

How to create geoJSON out of an image for using it as map layer in Oracle Data Visualization

In this document we will discuss about how to convert an image to a geoJSON file format.

Many a time BI users would have an image of a geographic layout like floor plan of public facilities like Airport, Museum or a shopping mall or for that matter a store, and would like to perform analytics for that layout either to count footfall or revenue generation in each section in that layout etc. If you have access to a geoJSON of that layout or if you can create one then Oracle Data Visualization comes to your rescue by accepting the geoJSON as a custom map layer.

Using a combination of Oracle Tools users can convert image of a layout into geoJSON.

Pre-requisites:

- 1) Running Oracle Database instance with Maps/spatial data schema
- 2) Oracle Map builder. If you don't have Oracle Map builder, fret not. You can download Map builder from this [link](#) (download **MapBuilder 12.2.1.2**) and deploy it by following the instructions in "Installing and Configuring Map Builder" section in this [Tutorial](#).
- 3) Oracle Mapeditor. If you don't have Oracle Mapeditor you can download it from this [link](#). Oracle Map editor is required to draw the sections/blocks on top of the image to create a geometric layout that can be saved in a database table and then understood by Oracle Map builder tool.

NOTE: Please ensure that you agree and comply with license and usage terms for each Oracle tool and software referenced in this document.

Here is a high level view of steps involved in this process:

- a) Create a Base Map using the Image file received, using Oracle Map Builder tool.
- b) Create a GeoRaster theme using the Base Map using Map Builder tool
- c) Create a Base Map based on the GeoRaster Theme using Map builder tool
- d) Create a Geometry layer to show different regions on the map using Map Editor tool
- e) Create a Theme(a database table) based on the Geometry Layer using Map Builder tool
- f) Export the Theme to geoJSON using Oracle Map builder

Oracle Data Visualization - Maps

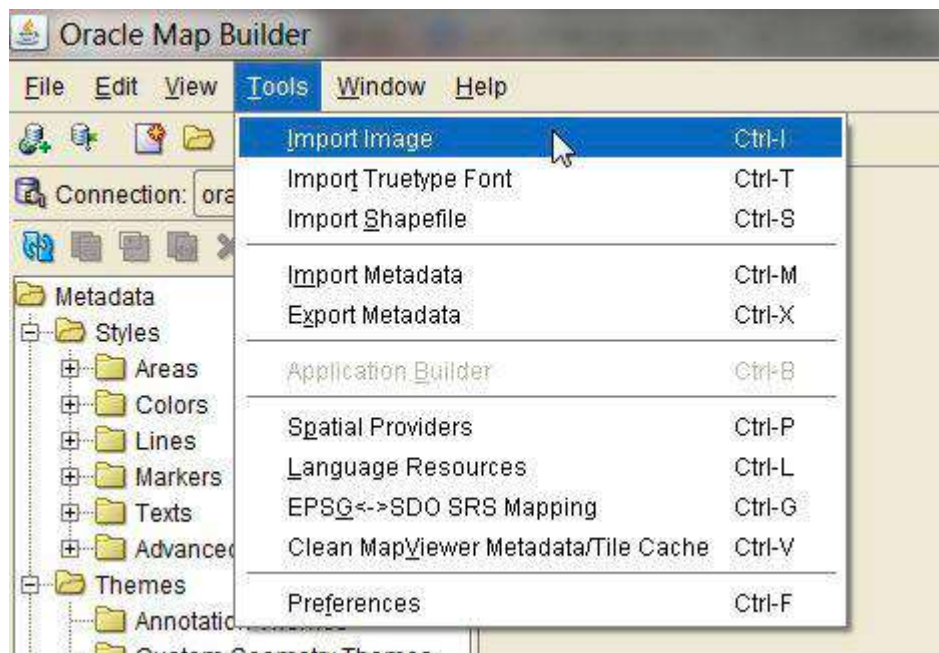
a) Create a Base Map using the Image file received.

In this step image file is used to create a geometry layer in the Oracle DB. The image file is loaded in the Oracle DB as a GeoRaster image. This image will be used to create a base map and also map tile layers. For demonstration purpose in this demo we are using Floorplan1_fs.jpeg (if the extension is .jpg just rename it to jpeg). You can download this image file from [here](#).

Start the map builder tool and connect to the DB with spatial option.

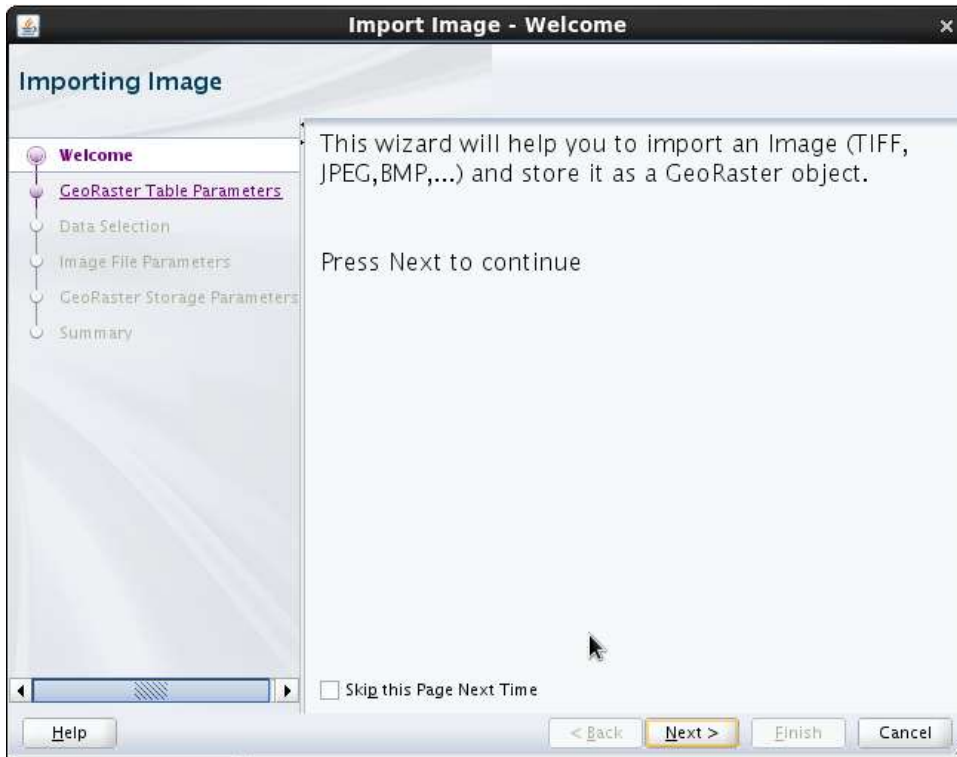


Select Tools -> Import Image

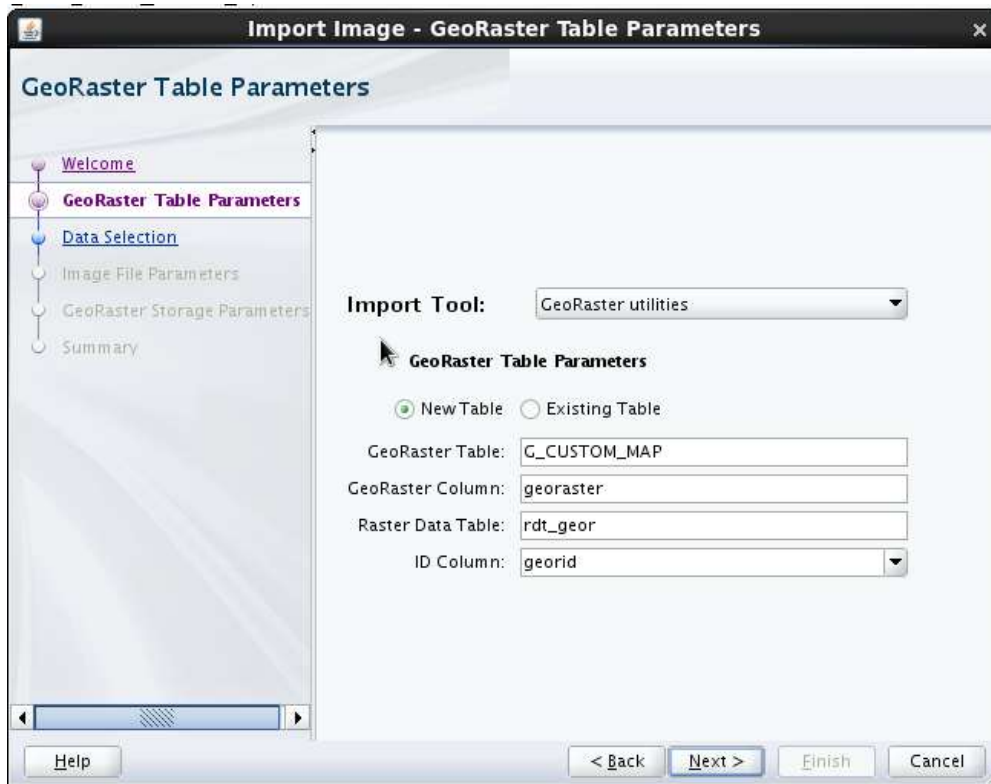


Follow the steps outlined below after you have received the image file for the map:

Oracle Data Visualization - Maps



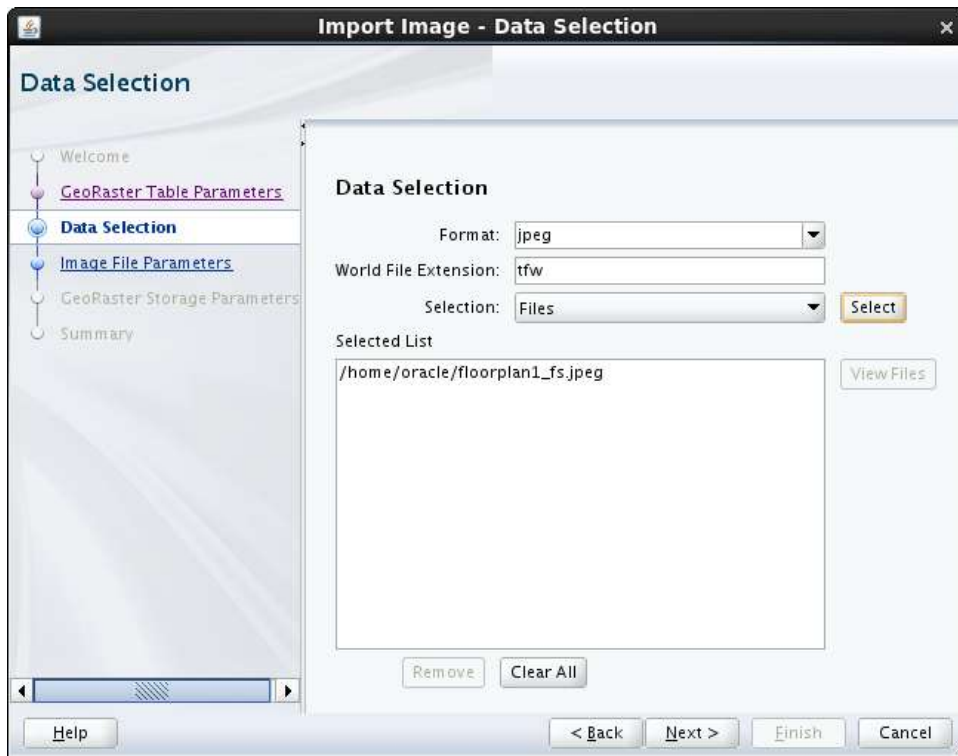
Create a new table to store the map details:
Give the table name and let the other columns be default:



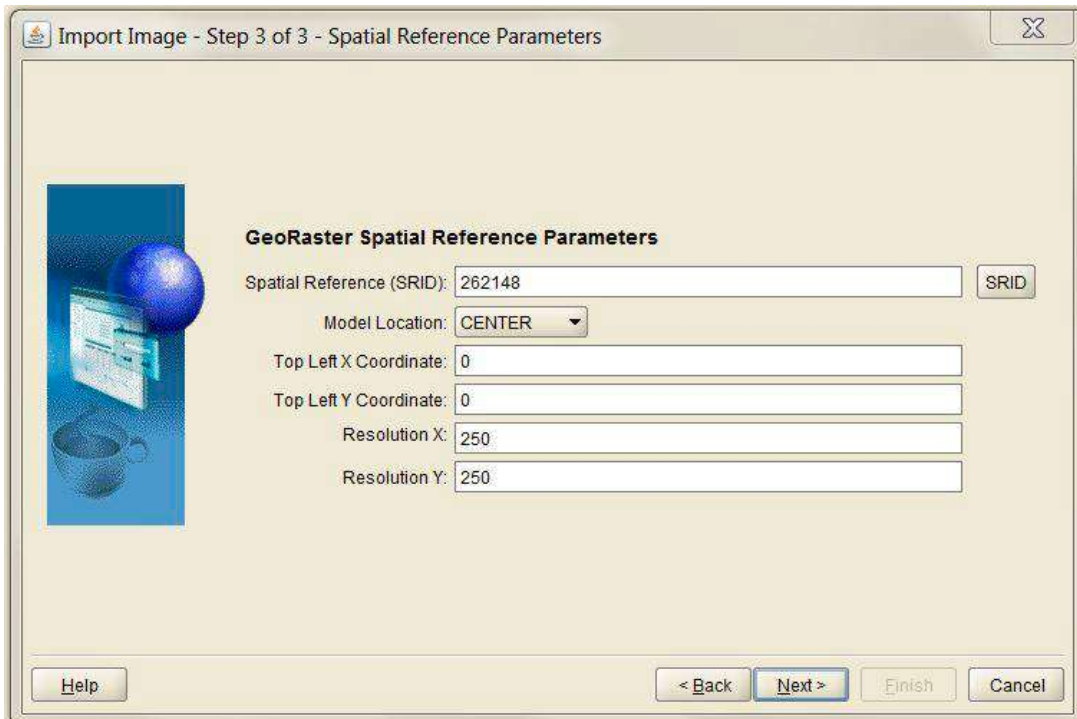
Oracle Data Visualization - Maps

Click Next.

Select the file (jpeg image file), that will be used as the background map.

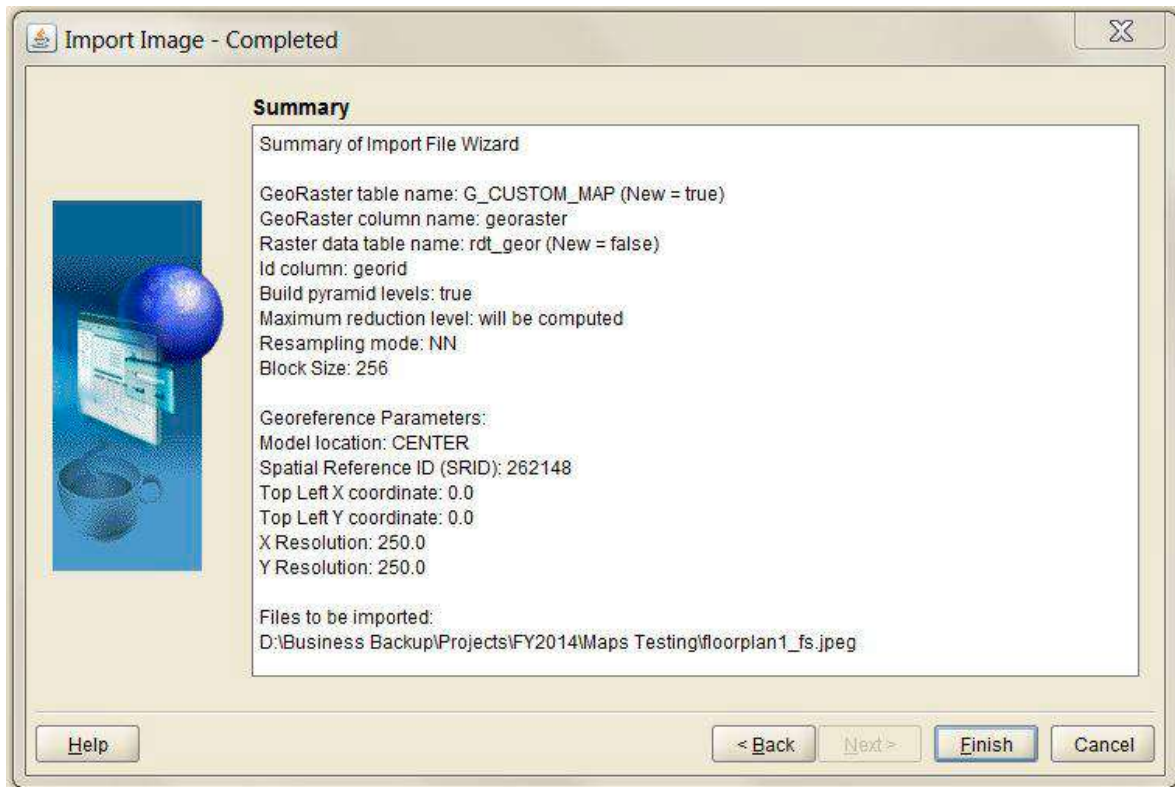


Click **Next**. In the Next screen use the default SRID. Select the other values as shown below.



Oracle Data Visualization - Maps

Click Next. Next screen shows the summary.



Click finish.

Note: After clicking Finish, if the table creation fails with the error then you need to execute following SQL commands:

From MDSYS Schema:

```
grant execute on SDO_GEOCASTER to obiee_navteq;
```

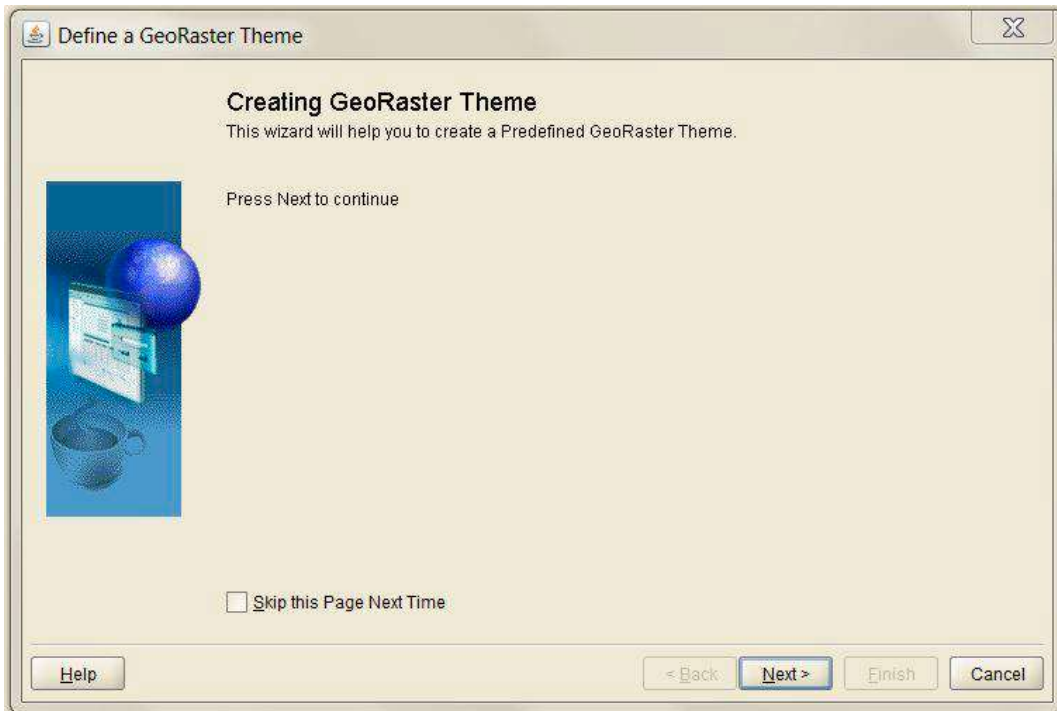
From obiee_navteq schema:

```
CREATE SYNONYM SDO_GEOCASTER FOR MDSYS.SDO_GEOCASTER;
```

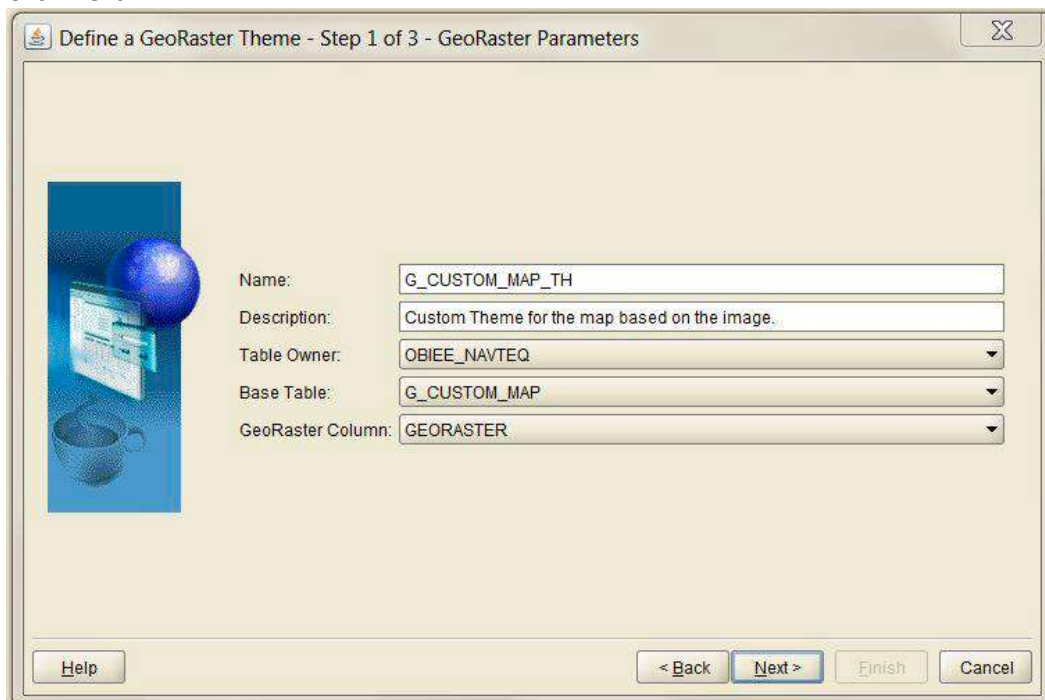
Oracle Data Visualization - Maps

b) Create a GeoRaster theme using the Base Map

From the GeoRaster image file a theme is created which will then show up as a base map in obiee. Next, we need to create a GeoRaster Theme based on the image that we imported. "Define a geoRaster Theme" console will automatically pop up if Table creation was successful in the previous step.



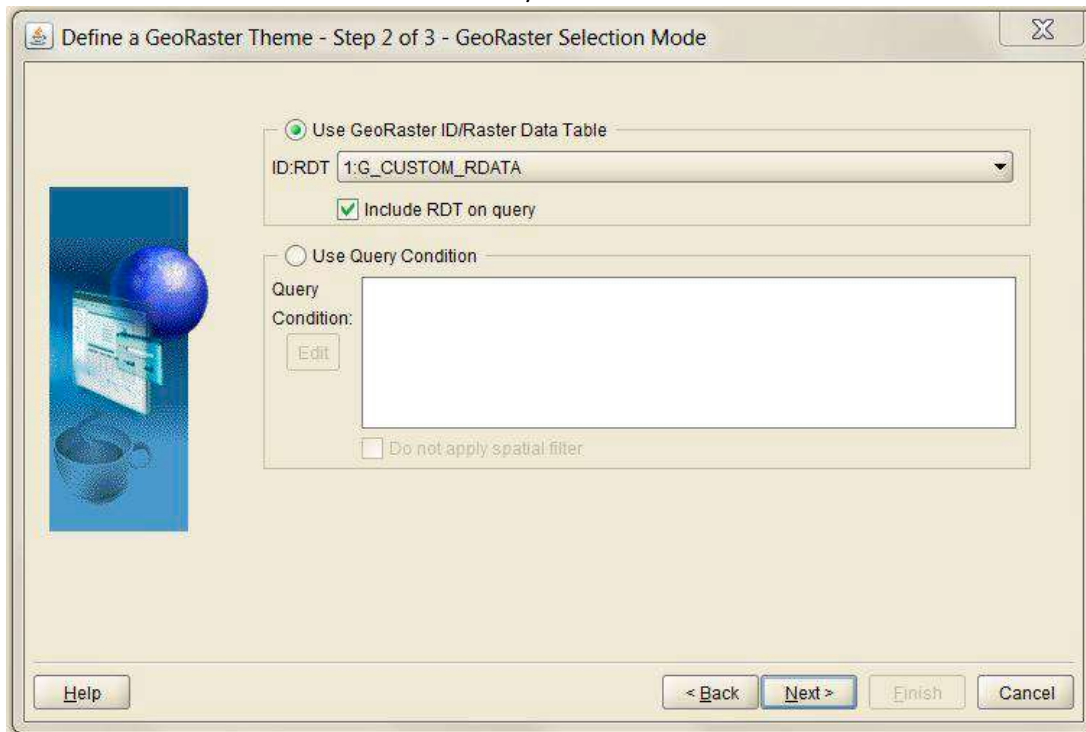
Click Next



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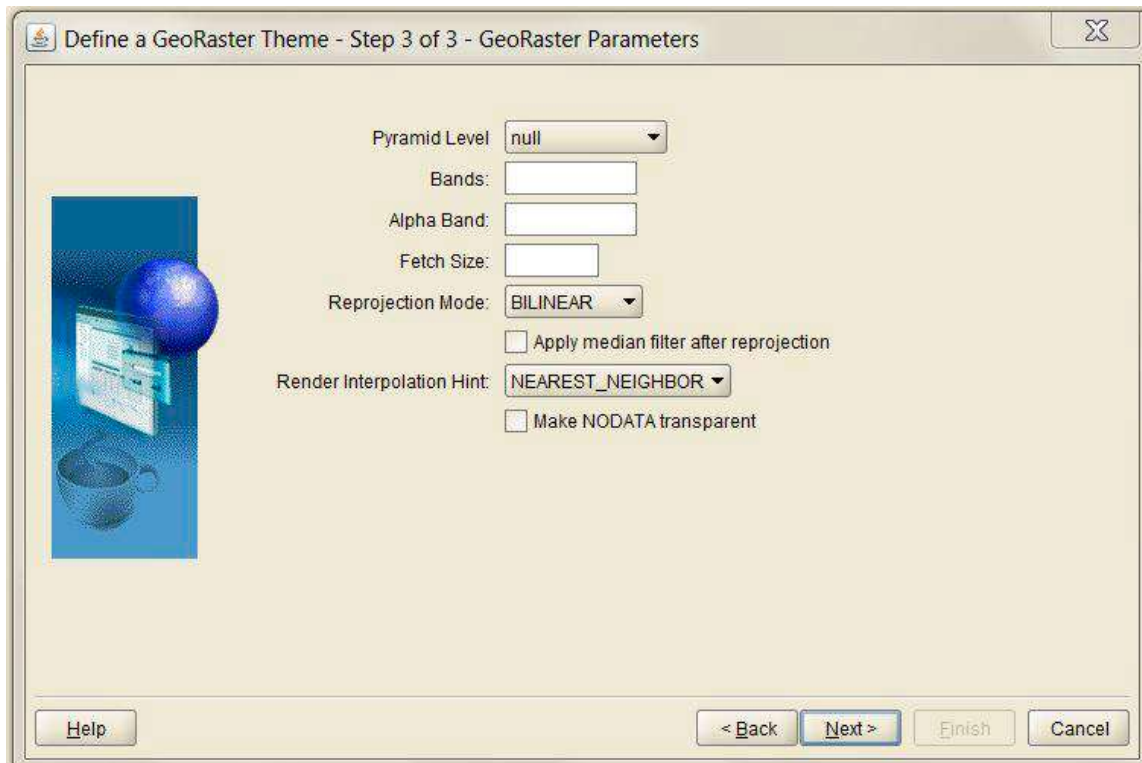
Click Next.

In the Next screen select "Use GeoRaster ID/Raster Data Table"



The dialog box is titled "Define a GeoRaster Theme - Step 2 of 3 - GeoRaster Selection Mode". It features a blue globe icon on the left. The main area contains two radio button options: "Use GeoRaster ID/Raster Data Table" (selected) and "Use Query Condition". Under the selected option, there is a dropdown menu for "ID:RDT" with the value "1:G_CUSTOM_RDATA" and a checked checkbox for "Include RDT on query". The "Use Query Condition" option has a text area for "Query Condition" and an "Edit" button. At the bottom, there are buttons for "Help", "< Back", "Next >", "Finish", and "Cancel".

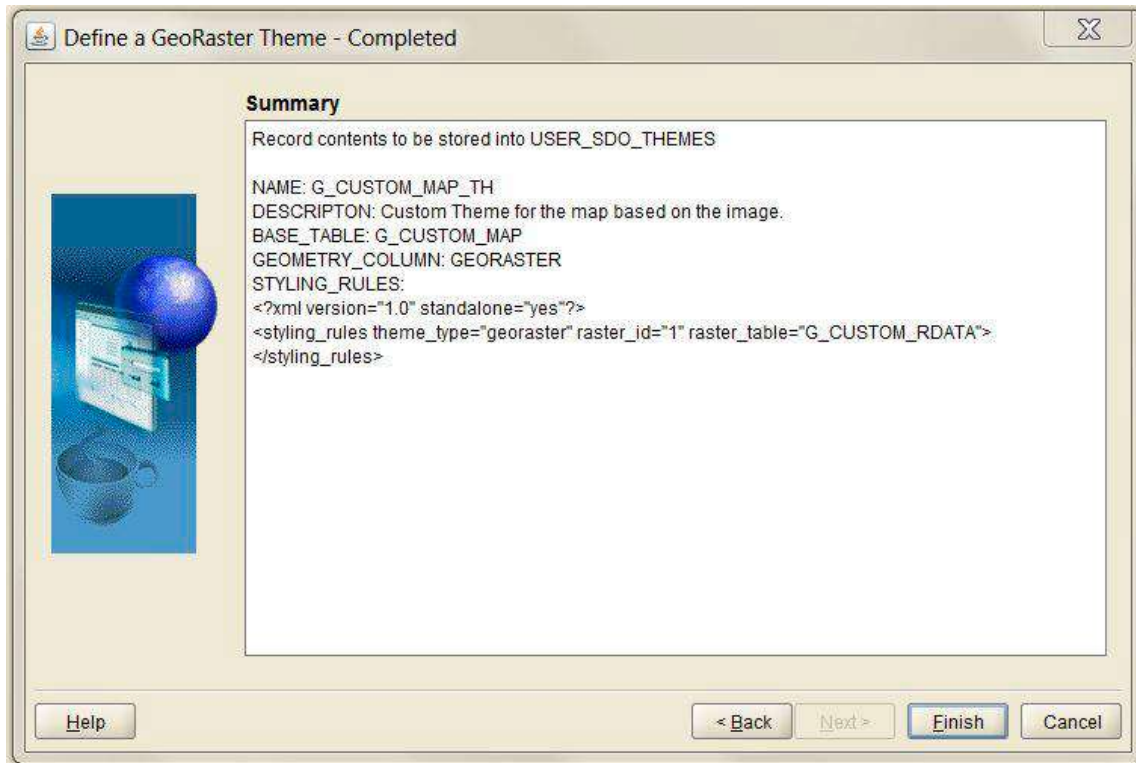
In the Next screen leave the default values.



The dialog box is titled "Define a GeoRaster Theme - Step 3 of 3 - GeoRaster Parameters". It features a blue globe icon on the left. The main area contains several parameters: "Pyramid Level" (dropdown, null), "Bands" (text input), "Alpha Band" (text input), "Fetch Size" (text input), "Reprojection Mode" (dropdown, BILINEAR), "Apply median filter after reprojection" (checkbox, unchecked), "Render Interpolation Hint" (dropdown, NEAREST_NEIGHBOR), and "Make NODATA transparent" (checkbox, unchecked). At the bottom, there are buttons for "Help", "< Back", "Next >", "Finish", and "Cancel".

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Click Next

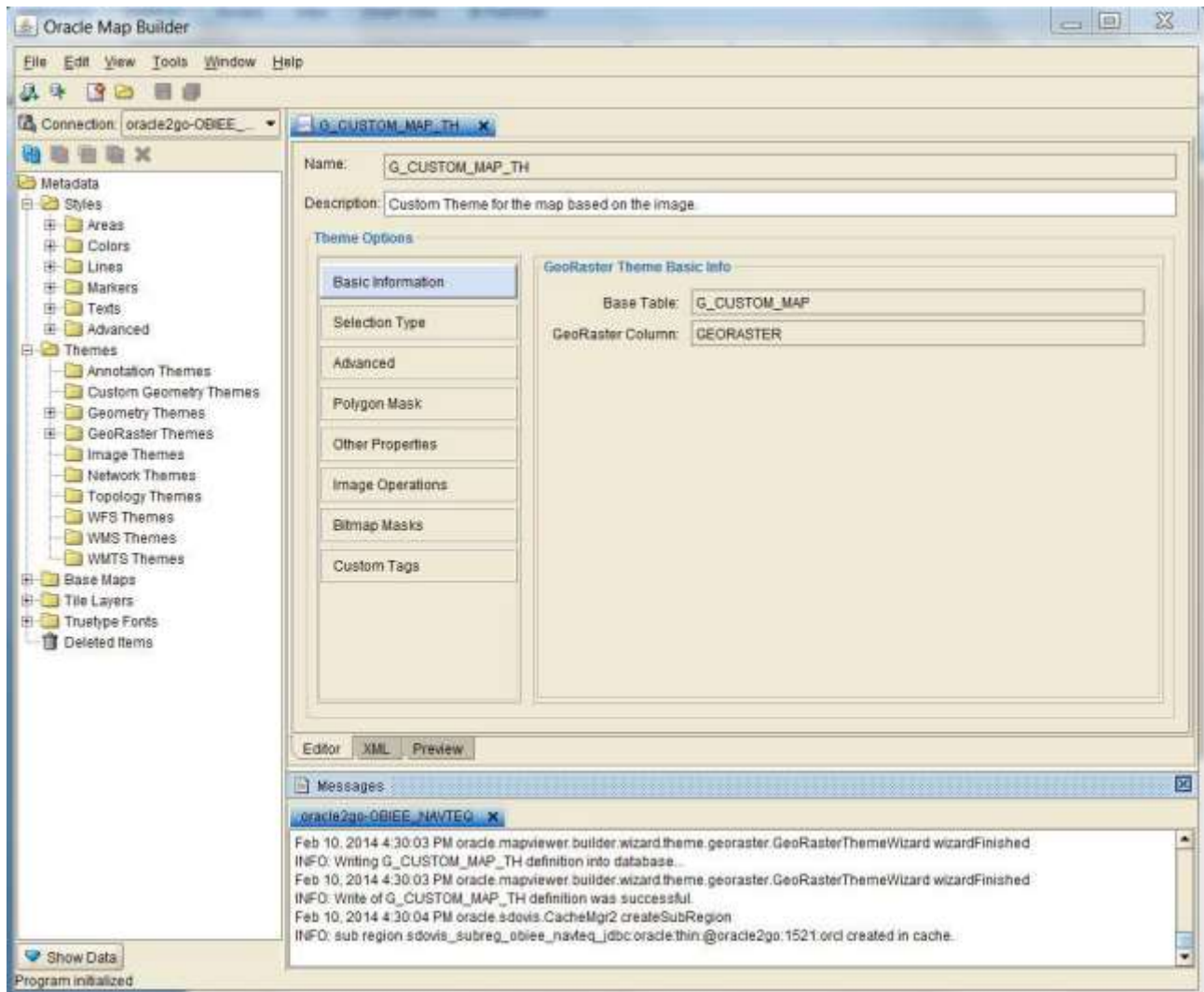


This screen provides the summary for the theme.

Click finish.

Now the mapbuilder tool, you can preview the image stored in the DB.

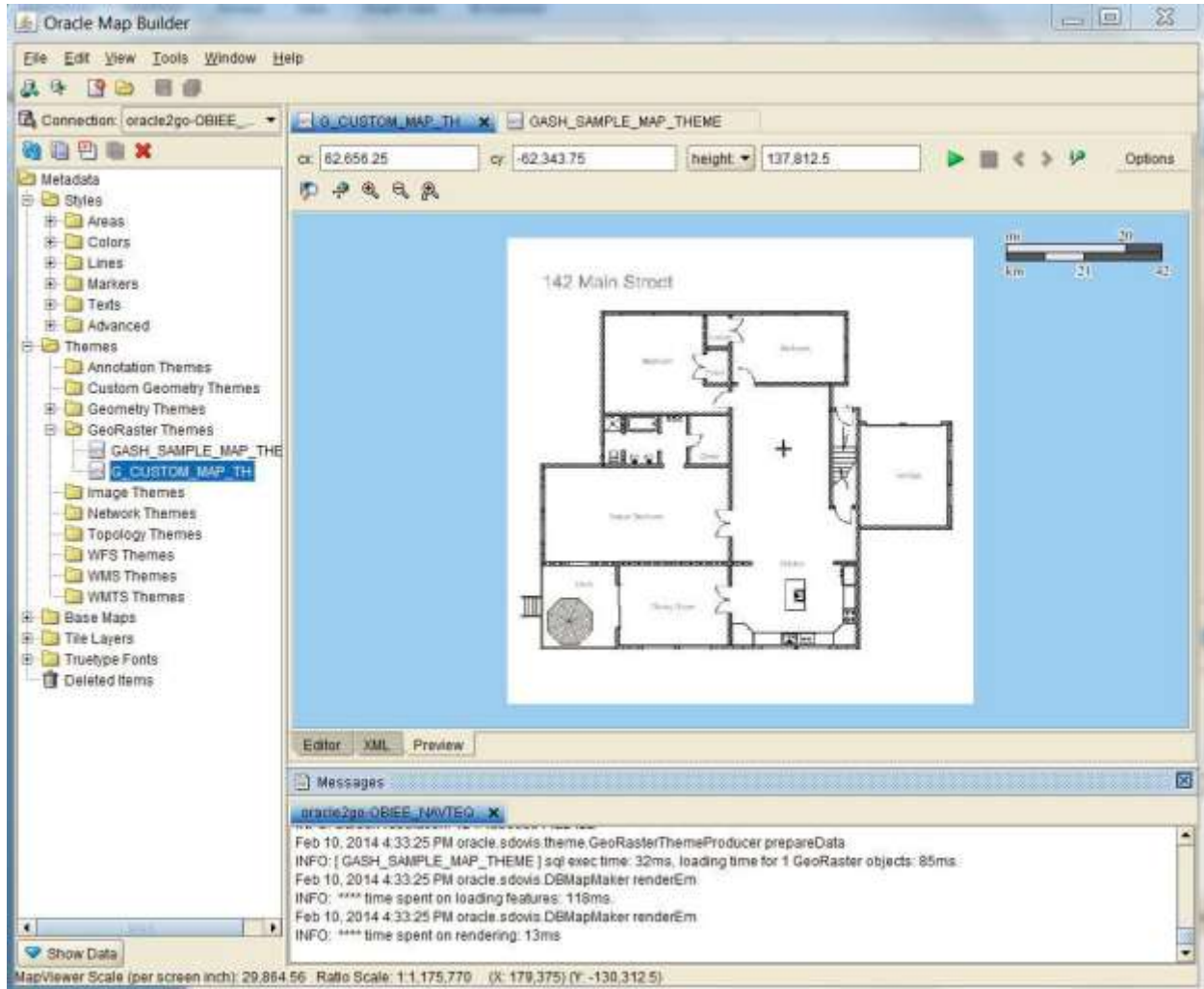
Oracle Data Visualization - Maps



Click the "Preview" tab. Hit the green arrow button to view the map.



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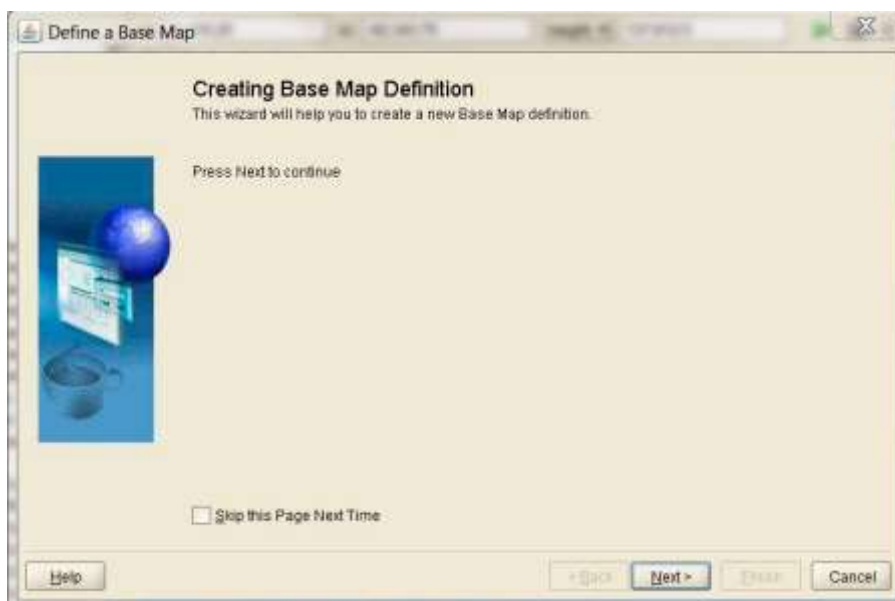
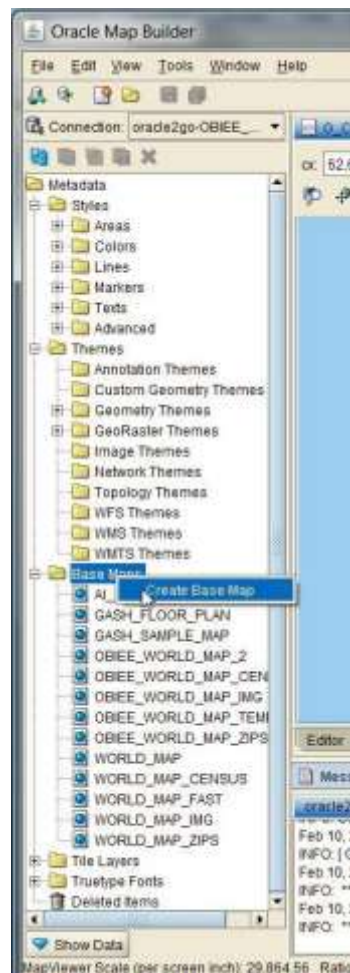


Now, we should be able to view the image as a theme in the map builder tool.

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c) Create a Base Map based on the GeoRaster Theme

Base map is created in this step. Create a Base map from the Geometry layer that we just created.



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Click Next.

Define a Base Map - Step 1 of 2 - Base Map Parameters

Name:

Description:

Help < Back Next > Finish Cancel

Click Next.

In the Next screen under themes, select the Map theme we just created.

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

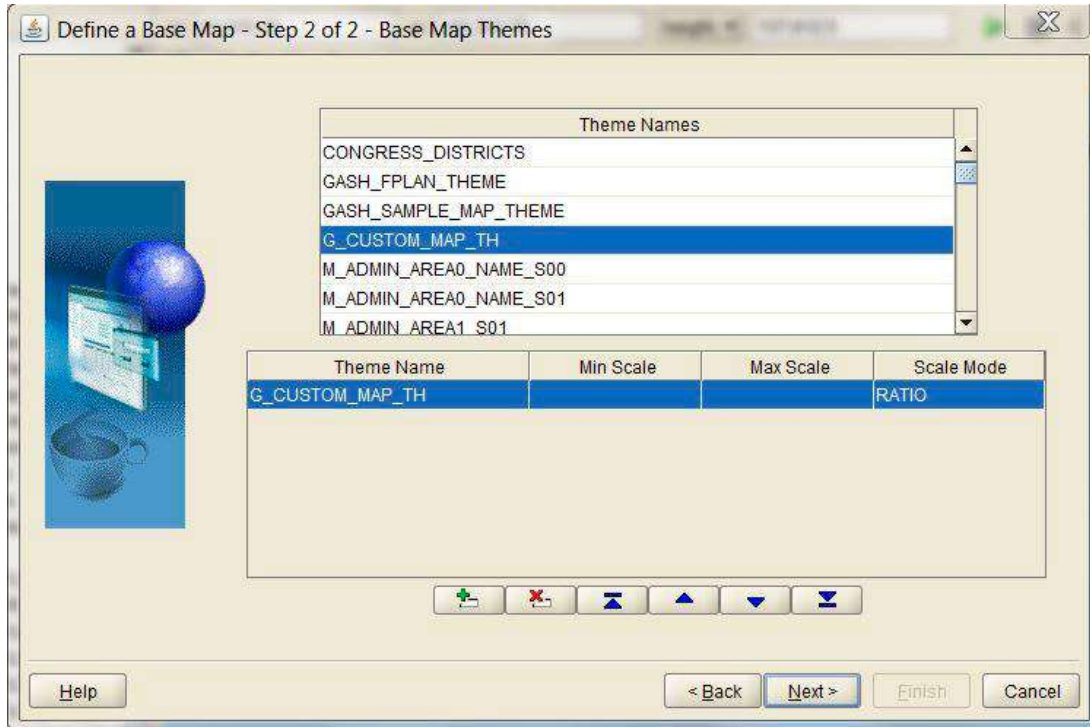
Theme Names

- CONGRESS_DISTRICTS
- GASH_FPLAN_THEME
- GASH_SAMPLE_MAP_THEME
- G_CUSTOM_MAP_TH**
- M_ADMIN_AREA0_NAME_S00
- M_ADMIN_AREA0_NAME_S01
- M_ADMIN_AREA1_S01

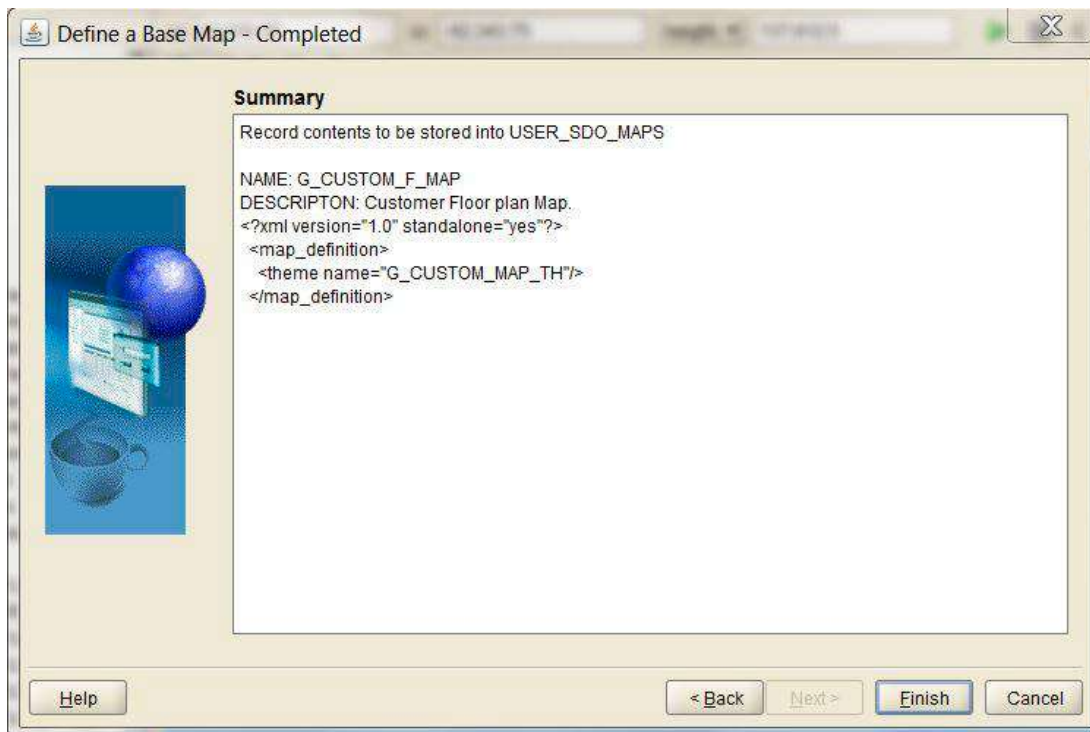
Theme Name	Min Scale	Max Scale	Scale Mode
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Help < Back Next > Finish Cancel

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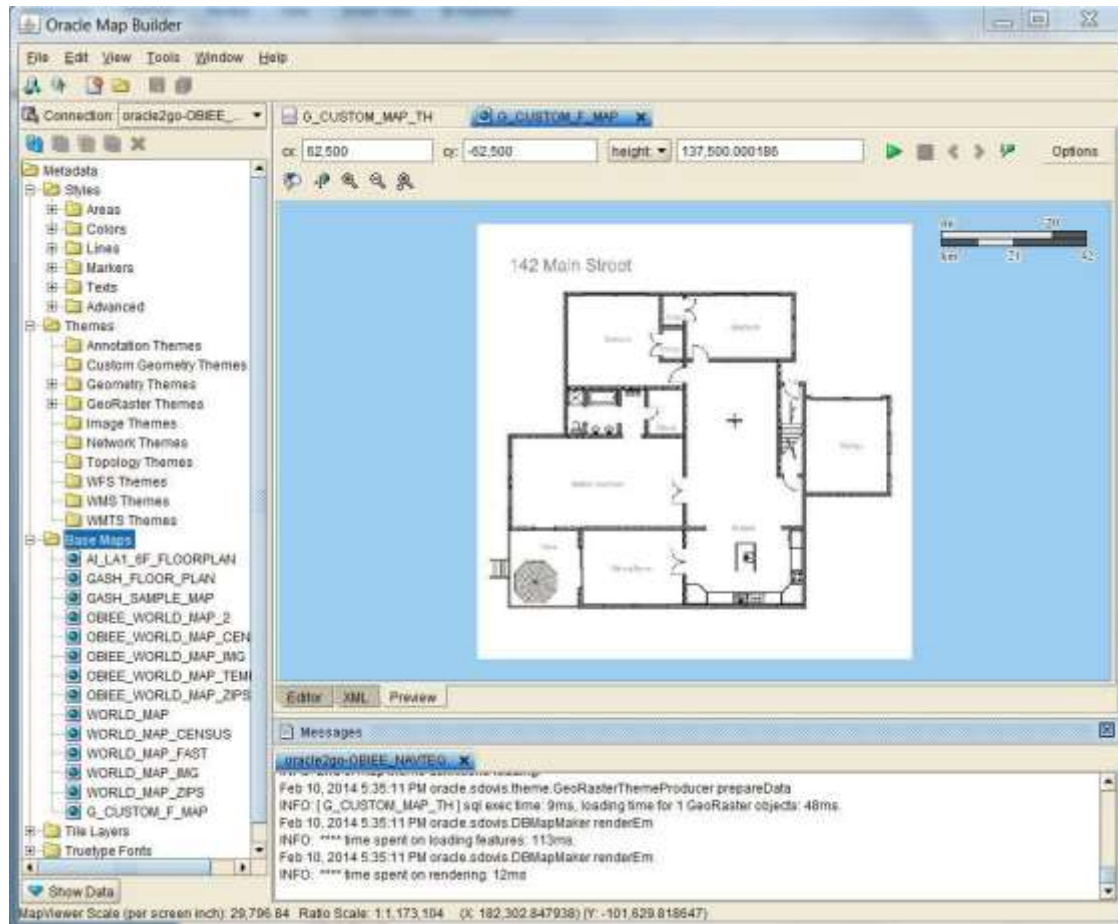
Click Next.



Click Finish.

Preview the map

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d) Create a Geometry layer to show different regions on the map

Next in order to create that theme to associate different areas on the map we need to create a new geometry theme. This can be done using the Map Editor tool. Map editor tool can be downloaded from this [link](#).

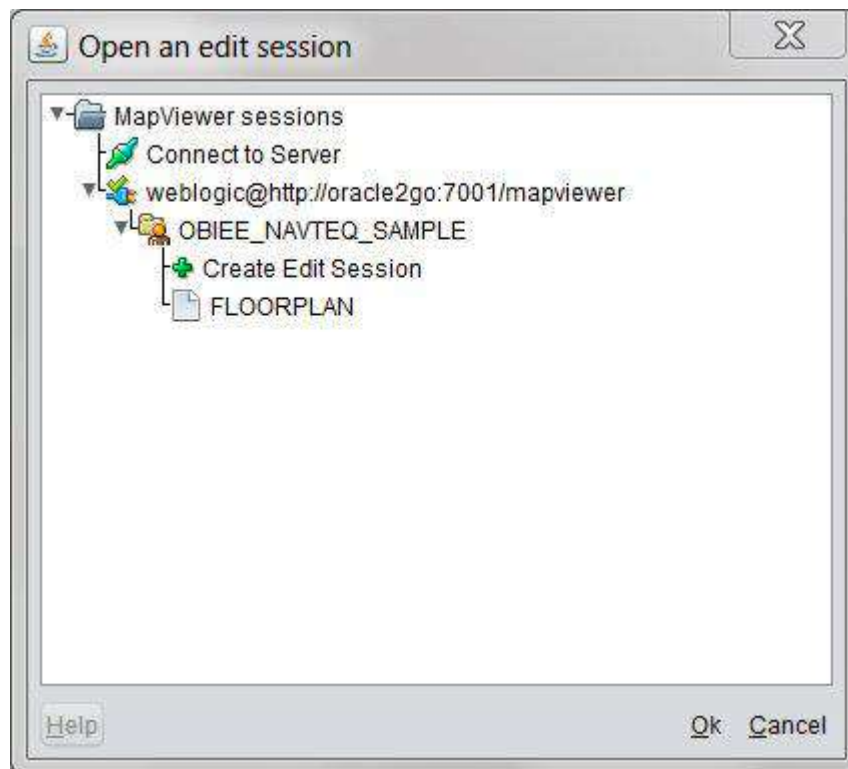
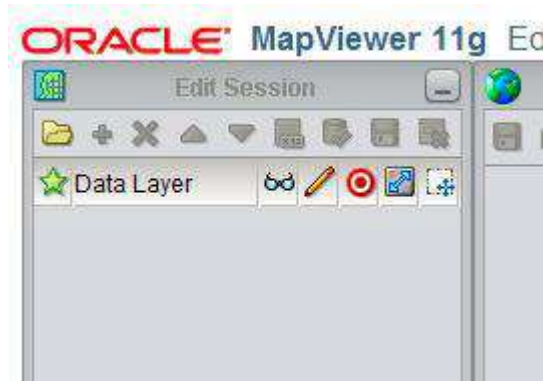
Effective with Release 12.1.3, Oracle Map Editor is shipped as a JAR file (`mapeditor.jar`). You can run it as a standalone Java application if you have a J2SE JDK (Java Development Kit) 1.5 or later installed, by going to the directory containing `mapeditor.jar` and entering the following command:

```
% java -jar mapeditor.jar
```

More information on MapViewer Editor can be found [here](#)

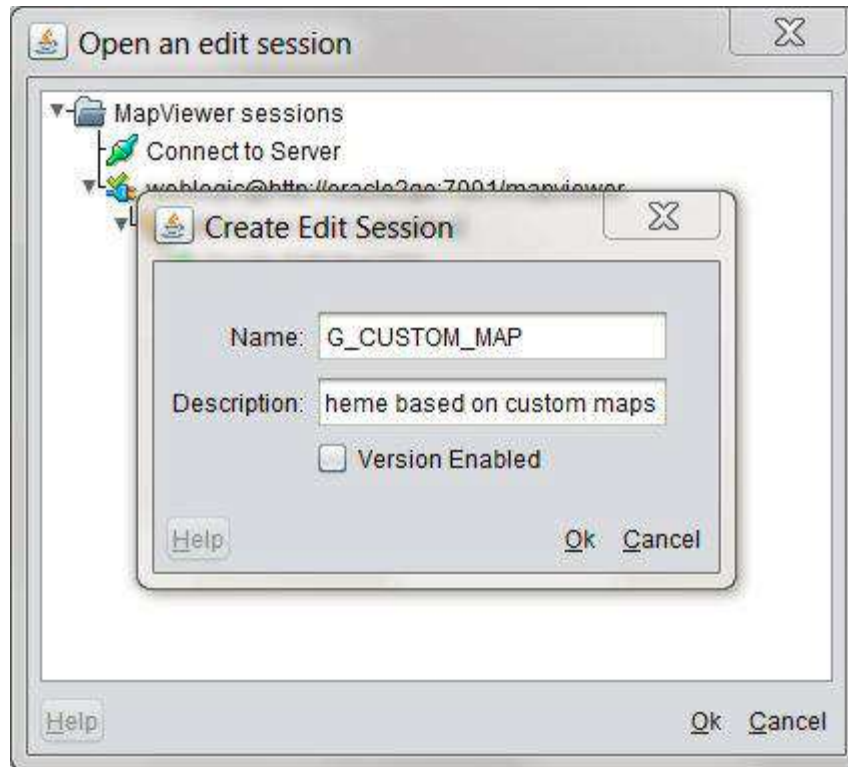
On the map editor tool, you need to create a new edit session:

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Click the "Create Edit Session" icon.

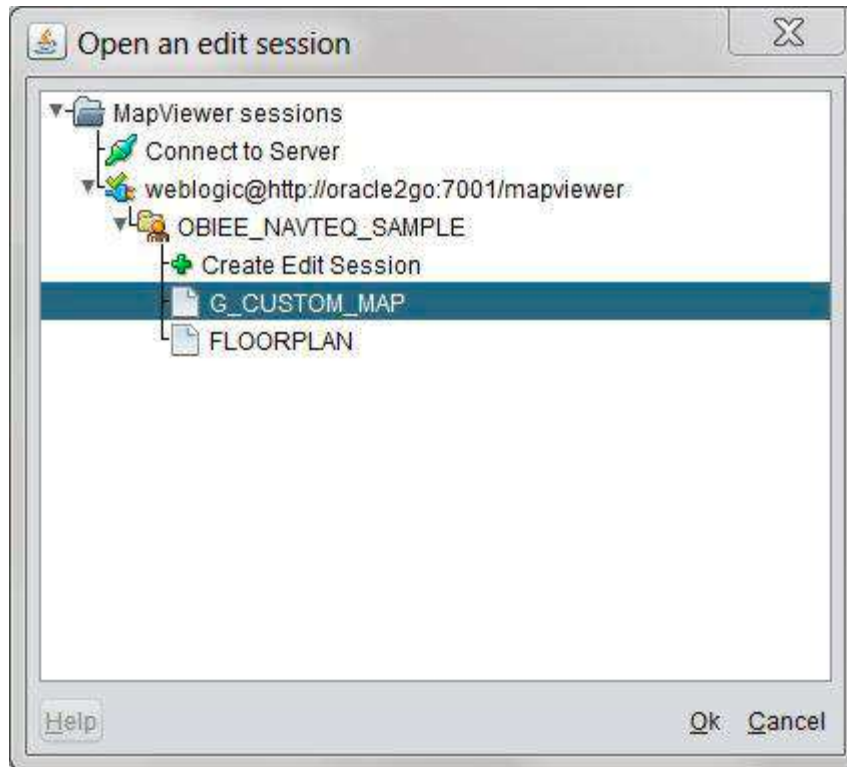
Oracle Data Visualization - Maps



Click ok.

Note: While creating session, if you hit an error saying **ORA-942-Table or View doesn't exist** then you need to run `sdefinition.sql` file present under `mapviewer` directory. More information on this can be found in this [link](#)

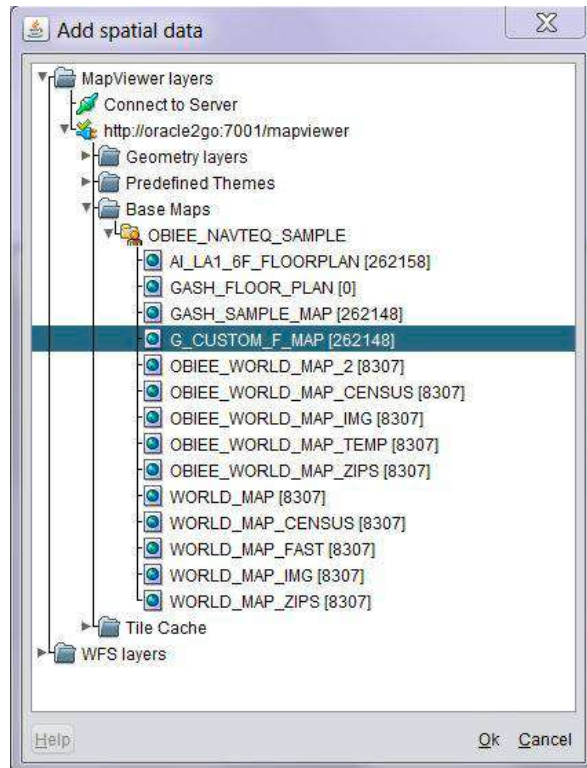
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Click ok again.

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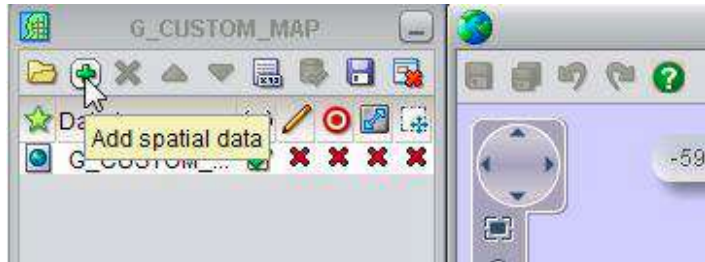
Now, you can “Add Spatial Data”. Navigate to the Base Maps and view the map that we just created.



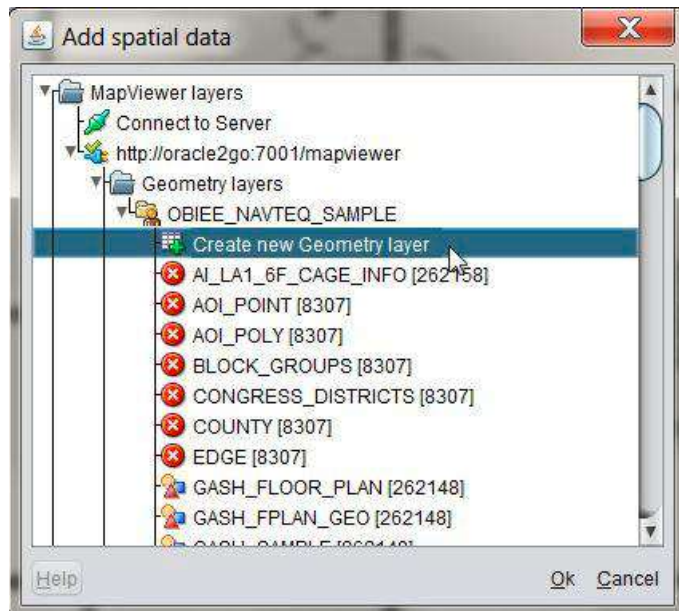
Click ok. Zoom and bring the map to the center.



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Click on add spatial data to create a geometry theme.



Under geometry layers, click on Create new Geometry Layer.
Click ok.

Provide the details for the theme:

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Create Geometry Table

Metadata

Geometry Table: G_CUSTOM_M_THEME

Geometry Column: geometry

SRID: 262,148

Dimension Array Add Remove

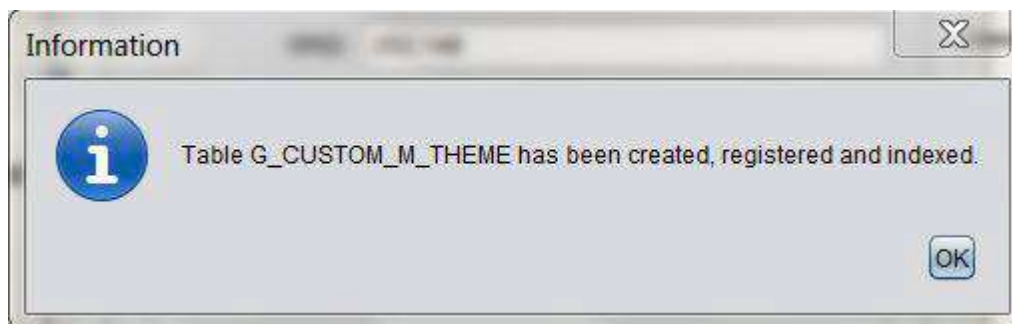
Name	Min Value	Max Value	Tolerance
X	-180	180	5.E-6
Y	-90	90	5.E-6

Key Column (Integer): featid Create Sequence

Label Column (64CHAR): AREA_DESC

Help Create Table Cancel

Label Column will identify an area on the map and provide its description.
Click "Create Table".

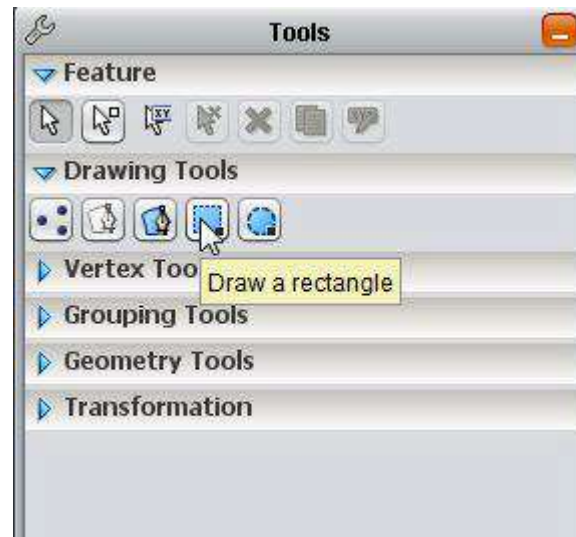


Click ok.
Now you should be able to see the theme on the left navigator panel.
Check all the options against this data layer.

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Now, we can create the different areas of the floor plan.



From the Tools panel, choose "Draw a rectangle".



Draw a rectangle on the Master Bedroom Area.



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Click the select a feature option from the tools panel.



Navigate over the feature that was just created:



Select it.

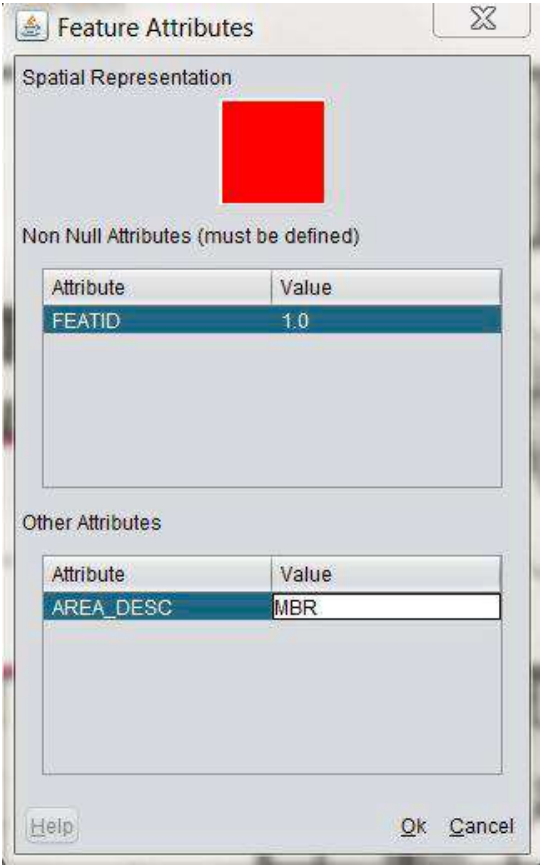


From the tools menu, edit the property of the feature:



Provide the description for the area that was selected.

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Similarly, create other areas.

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Other feature is to merge (group) different areas together.

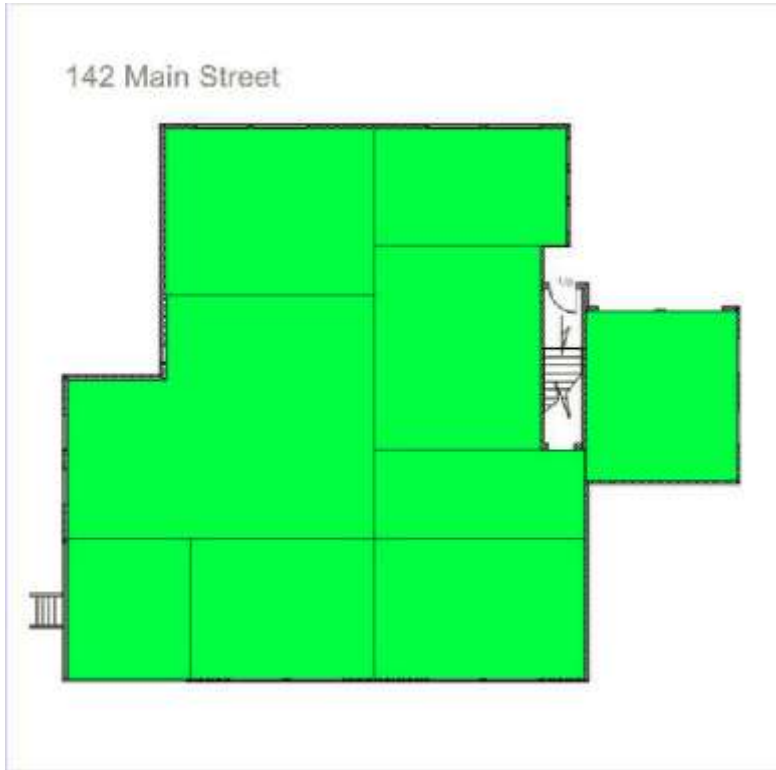


Select the areas.



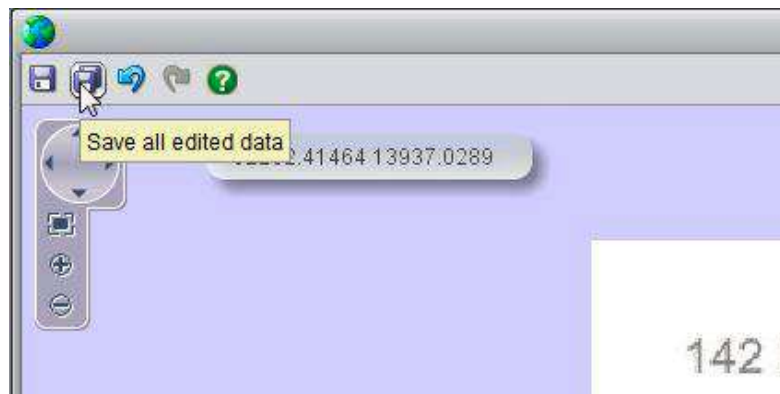
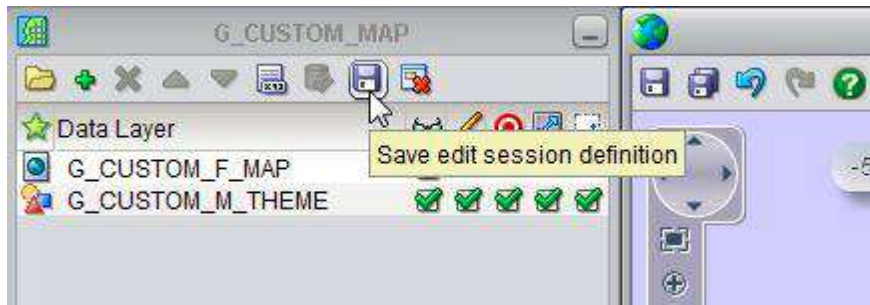


This way we can create all the areas for the floor plan.

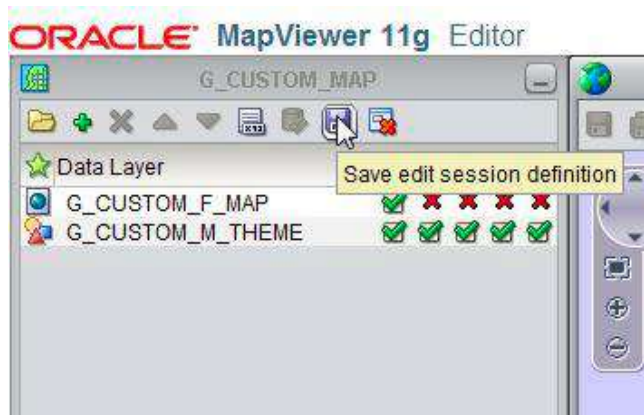


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This is how the final areas would look like.



Once all the areas are created save the theme.



Save the edit session definition. At this point a new theme can be created based on this geometry layer in map builder tool.

e) Create a Theme based on the Geometry Layer

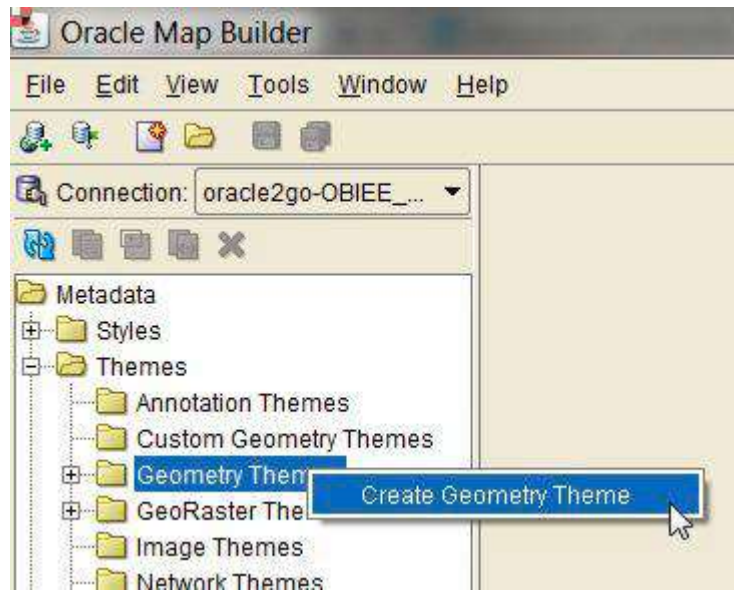
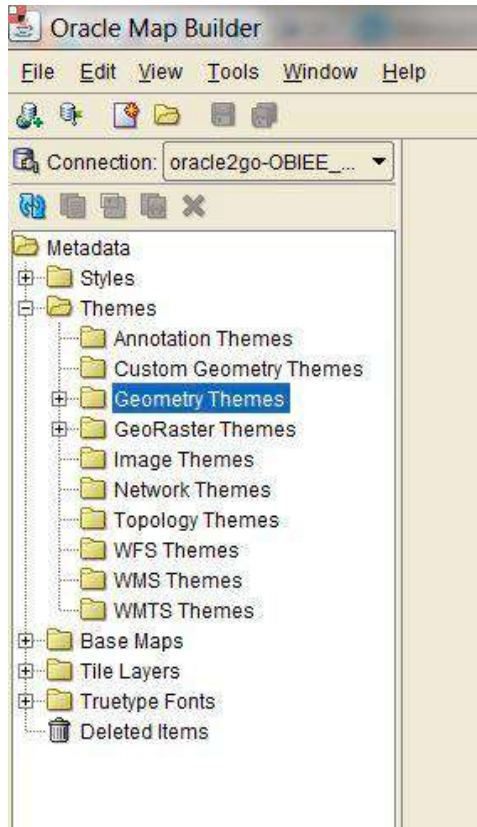
The different areas on the map should be exposed as a Theme that can then be imported in obiee.

Launch the Map Builder tool.

Connect to the OBIEE_NAVTEQ schema.

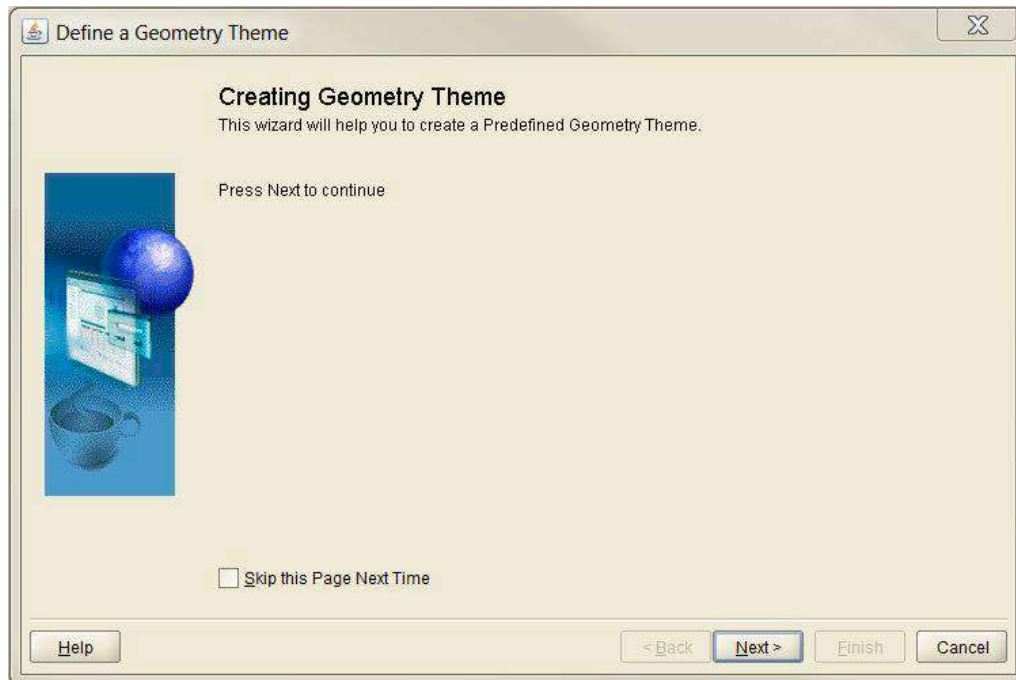
Expand the Themes section.

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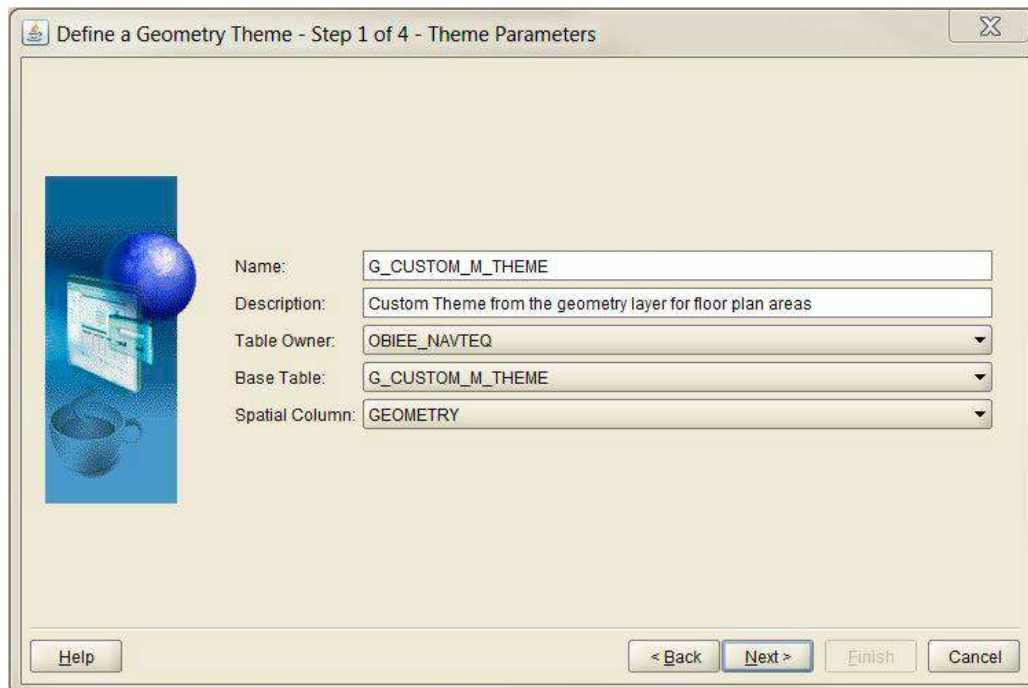
Create a new Geometry Theme.

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Click Next.

Provide the details for the theme and the base table that needs to be used to create the theme.

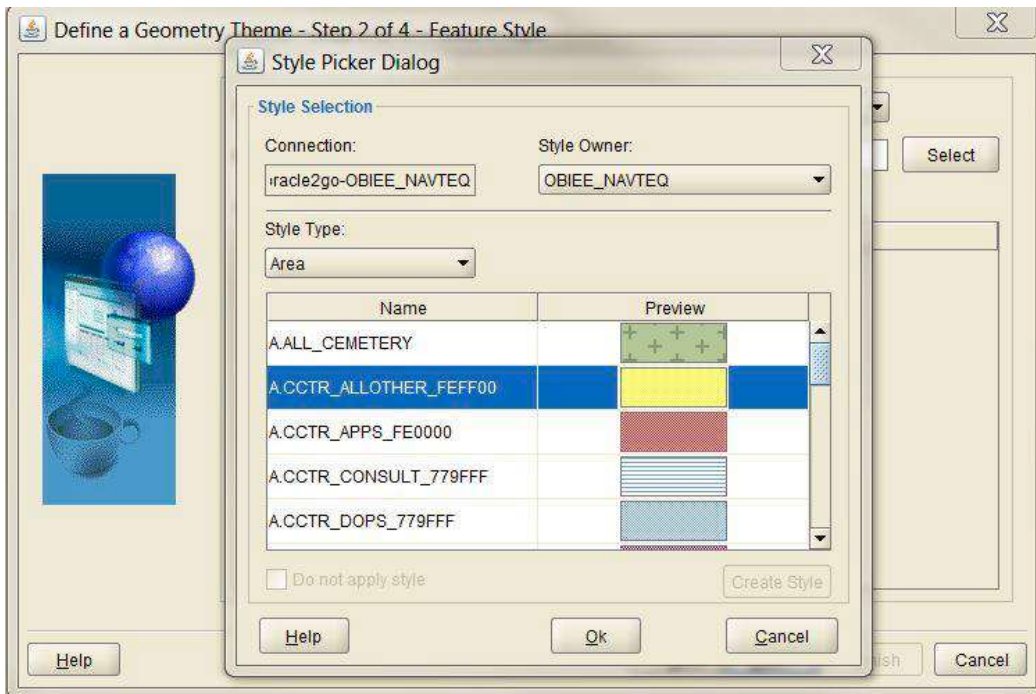
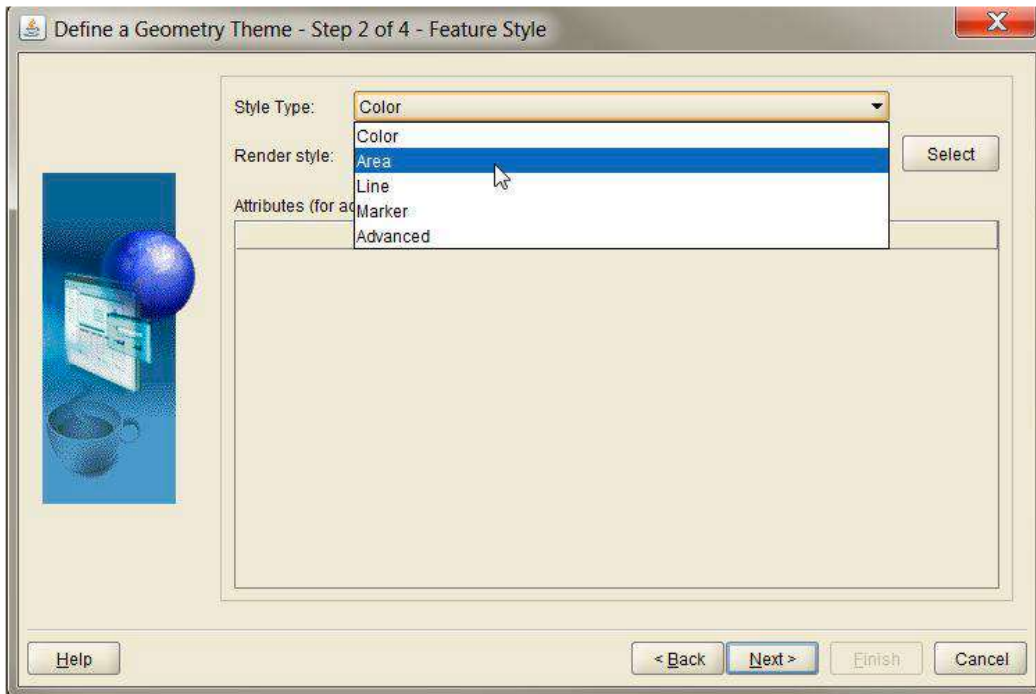


Click Next.

Provide the details for the feature style.

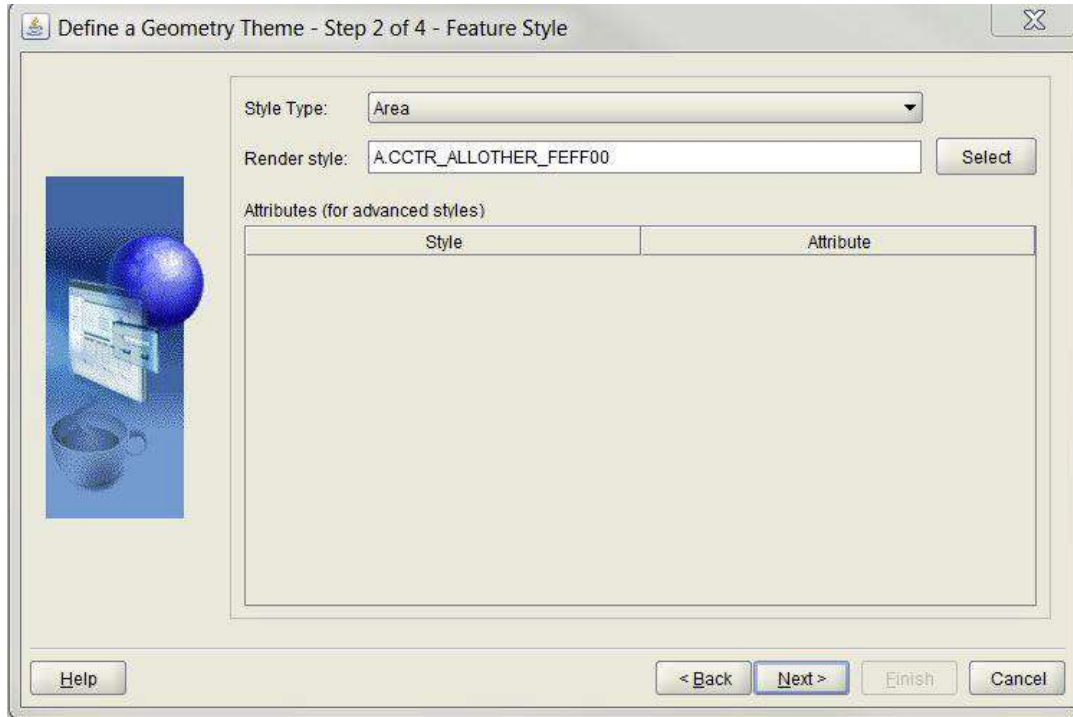
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Choose the style type as “Area”.

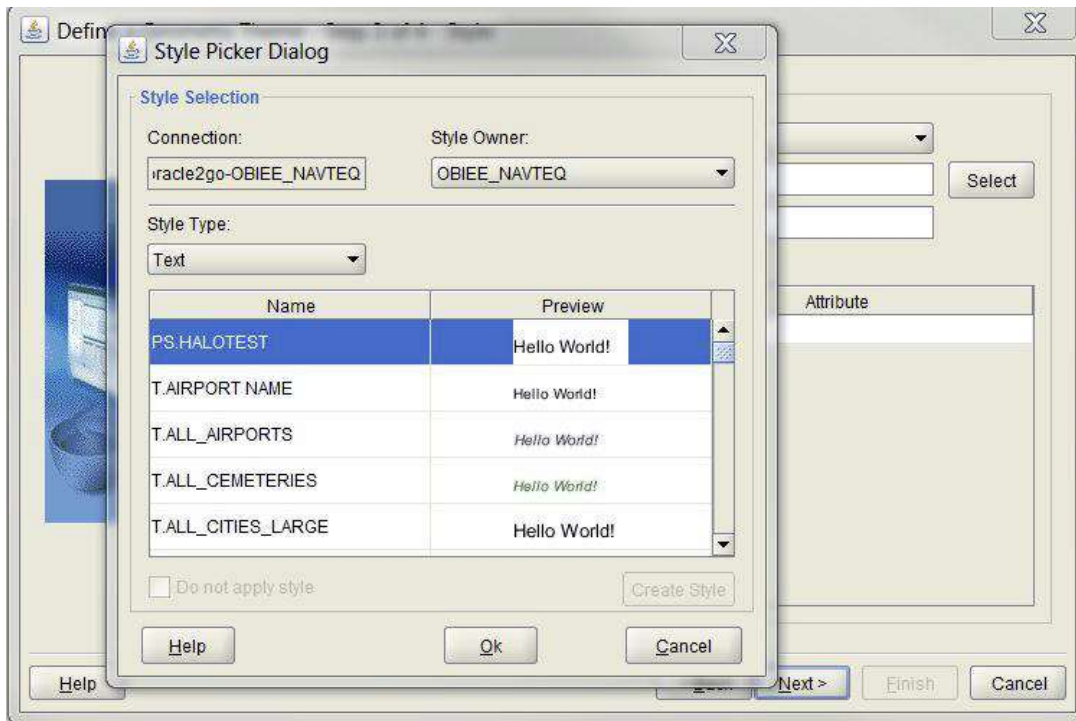


Choose the required style type.
Click ok.

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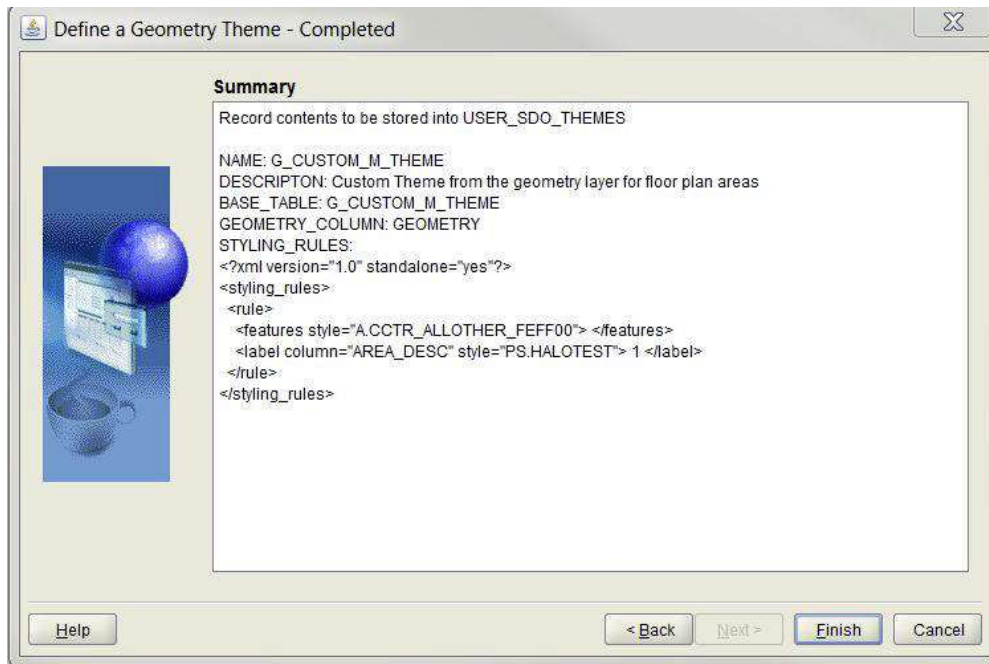


Click Next.
In the Next screen choose the Label Style.



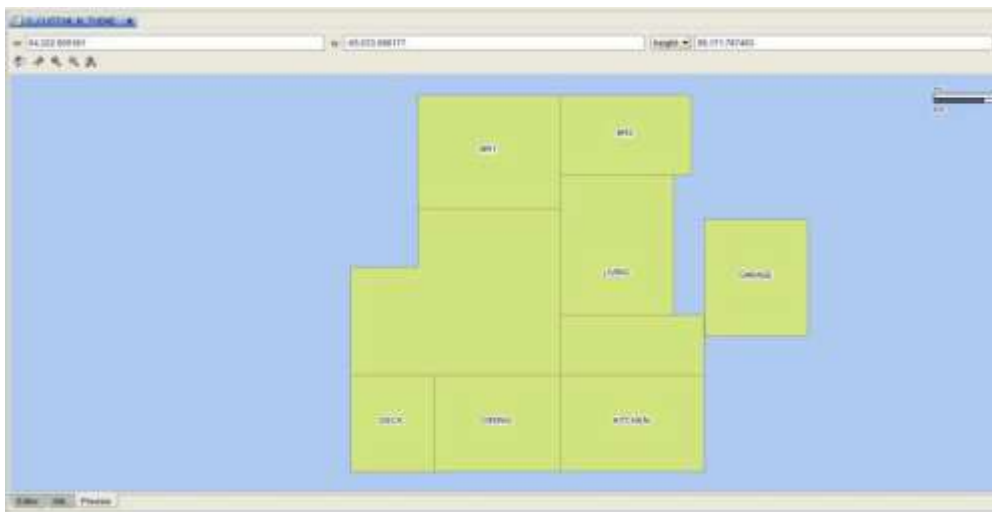
Click Next.
Click Next again.

Oracle Data Visualization - Maps



The Next screen provides the summary.
Click finish.

Now, preview the theme that was just created.



Now this theme and the Base Map will be available in the obiee Manage Map screen.

f) Export the Theme to geoJSON using Oracle Map builder

Export the theme you created in the previous step (G_CUSTOM_M_THEME) to a geoJSON format by following the instructions in the document **“How to extract a geoJSON from Oracle DB map theme for use in OracleDV”**.