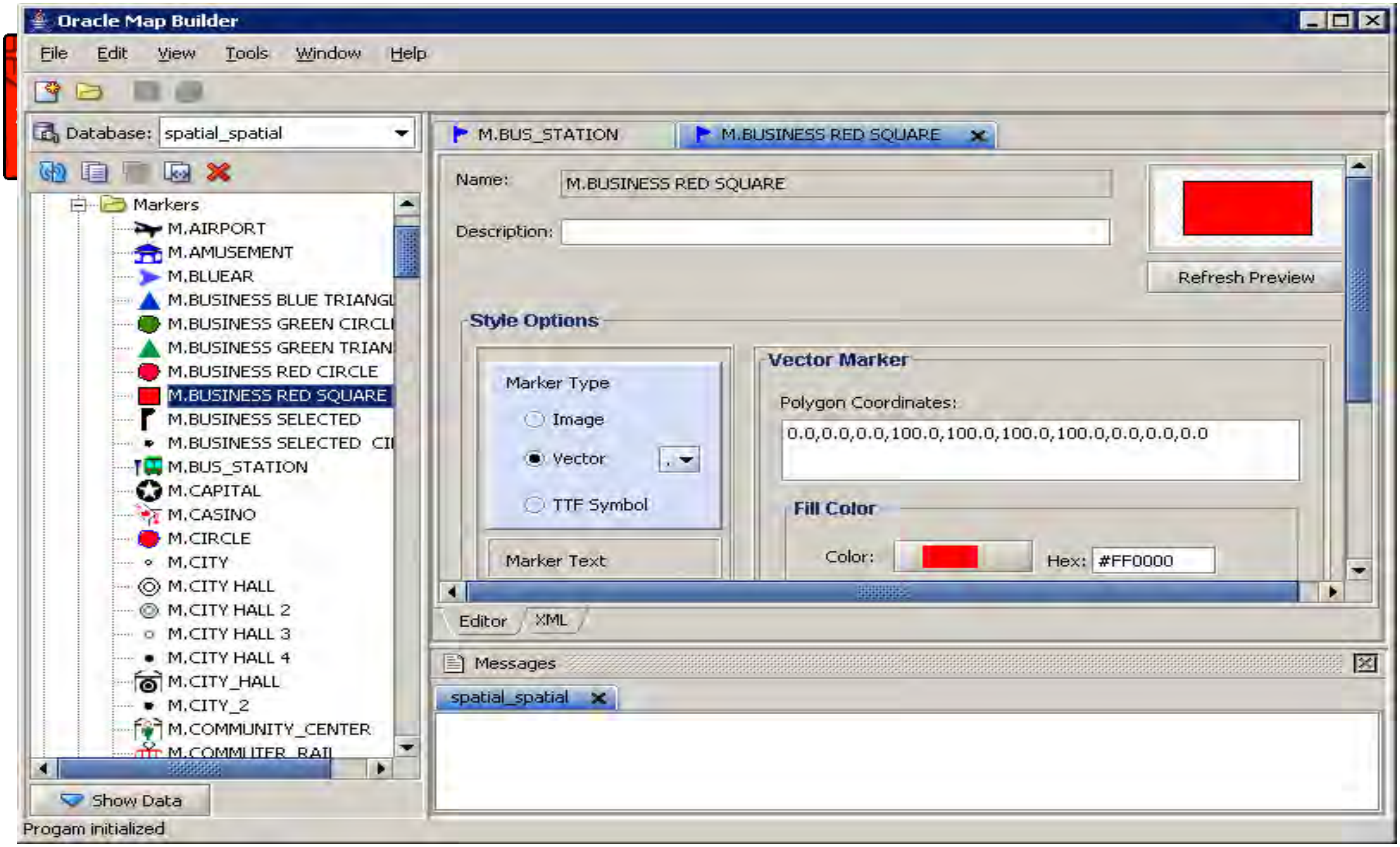
Joint: ROUND

☐ Arrow

Color:

Hex: #FFFF00

Progam initialized



Database: spatial_spatial

Markers
- M.AIRPORT
- M.AMUSEMENT
- M.BLUEAR
- M.BUSINESS BLUE TRIANGL
- M.BUSINESS GREEN CIRCLI
- M.BUSINESS GREEN TRIAN
- M.BUSINESS RED CIRCLE
- M.BUSINESS RED SQUARE
- M.BUSINESS SELECTED
- M.BUSINESS SELECTED CII
- M.BUS_STATION
- M.CAPITAL
- M.CASINO
- M.CIRCLE
- M.CITY
- M.CITY HALL
- M.CITY HALL 2
- M.CITY HALL 3
- M.CITY HALL 4
- M.CITY_HALL
- M.CITY_2
- M.COMMUNITY_CENTER
- M.COMMUTER_RAIL

Name: M.BUSINESS RED SQUARE

Description:

Marker Type

○ Image

● Vector

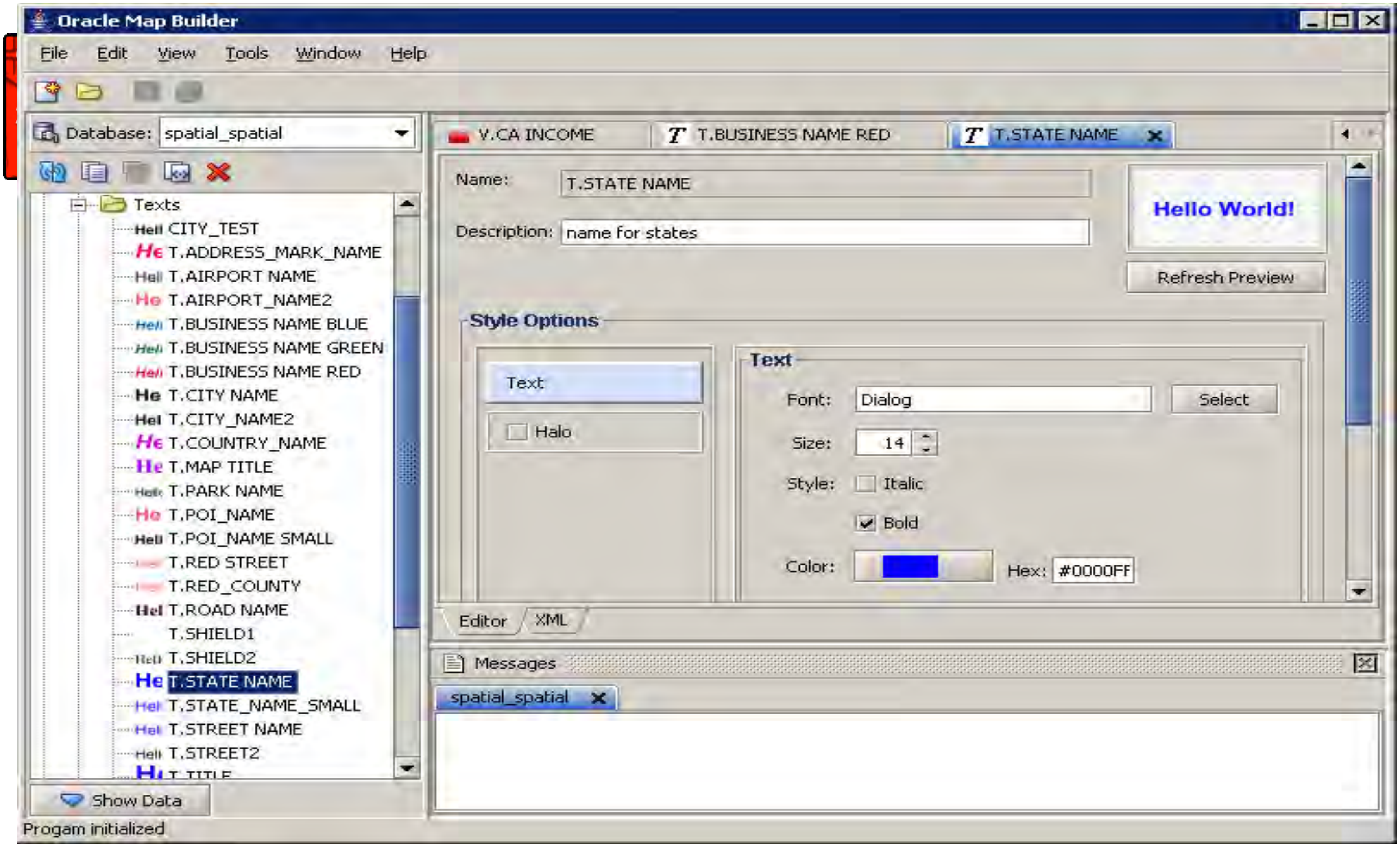
○ TTF Symbol

Polygon Coordinates:

0.0,0.0,0.0,100.0,100.0,100.0,100.0,0.0,0.0,0.0

Color: 🟥 Hex: #FF0000

Progam initialized



Database: spatial_spatial

Name: T.STATE NAME

Description: name for states

Font: Dialog

Size: 14

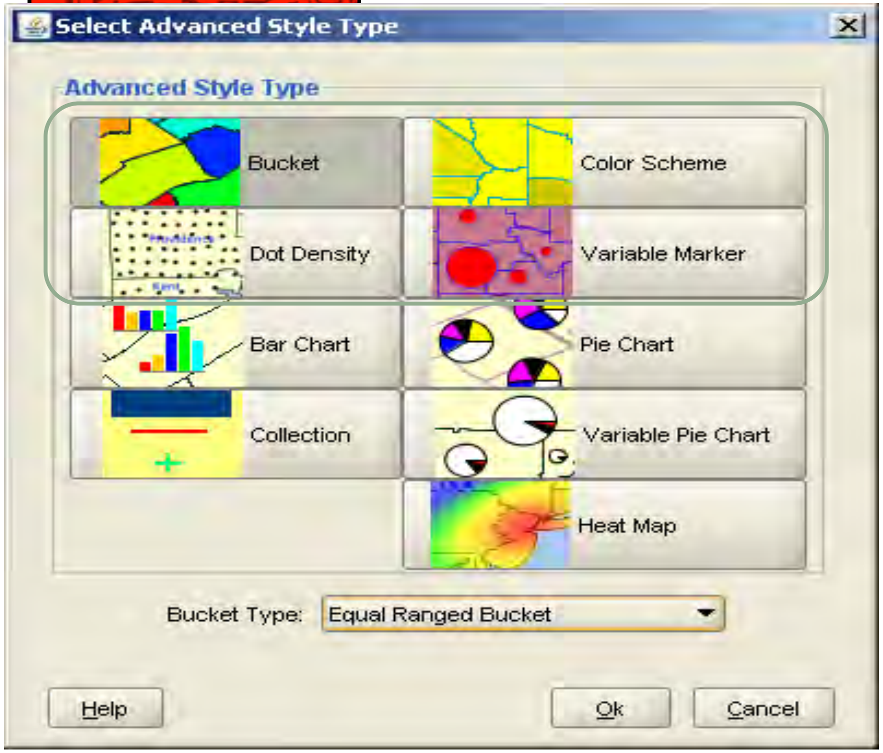
Style: ☐ Italic

☑ Bold

Color: 🟦 Hex: #0000FF

Progam initialized

Thematics: Advanced Styles



Bucket Type: Equal Ranged Bucket

- Bucket
  - Specify variable or fixed (equal-range) buckets
  - Separate color for each bucket
- Color Scheme
  - Variable or fixed buckets
  - Buckets assigned gradually darker colors from a base color
- Dot Density
  - Area filled with dots proportionally to the value of the variable
- Variable Marker
  - Size of chosen symbol increases proportionaly to the value of the variable

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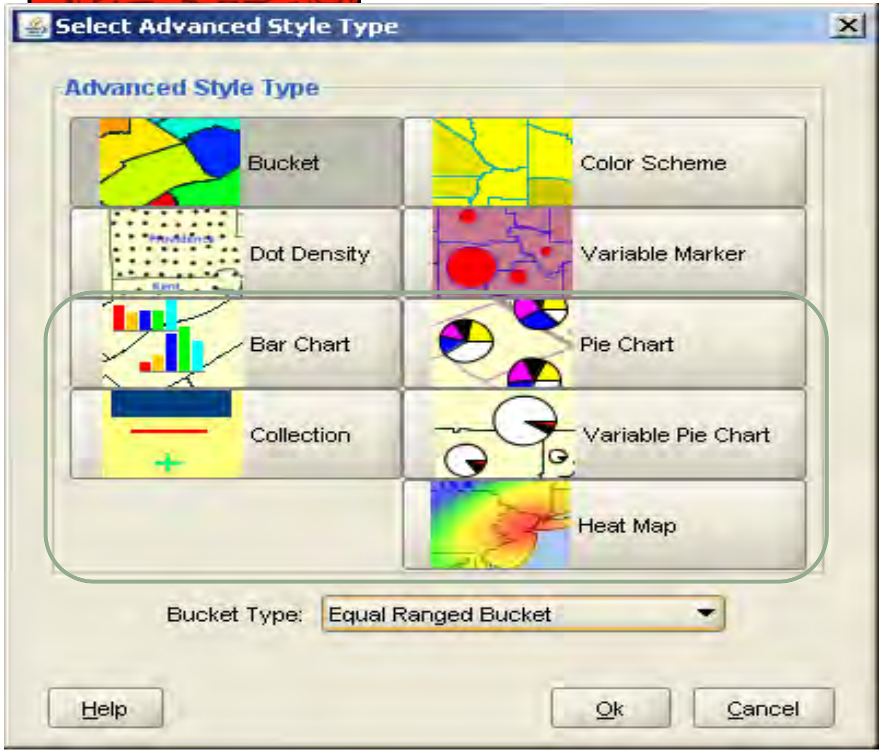
Thematics: Advanced Styles


Select Advanced Style Type

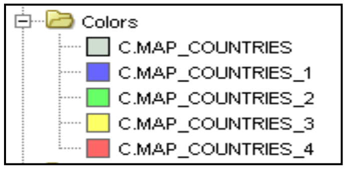
Advanced Style Type

Bucket Type: Equal Ranged Bucket

- Bar Chart
  - Combines multiple variables
- Pie Chart
  - Same
- Variable Pie Chart
  - Same, but size of pie chart increases proportionally to the sum of the variables
- Heat Map
  - Color ranges from “cool’ (blue) to “hot” (red) according to density of geometries

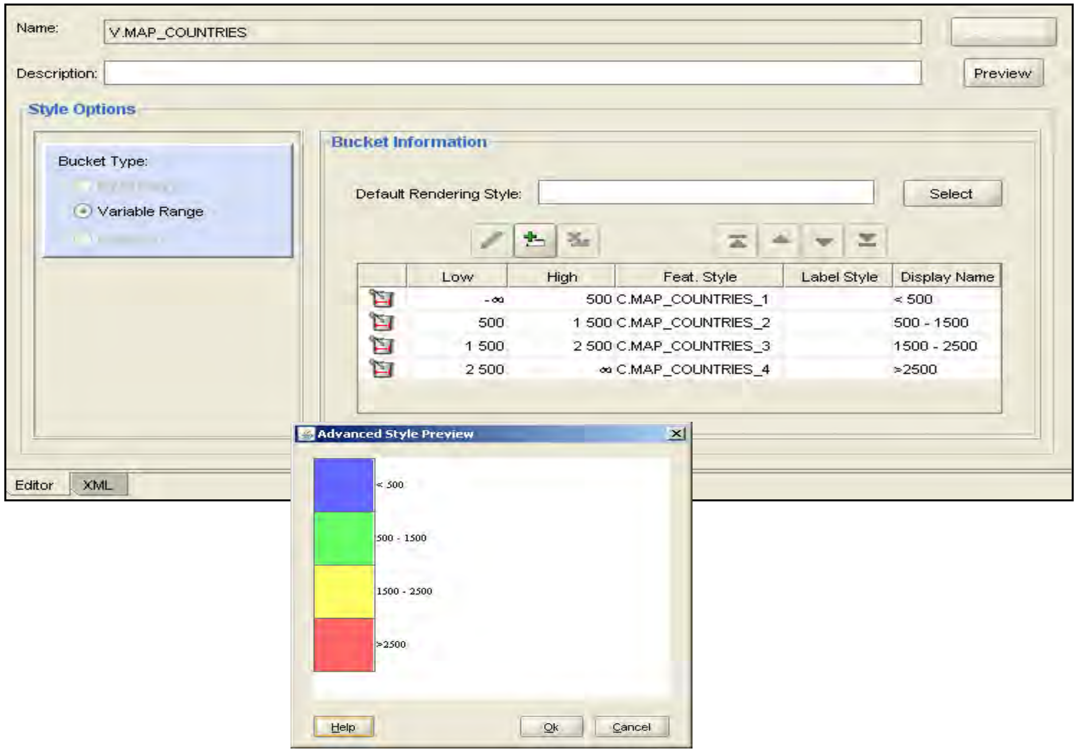
Define a Variable Bucket style

- First define the base colors to use



- Colors
  - ⬜ C.MAP_COUNTRIES
  - 🟦 C.MAP_COUNTRIES_1
  - 🟩 C.MAP_COUNTRIES_2
  - 🟨 C.MAP_COUNTRIES_3
  - 🟥 C.MAP_COUNTRIES_4

- Then define the Advanced style
  - Fill the table of min and max values for each bucket
  - Choose the base color for each bucket
  - Add a descriptive text (used in the legend)



Name: V.MAP_COUNTRIES

Description:

Style Options

Bucket Type:

● Variable Range

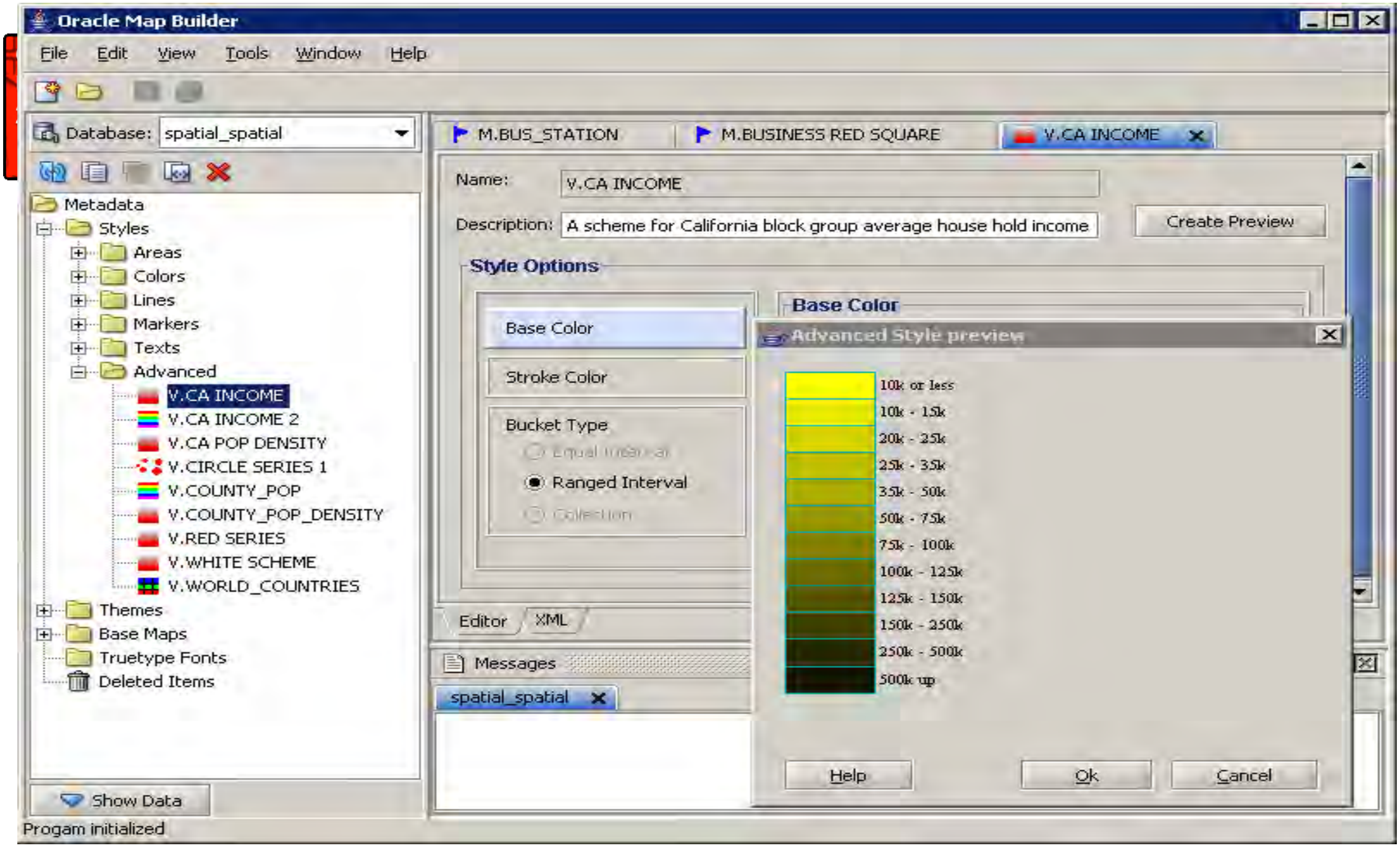
Bucket Information

Default Rendering Style:

Low	High	Feat. Style	Label Style	Display Name
-∞	500	C.MAP_COUNTRIES_1		< 500
500	1 500	C.MAP_COUNTRIES_2		500 - 1500
1 500	2 500	C.MAP_COUNTRIES_3		1500 - 2500
2 500	∞	C.MAP_COUNTRIES_4		>2500

Advanced Style Preview

🟦	< 500
🟩	500 - 1500
🟨	1500 - 2500
🟥	>2500



Database: spatial_spatial

Name: V.CA INCOME

Description: A scheme for California block group average house hold income

Bucket Type

○ Equal Interval

● Ranged Interval

○ Collection

Advanced Style preview

🟨	10k or less
🟨	10k - 15k
🟨	20k - 25k
🟨	25k - 35k
🟨	35k - 50k
🟨	50k - 75k
🟫	75k - 100k
🟫	100k - 125k
🟫	125k - 150k
⬛	150k - 250k
⬛	250k - 500k
⬛	500k up

Progam initialized

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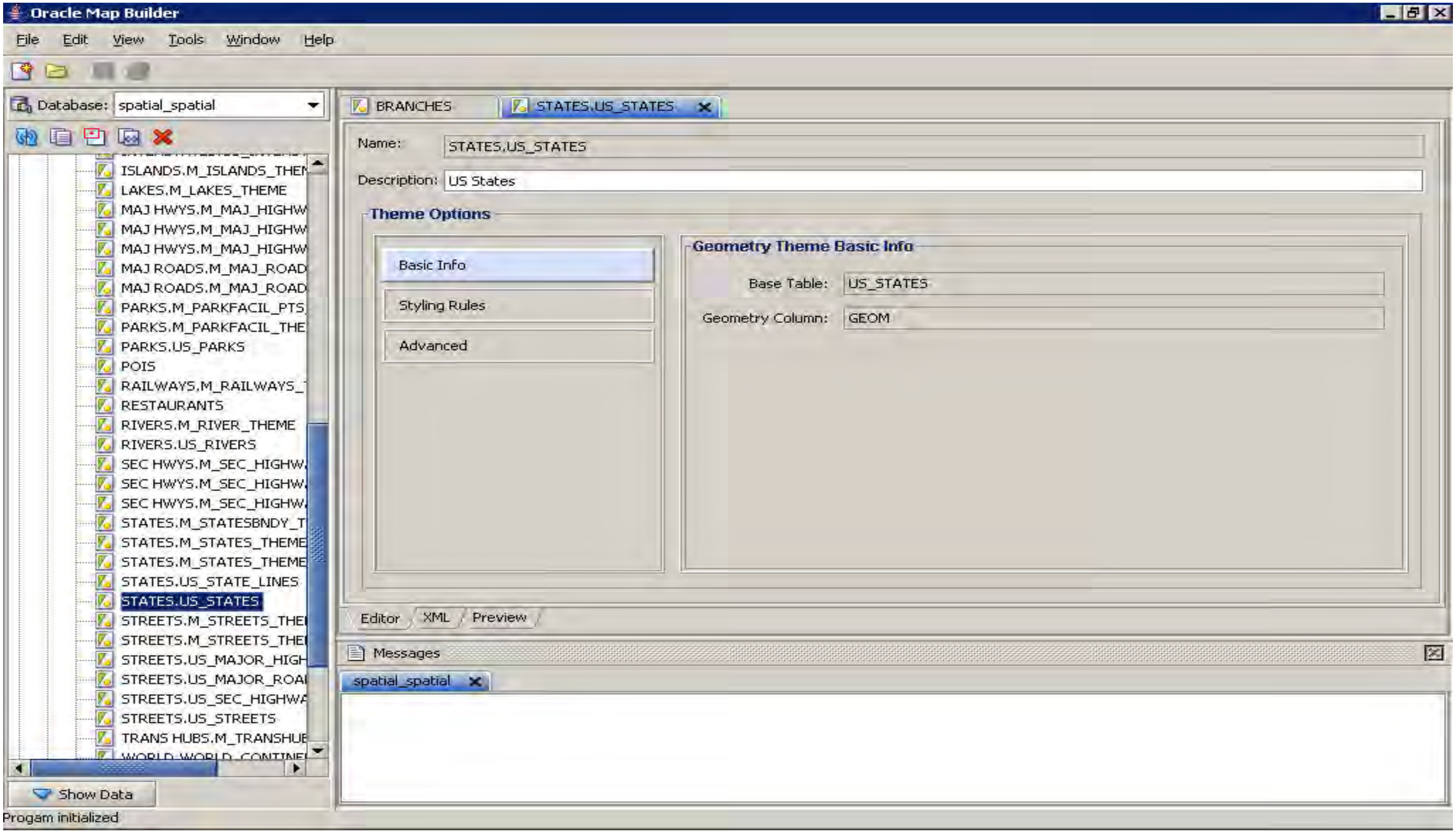
Themes

What Are Themes?

- A theme applies one or more styles to a geometry column
  - Feature drawing information (color, fill, marker, and so on)
  - Text and label font, color, size
- Thematic mapping is supported by associating an advanced style to a theme.
- Themes can be based on any kind of spatial data:
  - Vector (SDO_GEOMETRY)
  - Raster (SDO_GEORASTER)
  - Network, topology ,…
  - WMS or WFS servers



Database: spatial_spatial

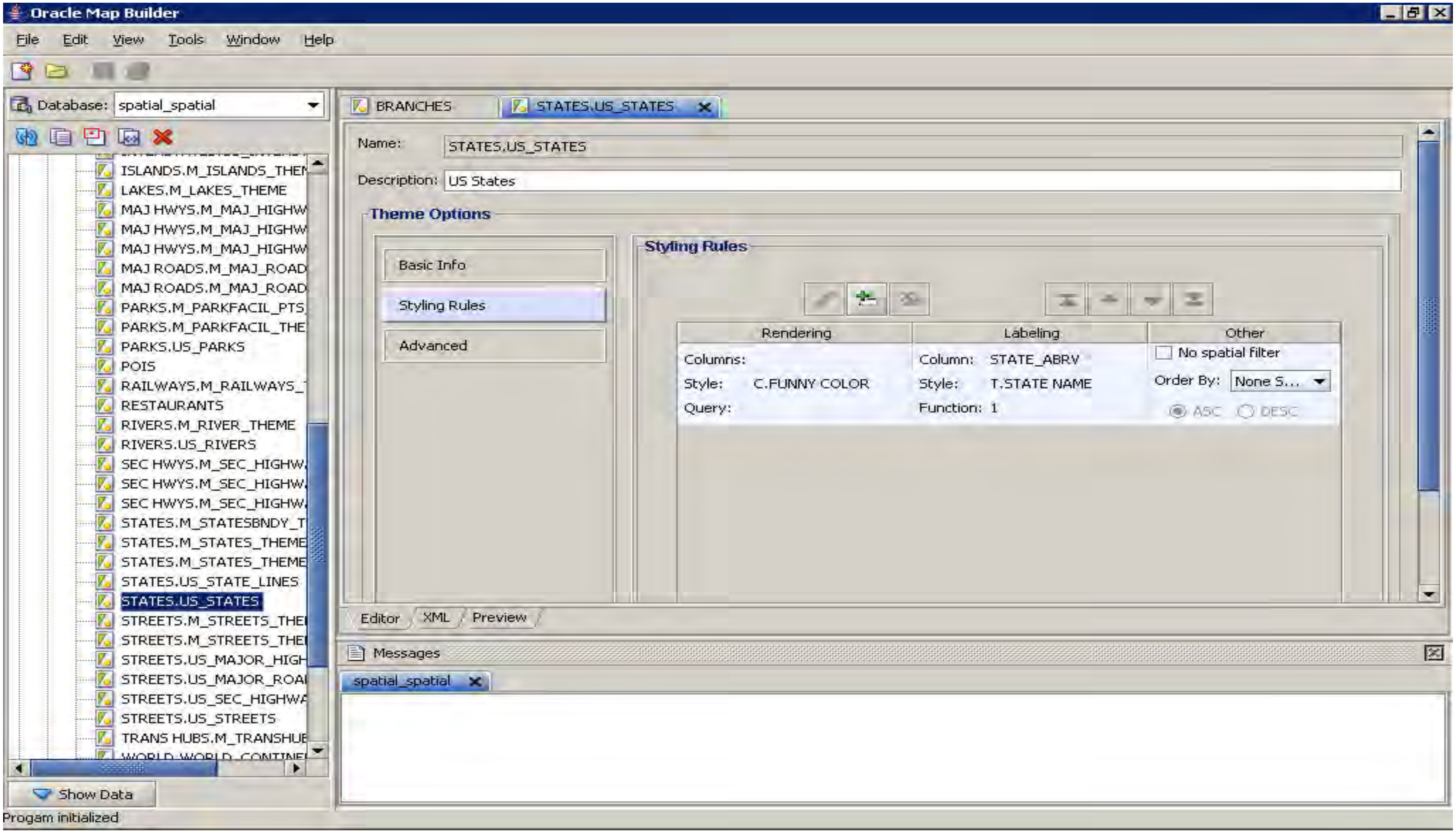
Name: STATES.US_STATES

Description: US States

Base Table: US_STATES

Geometry Column: GEOM

Progam initialized



Database: spatial_spatial

ISLANDS.M_ISLANDS_THEM
LAKES.M_LAKES_THEME
MAJ HWYS.M_MAJ_HIGHW
MAJ HWYS.M_MAJ_HIGHW
MAJ HWYS.M_MAJ_HIGHW
MAJ ROADS.M_MAJ_ROAD
MAJ ROADS.M_MAJ_ROAD
PARKS.M_PARKFACIL_PTS
PARKS.M_PARKFACIL_THE
PARKS.US_PARKS
POIS
RAILWAYS.M_RAILWAYS_
RESTAURANTS
RIVERS.M_RIVER_THEME
RIVERS.US_RIVERS
SEC HWYS.M_SEC_HIGHW
SEC HWYS.M_SEC_HIGHW
SEC HWYS.M_SEC_HIGHW
STATES.M_STATESBNDY_T
STATES.M_STATES_THEME
STATES.M_STATES_THEME
STATES.US_STATE_LINES
STATES.US_STATES
STREETS.M_STREETS_THE
STREETS.M_STREETS_THE
STREETS.US_MAJOR_HIGH
STREETS.US_MAJOR_ROAI
STREETS.US_SEC_HIGHWA
STREETS.US_STREETS
TRANS HUBS.M_TRANSHUE

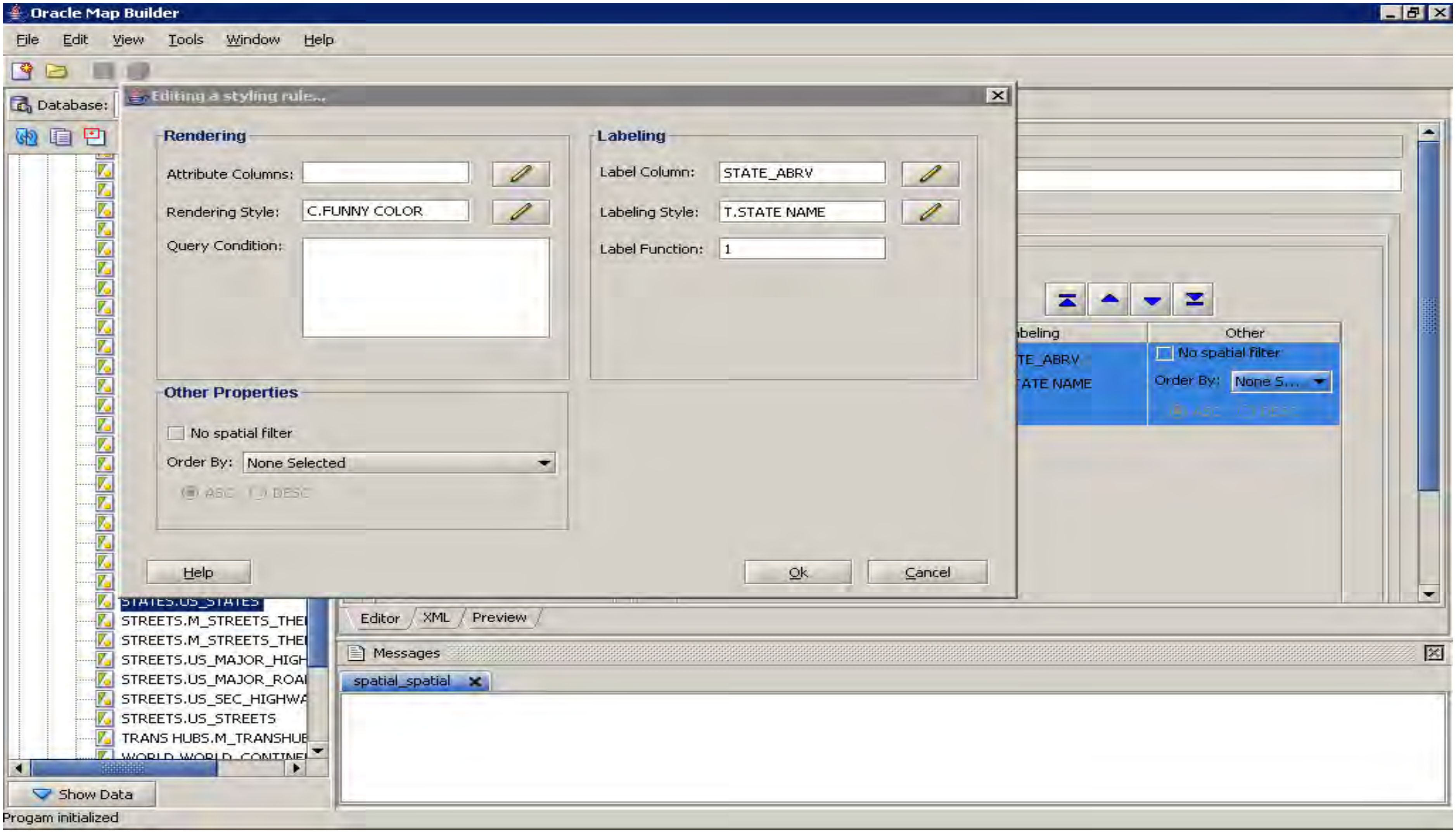
Name: STATES.US_STATES

Description: US States

Styling Rules

Rendering	Labeling	Other
Columns:	Column: STATE_ABRV	□ No spatial filter
Style: C.FUNNY COLOR	Style: T.STATE NAME	Order By: None S...
Query:	Function: 1	● ASC ○ DESC

Progam initialized



Editing a styling rule...

Rendering

Attribute Columns:

Rendering Style: C.FUNNY COLOR

Query Condition:

Labeling

Label Column: STATE_ABRV

Labeling Style: T.STATE NAME

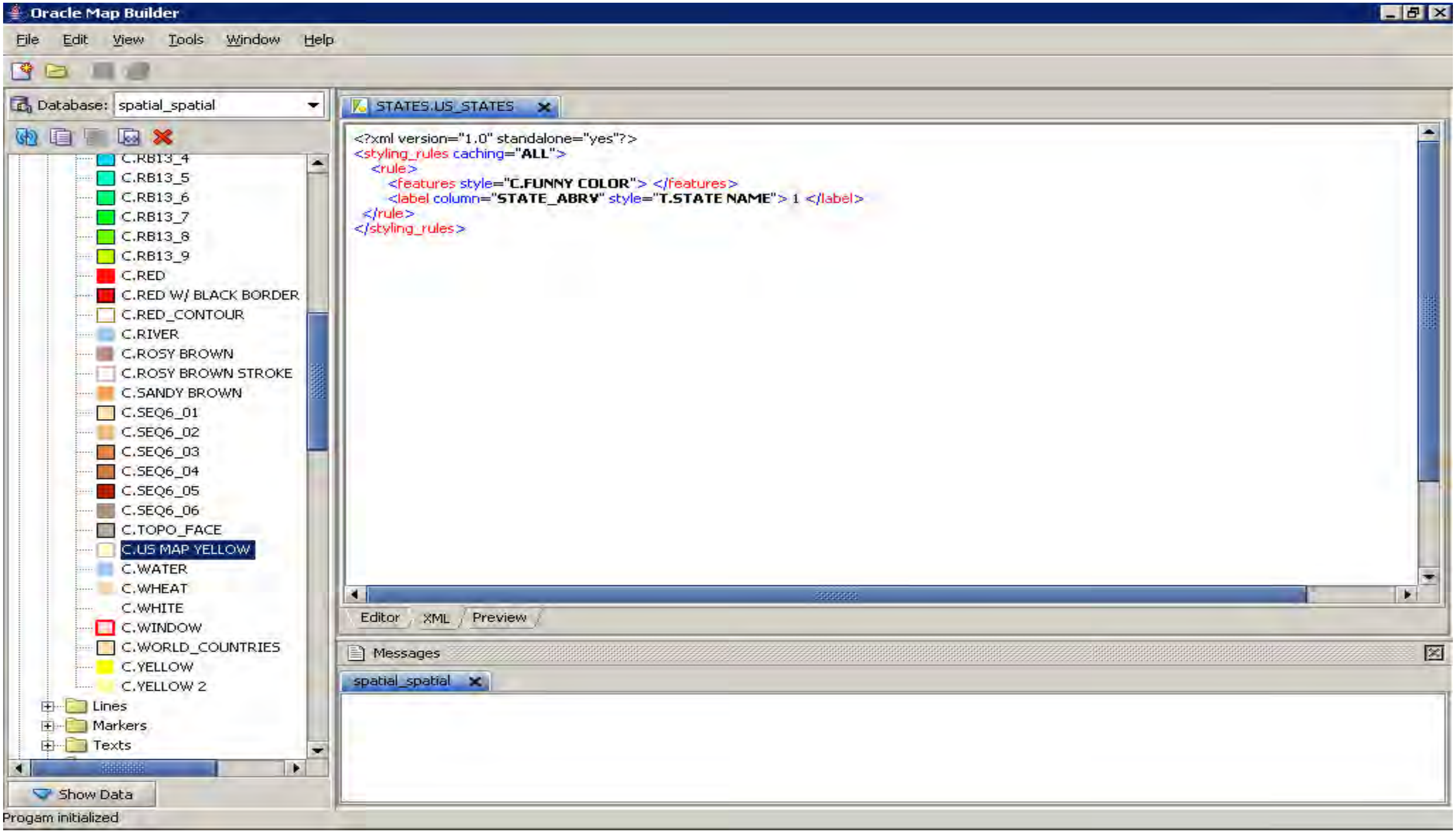
Label Function: 1

Other Properties

□ No spatial filter

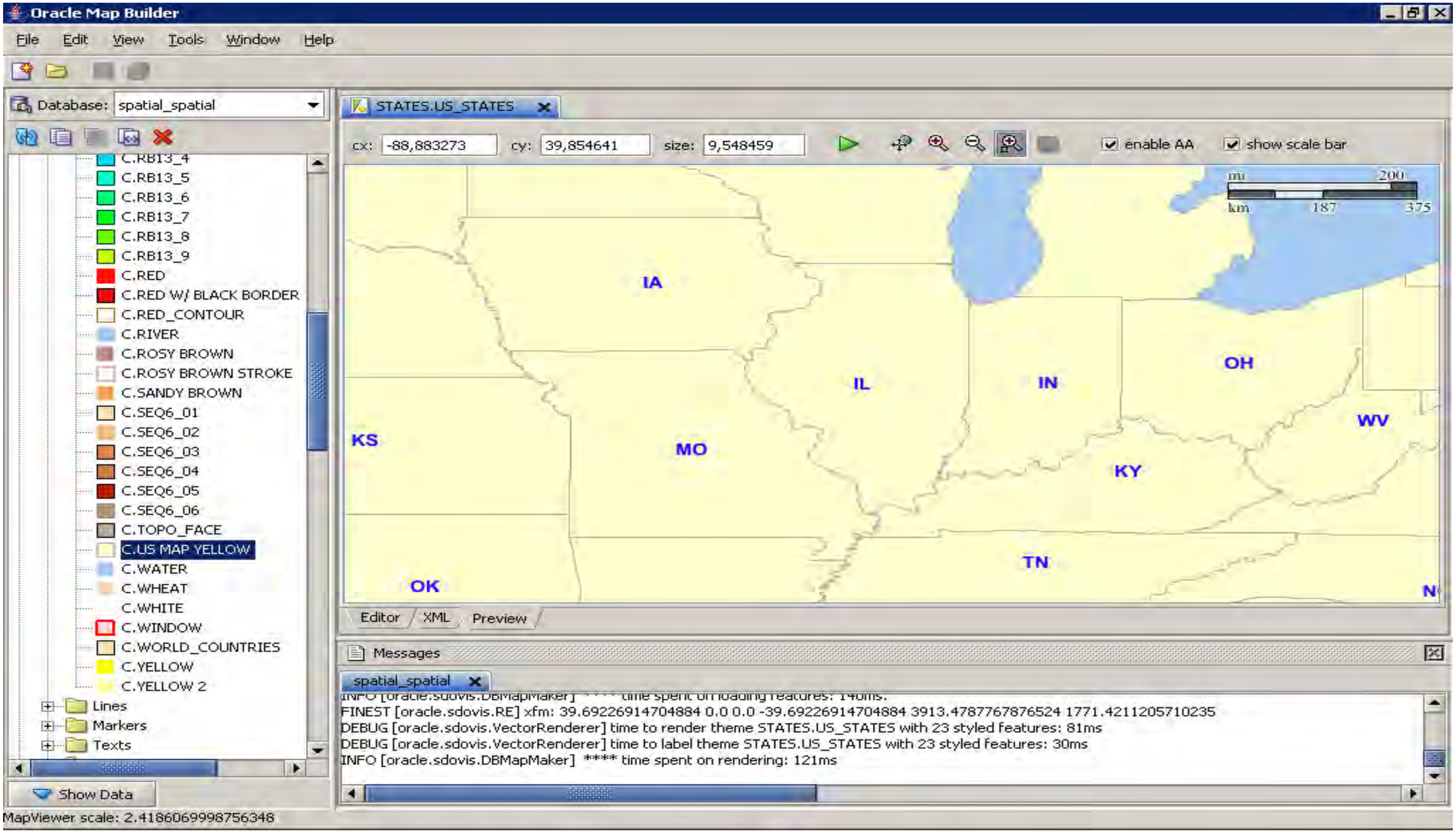
Order By: None Selected

● ASC ○ DESC



```
<?xml version="1.0" standalone="yes"?>
<styling_rules caching="ALL">
  <rule>
    <features style="C.FUNNY COLOR"> </features>
    <label column="STATE_ABRV" style="T.STATE NAME"> 1 </label>
  </rule>
</styling_rules>
```

Progam initialized



Database: spatial_spatial

cx: -88,883273 cy: 39,854641 size: 9,548459 ☑ enable AA ☑ show scale bar

```
INFO [oracle.sdovis.DBMapMaker] **** time spent on loading features: 140ms.
FINEST [oracle.sdovis.RE] xfm: 39.69226914704884 0.0 0.0 -39.69226914704884 3913.4787767876524 1771.4211205710235
DEBUG [oracle.sdovis.VectorRenderer] time to render theme STATES.US_STATES with 23 styled features: 81ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATES with 23 styled features: 30ms
INFO [oracle.sdovis.DBMapMaker]  **** time spent on rendering: 121ms
```

MapViewer scale: 2.4186069998756348

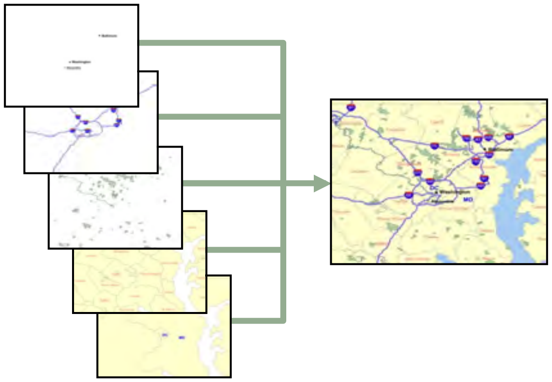
Base Maps

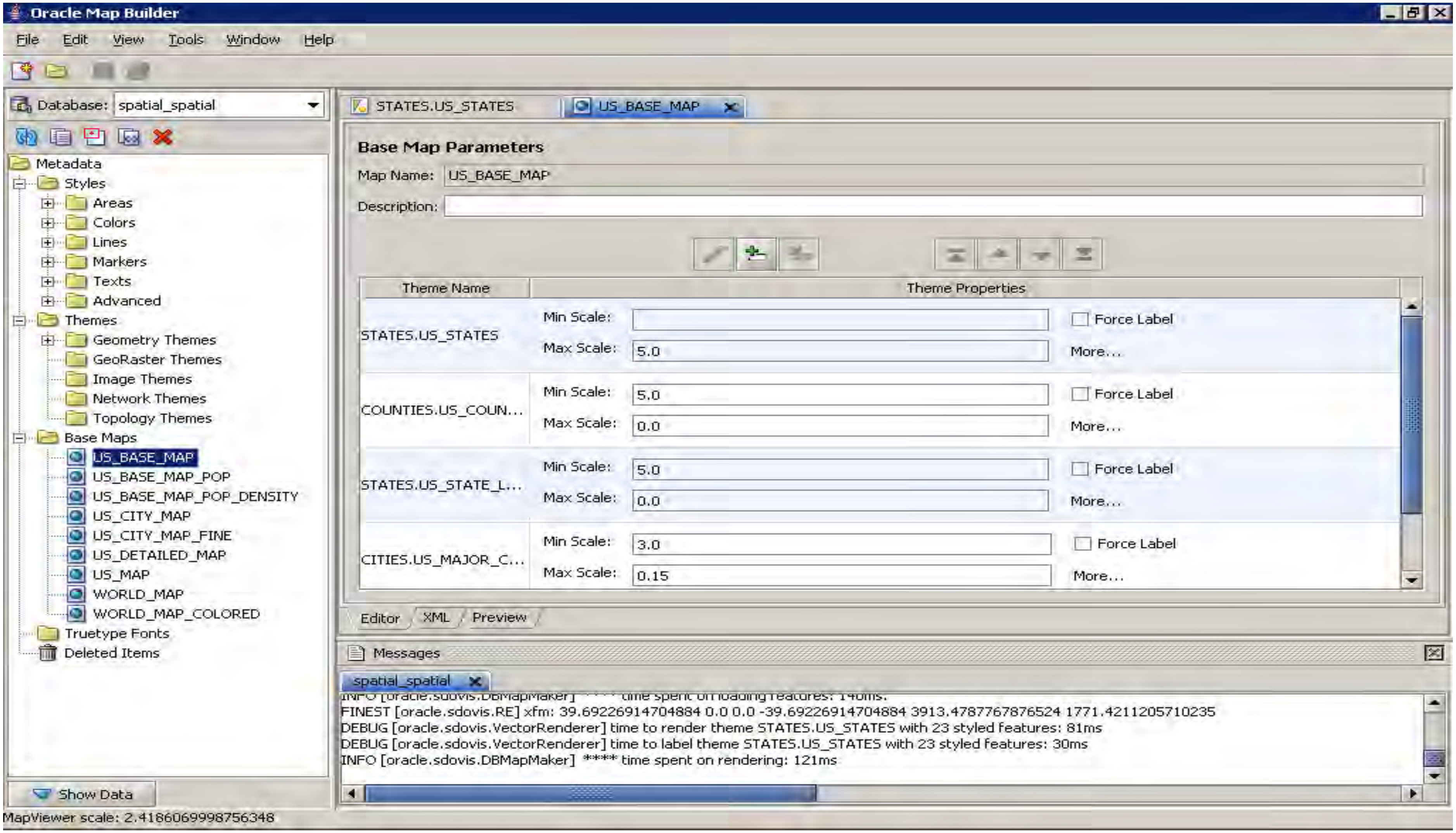
What Are Maps?

- A map groups one or more themes
- Can specify “min scale” and/or “max scale” values to control the visibility of each theme depending on map scale.
- Can also control label visibility
- Use ratio-scales (not “mapviewer native”)
- Can control the order in which themes are rendered
- A theme can be used in many different maps

Create a Map

- A map is a collection of themes
- A map will be used as a background showing BI results
- Select the themes to appear on the map
- Ordering of the themes is important
  - Rendered in the order they are listed
- Set theme visibility
  - Scales at which each theme is visible
  - Details only appear when zoomed in





Database: spatial_spatial

Base Map Parameters

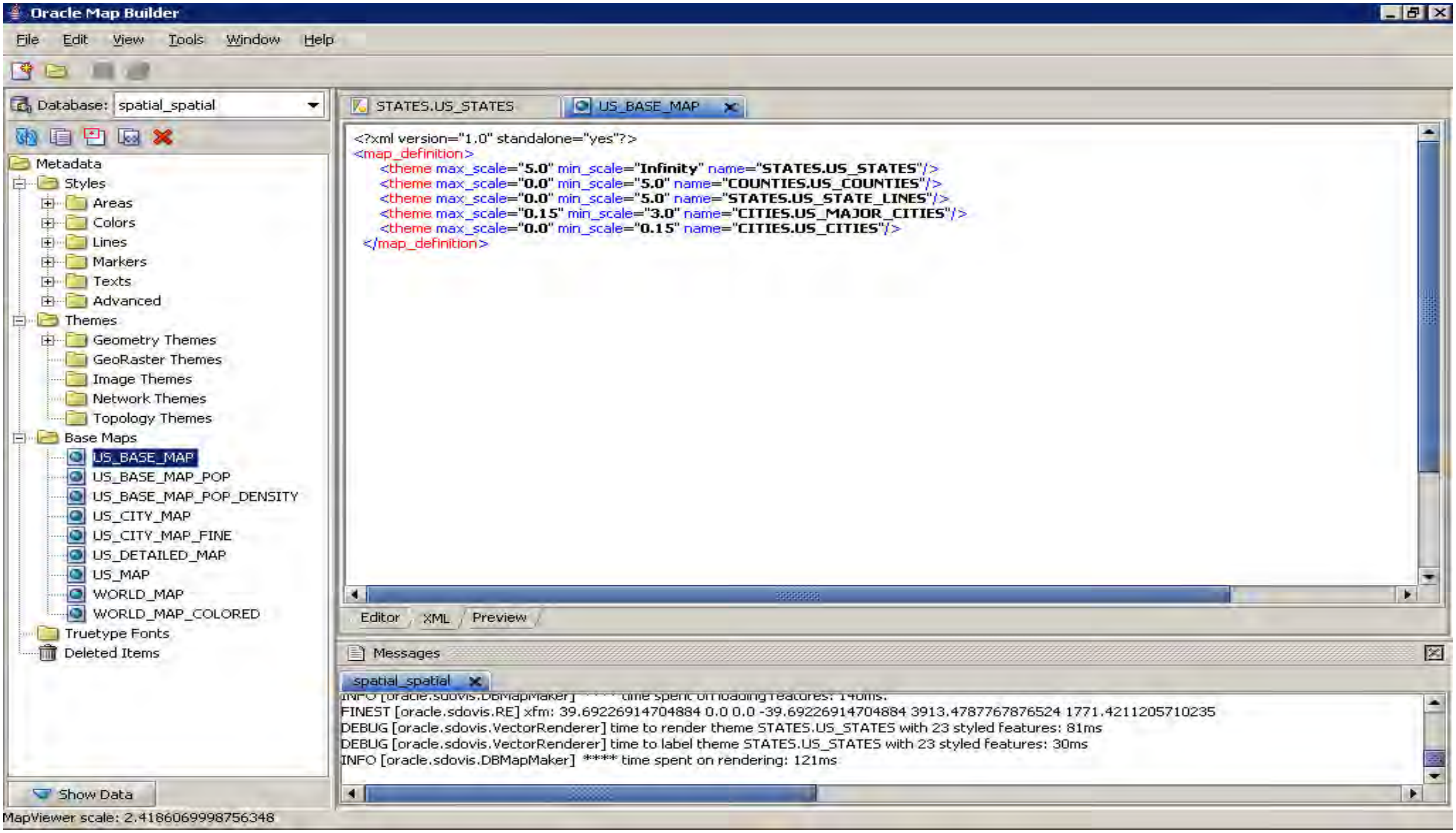
Map Name: US_BASE_MAP

Description:

Theme Name	Theme Properties		
STATES.US_STATES	Min Scale:		□ Force Label
	Max Scale:	5.0	More...
COUNTIES.US_COUN...	Min Scale:	5.0	□ Force Label
	Max Scale:	0.0	More...
STATES.US_STATE_L...	Min Scale:	5.0	□ Force Label
	Max Scale:	0.0	More...
CITIES.US_MAJOR_C...	Min Scale:	3.0	□ Force Label
	Max Scale:	0.15	More...

```
INFO [oracle.sdovis.DBMapMaker] **** time spent on loading features: 140ms.
FINEST [oracle.sdovis.RE] xfm: 39.69226914704884 0.0 0.0 -39.69226914704884 3913.4787767876524 1771.4211205710235
DEBUG [oracle.sdovis.VectorRenderer] time to render theme STATES.US_STATES with 23 styled features: 81ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATES with 23 styled features: 30ms
INFO [oracle.sdovis.DBMapMaker]  ***** time spent on rendering: 121ms
```

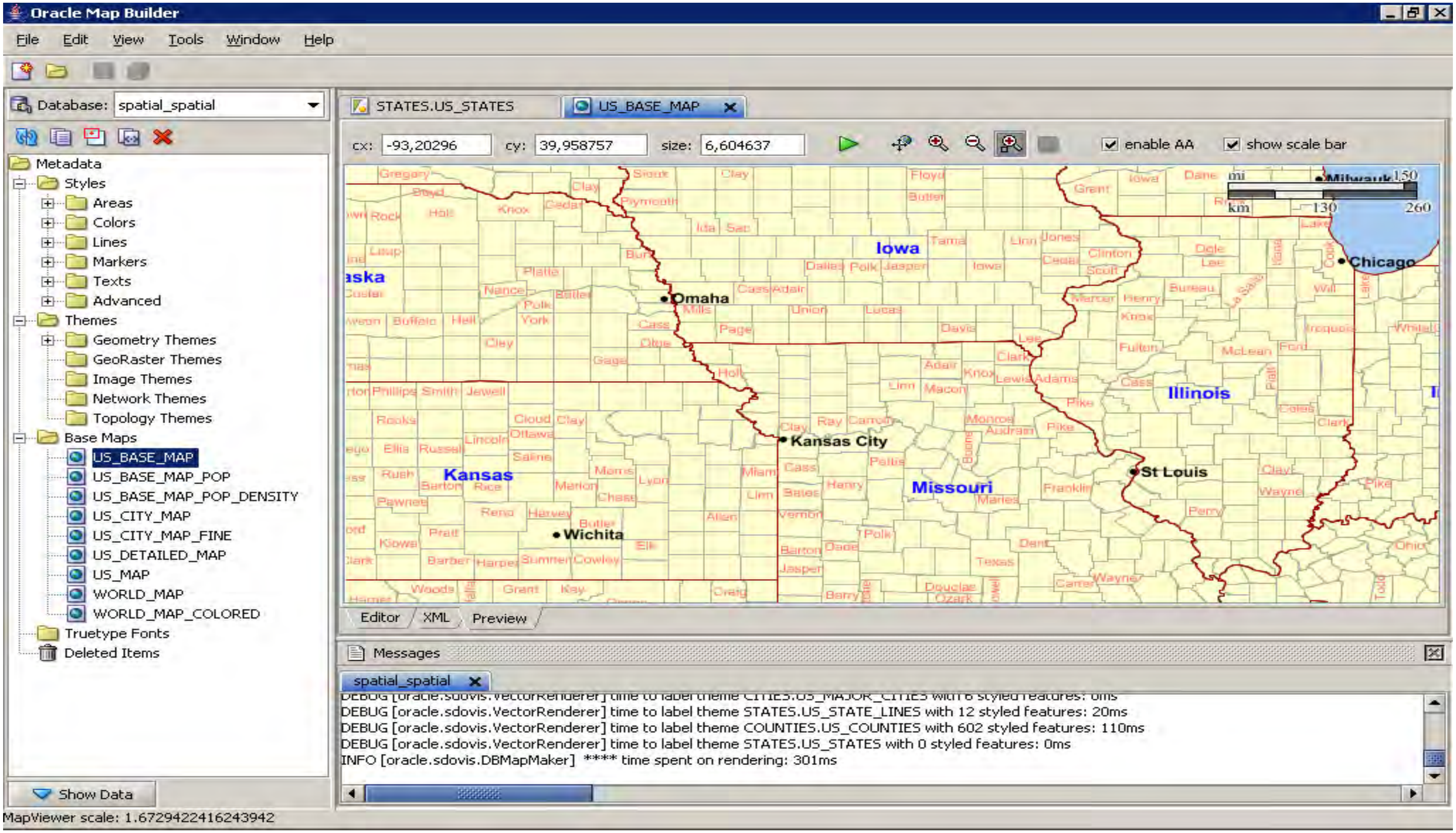
MapViewer scale: 2.4186069998756348



```
<?xml version="1.0" standalone="yes"?>
<map_definition>
    <theme max_scale="5.0" min_scale="Infinity" name="STATES.US_STATES"/>
    <theme max_scale="0.0" min_scale="5.0" name="COUNTIES.US_COUNTIES"/>
    <theme max_scale="0.0" min_scale="5.0" name="STATES.US_STATE_LINES"/>
    <theme max_scale="0.15" min_scale="3.0" name="CITIES.US_MAJOR_CITIES"/>
    <theme max_scale="0.0" min_scale="0.15" name="CITIES.US_CITIES"/>
 </map_definition>
```

```
INFO [oracle.sdovis.DBMapMaker] **** time spent on loading features: 140ms.
FINEST [oracle.sdovis.RE] xfm: 39.69226914704884 0.0 0.0 -39.69226914704884 3913.4787767876524 1771.4211205710235
DEBUG [oracle.sdovis.VectorRenderer] time to render theme STATES.US_STATES with 23 styled features: 81ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATES with 23 styled features: 30ms
INFO [oracle.sdovis.DBMapMaker]  ***** time spent on rendering: 121ms
```

MapViewer scale: 2.4186069998756348



Database: spatial_spatial

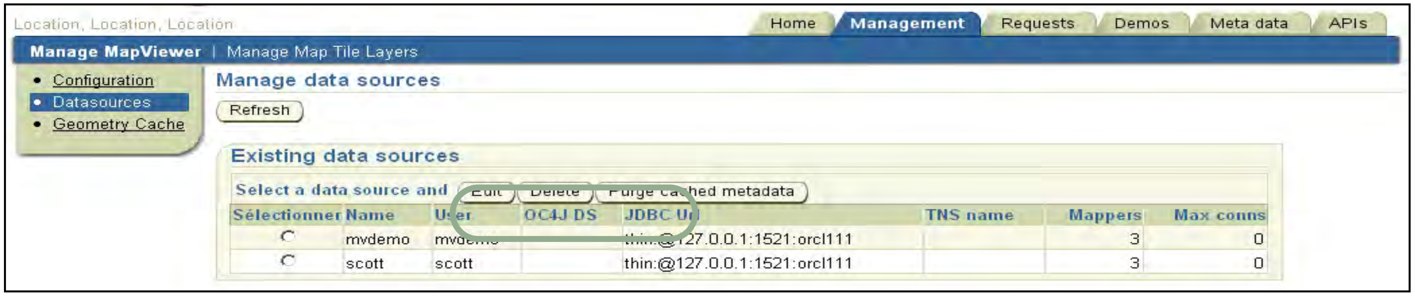
cx: -93,20296 cy: 39,958757 size: 6,604637 ☑ enable AA ☑ show scale bar

```
DEBUG [oracle.sdovis.VectorRenderer] time to label theme CITIES.US_MAJOR_CITIES with 6 styled features: 0ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATE_LINES with 12 styled features: 20ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme COUNTIES.US_COUNTIES with 602 styled features: 110ms
DEBUG [oracle.sdovis.VectorRenderer] time to label theme STATES.US_STATES with 0 styled features: 0ms
INFO [oracle.sdovis.DBMapMaker] **** time spent on rendering: 301ms
```

MapViewer scale: 1.6729422416243942

Updating Definitions

- Changes are only applied to the database tables
  - USER_SDO_STYLES, _THEMES and _MAPS
- Existing applications will not see the changes
  - Definitions are cached in memory
  - Clear the cache:



Manage data sources

Existing data sources

Select a data source and

Sélectionner	Name	User	OC4J DS	JDBC Url	TNS name	Mappers	Max conns
○	mvdemo	mvdemo		thin:@127.0.0.1:1521:orcl111		3	0
○	scott	scott		thin:@127.0.0.1:1521:orcl111		3	0

- Map Tile Caches are also invalid now!
  - Rebuild the cache!

Exporting/Importing the definitions

- Not automatically exported!
- Cannot export from views!
- First, save the definitions into regular tables

```
CREATE TABLE SAVED_MAPS          AS SELECT * FROM USER_SDO_MAPS;
CREATE TABLE SAVED_THEMES        AS SELECT * FROM USER_SDO_THEMES;
CREATE TABLE SAVED_STYLES        AS SELECT * FROM USER_SDO_STYLES;
CREATE TABLE SAVED_CACHED_MAPS   AS SELECT * FROM USER_SDO_CACHED_MAPS;
```

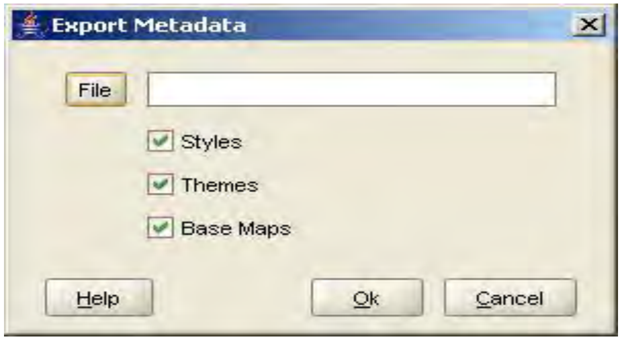
- Then export those tables and import them in the target database
- Now restore the definitions in the target database

```
INSERT INTO USER_SDO_MAPS          SELECT * FROM SAVED_MAPS;
INSERT INTO USER_SDO_THEMES        SELECT * FROM SAVED_THEMES;
INSERT INTO USER_SDO_STYLES        SELECT * FROM SAVED_STYLES;
INSERT INTO USER_SDO_CACHED_MAPS   SELECT * FROM SAVED_CACHED_MAPS;
COMMIT;
```

- Finally: restart Mapviewer

Exporting/Importing the definitions

- Can also export using MapBuilder
- “Tools” menu, then “Export Metadata”
- Creates a text file



☑ Styles
☑ Themes
☑ Base Maps

If element already exists then the import fails!

- To import: “Tools” menu then “Import Metadata”

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Map Tile Layers (Map Caches)

How to Define a Map Tile Layer

Several methods are available

- MapViewer administration console
- MapBuilder
- SQL
- MapViewer XML administration interface

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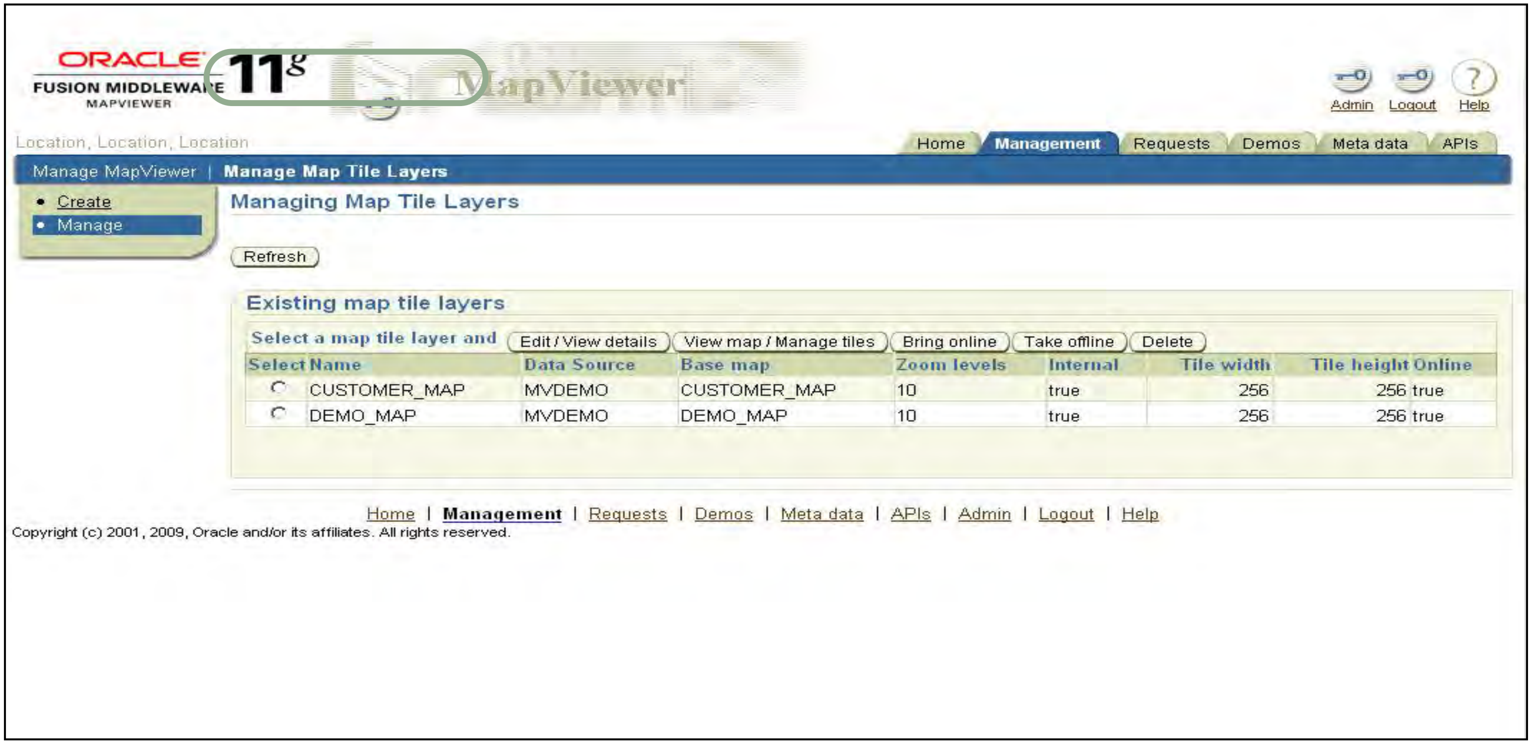
1. Using MapViewer Administration Console



Managing Map Tile Layers

Existing map tile layers

Select a map tile layer and

Select	Name	Data Source	Base map	Zoom levels	Internal	Tile width	Tile height	Online
○	CUSTOMER_MAP	MVDEMO	CUSTOMER_MAP	10	true	256	256	true
○	DEMO_MAP	MVDEMO	DEMO_MAP	10	true	256	256	true

Home | **Management** | Requests | Demos | Meta data | APIs | Admin | Logout | Help

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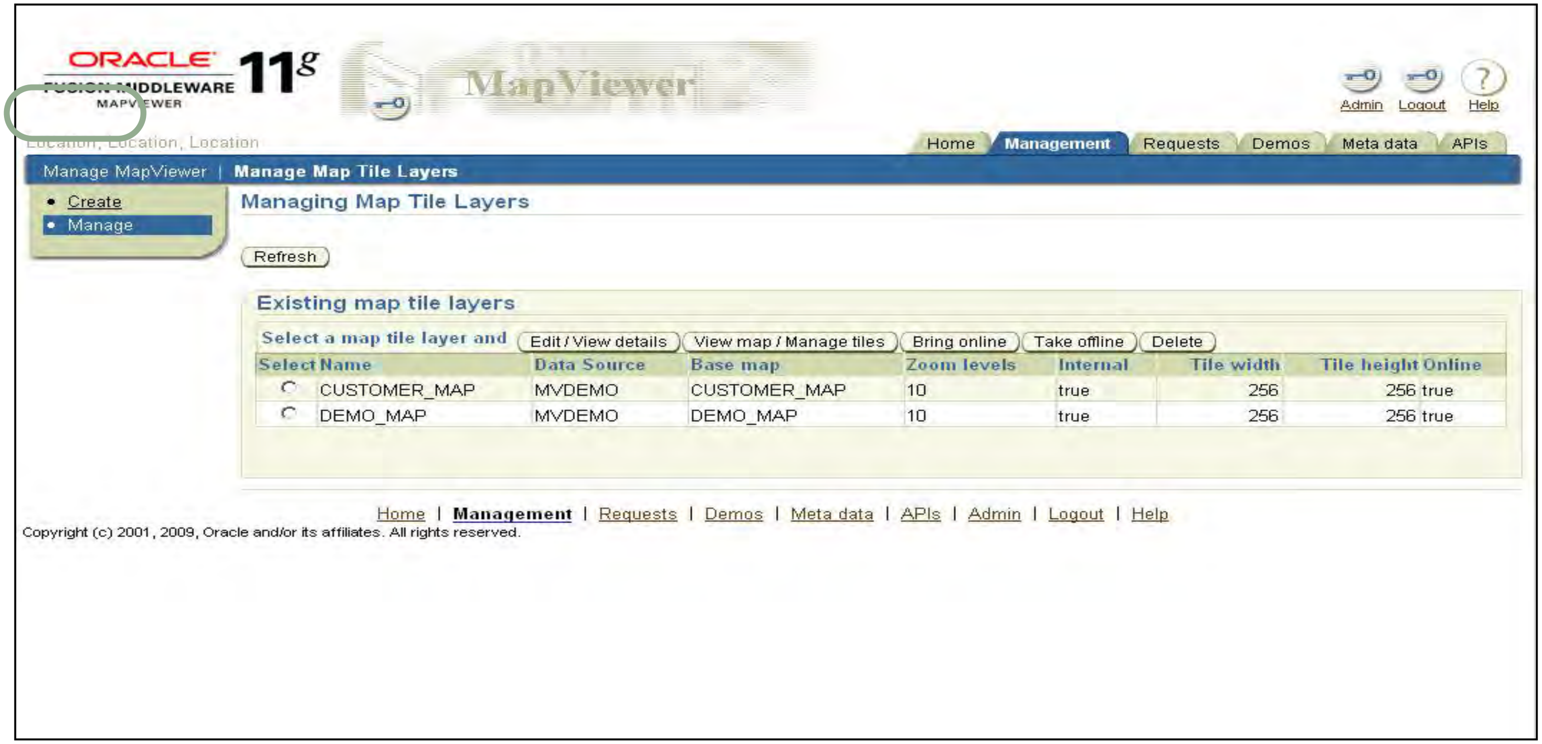
Define a Map Tile Layer


ORACLE FUSION MIDDLEWARE MAPVIEWER 11g
MapViewer
Admin
Logout
Help
Location, Location, Location
Home
Management
Requests
Demos
Meta data
APIs
Manage MapViewer | Manage Map Tile Layers
Create
Manage
Refresh

Managing Map Tile Layers

Existing map tile layers

Select a map tile layer and [Edit / View details] [View map / Manage tiles] [Bring online] [Take offline] [Delete]

Select	Name	Data Source	Base map	Zoom levels	Internal	Tile width	Tile height	Online
○	CUSTOMER_MAP	MVDEMO	CUSTOMER_MAP	10	true	256	256	true
○	DEMO_MAP	MVDEMO	DEMO_MAP	10	true	256	256	true

Home | Management | Requests | Demos | Meta data | APIs | Admin | Logout | Help

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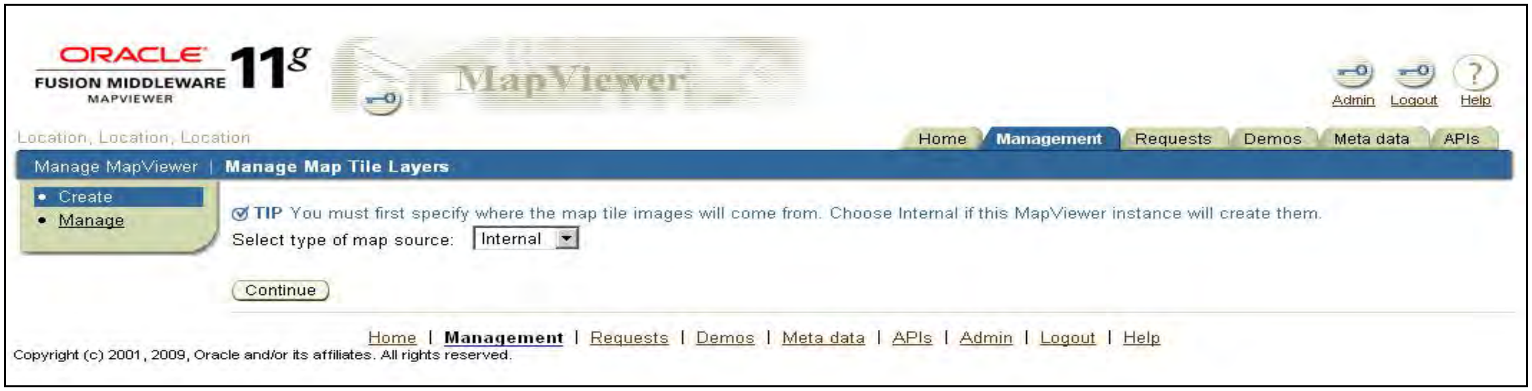
Define a Map Tile Layer


ORACLE 11g
FUSION MIDDLEWARE
MAPVIEWER
MapViewer
Admin
Logout
Help
Location, Location, Location
Home
Management
Requests
Demos
Meta data
APIs
Manage MapViewer | Manage Map Tile Layers
• Create
• Manage
Continue
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TIP You must first specify where the map tile images will come from. Choose Internal if this MapViewer instance will create them.

Select type of map source: Internal

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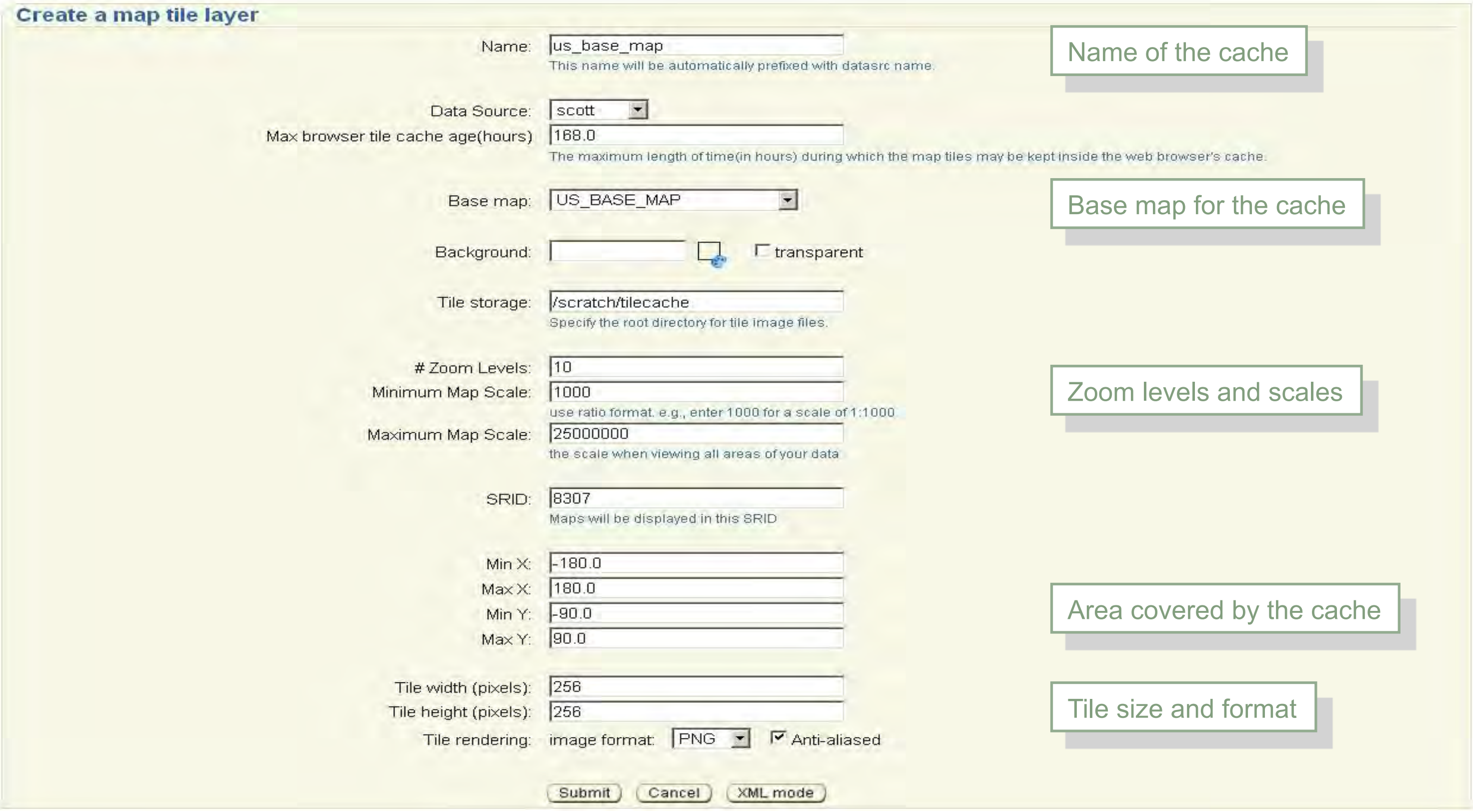
- An “internal” cache is based on a locally defined base map
- An “external” cache is based on some external map provider via “adapters”
  - Web Map Server
  - Mapviewer service
  - Any other: write your own adapter

Define a Map Tile Layer



Create a map tile layer

Name: us_base_map
This name will be automatically prefixed with datasrc name.

Name of the cache

Data Source: scott
Max browser tile cache age(hours) 168.0
The maximum length of time(in hours) during which the map tiles may be kept inside the web browser's cache.

Base map: US_BASE_MAP

Base map for the cache

Background: □ transparent

Tile storage: /scratch/tilecache
Specify the root directory for tile image files.

Zoom Levels: 10
Minimum Map Scale: 1000
use ratio format. e.g., enter 1000 for a scale of 1:1000
Maximum Map Scale: 25000000
the scale when viewing all areas of your data

Zoom levels and scales

SRID: 8307
Maps will be displayed in this SRID

Min X: -180.0
Max X: 180.0
Min Y: -90.0
Max Y: 90.0

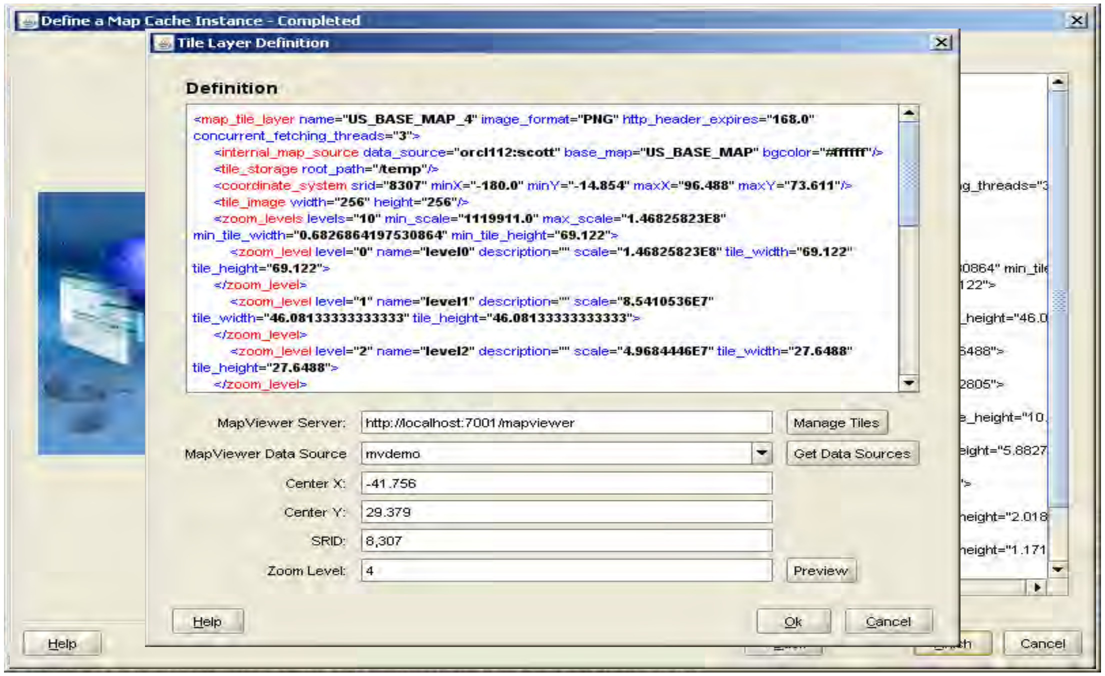
Area covered by the cache

Tile width (pixels): 256
Tile height (pixels): 256
Tile rendering: image format: PNG ☑ Anti-aliased

Tile size and format

2. Using MapBuilder

- Use the Tile Layer definition wizard
- Select base map
- Select area from the map
- Select min and max scales from the map
- Generate scales for zoom levels
- Choose tile size
- Try it out



Definition

```
<map_tile_layer name="US_BASE_MAP_4" image_format="PNG" http_header_expires="168.0"
concurrent_fetching_threads="3">
    <internal_map_source data_source="orcl112:scott" base_map="US_BASE_MAP" bgcolor="#ffffff"/>
    <tile_storage root_path="/temp"/>
    <coordinate_system srid="8307" minX="-180.0" minY="-14.854" maxX="96.488" maxY="73.611"/>
    <tile_image width="256" height="256"/>
    <zoom_levels levels="10" min_scale="1119911.0" max_scale="1.46825823E8"
min_tile_width="0.6826864197530864" min_tile_height="69.122">
        <zoom_level level="0" name="level0" description="" scale="1.46825823E8" tile_width="69.122"
tile_height="69.122">
    </zoom_level>
        <zoom_level level="1" name="level1" description="" scale="8.5410536E7"
tile_width="46.08133333333333" tile_height="46.08133333333333">
    </zoom_level>
        <zoom_level level="2" name="level2" description="" scale="4.9684446E7" tile_width="27.6488"
tile_height="27.6488">
    </zoom_level>
```

MapViewer Server: http://localhost:7001/mapviewer

MapViewer Data Source: mvdemo

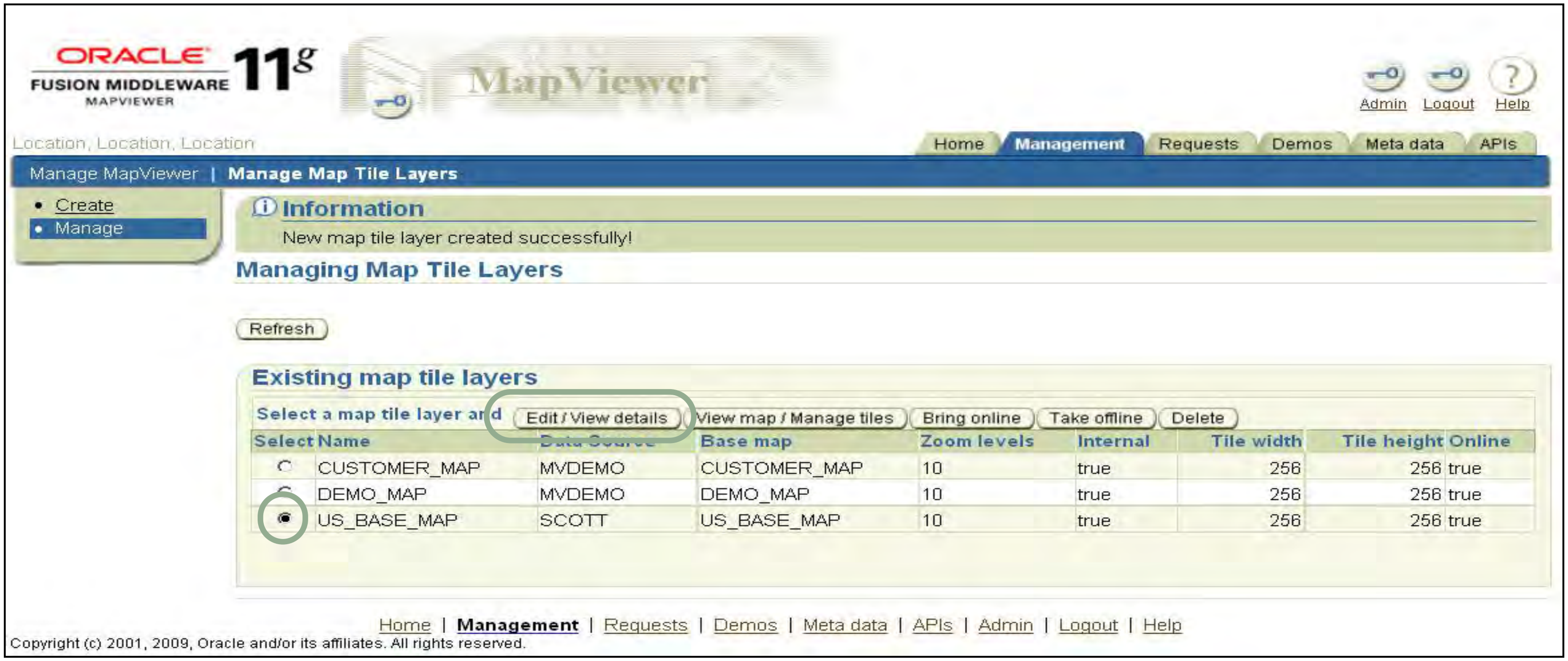
Center X: -41.756

Center Y: 29.379

SRID: 8,307

Zoom Level: 4

Manage Map Tile Layers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MapViewer
Admin
Logout
Help
Location, Location, Location
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Management
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Meta data
APIs
Manage MapViewer | Manage Map Tile Layers
Create
Manage

Information

New map tile layer created successfully!

Managing Map Tile Layers

Existing map tile layers

Select a map tile layer and

Edit / View details
View map / Manage tiles
Bring online
Take offline
Delete

Select	Name	Data Source	Base map	Zoom levels	Internal	Tile width	Tile height	Online
○	CUSTOMER_MAP	MVDEMO	CUSTOMER_MAP	10	true	256	256	true
○	DEMO_MAP	MVDEMO	DEMO_MAP	10	true	256	256	true
●	US_BASE_MAP	SCOTT	US_BASE_MAP	10	true	256	256	true

Home | Management | Requests | Demos | Meta data | APIs | Admin | Logout | Help

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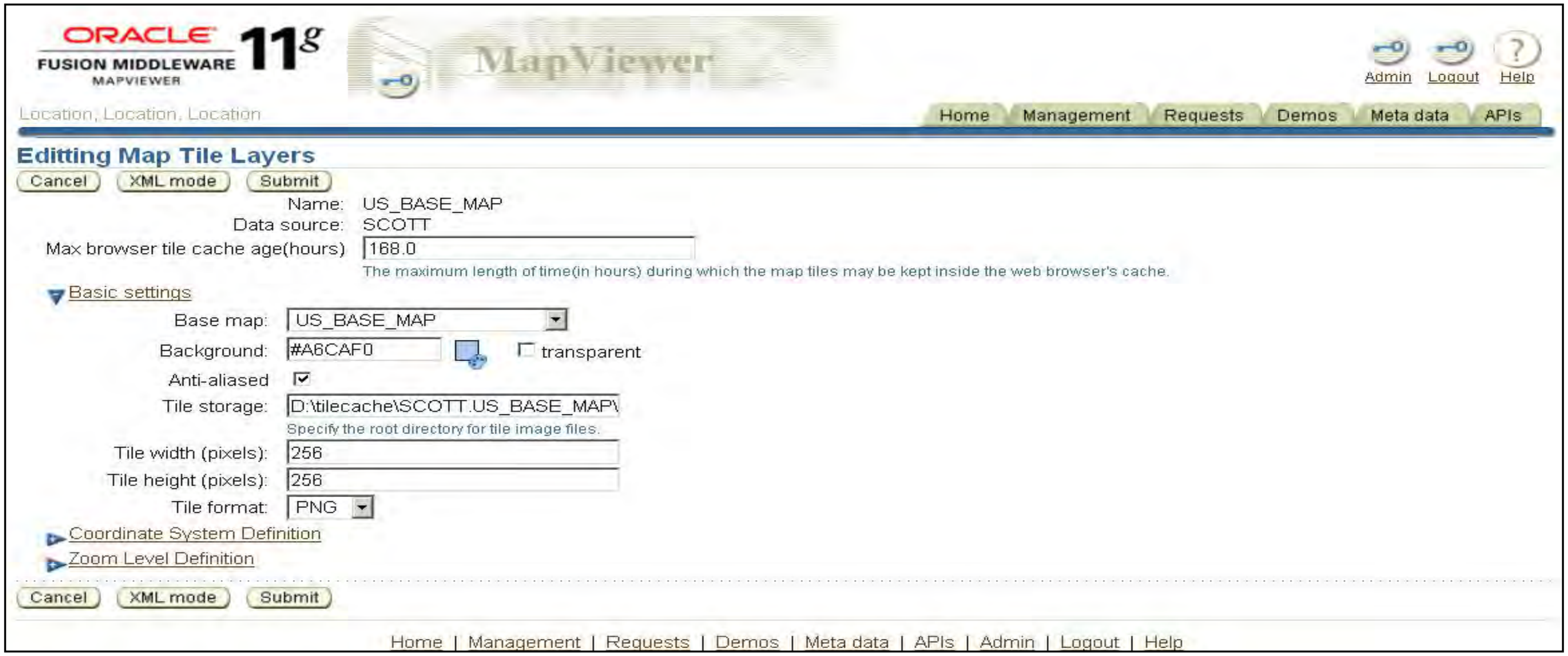
Manage Map Tile Layers



Editing Map Tile Layers

Name: US_BASE_MAP

Data source: SCOTT

Max browser tile cache age(hours) 168.0

The maximum length of time(in hours) during which the map tiles may be kept inside the web browser's cache.

▼ Basic settings

Base map: US_BASE_MAP

Background: #A6CAF0 □ transparent

Anti-aliased ☑

Tile storage: D:\tilecache\SCOTT.US_BASE_MAP\

Specify the root directory for tile image files.

Tile width (pixels): 256

Tile height (pixels): 256

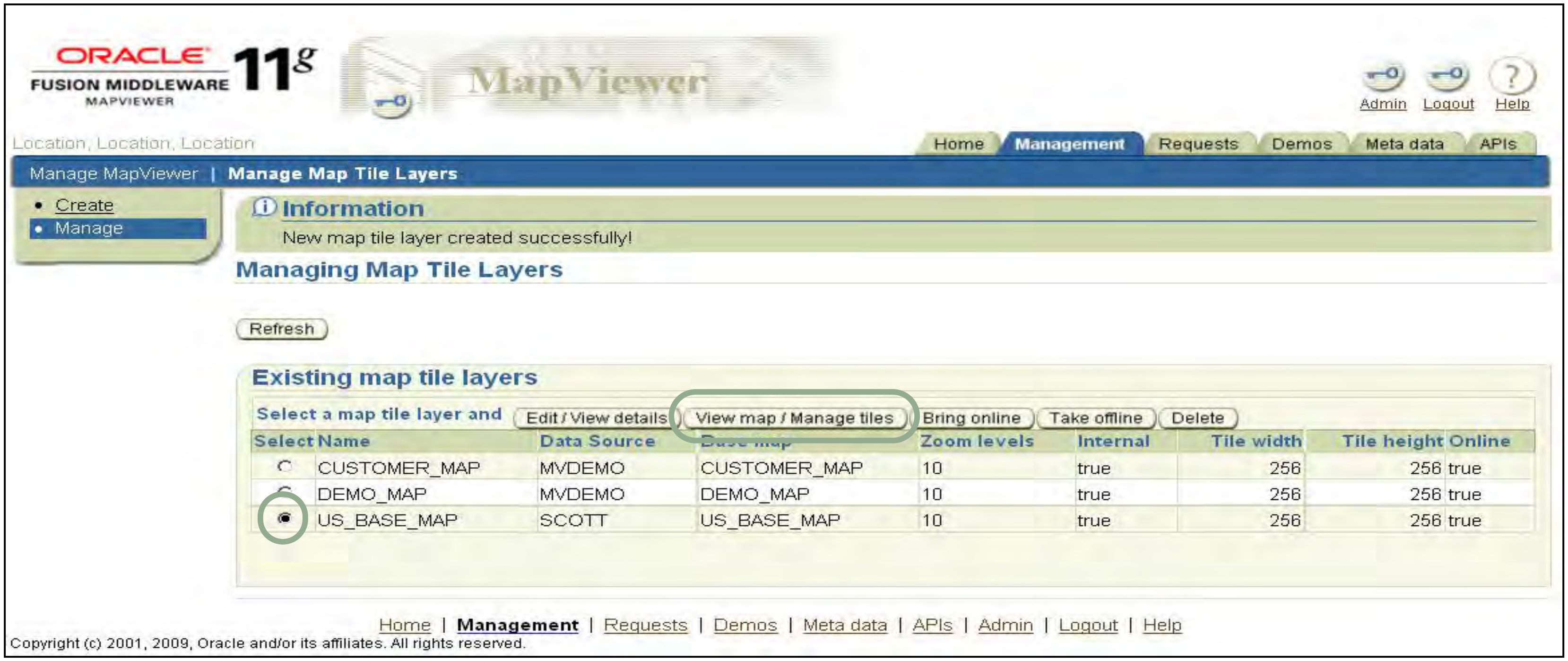
Tile format: PNG

▶ Coordinate System Definition

▶ Zoom Level Definition

Cancel
XML mode
Submit
Home | Management | Requests | Demos | Meta data | APIs | Admin | Logout | Help

Manage Map Tiles



ORACLE FUSION MIDDLEWARE MAPVIEWER 11g
MapViewer
Admin
Logout
Help
Location, Location, Location
Home
Management
Requests
Demos
Meta data
APIs
Manage MapViewer | Manage Map Tile Layers
Create
Manage

Information

New map tile layer created successfully!

Managing Map Tile Layers

Existing map tile layers

Select a map tile layer and
Edit / View details
View map / Manage tiles
Bring online
Take offline
Delete

Select	Name	Data Source	Base map	Zoom levels	Internal	Tile width	Tile height	Online
○	CUSTOMER_MAP	MVDEMO	CUSTOMER_MAP	10	true	256	256	true
○	DEMO_MAP	MVDEMO	DEMO_MAP	10	true	256	256	true
●	US_BASE_MAP	SCOTT	US_BASE_MAP	10	true	256	256	true

Home | Management | Requests | Demos | Meta data | APIs | Admin | Logout | Help

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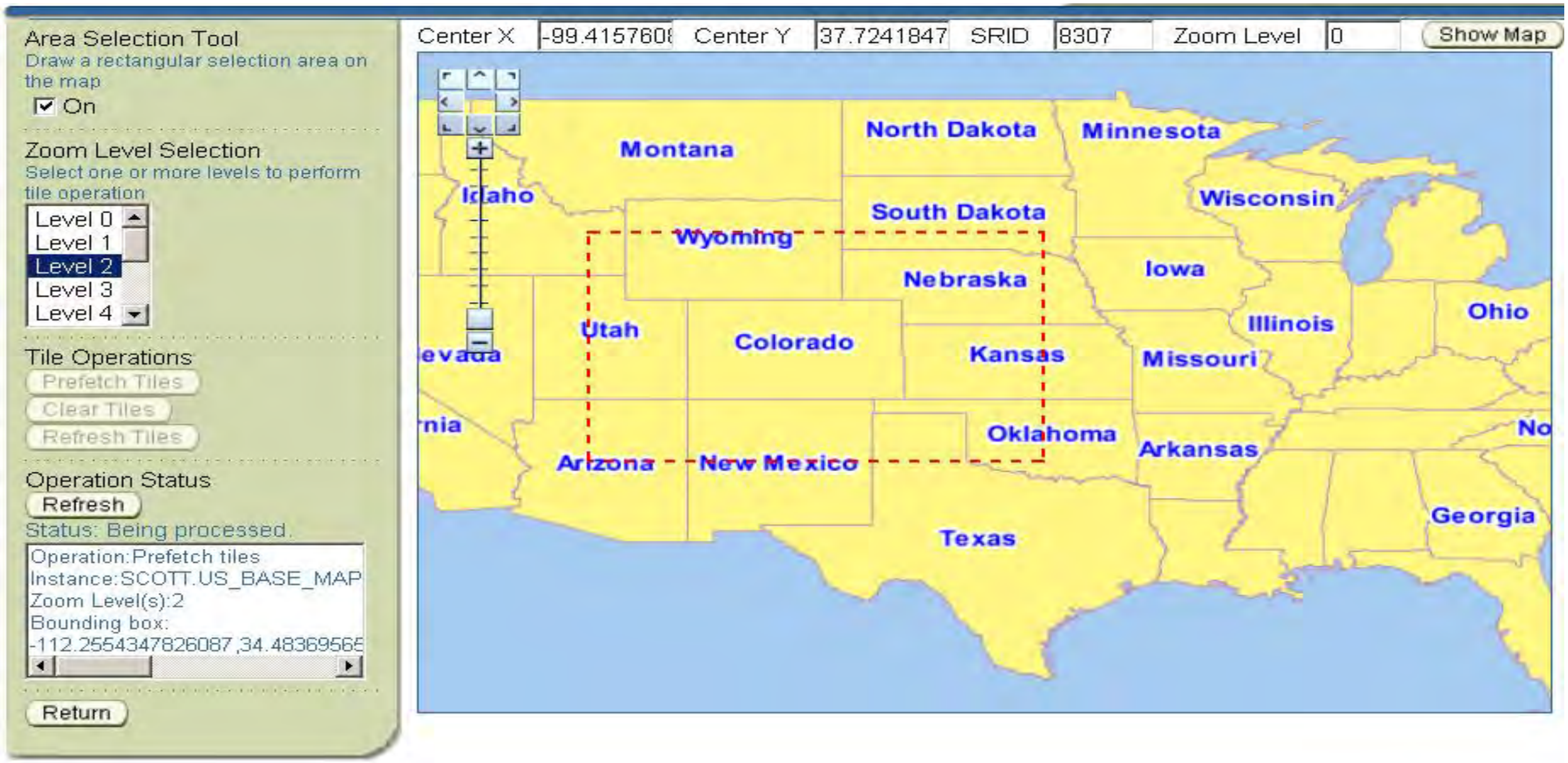
Manage Map Tiles



Area Selection Tool

Draw a rectangular selection area on the map

☑ On

Zoom Level Selection

Select one or more levels to perform tile operation

Level 0
Level 1
Level 2
Level 3
Level 4

Tile Operations

Operation Status

Status: Being processed.

```
Operation:Prefetch tiles
Instance:SCOTT.US_BASE_MAP
Zoom Level(s):2
Bounding box:
-112.2554347826087,34.48369565
```

Center X: -99.4157608 Center Y: 37.7241847 SRID: 8307 Zoom Level: 0

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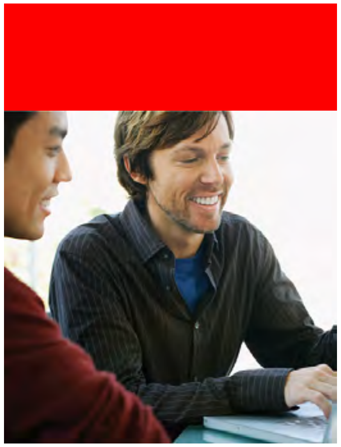
Set up MapViewer server



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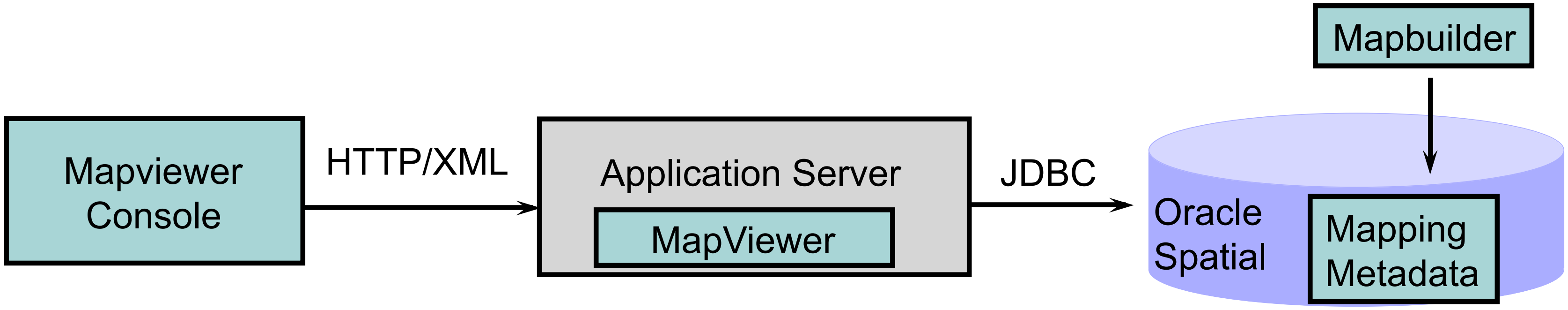
Set up MapViewer

- Can be deployed to any Java EE server
- Create data sources
- Quick tests with jview
- Explore the config file: mapViewerConfig.xml
- Use the admin web pages

The MapViewer Installation Kit

- Download from: http://www.oracle.com/technetwork/middleware/mapviewer/downloads/index.html
- A MapViewer installation includes the following components:
  - An enterprise archive (mapviewer.ear) file
  - The standalone map definition tool (mapbuilder.jar)



Use the quickstart kit with a standalone OC4J or …

Using WebLogic Server

The following screenshots are for WLS 11g (10.3)

Installing the WebLogic Server

- Download from http://www.oracle.com/technology/software/products/middleware
- Provided as a single ZIP file (**wls1035_dev.zip**)
- Platform-independent, use for development only
- Requires a full JDK 1.6
- Can also use a platform-specific kit with installer and JDK
  - For example **wls1035_oepe111150_win32.exe** for windows
- Can also install JDeveloper Studio Edition and use its embedded WLS server.

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Weblogic Server Installation Steps

1. Unzip **wls1035_dev.zip** into a directory. This is now the MW_HOME directory
2. Configure (set ACLs, generate registry.xml, etc)

```
set MW_HOME= D:\Oracle\wls1035_dev
set JAVA_HOME=C:\Program Files\Java\jdk1.6.0_22
cd %MW_HOME%
call configure.cmd
```

3. Create a new domain (or use the wizard …)

```
mkdir wls_domains\mapviewer
```

Using the Domain Configuration Wizard

- Start the wizard

```
set JAVA_HOME=C:\Program Files\Java\jdk1.6.0_22
set MW_HOME=D:\Oracle\wls1035_dev
call "%MW_HOME%\wlserver\server\bin\setWLSEnv.cmd"
call %MW_HOME%\wlserver\common\bin\config.cmd
```

- Answer the questions
- Specify the name of the domain
- Specify the name of the admin user and password
- Will create the directory for the domain

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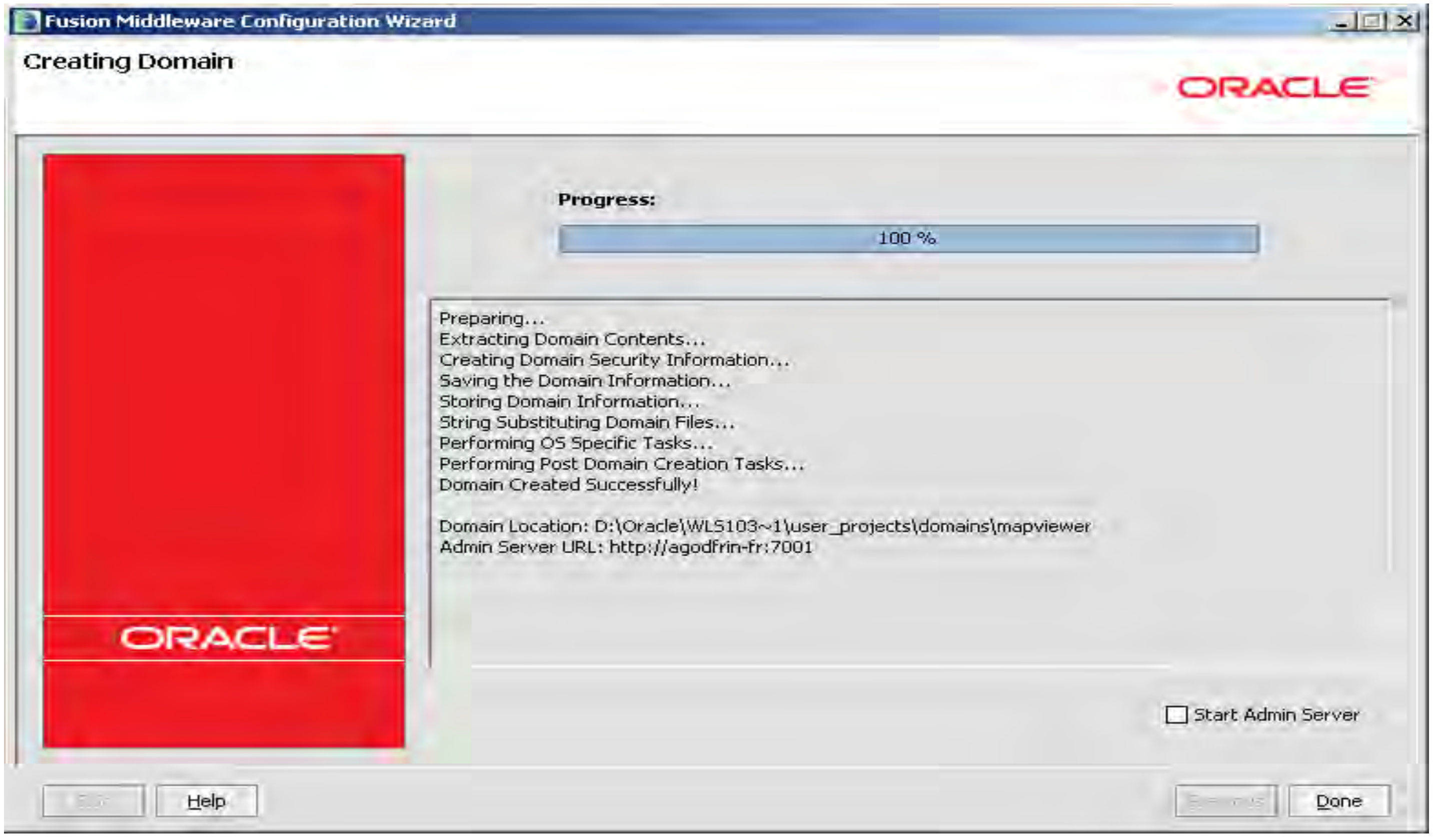
Using the Domain Configuration Wizard

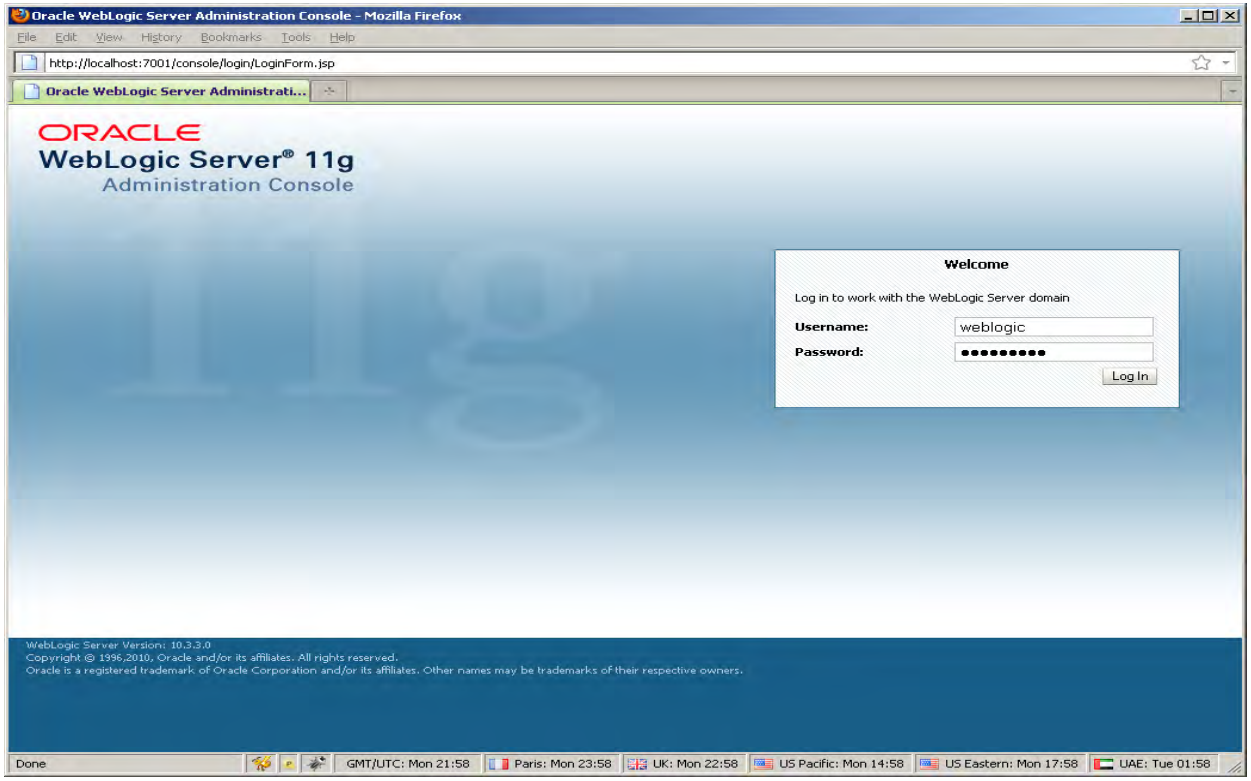


```
Preparing...
Extracting Domain Contents...
Creating Domain Security Information...
Saving the Domain Information...
Storing Domain Information...
String Substituting Domain Files...
Performing OS Specific Tasks...
Performing Post Domain Creation Tasks...
Domain Created Successfully!

Domain Location: D:\Oracle\WLS103~1\user_projects\domains\mapviewer
Admin Server URL: http://agodfrin-fr:7001
```

WebLogic Administration

http://localhost:7001/console



Oracle WebLogic Server Administration Console - Mozilla Firefox

http://localhost:7001/console/login/LoginForm.jsp

Welcome

Log in to work with the WebLogic Server domain

Username: weblogic

Password: ●●●●●●●●●

WebLogic Server Version: 10.3.3.0
Copyright © 1996,2010, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

GMT/UTC: Mon 21:58 | Paris: Mon 23:58 | UK: Mon 22:58 | US Pacific: Mon 14:58 | US Eastern: Mon 17:58 | UAE: Tue 01:58

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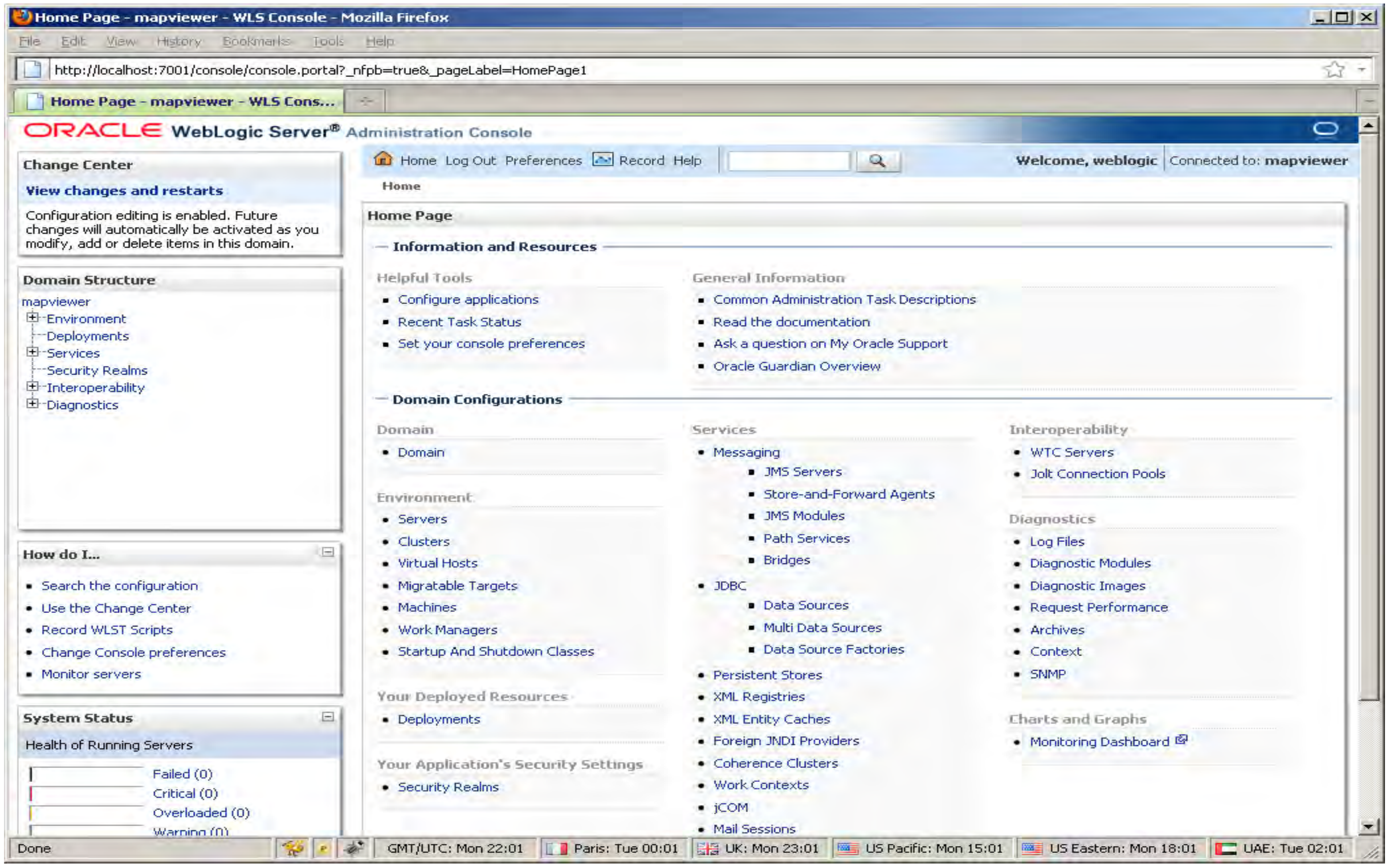
WebLogic Administration


Home Page - mapviewer - WLS Console - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://localhost:7001/console/console.portal?_nfpb=true&_pageLabel=HomePage1
Home Page - mapviewer - WLS Cons...
ORACLE WebLogic Server® Administration Console
Home Log Out Preferences Record Help
Welcome, weblogic Connected to: mapviewer
Home
Done
GMT/UTC: Mon 22:01
Paris: Tue 00:01
UK: Mon 23:01
US Pacific: Mon 15:01
US Eastern: Mon 18:01
UAE: Tue 02:01

Change Center

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

mapviewer
- Environment
- Deployments
- Services
- Security Realms
- Interoperability
- Diagnostics

How do I...

- Search the configuration
- Use the Change Center
- Record WLST Scripts
- Change Console preferences
- Monitor servers

System Status

Health of Running Servers

Failed (0)
Critical (0)
Overloaded (0)
Warning (0)

Home Page

Information and Resources

Helpful Tools
- Configure applications
- Recent Task Status
- Set your console preferences

General Information
- Common Administration Task Descriptions
- Read the documentation
- Ask a question on My Oracle Support
- Oracle Guardian Overview

Domain Configurations

Domain
- Domain

Environment
- Servers
- Clusters
- Virtual Hosts
- Migratable Targets
- Machines
- Work Managers
- Startup And Shutdown Classes

Your Deployed Resources
- Deployments

Your Application's Security Settings
- Security Realms

Services
- Messaging
  - JMS Servers
  - Store-and-Forward Agents
  - JMS Modules
  - Path Services
  - Bridges
- JDBC
  - Data Sources
  - Multi Data Sources
  - Data Source Factories
- Persistent Stores
- XML Registries
- XML Entity Caches
- Foreign JNDI Providers
- Coherence Clusters
- Work Contexts
- jCOM
- Mail Sessions

Interoperability
- WTC Servers
- Jolt Connection Pools

Diagnostics
- Log Files
- Diagnostic Modules
- Diagnostic Images
- Request Performance
- Archives
- Context
- SNMP

Charts and Graphs
- Monitoring Dashboard

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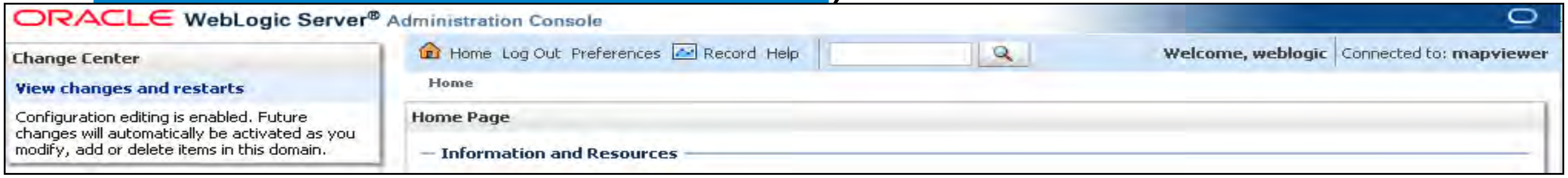
Mapviewer Installation Steps

1. Launch WebLogic Server administration console (http://localhost:7001/console)



ORACLE WebLogic Server® Administration Console

Home Log Out Preferences Record Help

Welcome, weblogic | Connected to: mapviewer

Home

Change Center

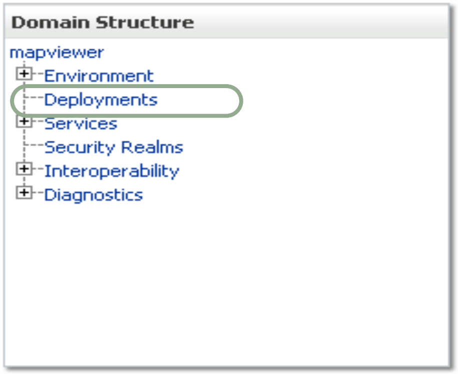
View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Home Page

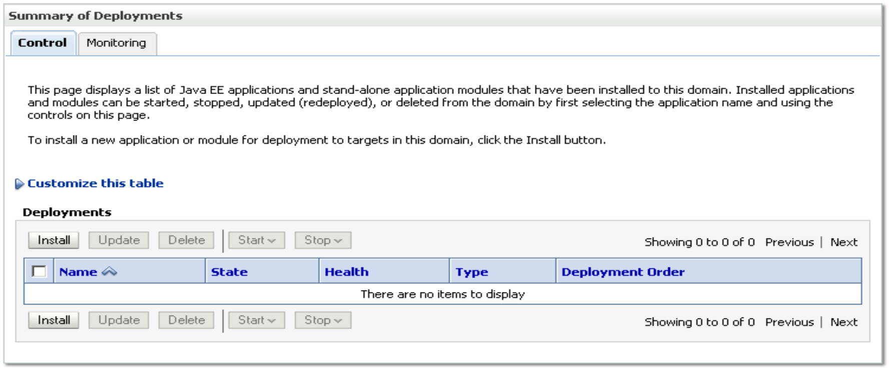
Information and Resources

3. Manage deployments



Domain Structure

- mapviewer
  - Environment
  - Deployments
  - Services
  - Security Realms
  - Interoperability
  - Diagnostics



Summary of Deployments

Control | Monitoring

This page displays a list of Java EE applications and stand-alone application modules that have been installed to this domain. Installed applications and modules can be started, stopped, updated (redeployed), or deleted from the domain by first selecting the application name and using the controls on this page.

To install a new application or module for deployment to targets in this domain, click the Install button.

Customize this table

Deployments

Install | Update | Delete | Start | Stop — Showing 0 to 0 of 0 Previous | Next

□	Name	State	Health	Type	Deployment Order
There are no items to display					

Install | Update | Delete | Start | Stop — Showing 0 to 0 of 0 Previous | Next

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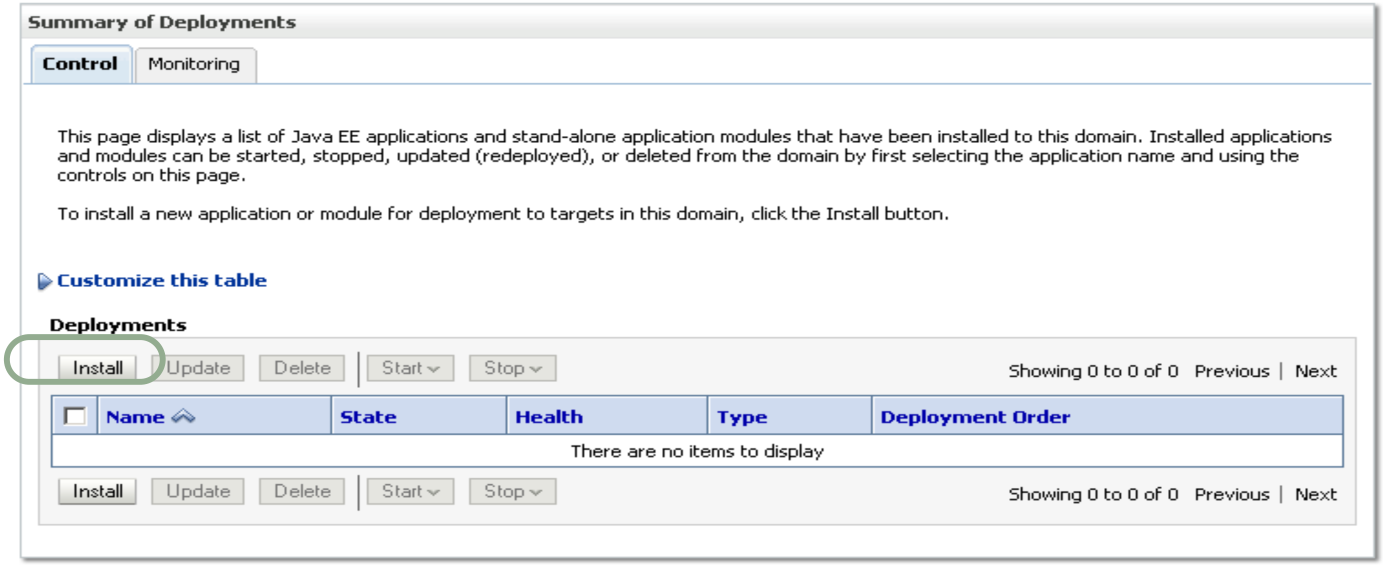
Mapviewer Installation Steps

3. Click on "Install"



Summary of Deployments

This page displays a list of Java EE applications and stand-alone application modules that have been installed to this domain. Installed applications and modules can be started, stopped, updated (redeployed), or deleted from the domain by first selecting the application name and using the controls on this page.

To install a new application or module for deployment to targets in this domain, click the Install button.

Deployments

Showing 0 to 0 of 0 Previous | Next

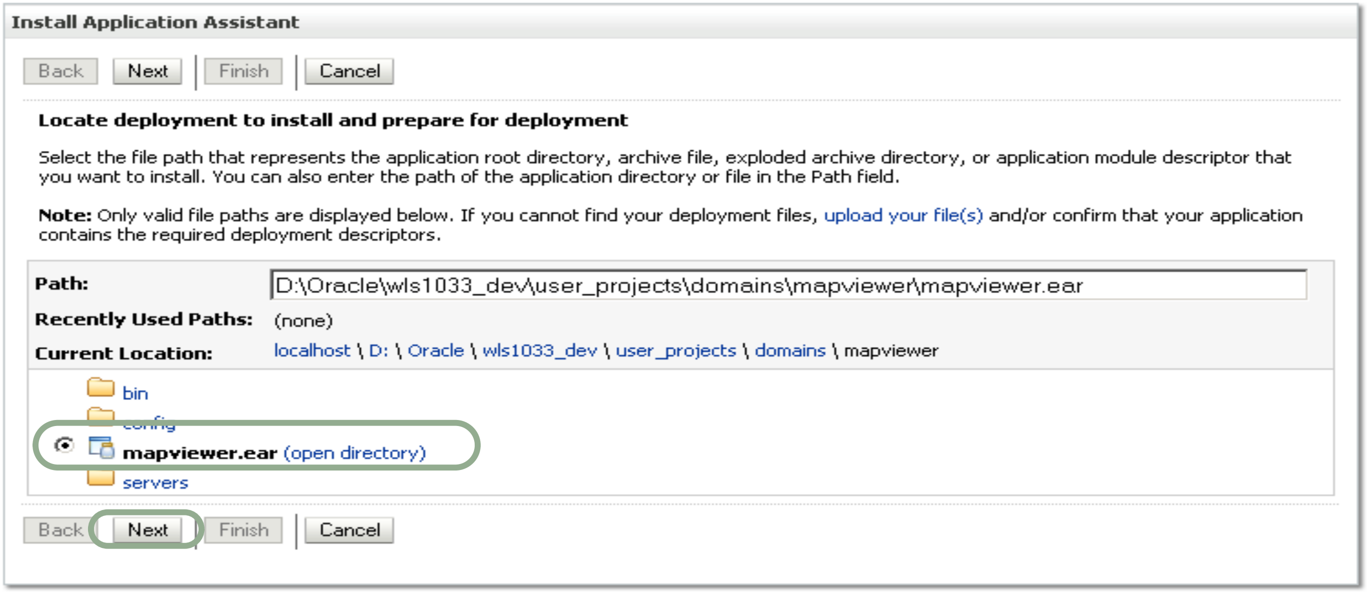
□	Name	State	Health	Type	Deployment Order
There are no items to display					

Showing 0 to 0 of 0 Previous | Next

Oracle Spatial User Conference 2012

Mapviewer Installation Steps

4. Browse to the “**mapviewer.ear**” directory an select it



Install Application Assistant

Locate deployment to install and prepare for deployment

Select the file path that represents the application root directory, archive file, exploded archive directory, or application module descriptor that you want to install. You can also enter the path of the application directory or file in the Path field.

Note: Only valid file paths are displayed below. If you cannot find your deployment files, upload your file(s) and/or confirm that your application contains the required deployment descriptors.

Path:	D:\Oracle\wls1033_dev\user_projects\domains\mapviewer\mapviewer.ear
Recently Used Paths:	(none)
Current Location:	localhost \ D: \ Oracle \ wls1033_dev \ user_projects \ domains \ mapviewer

bin

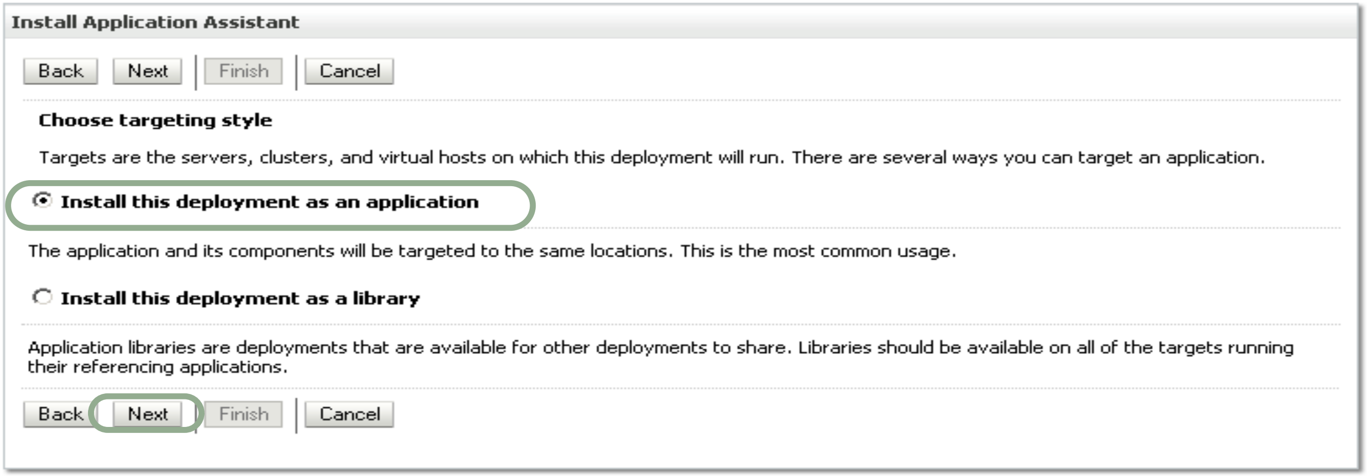
config

● **mapviewer.ear** (open directory)

servers

Mapviewer Installation Steps

5. Install as an application



Choose targeting style

Targets are the servers, clusters, and virtual hosts on which this deployment will run. There are several ways you can target an application.

● **Install this deployment as an application**

The application and its components will be targeted to the same locations. This is the most common usage.

○ **Install this deployment as a library**

Application libraries are deployments that are available for other deployments to share. Libraries should be available on all of the targets running their referencing applications.

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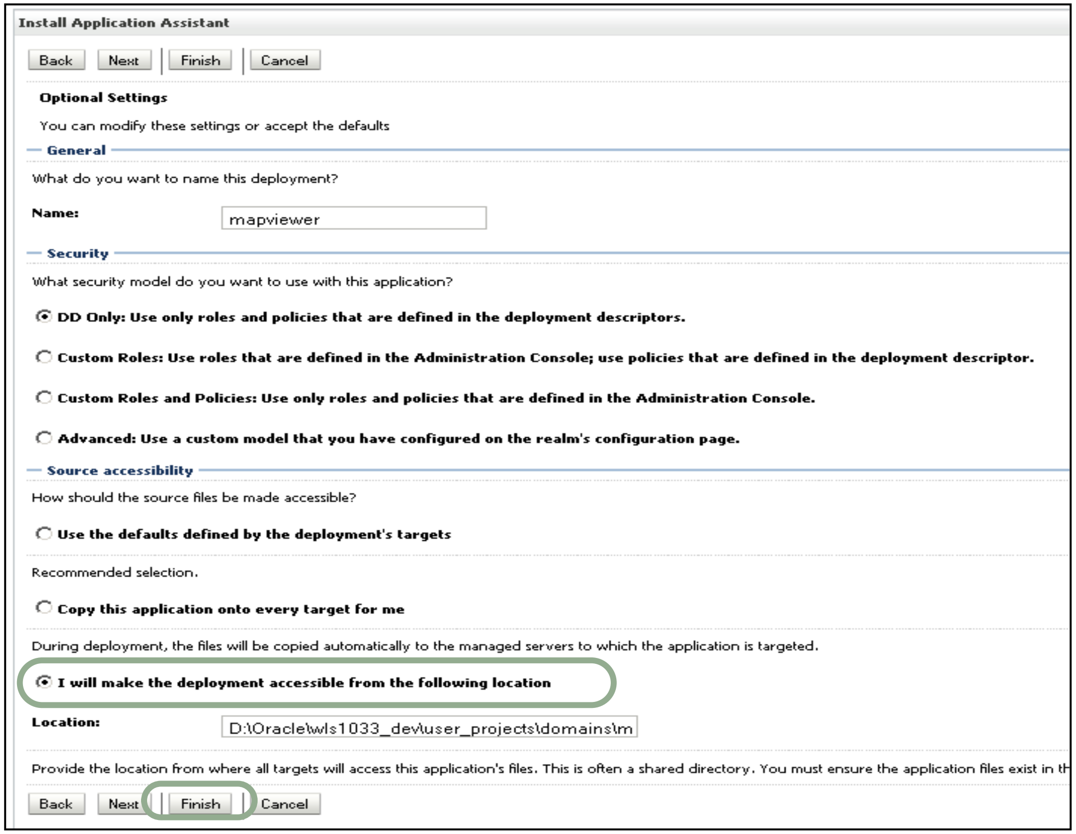
Mapviewer Installation Steps

6. Set “Source Accessibility”
   - Use the “mapviewer.ear” directory as deployment location
   - This causes the unpacked MapViewer location to become the "working” directory of MapViewer.
   - It makes it easier if you want to upgrade MapViewer in the future, in which case you simply unpack the new mapviewer.ear file to this directory and restart WebLogic Server.



Install Application Assistant

Optional Settings

You can modify these settings or accept the defaults

General

What do you want to name this deployment?

Name: mapviewer

Security

What security model do you want to use with this application?

● **DD Only: Use only roles and policies that are defined in the deployment descriptors.**

○ **Custom Roles: Use roles that are defined in the Administration Console; use policies that are defined in the deployment descriptor.**

○ **Custom Roles and Policies: Use only roles and policies that are defined in the Administration Console.**

○ **Advanced: Use a custom model that you have configured on the realm's configuration page.**

Source accessibility

How should the source files be made accessible?

○ **Use the defaults defined by the deployment's targets**

Recommended selection.

○ **Copy this application onto every target for me**

During deployment, the files will be copied automatically to the managed servers to which the application is targeted.

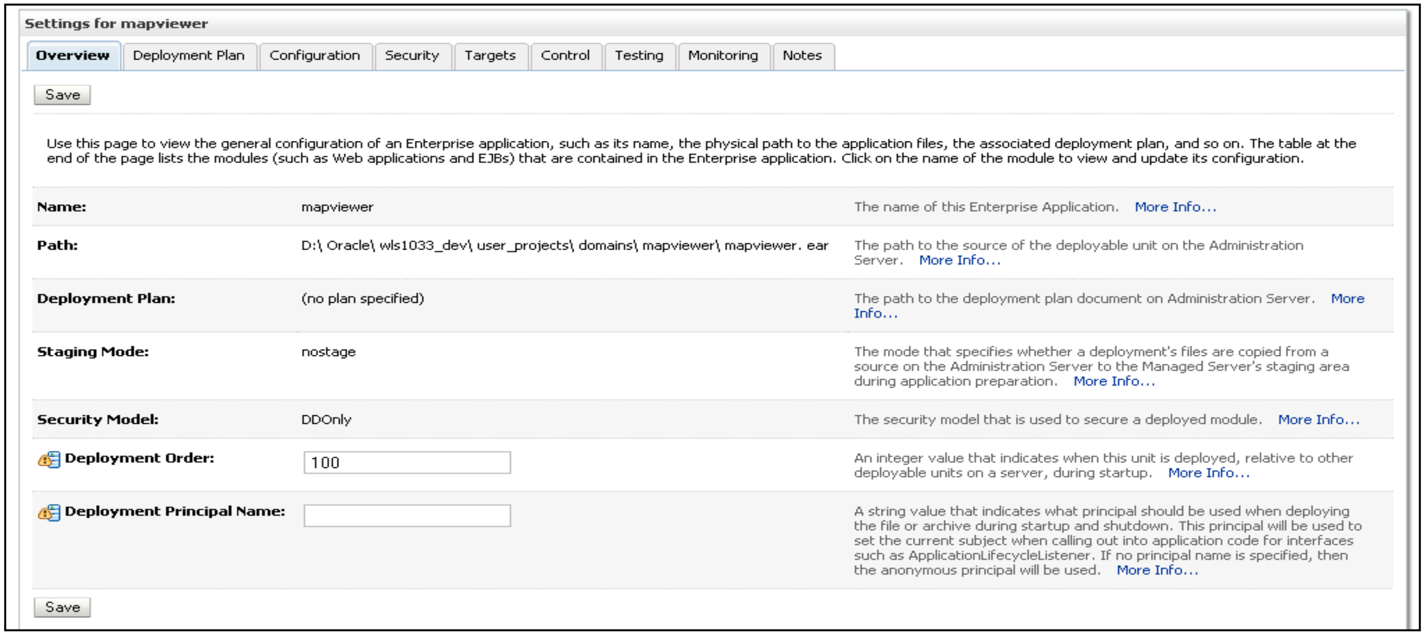
● **I will make the deployment accessible from the following location**

Location: D:\Oracle\wls1033_dev\user_projects\domains\m

Provide the location from where all targets will access this application's files. This is often a shared directory. You must ensure the application files exist in th

Mapviewer Installation Steps

7. Installation completed



Settings for mapviewer

Use this page to view the general configuration of an Enterprise application, such as its name, the physical path to the application files, the associated deployment plan, and so on. The table at the end of the page lists the modules (such as Web applications and EJBs) that are contained in the Enterprise application. Click on the name of the module to view and update its configuration.

Name:	mapviewer	The name of this Enterprise Application. More Info...
Path:	D:\ Oracle\ wls1033_dev\ user_projects\ domains\ mapviewer\ mapviewer. ear	The path to the source of the deployable unit on the Administration Server. More Info...
Deployment Plan:	(no plan specified)	The path to the deployment plan document on Administration Server. More Info...
Staging Mode:	nostage	The mode that specifies whether a deployment's files are copied from a source on the Administration Server to the Managed Server's staging area during application preparation. More Info...
Security Model:	DDOnly	The security model that is used to secure a deployed module. More Info...
Deployment Order:	100	An integer value that indicates when this unit is deployed, relative to other deployable units on a server, during startup. More Info...
Deployment Principal Name:		A string value that indicates what principal should be used when deploying the file or archive during startup and shutdown. This principal will be used to set the current subject when calling out into application code for interfaces such as ApplicationLifecycleListener. If no principal name is specified, then the anonymous principal will be used. More Info...

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Mapviewer Installation Steps

- All files used by MapViewer are now in directory **…./ mapviewer.ear/**
- Web files are in directory **…./mapviewer.ear/web.war/ WEB-INF/**
- This directory contains the following sub-directories
  - **conf** = configuration file (**mapViewerConfig.xml**)
  - **log** = log files (**mapviewerN.log**)
  - **admin** = SQL scripts

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Configuration and Administration

MapViewer Installation “Home”

- For OC4J
  - **…./j2ee/home/applications/mapviewer/web/**
  - This is inside your OC4J server
- For WebLogic Server
  - **…./mapviewer.ear/web.war/**
  - This can be anywhere.
- For Glassfish
  - **…/glassfish3/glassfish/domains/domain1/applications/mapviewer/web_war**
  - This is inside your Glassfish server. “domain1” is the default domain.

Default MapViewer URLs

Application Server	URL Type	URL
OC4J	Server home page	http://localhost:8888
	Server administration	http://localhost:8888/em
	MapViewer access	http://localhost:8888/mapviewer
Weblogic	Server home page	http://localhost:7001
	Server administration	http://localhost:7001/console
	MapViewer access	http://localhost:7001/mapviewer
Glassfish	Server home page	http://localhost:8080
	Server administration	http://localhost:4848
	MapViewer access	http://localhost:8080/mapviewer

Database Configuration

Create views and tables used for managing map caches

- Views and tables used for holding map cache definitions
- USER_SDO_CACHED_MAPS and USER_SDO_TILE_ADMIN_TASKS
- Automatically provided with 11.1.0.7 and later versions
- Must be manually added in 11.1.0.6 or earlier versions
- Script in **$MAPVIEWER_HOME/WEB-INF/admin/mcsdefinition.sql**
- Run as “SYSTEM” or “SYS”

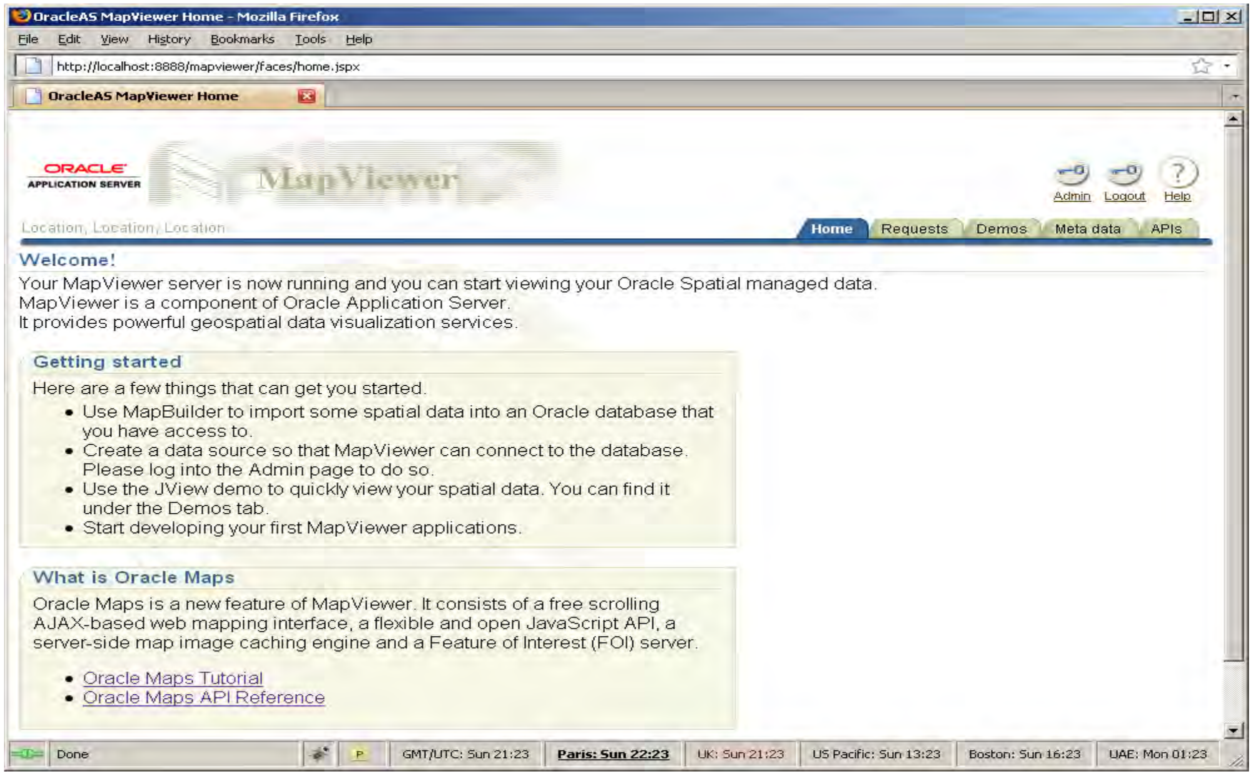
```
SQL> connect system/*******
SQL> @mcsdefinition.sql
```

MapViewer Configuration File

- File “**mapViewerConfig.xml**”
  - In **$MAPVIEWER_HOME/WEB-INF/conf**
- Set tracing and logging options
- Set permanent data sources
- Many other settings
  - Map cache location, data cache size, …
  - WMS parameters, proxy server, …
- Edit manually or via the Mapviewer console
- Restart Mapviewer for the changes to take effect

MapViewer Console

http://<server>/mapviewer


OracleAS MapViewer Home - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://localhost:8888/mapviewer/faces/home.jspx
OracleAS MapViewer Home
ORACLE APPLICATION SERVER
MapViewer
Admin
Logout
Help
Location, Location, Location
Home
Requests
Demos
Meta data
APIs
Done
GMT/UTC: Sun 21:23
Paris: Sun 22:23
UK: Sun 21:23
US Pacific: Sun 13:23
Boston: Sun 16:23
UAE: Mon 01:23

Welcome!

Your MapViewer server is now running and you can start viewing your Oracle Spatial managed data.
MapViewer is a component of Oracle Application Server.
It provides powerful geospatial data visualization services.

Getting started

Here are a few things that can get you started.

- Use MapBuilder to import some spatial data into an Oracle database that you have access to.
- Create a data source so that MapViewer can connect to the database. Please log into the Admin page to do so.
- Use the JView demo to quickly view your spatial data. You can find it under the Demos tab.
- Start developing your first MapViewer applications.

What is Oracle Maps

Oracle Maps is a new feature of MapViewer. It consists of a free scrolling AJAX-based web mapping interface, a flexible and open JavaScript API, a server-side map image caching engine and a Feature of Interest (FOI) server.

- Oracle Maps Tutorial
- Oracle Maps API Reference

- Demonstrations
- API Documentation
- Administration

- Use the “Admin” button
- Must log in as administrator.

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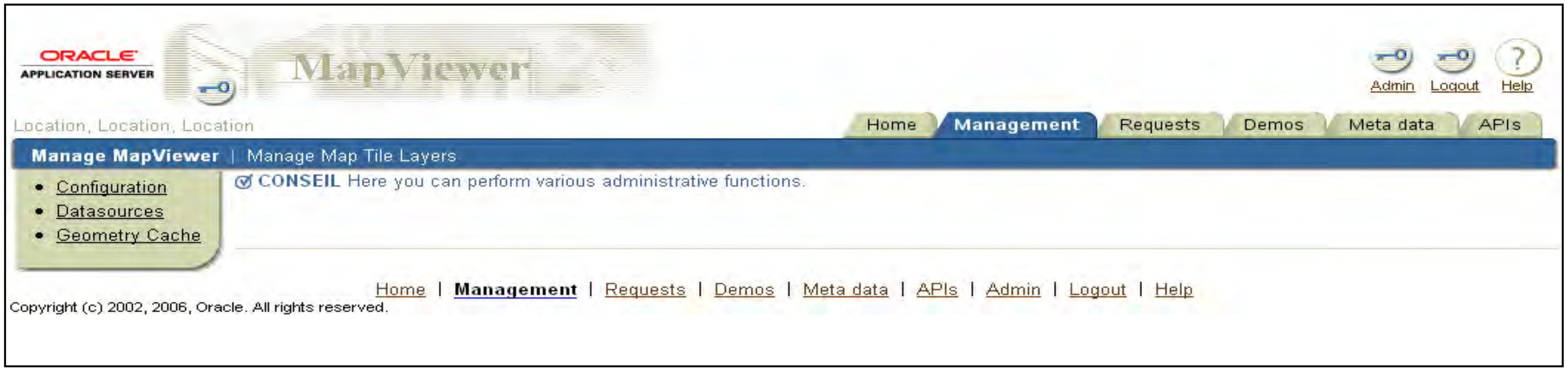
Mapviewer Administration

- Manage configuration
- Manage data sources
- Manage map caches


ORACLE APPLICATION SERVER
MapViewer
Admin
Logout
Help
Location, Location, Location
Home
Management
Requests
Demos
Meta data
APIs
Manage MapViewer | Manage Map Tile Layers
Configuration
Datasources
Geometry Cache

CONSEIL Here you can perform various administrative functions.

Home | Management | Requests | Demos | Meta data | APIs | Admin | Logout | Help

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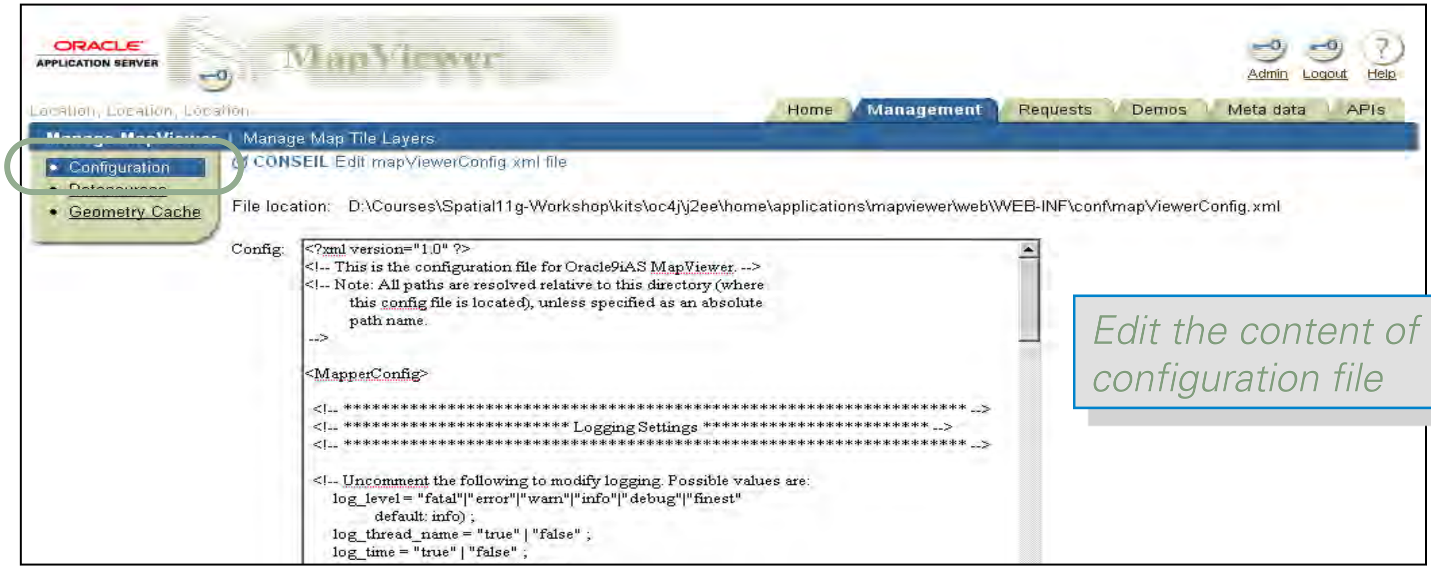
Manage Configuration



CONSEIL Edit mapViewerConfig.xml file

File location: D:\Courses\Spatial11g-Workshop\kits\oc4j\j2ee\home\applications\mapviewer\web\WEB-INF\conf\mapViewerConfig.xml

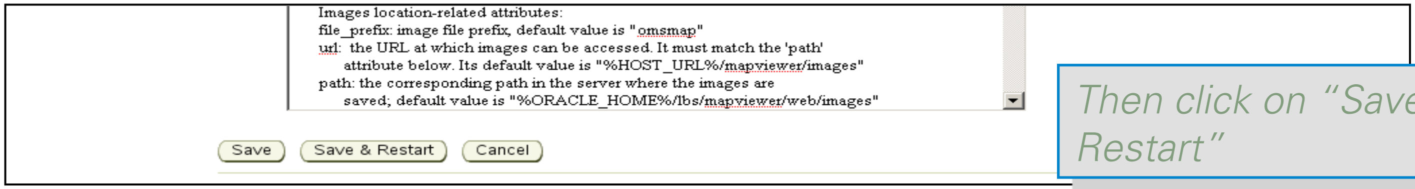
Config:

```
<?xml version="1.0" ?>
<!-- This is the configuration file for Oracle9iAS MapViewer. -->
<!-- Note: All paths are resolved relative to this directory (where
        this config file is located), unless specified as an absolute
        path name.
 -->

<MapperConfig>

 <!-- ***************************************************************** -->
 <!-- ************************ Logging Settings ************************ -->
 <!-- ***************************************************************** -->

 <!-- Uncomment the following to modify logging. Possible values are:
    log_level = "fatal"|"error"|"warn"|"info"|"debug"|"finest"
            default: info) ;
    log_thread_name = "true" | "false" ;
    log_time = "true" | "false" ;
```



```
    Images location-related attributes:
    file_prefix: image file prefix, default value is "omsmap"
    url:  the URL at which images can be accessed. It must match the 'path'
        attribute below. Its default value is "%HOST_URL%/mapviewer/images"
    path: the corresponding path in the server where the images are
        saved; default value is "%ORACLE_HOME%/lbs/mapviewer/web/images"
```

Edit the content of the configuration file

Then click on "Save & Restart"

Set Logging and Tracing

- Logging level
- Log destinations

```
<logging log_level="finest" log_thread_name="true"
         log_time="true">
   <log_output name="System.err" />
   <log_output name="../log/mapviewer.log" />
</logging>
```

- Log level “finest” good for debugging
- Will show each and every request and response
- Will show each SQL statement

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Define a Data Source

- Specify JDBC connection parameters
- Host, port, sid
- Username and password

```
<map_data_source name="scott"
   jdbc_host="127.0.0.1"
   jdbc_port="1521"
   jdbc_sid="orcl111"
   jdbc_user="scott"
   jdbc_password="!tiger"
   jdbc_mode="thin"
   max_connections="5"
   number_of_mappers="3"
   allow_jdbc_theme_based_foi="true"
/>
```

Database connection

Username and password
Password preceded with "!". Will be encrypted in the file.

NOTE for OC4J

OC4J uses a JDBC driver for database 10g
This driver converts your passwords to lowercase when connecting.

=> Use only lowercase passwords!

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Define a Data Source

- Can also use a container-managed data source

```
<map_data_source name="scott"
  container_ds="jdbc/scottDS"
  max_connections="5"
  number_of_mappers="3"
  allow_jdbc_theme_based_foi="true"
/>
```

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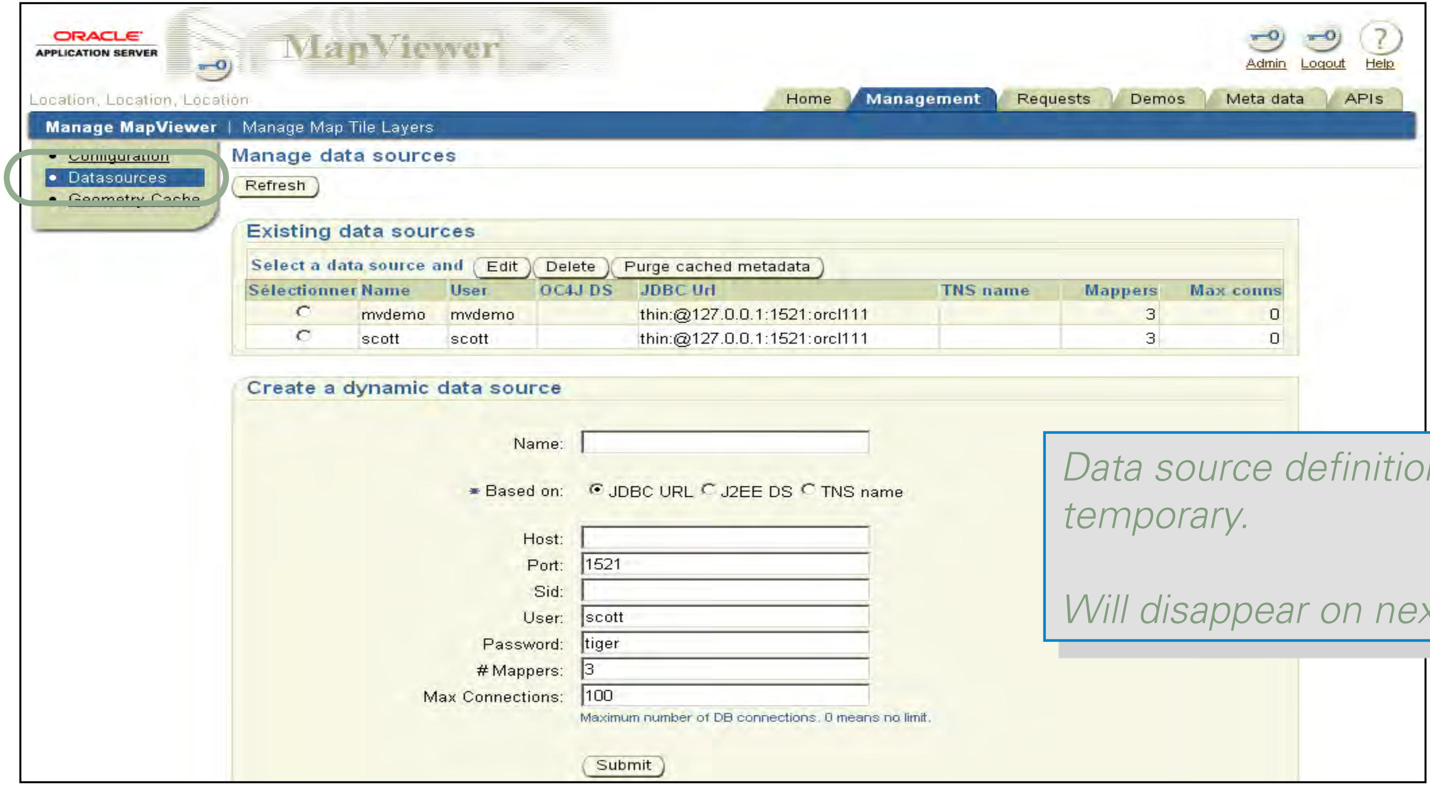
Dynamic Data Sources



Manage data sources

Existing data sources

Select a data source and

Sélectionner	Name	User	OC4J DS	JDBC Url	TNS name	Mappers	Max conns
○	mvdemo	mvdemo		thin:@127.0.0.1:1521:orcl111		3	0
○	scott	scott		thin:@127.0.0.1:1521:orcl111		3	0

Create a dynamic data source

Name:

* Based on: ● JDBC URL ○ J2EE DS ○ TNS name

Host:

Port: 1521

Sid:

User: scott

Password: tiger

Mappers: 3

Max Connections: 100

Maximum number of DB connections. 0 means no limit.

Data source definition is temporary.

Will disappear on next restart

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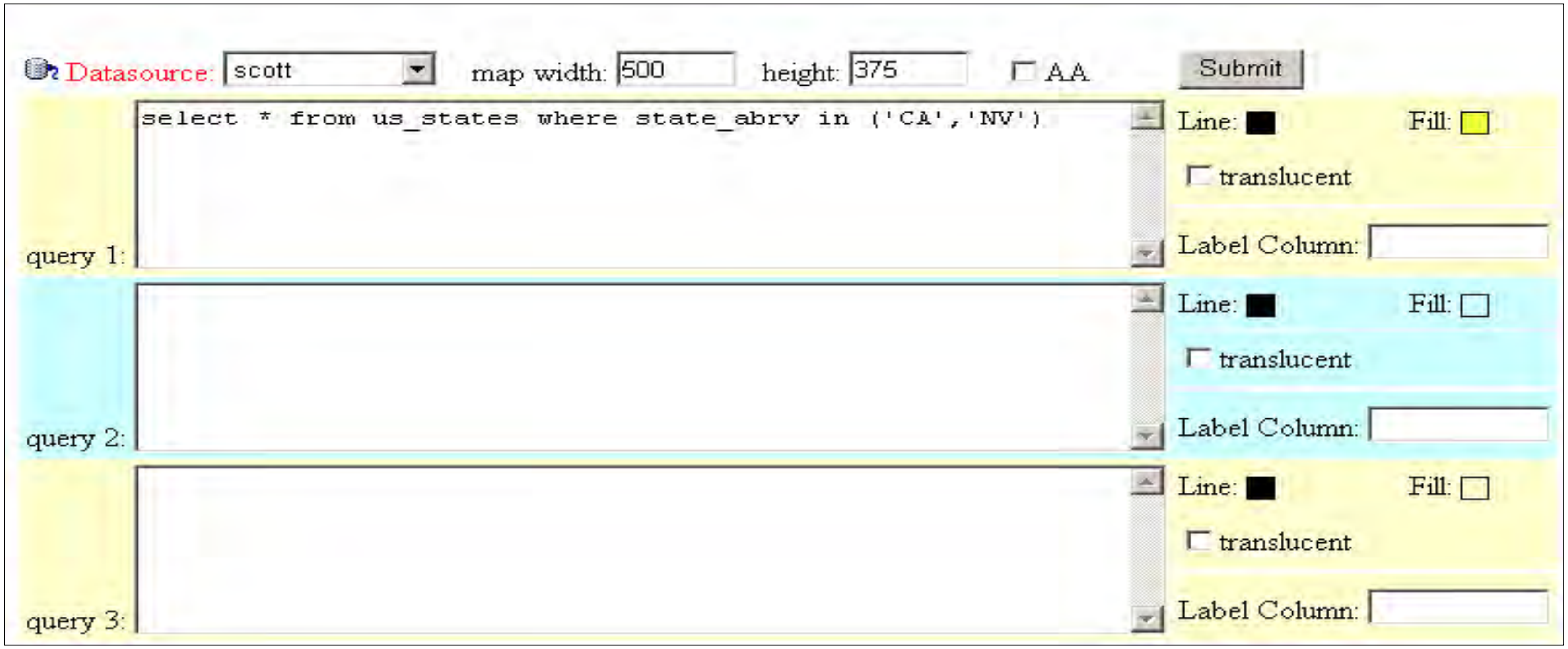
Using the “Jview” demonstrator

http://<server>/mapviewer/demo/jview.jsp



Datasource: scott map width: 500 height: 375 □ AA

query 1:

```
select * from us_states where state_abrv in ('CA','NV')
```

Line: ■ Fill: 🟨

□ translucent

Label Column:

query 2:

Line: ■ Fill: □

□ translucent

Label Column:

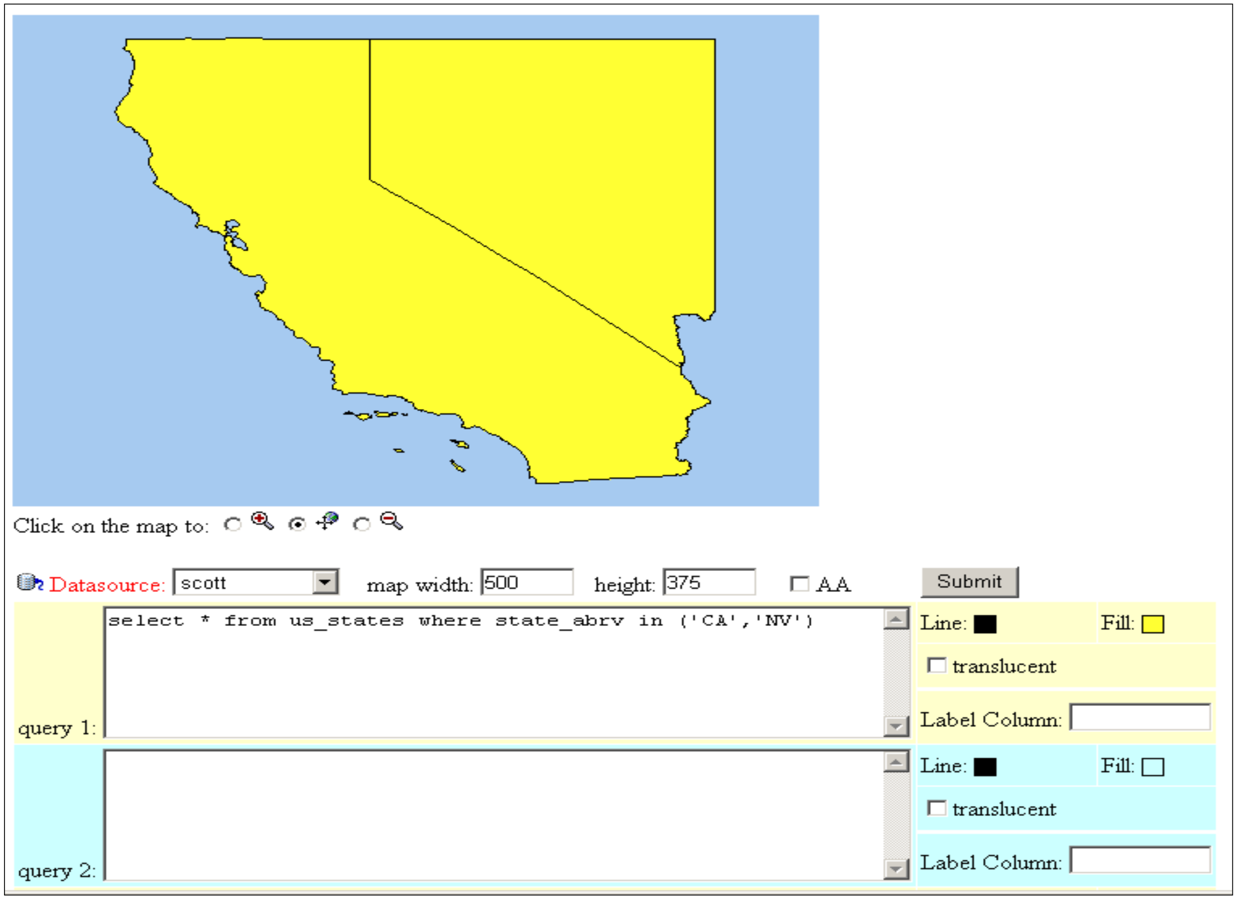
query 3:

Line: ■ Fill: □

□ translucent

Label Column:

Using the “Jview” demonstrator



Click on the map to: ○ ● ○

Datasource: scott   map width: 500   height: 375   □ AA   Submit

query 1:

```
select * from us_states where state_abrv in ('CA','NV')
```

Line: ■   Fill: 🟨

□ translucent

Label Column:

query 2:

Line: ■   Fill: □

□ translucent

Label Column:

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Prepare your spatial data

Prepare you spatial data

- Mostly database work
- Import data into a schema
- Ensure proper metadata and indexing
- Think about schema separation
  - Styles can be shared across schema
  - Themes, basemaps and tile layers cannot be shared
  - Themes can use base table from another schema

Next Steps

- Set up and review the Oracle Maps Tutorials
  - host:port/mapviewer, click on Oracle Maps Tutorial link
  - Install mvdemo dataset as described on the demo setup page host:port/mapviewer/fsmc/tutorial/setup.html
- Requires the mvdemo dataset from OTN

Learning Oracle Maps

- Install the Oracle Maps tutorial
  - Check the instructions for the setup
  - Requires importing a sample dataset
- Run the tutorial
  - Step-by-step introduction
  - Examples with associated source code
  - Progresses from simple to more complex examples

Installing the Oracle Maps Tutorial

1. Download from Mapviewer Sample code:
   - http://download.oracle.com/otn/other/mapviewer/mvdemo.zip
2. Create user MVDEMO
   - Grant basic privileges (resource, connect, create view)
3. Import MVDEMO.DMP into user MVDEMO
   - Creates tables CITIES, STATES, COUNTIES, INTERSTATES and some more
4. Run script MVDEMO.SQL
   - Populates CUSTOMERS,
   - Creates spatial indexes
   - Creates styles, themes, maps and map caches.
5. Define MapViewer data-source MVDEMO

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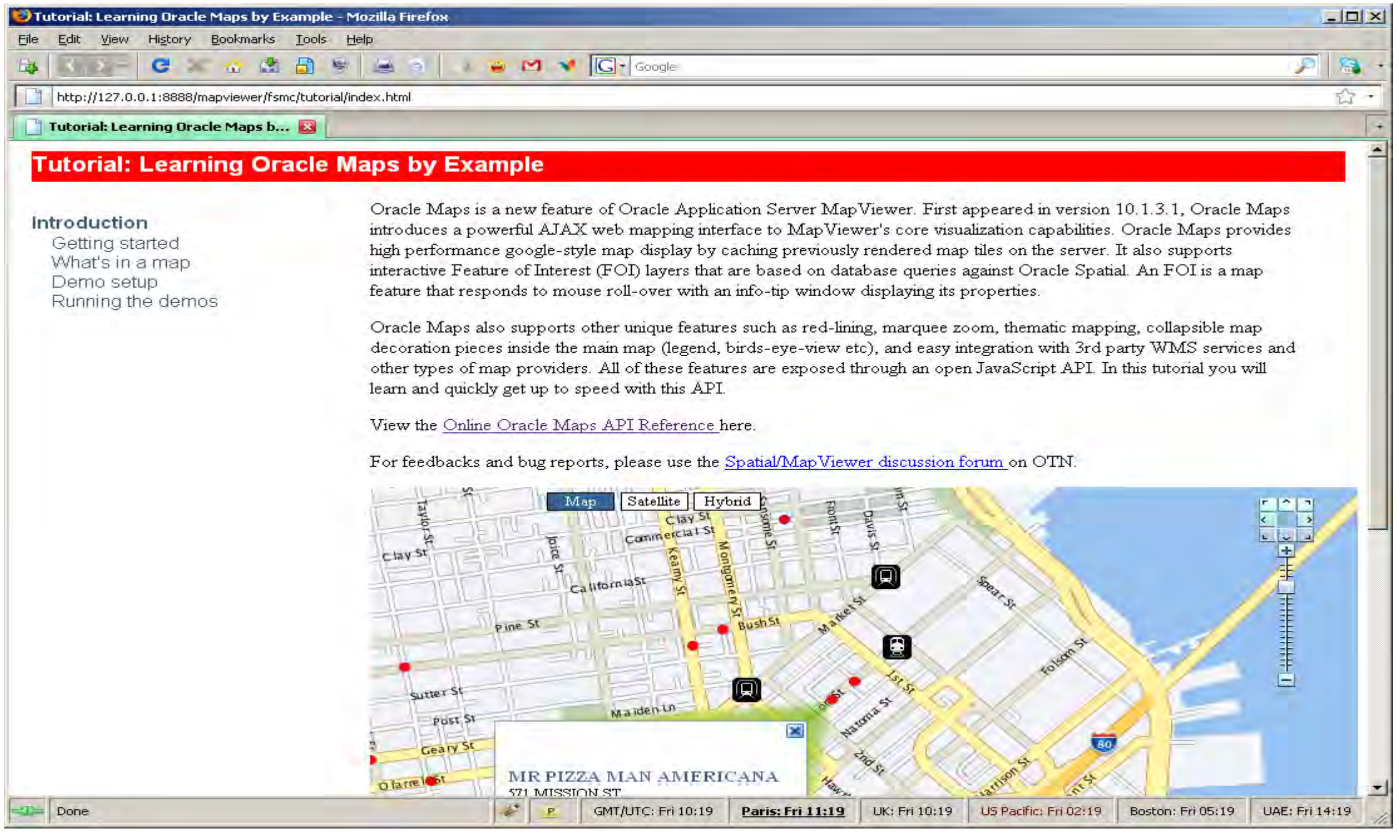
Fully Functional Tutorials



Tutorial: Learning Oracle Maps by Example

Introduction
- Getting started
- What's in a map
- Demo setup
- Running the demos

Oracle Maps is a new feature of Oracle Application Server MapViewer. First appeared in version 10.1.3.1, Oracle Maps introduces a powerful AJAX web mapping interface to MapViewer's core visualization capabilities. Oracle Maps provides high performance google-style map display by caching previously rendered map tiles on the server. It also supports interactive Feature of Interest (FOI) layers that are based on database queries against Oracle Spatial. An FOI is a map feature that responds to mouse roll-over with an info-tip window displaying its properties.

Oracle Maps also supports other unique features such as red-lining, marquee zoom, thematic mapping, collapsible map decoration pieces inside the main map (legend, birds-eye-view etc), and easy integration with 3rd party WMS services and other types of map providers. All of these features are exposed through an open JavaScript API. In this tutorial you will learn and quickly get up to speed with this API.

View the Online Oracle Maps API Reference here.

For feedbacks and bug reports, please use the Spatial/MapViewer discussion forum on OTN.

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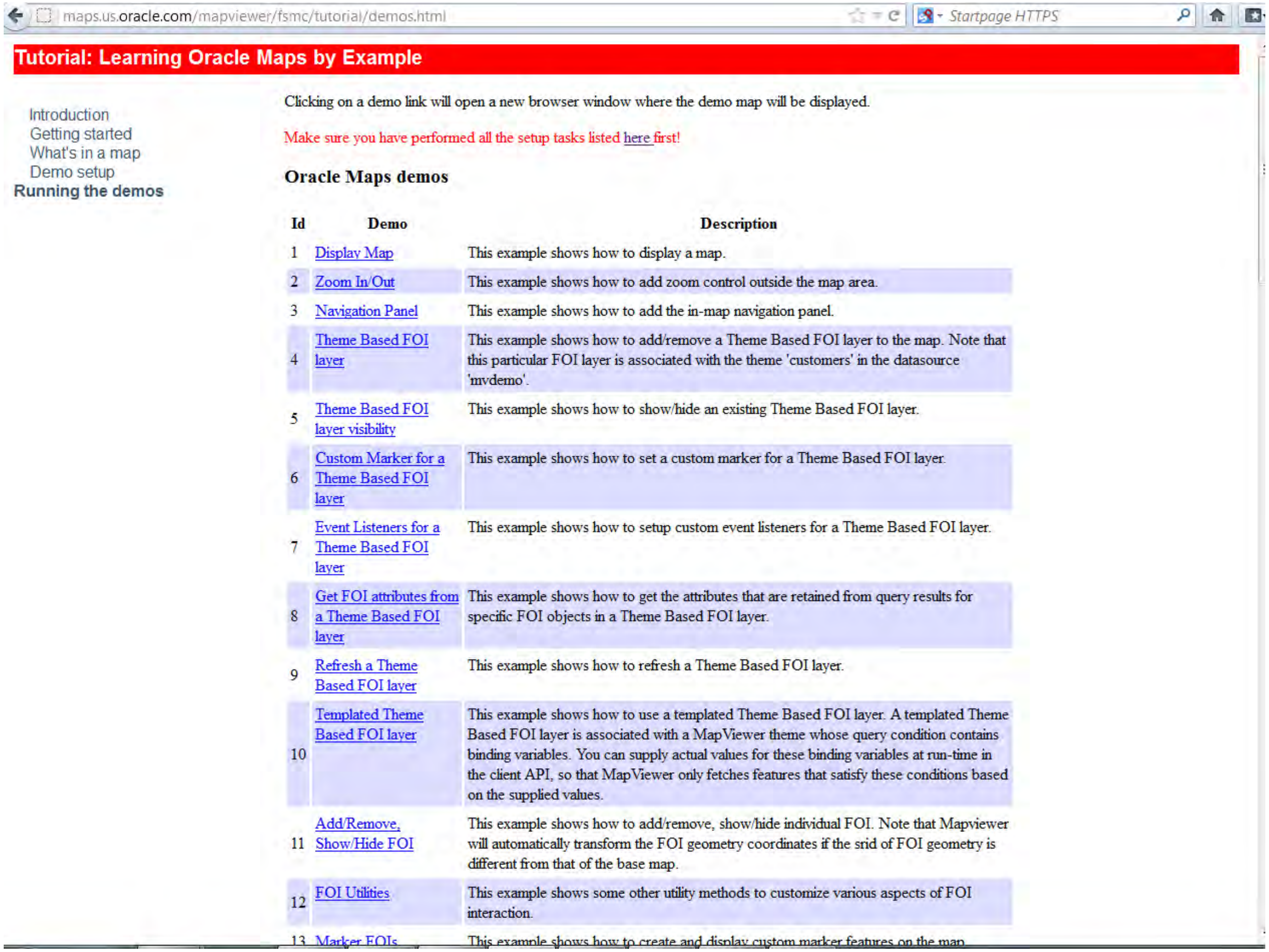

Tutorial: Learning Oracle Maps by Example

Introduction
Getting started
What's in a map
Demo setup
Running the demos

Clicking on a demo link will open a new browser window where the demo map will be displayed.

Make sure you have performed all the setup tasks listed here first!

Oracle Maps demos

Id	Demo	Description
1	Display Map	This example shows how to display a map.
2	Zoom In/Out	This example shows how to add zoom control outside the map area.
3	Navigation Panel	This example shows how to add the in-map navigation panel.
4	Theme Based FOI layer	This example shows how to add/remove a Theme Based FOI layer to the map. Note that this particular FOI layer is associated with the theme 'customers' in the datasource 'mvdemo'.
5	Theme Based FOI layer visibility	This example shows how to show/hide an existing Theme Based FOI layer.
6	Custom Marker for a Theme Based FOI layer	This example shows how to set a custom marker for a Theme Based FOI layer.
7	Event Listeners for a Theme Based FOI layer	This example shows how to setup custom event listeners for a Theme Based FOI layer.
8	Get FOI attributes from a Theme Based FOI layer	This example shows how to get the attributes that are retained from query results for specific FOI objects in a Theme Based FOI layer.
9	Refresh a Theme Based FOI layer	This example shows how to refresh a Theme Based FOI layer.
10	Templated Theme Based FOI layer	This example shows how to use a templated Theme Based FOI layer. A templated Theme Based FOI layer is associated with a MapViewer theme whose query condition contains binding variables. You can supply actual values for these binding variables at run-time in the client API, so that MapViewer only fetches features that satisfy these conditions based on the supplied values.
11	Add/Remove, Show/Hide FOI	This example shows how to add/remove, show/hide individual FOI. Note that Mapviewer will automatically transform the FOI geometry coordinates if the srid of FOI geometry is different from that of the base map.
12	FOI Utilities	This example shows some other utility methods to customize various aspects of FOI interaction.
13	Marker FOIs	This example shows how to create and display custom marker features on the map.

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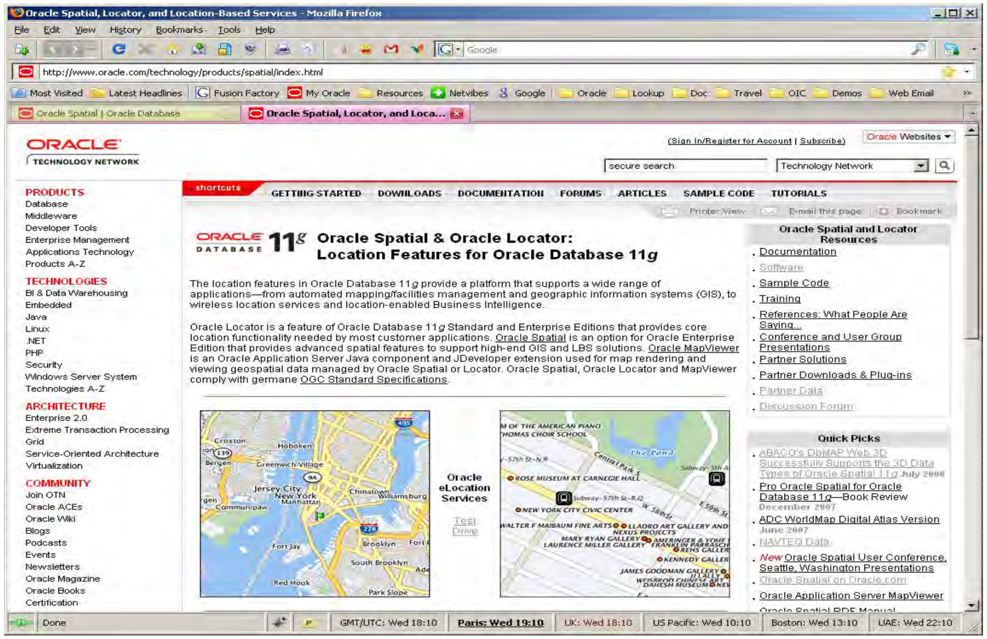
Resources

http://www.oracle.com/technetwork/database/options/spatial



Oracle Spatial & Oracle Locator: Location Features for Oracle Database 11*g*

The location features in Oracle Database 11*g* provide a platform that supports a wide range of applications—from automated mapping/facilities management and geographic information systems (GIS), to wireless location services and location-enabled Business Intelligence.

Oracle Locator is a feature of Oracle Database 11*g* Standard and Enterprise Editions that provides core location functionality needed by most customer applications. Oracle Spatial is an option for Oracle Enterprise Edition that provides advanced spatial features to support high-end GIS and LBS solutions. Oracle MapViewer is an Oracle Application Server Java component and JDeveloper extension used for map rendering and viewing geospatial data managed by Oracle Spatial or Locator. Oracle Spatial, Oracle Locator and MapViewer comply with germane OGC Standard Specifications.

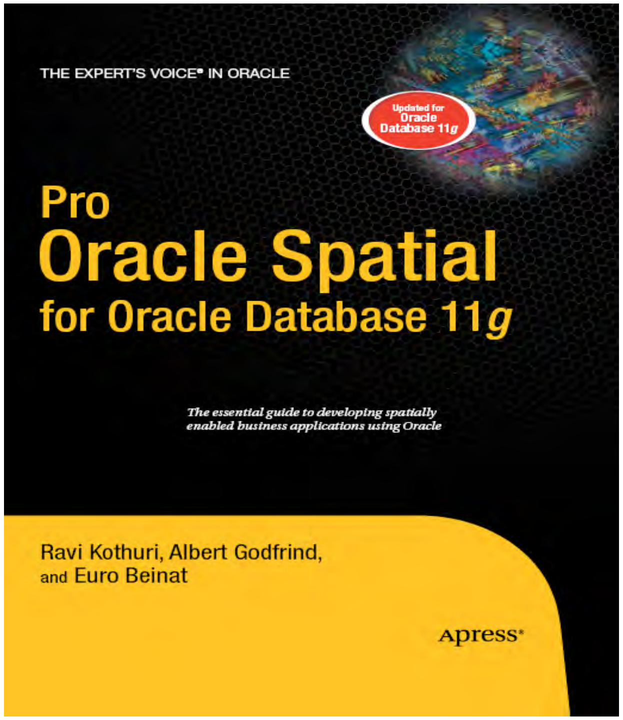
Oracle Spatial and Locator Resources

- Documentation
- Software
- Sample Code
- Training
- References: What People Are Saying...
- Conference and User Group Presentations
- Partner Solutions
- Partner Downloads & Plug-ins
- Partner Data
- Discussion Forum

Quick Picks

- ABACO's DbMAP Web 3D Successfully Supports the 3D Data Types of Oracle Spatial 11*g* July 2008
- Pro Oracle Spatial for Oracle Database 11*g*—Book Review December 2007
- ADC WorldMap Digital Atlas Version June 2007
- NAVTEQ Data
- *New* Oracle Spatial User Conference, Seattle, Washington Presentations
- Oracle Spatial on Oracle.com
- Oracle Application Server MapViewer
- Oracle Spatial RDF Manual

Examples, white papers, downloads, discussion forum, sample data ....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Updated for Oracle Database 11*g*

Pro
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for Oracle Database 11*g*

The essential guide to developing spatially enabled business applications using Oracle

Ravi Kothuri, Albert Godfrind, and Euro Beinat

Apress®

Q&A