

Oracle® Utilities Work and Asset Management

Oracle GIS Viewer Installation Guide

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Oracle GIS Viewer Configuration Guide

The Oracle GIS Viewer is a web application that communicates directly with the Oracle Spatial Map Viewer application to display an interactive map. This communication is performed using JavaScript and XMLHttpRequest (AJAX) communication. The GIS Viewer displays a single page with tools, the map, themes, and a customizable menu. This page is coded in the Viewer.jsp page. Within the Viewer.jsp page are the following sections

- **Tools:** provides operations that can be performed against the map.
- **Map:** the graphical map provided by the Oracle Spatial Map Viewer
- **Themes:** Geometry Themes are the graphical representation of objects on the map.
- **Overview Map:** At the lowest zoom level (smaller objects), displays a smaller, center section of the map. At the highest zoom level (larger objects), displays a larger view of the object currently being displayed on the map. A larger view allows you to select other areas of the map quickly without having to use the navigation and/or zoom tool.
- **Menu:** Customized menu, which in the case of the WAM integration is used to call operations against work orders and service requests within the WAM application. This menu can be customized using a pluggable HTML page.

The scope of this document is the Oracle GIS Viewer and does not discuss the configuration or execution of the Oracle Spatial Map Viewer.

Customizable Options

All files supporting the GIS Viewer are contained within the "viewer" directory.

These files can be replaced with customized versions to display different content. These are all .jsp files that must be running within a Java Application Server that supports Java Server Pages.

- **config.jsp:** contains the configurable settings used by the wamCustom.jsp program. The wamCustom.jsp program is only used for the WAM integration. These configuration options include the WAM URL, themes and their names included in the integration, request parameter names passed into the Viewer.jsp URL request, and database cross reference keys between the spatial data and WAM.
- **wamCustom.jsp:** This is a custom page for the WAM application that is referenced within the default cfg files shipped with the product. You can use your own customized page to display specific menu options, but must include both a "javascript" and "bottomHTML" reference in the .cfg file being used. Look for the "<include>" tag to add these references.
- **OpenViewer.jsp:** Calling this .jsp file instead of the Viewer.jsp will either force a new browser window to open or an existing "viewer" browser window to open to display the GIS Viewer page.

Page Configuration (*.cfg files)

You must specify a .cfg file as a HTTP parameter to the "viewer.jsp" file. The "viewer.jsp" file loads the customized settings contained within the specified .cfg file, and configures the displayed page according to those settings. With this structure, the layout and options on the GIS Viewer page can change for different requirements or different users. Changing the cfg parameter will change the cfg file loaded.

For example, the URL to the GIS Viewer may look like this:

<http://server:8080/viewer/viewer.jsp?cfg=pleasanton.cfg>

When the GIS Viewer is integrated within the WAM application, the url and cfg files are handled by the architecture. The cfg file is based on the WAM Business Rule settings or User Profile settings

These settings can be specified in the .cfg file:

- **urlMapView:** the URL to the map viewer server's web application. For example, `http://server:8080/mapviewer`
- **dataSource:** the name of the datasource defined within the map viewer application server. This datasource is how the map viewer application retrieves geometry data to display the map.
- **baseMap:** Base Maps are defined within the map viewer application. This setting specifies which Base Map will be used for the current GIS Viewer configuration.
- **mapCache:** The name of the Map Cache configuration related to the specified baseMap.
- **centerX:** The location of the center of the map, along the latitudinal axis. This value depends heavily on the SRID being used.
- **centerY:** The location of the center of the map, along the longitudinal axis. This value depends heavily on the SRID being used.
- **srid:** The Spatial Reference System Identifier that identifies the type of spatial data being used. The correct spatial data will affect the current location, scale, and drawing of objects.
- **maxWidth:** The maximum width of the map display on the GIS Viewer page in pixels.
- **maxHeight:** The maximum height of the map display on the GIS Viewer page in pixels.
- **toolsOn:** Displays or hides the Tools section of the GIS Viewer page.
- **overviewMap:** Displays or hides the Overview section of the GIS Viewer page.
- **scaleBar:** This tool is used to change the scale of display. Clicking up or down this scale bar will make the display zoom in(+) or zoom out(-), making the images larger or smaller, respectively.
- **navigationBar:** Displays or hides the navigation tool within the map. This tool can be used to shift the visible portion of the map to any of 8 different directions, or to refocus the display to the center of the map.
- **themeGroup:** This is how Geometry Themes are grouped together, and allows multiple themes to be enabled or disabled. Within each themeGroup are one or more themes. The name of the themeGroup is also the Label displayed within the Themes section of the GIS Viewer page. The "expand" attribute sets whether or not the enclosed themes are displayed by default. If not displayed, the user will have to click on the themeGroup label to display the themes.
- **themes:** Geometry Themes to display on the map. Enabling these themes will display graphical images onto the map, based on the styles defined in the Map Viewer (or MapBuilder) application. The "name" attribute is the label used to describe the theme. The "source" is the theme name as defined within MapBuilder. The "enabled" (or displayed) and "selectable" attributes correspond to the default value of the check boxes displayed next to each theme. If "enabled" or displayed, the theme images are displayed. If "selectable", users can drag the GIS Selection tools to select specific items on the map. The "startZoom" and "endZoom" attributes define the range of zoom settings where the theme images will be displayed. When the user has selected a zoom setting outside of this range, the theme will not be displayed.
- **customMenu:** These are the menu options that will be displayed. The JavaScript calls referenced by each menu option must correspond to a JavaScript function within the "include" tag. The "include" tag specifies the jsp/html file to include when drawing the

viewer.jsp page. There are 2 parts defined using 2 attributes -- "javascript" and "bottomHTML". The first file is used to define the JavaScript functions and the second is used to contain the integration fields from the asset application; in this case the WAM application. The values from these fields are submitted to the integration application for processing.

- **mapLoadEvent:** The "function" setting specifies the JavaScript function to call when the GIS Viewer page is displayed. This is used to process customized queries after loading of the initial map. For the WAM Integration, the "custom_processRequest()" function is called which attempts to find and select the asset passed to the GIS Viewer page via the request parameters. This function resides within the "wamCustom.jsp" page.
- **include:** Specifies the page(s) to include for customized displays or integration. The "javascript" specifies the page that will contain the customized JavaScript functions. The "bottomHTML" setting specifies the HTML objects to include within the GIS Viewer page. For the WAM integration, the "wamForms.html" contains the hidden WAM fields needed to perform the various custom menu actions against the WAM application (e.g., Create Work Order).

Application Integration Configuration

config.properties

To integrate with the WAM application, the GIS Viewer uses a configuration file named config.properties with the "sia_integration_url" as the URL to the WAM application. This config.properties file must be included within the classpath of the application.

Sample Configuration

This section is intended to describe a sample configuration and deployment for the Oracle GIS Viewer application. It is NOT intended to be a comprehensive GIS User's guide or a GIS Training document for implementation teams or users. Clients wanting to upgrade from an existing GIS integration to the Oracle Utilities Work and Asset Management Oracle GIS application integration must configure the Oracle GIS Viewer according to customer requirements and preloaded map symbology standards data. Please use this document as a guideline.

Choosing a DataSet as the Base Map

You may choose any theme to be the base map information for the GIS integration. The base map is the display that is always rendered and in the background on the GIS map. You may have one or more themes displayed as part of the base map. Parcels, roadways, rivers are examples of base map themes.

The first step in the process is to identify the tables to be used as the base themes and to ensure that the geometry is correct in these tables.

Note: These steps may not be needed depending upon your installation.

1. Update the geometry column in the theme table to reflect the correct SRID. The following SQL statement provides an example, The SRID for your GIS application may differ. The SRID is the value used to determine the coordinate system to be used by the GIS product. Contact the local GIS team for the correct value.

```
update sp_parcel a set a.geometry.sdo_srid=82469;  
  
Commit;
```
2. You must now create an entry into the Oracle Spatial Viewer metadata to enroll the table into the known data sets. This is done with the following update from the GIS schema.
 - Table_name is the name of the table used for the theme information.
 - Column_name is the name of the mdsys.sdo_geometry column. This is usually GEOMETRY.
 - Diminfo are the dimensions relative to the map segments being displayed. This is with respect to the coordinate system related to the SRID.
 - SRID is the coordinate system to be used. Same as the value in step 1.

```

insert into user_sdo_geom_metadata
(table_name, column_name, diminfo, srid)
values
('SP_PARCEL',
 'GEOMETRY',
 sdo_dim_array (
   sdo_dim_element('X', 290000, 320000, .01),
   sdo_dim_element('Y', 6240000, 6260000, .01)),
 82469)
/

```

3. Create an index on the spatial column. The following example is shown for a Parcel table and should be adjusted to meet your naming conventions.

```

create index sp_parcel_sdx on sp_parcel(geometry)
indextype is mdsys.spatial_index

```
4. This process must be repeated for each table being promoted to a Theme that is displayed, regardless of whether you are using the theme as part of a base map or as a selectable theme in the GIS integration.

Creating Themes and a Base Map

1. Create a new Geometry Theme by right clicking on the Geometry Themes folder. A wizard will be invoked to step you through the process of creating a theme. Most of the information is defaulted but you will have to select the correct table to be used as the base map.
2. Click Next to continue.
3. Click next to scroll through the next 3 screens. You do not have to choose a style, a label style, or add a where clause condition to filter the base information.
4. Create base map by right clicking on the base map folder within MapBuilder. A new Wizard will be displayed.
5. Click Next to continue and open the Creating Base Map Definition screen.
Note: This window may not be displayed if someone has previously checked the “Skip this page next time.” check box.
6. Enter a Name and Description then click Next.
7. Find the geometry theme you created in the previous steps.
8. Highlight the theme and click the Add Icon button to add the theme to the base map. Enter scale information then click Next to continue.
The installer shows a summary screen with the name, description, and map definition that you created. It also shows where the record contents will be stored.
9. Click Finish to complete the creation of the base map.
10. Try and preview the base map from within the MapBuilder tool by clicking the “Preview” tab at the bottom left of the base map window.
This will change views to the Preview page. Click the green preview button to preview the map.

Note: A large map may take several minutes to render. If the system takes a long time to respond, try closing the MapBuilder application and opening it a second time. Once the application starts, preview the map.

Configuring the Map Viewer to use the Base Map

1. Start the MapViewer web site. The following URL is typically used.
<http://localhost:7777/mapviewer>
2. Log on by clicking the “admin” icon in the top right section of the page. This will display a username and password dialog box. The username is typically “oc4jadmin”.

If you are connecting to a new datasource, you must edit the configuration file to enroll the new database connection. Click the “Manage MapViewer” tab then click the Configuration link.

3. Edit the Config field by scrolling to the end and copying the connection string information.
4. Find the Map_Data_SourceName tag and copy the entire tag being sure to include the “/>” end of the tag.
5. Change the JDBC connection information.
Two conventions that are required:

Do not use spaces or underscores in the name of the datasource.

When entering the jdbc_password, enter a ! followed by the password. When you save the connection information the password will be automatically encrypted.

jdbc_password = “!password”
6. Click “Save & Restart”. You should get feedback that the save was successful.
7. Click the Manage Map Tile Layers tab on the top left portion of the window.
If you see your base map in this list, skip to the creation of the Configuration File. If your base map is not here, click the ”Create” link on the sidebar.

Create a Base Map Reference

8. Click the Create link.
 9. Choose Internal.
 - Enter a name for the Base Map reference.
 - Change the SRID to the appropriate value. This value may be found by consulting the GIS team.
 - Change the Min/Max X and Y coordinates. This value may need to be adjusted several times before you get the right settings.
Sample Settings:
- | | |
|--------|-----------|
| SRID: | 82469 |
| Min X: | 290000.0 |
| Max X: | 320000.0 |
| Min Y: | 6240000.0 |
| Max Y: | 6260000.0 |
10. Click Submit when finished.
 11. Return to the Manage Link on the page and check to see if your new Base Map is displayed. If so, you are finished with this phase of the installation.

Edit the Configuration File

In this step you edit the configuration file used by used by MapViewer to display the WAM GIS information. This file may be found in SIA application server folders in the following location. The configuration file is deep in the SIA application mid-tier folder structure.

In a typical Work and Asset Management folder structure the correct “config” folder is found in SIA web application folders. You might also find this folder by searching for default.cfg or Honolulu.cfg.

Sample file location: D:\synergen\prod1715x\synergen\config

Note: These files may also appear in the “Viewer” folder. The “Viewer” folder is not the correct location.

If you already have a file in the configuration folder, you may copy one and make edits. If there is no default configuration file, the following text provides a sample.

The Thematic Map section is highlighted but no changes are required. This is sample syntax to be used if you create a Thematic Map. You must change the highlighted sections to represent the naming conventions used for you application.

Modify the following as needed:

- **urlMapView:** This value must be changed to the correct URL related to the mapviewer.

- **Datasource:** This is the name of the datasource you created when configuring the MapViewer.
- **baseMap:** This is the name of the username.basemap defined in the database. It is recommended that the same naming convention be used as the MapCache below.
- **mapCache:** This is the datasource.basemap defined in the Mapviewer. It is recommended that this be the same naming convention as the one used for the baseMap above.
- **centerX, centerY, and SRID:** This value should be the center coordinate for a location in the map and the correct SRID.
- **Theme Name:** One theme name entry should be made for each theme you want to appear in the viewer. You name the theme and then point to the username.theme_ name created in the database using MapBuilder.

```
<?xml version="1.0" encoding="UTF-8"?>
<config>
<map urlMapView="http://localhost:7777/mapviewer"
datasource="qamvdemo"
    baseMap="qamvdemo.fairfield_base_map"
mapCache="qamvdemo.fairfield_base_map" centerX="304297"
centerY="6250931" srid="82469"
    maxWidth="800" maxHeight="600"
toolsOn="on" overviewMap="off" scaleBar="on"
navigationBar="on" legend="themes"/>
<theme name="Parcel" source="qamvdemo.fairfield_base_
map" enabled="N"/>
<customMenu>
<item name="Asset">
<option name="Assign Parent" href="javascript:custom_
doMenuSelection('AssignParent', 'assign')"/>
<option name="View" href="javascript:custom_
doMenuSelection('View', 'asset')"/>
</item>
<item name="PM Master">
<option name="View" href="javascript:custom_
doMenuSelection('View', 'pmmaster')"/>
</item>
<item name="Service Request">
<option name="Create" href="javascript:custom_
doMenuSelection('Create', 'servreq')"/>
<option name="Record Assets" href="javascript:custom_
doMenuSelection('RecordAssets', 'servreq')"/>
<option name="View" href="javascript:custom_
doMenuSelection('View', 'servreq')"/>
</item>
<item name="Work Order">
<option name="Create" href="javascript:custom_
doMenuSelection('Create', 'workord')"/>
<option name="View" href="javascript:custom_
doMenuSelection('View', 'workord')"/>
</item>
<item name="Work Request">
<option name="Create" href="javascript:custom_
doMenuSelection('Create', 'workreq')"/>
<option name="View" href="javascript:custom_
doMenuSelection('View', 'workreq')"/>
</item>
<item name="Help">
<option name="About..." href="javascript:custom_
doMenuSelection('About', 'about')"/>
</item>
<item name="Thematic Maps">
<option name="Remove All" href="javascript:custom_
doClearThematic()"/>
<option name="Inspection Status"
href="javascript:custom_doDisplayThematic(1,
'qamvdemo.SP_RDCL')"/>
</item>
</customMenu>
</map>
</config>
```

```

</item>
</customMenu>
<mapLoadEvent function="custom_processRequest()" />
<include javascript="wamCustom.jsp"
bottomHTML="wamForms.html" />
</config>

```

12. Save this file and test the view configuration file. Use the URL below being careful to note the case of the directory path and the filename. The case must exactly match the path to the configuration file.

If the viewer does not display, check the configuration file for spelling. You may also check the GIS OC4J monitor window for errors.

Example:

<http://localhost:7777/mapviewer/Viewer/viewer.jsp?cfg=Fairfield.cfg>

Edit the config.jsp File

This file can also be found in the SIA Mid-Tier folders on the application server called CUSTOM. It is important to find the correct configuration file as there are several folders that are similar. The information is found at the bottom of the correct config.jsp file.

Sample file location: D:\synergen\prod1715x\synergen\viewer\custom

Modify the following as needed:

- **configAssetField:** This attribute is used to define the Work and Asset Management column used as the GIS Feature cross-reference. It should always be Asset ID as shown here.
- **configQueryThemes:** This is the list of Themes, identified by display name defined in the configuration file discussed above, that you want to have two way integration back to the Work and Asset Management application. If there are assets created in Work and Asset Management application for the GIS Themes, then you would expect the integration to work and the theme listed here.
- **configQueryParams:** This attribute should not be changed. It is used in conjunction with the next attribute to define the cross reference data between Work and Asset Management and the GIS data.
- **configQueryFields:** This attribute should not be changed. It is used in conjunction with the previous attribute to define the cross reference data between Work and Asset Management and the GIS data.

GIS SETUP Business Rule

The GIS SETUP business rule must be configured to point to the Oracle GIS Viewer. There are several parameters in this rule, but only two apply to the Oracle GIS Viewer.

- **ACTIVATED GIS OPTION** - this parameter must contain ORACLE1 in the first value column (the key_value column in the database).
- **ORACLE1 VIEWER** - this parameter must contain a string pointing to the configuration file created above. No file path is required in this setting. Enter the keyword string "cfg=" followed by the filename of the configuration file.

Configuring these business rule settings define the "default" viewer for the GIS integration. These settings are used unless the User Profile data is configured to override the defaults.

Configuring the User Profile

You may also choose to only make this view available to specific users. You accomplish this by entering the same information in the User Profile module.

The same two parameters discussed in the business rule setup are simply added to the user profile data.

The same feature may also be used to point a specific user to the same GIS Option but to a different configuration file. This allows you to provide different maps to different user communities.

By directing a user to a new configuration file, you may also manage which layers are available to the user. For example, you may have the same map, but one user is only allowed to see Streets and Parcels, while another user might have access to Water and Wastewater infrastructure.

Maps and Theme UI options are all managed using the configuration files.

Add Responsibility Functions

All users who will require access to the ESRI ArcGIS Viewer must have the following responsibility functions added to their user profile:

- **GIS VIEWER** - Added responsibility function to allow access to the Oracle GIS Viewer.
- **VIEW GIS** - Added responsibility function to allow access to the print and view GIS actions available in modules. (Must be added regardless of which viewer is used.)

Set Up a GIS Server in an OC4J Instance

(Sample from Oracle AS Documentation) - Deploying to 10.1.3

To deploy your UIX application to a 10.1.3 application server you must create an ear file using JDeveloper and deploy the file to the OC4J instance using the Application Server Control. To generate the ear file, right-click the **ADFToyStore.deploy** profile in the application navigator of your JDeveloper 10.1.2 install and choose **Deploy to Ear file** from the context menu. An **ADFToyStore.ear** file will be created in the <Project directory>\adftoystore\deploy directory.

Deployment directly from JDeveloper 10.1.2 to the 10.1.3 application server is not supported.

Deploying the Ear File

Deploy the ear file to the 10.1.3 OC4J instance by using the Application Server Control by opening <http://<server name>:<port>/em> in a web browser.

1. After logging into the administration console, click the **Applications** tab and click **Deploy**.
2. In Step 1 of 3, choose the **Archive is present on local host. Upload the archive to the server where Application Server Control is running** radio button.
3. Click **Browse** and use the file system navigator to select the ear file in the <Project directory>\adftoystore\deploy directory.
4. Click **Next**. In Step 2 of 3, set the **Application Name** to **ADFToyStore**, accept all defaults, and click **Next**.
5. Accept all of the defaults in Step 3 of 3 and click **Deploy**.
After the deployment completes click **Return** and you will be forward back to the main screen of the Application Server Control. The **ADFToyStore** application should have a green arrow under the status column.
6. Test the application by accessing the following url via a web browser: <http://<server name>:<port>/ADFToyStore>.