

# **Oracle® Utilities Work and Asset Management**

GIS User Guide

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Oracle® Utilities Work and Asset Management GIS User Guide for Release 1.9.1.1

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# Overview of GIS Integration Functionality

The Oracle Utilities Work and Asset Management GIS integrations provide a way to navigate between the Oracle Utilities Work and Asset Management application and external GIS data. This guide provides a general overview of all GIS integrations supported by Oracle Utilities Work and Asset Management.

For detailed information on a specific viewer, please refer to the User Guide for that viewer.

- ESRI ArcIMS User Guide
- ESRI ArcMap User Guide
- ESRI ArcGIS Viewer User Guide
- Oracle GIS Viewer User Guide

## GIS Functionality

Use a GIS viewer to view and manipulate asset and maintenance information based on geographic location. Two way communication between the applications allows you to launch a map viewer and “zoom in” on specific Oracle Utilities Work and Asset Management Asset, Work Order, Work Request, PM Master, or Service Request records. You can also launch Oracle Utilities Work and Asset Management from the map viewer. GIS extensions integrate through:

**Linked Data** - Your system administrator links the Oracle Utilities Work and Asset Management Asset application and Asset ID records to the appropriate features on the GIS map.

**Actions/Menus** - The Actions list in Oracle Utilities Work and Asset Management enables you to view and print maps of assets and service request addresses. From the GIS application, a custom Oracle Utilities Work and Asset Management menu enables you to plan work related to assets, create service requests, record assets on service requests, and open Oracle Utilities Work and Asset Management to specific records listed in the map viewer.

**Data Sharing** - As you work, data is updated in both applications.

## Permissions

Settings in the GIS Setup business rule determine which GIS Viewer is used. This setting can be over-ridden in each individual user profile by adding the ACTIVATED GIS OPTION key name. The appropriate additional settings must be defined in the business rule so that users can switch viewers.

Responsibility functions must also be added to the user profile of anyone who will need access to the view and print GIS actions available in modules as well as to have access appropriate viewer:

- ESRI3 VIEWER - Add responsibility function to allow access to the ESRI3 Viewer.
- GIS VIEWER - Add responsibility function to allow access to the Oracle GIS Viewer.
- VIEW GIS - Add responsibility function to allow access to the print and view GIS actions available in modules. (Must be added regardless of which viewer is used.)

Please refer to [GIS Implementation](#) for more information.

## Daily Use of a GIS Viewer

Use GIS functionality in daily work to:

- View and print maps of assets or service request addresses.
- Plan work by viewing existing work records associated with assets. You can also create new Work Order or Service Request records as needed.
- Update asset assignments directly on the map to reflect work done. You can also create Asset records.
- Record assets on service requests to apply service request costs to those assets. You can also create service requests from the map viewer.

## Map Viewer

Depending on which viewer your organization uses and how it is configured, you can select GIS Viewer from the home page Actions list, select a link from the home page Links component, or you select View GIS from the Actions list in one of the supported modules.

Users can also [add a link to their home page](#) to launch the map viewer.

Regardless of the viewer you are using, you will find a map display, a toolbar with pan and zoom controls, a menu and a theme selections panel that controls which map features display.

### Functionality

As you move the mouse pointer over a feature on the map, the feature is highlighted and a pop-up label displays the Asset number for the object if one has been assigned. The viewer has various controls for manipulating the map image and selecting or deselecting assets.

Regardless of which module you were using when you launched the viewer, asset data is required for the viewer to locate a specific location. If no asset data is available on the record when you select View Map from the Actions list, a large-scale map opens in the viewer. You can then use the viewer's pan, zoom and search controls to locate desired features.

## Viewing and Printing Maps

As long as an asset has been assigned to one or more map features, you can view and print a map of the asset. This can be done from any one of the supported modules.

Applicable viewers are best used when launched from the module where the assigned assets are referenced. Use similar procedures to view maps from Assets, Work Orders, Work Requests, PM Masters and Service Requests.

If the asset is not assigned to a feature on the map, the map opens displaying a warning that no item is selected.

Note: If you have previously launched the viewer and it is running in the background behind the Oracle Utilities Work and Asset Management application, clicking on the View Map option will

not reopen the viewer. To open the viewer when it is running in the background, click on the map viewer icon on the windows toolbar.

### View a single asset

Open the appropriate record then select View GIS Map from the Actions list. The system opens the viewer with the asset selected.

### View multiple assets

Create a search in the Asset module then select View GIS Map from the Actions list on the results of search screen. The resulting map shows all of the Assets from the results list, as applicable.

### View customer addresses

From the Service Request module you can select View Map (Asset ID) to open a map of the customer's address on the service request.

### Printing maps

Select Print GIS Map from any of the eligible modules and the system opens the map and provides prompts to walk you through the process of printing the map. This option is available from the header or the results of search screen so that you can print a single asset or multiple assets.

## Creating Records from Map Objects

To create new records you can select one or multiple objects on the map then click the desired menu item and select Create.

When you create new records from GIS, the system uses the Default Name in the user profile of the logged on user to populate the Dispatcher, Requestor, and Initiator fields on the Service Request, Work Order and Work Request, respectively.

Please refer to the [Details on Each Integrated GIS System](#) to confirm whether or not your viewer can perform the create action as described below.

**Asset** - The system creates an asset record based on the selected feature on the map. Only ArcView users can create new assets.

**PM Master** - You can not create new pm masters from a viewer. Only view.

**Service Request** - The system creates one Service Request record with every selected map object. These assets are then listed in the Service Request Asset List view.

**Work Order** - When you select Create (multi tasks) the system creates one Work Order record with a separate task for each selected map object. Selecting Create (single task) creates one Work Order record with one task listing all selected assets in the Asset List.

**Work Request** - The system creates one record for the selected map object. You can only create one Work Request at a time.

## Recording Assets

When you launch a GIS viewer from a Service Request record, you can select one or more Assets on the map the select Record Assets from the Menu under Service Request. The system adds the selected assets to the Service Request that you were viewing when you launched the viewer.

As work progresses on the service request, costs are applied to the assets according to the percentage split entered. Assets can have parent/child relationships with other assets. Costs associated with a child asset roll-up the asset hierarchy to the parent asset, along with other child asset costs.

## Assign/Unassign Assets

After you perform work on assets to repair or upgrade equipment, you may need to modify or update asset assignments on the GIS map. For example, after repairing a broken pipe, you may want to unassign and de-activate the previous asset record, create new asset records, and assign the new asset records to each section of the broken pipe.

Oracle Utilities Work and Asset Management GIS enables you to unassign, de-activate, assign, and create Oracle Utilities Work and Asset Management Asset records from the GIS application.

## Map Tools

Hover over the icons in the toolbar to discover the function of each tool. Refer to the product guide for your specific GIS viewer for more detailed information on these tools. These tools only manipulate the image without resulting in any geo-spatial or database changes.

### Pan and Zoom

All viewers have a drag or pan tool, zoom in and zoom out tools to allow you to manipulate the visual display of the map. Select the tool then click or drag on the map to reposition or zoom to the desired effect. Some viewers also include a zoom slider which can be used to zoom in and out by moving the slider up or down.

### Select

Click one of the features tools, (Select Point, Select Rectangle, or Select Circle) then click or draw the shape around a map feature to select that map feature. Select Rectangle or Circle allow you to select more than one map feature. You can also hold down the shift key and use Select Point to select multiple features. When you release the mouse button, the features are selected.

### Search

Click on the Search tool to display a dialog where you can enter search criteria to find a map feature. Search by any combination of criteria such as layer, field or theme and enter a value or leave the value blank to search for all.

### Selecting Features from the Map

When the GIS viewer is open, you can select one or multiple objects on the map then select View under the applicable menu option to open a results of search screen listing all of the related records referencing the selected objects.

This can help you to rather information relevant to work you need to perform on assets. You can view details about the assets or view a list of work orders. In this way, you can easily find out if there are existing plans to work on the assets or if a new work order needs to be created. If a work order or service request need to be created, you can also do this from within the map viewer, if the viewer supports this functionality.

### Layer Selections

You can turn layers on and off by clicking the check boxes associated with each layer. After adding or removing a layer, you may need to click the refresh icon to see the change.

## Searching the Map

In addition to searching for map features from within the Oracle Utilities Work and Asset Management application, the HTML map viewer also allows you to search for specific addresses, intersections, and parcels directly from the map viewer. The search feature is particularly useful if you launch the map viewer from a link on your home page, rather than from a Oracle Utilities Work and Asset Management asset or work record. The Java map viewer does not support these additional search capabilities.

Note: These are not geospatial searches. Your GIS data must be setup for tabular searches in order to support this functionality.

## Details on Each Integrated GIS System

While these applications function in the same way overall, there are slight differences between the different GIS products which are available to be integrated with Oracle Utilities Work and Asset Management.

Please refer to the specific product guide for user interface details or a description of the available tools and functions.

## Comparison of Functionality

The supported GIS products offer similar, but not identical feature sets. A consistent effort is made to support the same functionality in all integrations, however due to the unique characteristics of the GIS products, this is not always possible. The following table summarizes the functionality available in each of the current integrations.

	ESRI1 (ArcMAP)	ESRI2 (ArcIMS)/ ESRI3 (ArcGIS)	Oracle Viewer
<b>Asset ID displays on map (always visible)</b>	✓	✓	✓
<b>Asset ID displays on map (on mouse over)</b>			✓
<b>Asset: Assign / Unassign to map feature</b>	✓		
<b>Asset: Assign parent asset</b>	✓		
<b>Asset: Create from map</b>	✓		
<b>Asset: Open record from map</b>	✓	✓	✓
<b>Asset: Record on Service Request</b>	✓	✓	✓
<b>Asset: View by Asset ID</b>	✓	✓	✓
<b>Asset: View multiple selected on map</b>	✓	✓	✓
<b>Map Layers</b>	✓	✓	✓
<b>PM Master: Open record from map</b>	✓	✓	✓
<b>Search/Query the map</b>	✓		
<b>Service Request: Create from map</b>	✓	✓	✓
<b>Service Request: Open record from map</b>	✓	✓	✓
<b>Thematic Mapping</b>			✓
<b>View / Print map from header</b>	✓	✓	✓
<b>View / Print map from results of search</b>	✓	✓	✓
<b>Work Order: Create from map</b>	✓	✓	✓
<b>Work Order: Open record from map</b>	✓	✓	✓
<b>Work Request: Create from map</b>		✓	✓
<b>Work Request: Open record from map</b>		✓	✓



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# GIS Tutorials

This section shows steps to complete some of the most common GIS features. This is a general guideline for any GIS viewer.

## How to View a Map of an Asset Record

### 1. Open an appropriate Asset record or Asset Results of Search screen.

From the Service Request header record, select View Map (Asset ID) to view a map of the customer's address on the Service Request.

If you view a map from a module other than the Asset module, it will show the mapped Assets associated with that module. A map opened from the Work Order Module, for example, shows the Asset listed on the selected Work Order.

### 2. Select View GIS Map from the Actions list.

If the Asset is not assigned to a feature on the map, the GIS map opens and displays a warning that no item is selected.

When you select View Map, the map viewer opens a map showing the feature that the Asset is assigned to. If you select View GIS Map from a Results of Search screen, the map viewer opens showing all the mapped assets retrieved by your search.

The first time you open the map viewer in a work session, you will see the following message while the map is updated. After the map loads, click on the OK button to clear the message.

### 3. Reposition the map as needed.

Rest the mouse pointer over any tool icon to see a popup description of what the tool does.

Use the Pan or Zoom tools from the control panel to reposition the map.

You can then select Print or Print Preview from the File menu to print the map, or you can print the map from as shown in the following steps.

## How to View Asset Details from the Map Viewer

### 1. Select a feature on the map that has an assigned asset ID.

You can select more than one feature by using the viewer's Select by Rectangle or Select by Circle controls. Click the tool to select it from the control panel and then draw the corresponding shape around the map features you want to select.

You can click the Print button to print a list of the Work records displayed, or click the record number to open that record in Oracle Utilities Work and Asset Management.

Some menu selections may be unavailable depending on which map features are selected.

### 2. Select View under Asset on the map viewer's Options menu.

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The View Asset window opens with details about the Oracle Utilities Work and Asset Management Asset records).

You can click the asset ID number on the View Asset screen to open Oracle Utilities Work and Asset Management to that Asset record.

If you have selected more than one asset in the map feature, the Asset module results of search window opens, where you can select the asset record to view.

Remember that map features must have assigned asset IDs in order for them to display in the Oracle Utilities Work and Asset Management window. If you select nine map features, but only five have asset IDs, only those five will display on the results of search page.

### **How to Print a Map of an Asset Record**

- 1. Open the appropriate Asset record.**
- 2. Select Print GIS Map from the Actions list.**

The GIS application launches and opens a print dialog box for printing a map of the assigned asset.

- 3. Reposition the map if necessary.**

Skip this step if you do not need to reposition the map before printing.

To reposition the map, click the Close button to close the Print dialog box. Select the Pan, Zoom In, and Zoom Out controls as needed to reposition the map. When done, select Print from the map viewer's File menu to reopen the print dialog box.

- 4. Specify a Printer and Print Options and click OK.**

The map prints to the printer specified.

You can use similar steps to print maps from the Work Order, Benchmark Work Order, PM Master, and Service Request modules. From the Service Request module, you can also select Print Map (Asset ID) to print a map of the customer's address on the service request.

### **How to View Work Records Associated with a Map Feature**

- 1. Select one or more features on the GIS map.**

The menu option is only available when at least one feature has an assigned Oracle Utilities Work and Asset Management Asset ID.

- 2. Select PM Master, Service Request, Work Order, or Work Request on the Options menu in the map viewer.**

- 3. Click View.**

The corresponding search dialog box opens.

- 4. Enter search criteria.**

The drop-down list for the Selected Assets field includes all the assets selected from the map.

- 5. Click the Search button.**

The search results display.

If only one work record is found, that record opens in the Oracle Utilities Work and Asset Management window.

If more than one corresponding record is found, a results of search window opens showing the appropriate records. matching your view request, You can then select the record you want to view.

If you want to modify your search, click on Search Options button to open the Oracle Utilities Work and Asset Management search screen, where you can edit or delete the

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Custom SQL statement for the current search. You can also modify your search by returning to the map viewer and selecting other map features you want to view.

You can click the Print button to print a list of the work records displayed. Then open the appropriate module to view more information about specific records.

### **How to Create an Asset Record from the GIS Map**

**1. Select a feature on the map that has not been assigned an asset ID.**

Click on the Select Features tool and then click on the map feature you want to select.

Make sure that you select only one feature, and that the feature does not already have an assigned asset. Otherwise the Create option will be greyed out.

**2. Select Create Asset from the Oracle Utilities Work and Asset Management Asset menu.**

The Create Asset dialog box opens.

**3. Enter basic information to create the Asset record.**

The system displays a warning if the asset ID that you enter already exists.

The system fills in the Plant field. The Plant, Record Type, Asset ID, and Asset Type fields are required. All information entered here will be included on the Asset record you create.

**4. Click on the Create button.**

The system confirms that the asset has been created successfully and places the Oracle Utilities Work and Asset Management Asset record in Inactive status.

**5. Click OK.**

The system asks whether you want to assign the asset to the selected feature.

**6. Select Yes or No as appropriate, then click OK.**

If you select Yes, the system labels the selected feature with the asset ID.

**7. To view or modify the Asset record, open the Asset ID record in Oracle Utilities Work and Asset Management.**

The Asset module is located in the Resource subsystem.

### **How to Create a Work Order from the Map Viewer**

**1. Select one or more assets on the map.**

If you select several assets, the work order will be created with one task for each asset.

**2. Select Create from the Work Order options menu.**

The Create Work Order dialog box opens with information about the Plant, the Selected Assets, and the Current User. This information will be used on the Oracle Utilities Work and Asset Management Work Order record that will be created.

**3. Enter a description.**

This will be the description on the Oracle Utilities Work and Asset Management Work Order record.

**4. Select the Create WO button.**

The system creates a Oracle Utilities Work and Asset Management Work Order record in Planning status and provides the new work order number. One task is created for each asset that was selected. You can update the record with additional information as necessary

To modify the work order, open the record in Oracle Utilities Work and Asset Management and make any necessary changes.

Follow similar steps to create a work request from the map viewer. However, you can select only one asset when creating a work request.

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You can select several assets on the map to create a service request listing each asset.

### **How to Create a Service Request from the GIS Map**

1. **Select one or more assets on the map.**
2. **Select Create Service Request from the Oracle Utilities Work and Asset Management Service Request menu.**

The system displays a message confirming the selected assets.

3. **Click on the Yes button to create the Service Request.**

The Service Request module opens showing the Service Request record created.

If you selected more than one asset in Step 1, you can open the Service Request Asset List view to see a listing of the assets included and the percentage split between assets.

4. **Review and update the record as necessary.**

Once the record is open in Oracle Utilities Work and Asset Management, all Oracle Utilities Work and Asset Management functionality is available. In addition to adding additional data to the record, you can also check for duplicate service requests, adjust the percentage split between assets, and do other work as appropriate.

5. **Click on the Save icon.**

### **How to Assign an Asset ID to a Map Feature**

You can assign an asset to one or more features on the map, but you must assign the asset to one feature at a time.

1. **Select a feature on the map that has not been assigned an asset ID.**

Make sure that you select only one feature, and that the feature does not already have an assigned asset. Otherwise the Assign option will be greyed out.

2. **Select Assign Asset from the Oracle Utilities Work and Asset Management Asset menu.**

The Assign Asset dialog box opens.

3. **Enter criteria to search for the Oracle Utilities Work and Asset Management Asset record.**

You can enter search criteria in the fields in the upper portion of the window. List of Values are available.

4. **Click the Search button.**

If you need to modify the search criteria, select the Clear button to clear the fields in the upper portion of the window, enter new search criteria, and click the Search button again.

Search results display in the lower portion of the window.

5. **Highlight the Asset record you want to assign.**

6. **Click the Assign button.**

The system displays a message requesting confirmation.

7. **Click on the Yes button to confirm.**

8. **Click on the OK button.**

The system closes the dialog box and labels the map feature with the Asset record ID as shown below.

### **How to Unassign an Asset ID**

1. **Select a feature on the map that has been assigned an Asset record.**

2. **Select Unassign Asset from the Oracle Utilities Work and Asset Management Asset menu.**

If an Asset record has not already been assigned to the selected feature, the Unassign option on the menu is greyed out.

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The system displays a message asking you to confirm removal of the asset ID.

**3. Select Yes to confirm.**

The system asks if you want to change the status of the asset record to Inactive.

**4. Select Yes or No as appropriate.**

The system confirms that the removal is complete and removes the asset ID label from the selected feature on the map. The feature remains selected.

**How to Assign a Parent Asset**

**1. Select a feature on the map that has been assigned an Asset record.**

Select the asset that you want to be the child asset.

**2. Select Assign Parent from the Oracle Utilities Work and Asset Management Asset menu.**

The Assign Parent window opens.

**3. Enter the Record Type and Asset ID for the Parent Asset.**

**4. Click on the Assign button.**

The system confirms the assignment of the parent asset.

Click on the OK button.

**How to Record Assets on a Service Request**

**1. Open the appropriate Service Request record in Oracle Utilities Work and Asset Management.**

To use GIS functionality for service requests, you must launch the GIS map from the service request module.

**2. Select View Map from the Actions list.**

You must launch the GIS application from the Service Request record to record assets in this way.

The GIS application launches, opens the map in Data View, zooms in and selects all features with assigned assets associated to the service request. There can be zero, one or more features selected.

**3. Select additional features on the GIS map with assigned asset IDs.**

Make sure to hold down the Shift key as you select additional features if you want the current features to remain selected. Otherwise, the currently associated assets will be replaced with the new assets you are selecting.

**4. Select Record Assets under Service Request on the Options menu.**

The Record Assets screen displays showing the service request number and the selected assets.

If you did not open GIS from the Service Request record, the Record Assets options is not available.

**5. Click to confirm that you want to record the assets.**

The system records the assets on the Service Request Asset List view, dividing the percentage split equally between the assets. Any previous assets that were on this list are replaced.

You may need to click the Refresh icon to update the record with the new asset information.

Open the Service Request record Asset List view in Oracle Utilities Work and Asset Management to make any changes to the percentage split between assets.

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### How to Search for an Address

1. **Select Find Address from the Oracle Utilities Work and Asset Management toolbar.**  
The system opens the Find dialog box below the map.
2. **Enter an exact or a partial address in the Address field.**  
You can use the “%” wildcard character to substitute for street numbers. For example, you could enter “% Taylor” (or just “% tay”) to search for all addresses on Taylor Street, or “24% Taylor” to find 242 Taylor, 246 Taylor, 248 Taylor, etc.
3. **Click Search.**  
The viewer displays a list of the addresses found below the map.
4. **Click on a record number to see that address on the map.**  
Or click the “Zoom to these records” link to open a map showing all of the found addresses.

### How to Search for an Intersection

1. **Select the Intersection Wizard from the Oracle Utilities Work and Asset Management toolbar.**  
The viewer opens the Find dialog box below the map.
2. **Enter the first street name and click Search.**  
You don’t need to use the “%” wildcard character as the system will find the string you enter anywhere in the street name. You can enter “bay” to find Bayou, Bayside, Coquina Bay, etc.  
  
The viewer opens a list of the street segments matching your search. The exact information shown varies depending on how your map data is set up.  
  
This search for “bay” returned Bay Street, Bayshore Drive, East Bay Isle Drive, and others.
3. **Click on a record number for the correct street.**  
In the example above, records 3-6 are for Coquina Bay Drive. Clicking on any of those record numbers opens the complete listing of all intersections where Coquina Bay Drive is either the named street or a crossing street.
4. **Click on a record number to display the map of the intersection.**

### How to Search for a Parcel

1. **Select Find Parcel from the Oracle Utilities Work and Asset Management toolbar.**  
The system opens the Find dialog box below the map.
2. **Enter the ID for the parcel you want to find in the Parcel field.**  
You must enter the entire Parcel ID and cannot use the wildcard. Since Parcel ID numbers are usually very similar, wildcard searches would typically result in too many records.
3. **Click Find String.**  
The viewer displays the parcel on the map.
4. **Verify the Parcel ID.**  
You can verify that the correct parcel was found by checking the Parcel ID number.  
  
Click the Identify tool and then click on the map to display parcel information below the map.  
  
Scroll to the right and confirm the Parcel ID number.

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# GIS Implementation

Regardless of which GIS viewer you use, implementation of the Oracle Utilities Work and Asset Management interface to GIS requires that you map GIS features to the Oracle Utilities Work and Asset Management sa\_asset table then complete additional configuration steps. This document provides sample generic implementation information to use as a guideline.

## Overview

The primary configuration goals are to:

1. [Set up System Generated Sequence Numbering](#)
2. [Synchronize the GIS Schema with SA\\_ASSET](#)
3. [Configure the GIS Business Rules](#)
4. [Set up the Job Manager](#)
5. Complete the [Optional Configuration Steps](#)

## Standard GIS Interfaces

### WIFP\_GIS\_ASSET

This standard GIS Asset interface takes outside system GIS related data and creates assets in the Oracle Utilities Work & Asset Management system to match GIS mapped features.

### WIFP\_GIS\_ASSET\_SPECIFICATION

This standard GIS Specification interface takes outside system GIS related data and creates specifications in the Oracle Utilities Work & Asset Management system to match GIS mapped features associated with asset data.

Please refer to the section at the end of this chapter titled [Incorporate SA\\_SPECIFICATION\\_DATA \(optional\)](#) for more information on using specification data with the GIS interface.

## Configuring the GIS Interface

To configure the GIS Interface you must set up system generated sequence numbering, synchronize the GIS schema to system data, configure business rules, set up the job manager and complete optional steps as needed.

### Set up System Generated Sequence Numbering

In order for processing to complete correctly, sequence numbering for the Asset module and the Specification module must be set as system generated. The interfaces will not use any record IDs

populated in the views (i.e. if there are asset IDs entered in the view that you want interfaced into the system, the batch process would ignore those IDs and create system generated IDs).

### To Set System Generated Sequence Numbering

If this is not configured correctly, batch processing will trigger an error when it attempts to create record IDs.

1. Open the Sequence Numbers module.
2. Search for ASSET as the Table Name.
3. Select "System."

This sets system\_generate\_ind to Y.

You should also set it to start at "1".

You can also create this through sql:

```
create sequence sseq_gis_interface start with 1
```

## Synchronize the GIS Schema with SA\_ASSET

When new GIS feature data is added to a GIS schema, the Asset ID cross-reference field (SynergenID) is left blank. The interface must find all of these new records and create corresponding Oracle Utilities Work and Asset Management asset records.

To synchronize the tables you must complete the following:

1. Create database table views for the Oracle Utilities Work and Asset Management asset data.
2. Create database views for the GIS feature data.

Once the setup is completed, the interface reads all records from the GIS views, creates a new sa\_asset record based on the GIS view, and updates the SynergenID back in the GIS schema with the new Oracle Utilities Work and Asset Management Asset ID.

### About WIFP\_GIS\_ASSET

This interface looks at the external source table via the user created view to populate assets in SA\_ASSET.

Asset IDs are generated using Oracle Utilities Work and Asset Management sequence numbers. The interface will not use any asset\_id populated in the views (i.e. if there are asset IDs entered in the view that you want interfaced into the system, the batch process would ignore those IDs and create system generated IDs).

### GIS Asset Interface Batch Job Procedure

The batch job moves GIS records from views of GIS tables listed in the GIS Asset Interface business rule.

The stored procedure is scheduled and run in the Job Manager according to your business requirements.

Updates will always set the last update date and the job sequence number.

```
WIFP_GIS_ASSET
IS
PROCEDURE gis_asset (job_in IN NUMBER, - Job number
                    plant_in IN VARCHAR2, - Plant
                    gis_field_in IN VARCHAR2)
                    -- GIS Field to update with asset
```

The "gis\_field\_in" is usually called "SYNERGENID".



### GIS Asset Interface Processing

Interface processing is as follows:

1. The system reads the GIS Asset Interface business rule for the view name and associated external table name.
2. The system opens a cursor to the view.
3. The system generates a new `asset_id` (overriding anything `asset_id` from the view).
4. The system uses the view data and new `asset_id` to insert into `sv_gis_asset_layout`.
5. The system updates the external table's `gis_field_in` column using `rowid` stored in `asset_key_segments`.

### Create the SA\_ASSET Layout View

When you create the `SA_ASSET` layout view you are defining which columns from `SA_ASSET` you want to use in the GIS interface. Do this by creating a new view which has the exact name:

`SV_GIS_ASSET_LAYOUT`

The view can only contain columns from `sa_asset`, but should contain a superset of asset information containing all asset columns from the `sa_asset` table that meet the following characteristics.

- Any columns that will be mapped to any of the GIS feature data
- Columns that are represented as pop-lists on the Asset window in Oracle Utilities Work and Asset Management
- Columns that are Yes/No indicators in the `sa_asset` table
- Columns that are required for the interface

Note: This view is used to allow a copy of applicable columns from `sa_asset` and to allow the table to be modified without affecting the actual `sa_asset` table. If the full `sa_asset` table were mapped, the views created to map to the GIS feature data would need to change each time a new column is added to the `sa_asset` table. Having a separate view which is not delivered as part of the base application also ensures that clients can configure it to their requirements without concern over having it overwritten or altered by upgrades.

### Required Columns

`SV_GIS_ASSET_LAYOUT` must include the following columns which are required by Oracle Utilities Work and Asset Management to properly display the asset screen: .

SA_ASSET Column	Description of Data that will be Required from GIS Views
All required fields	Please review additional system and user required fields on <code>SA_ASSET</code> as defined by your organization. All required fields must be included in <code>SV_GIS_ASSET_LAYOUT</code>
<code>asset_id</code>	This should always be NULL because it will be populated by the interface.
<code>asset_key_segments</code>	This column must be populated with the ROWID of the external GIS table to be updated. It will be cleared before inserting into <code>sa_asset</code> . This data will be used to update the GIS feature with the new Asset ID cross-reference.
<code>asset_status</code>	ACTIVE, INACTIVE, PLANNED, or RETIRED. Must be uppercase.

SA_ASSET Column	Description of Data that will be Required from GIS Views
created_by	Will either be set to the keyword USER or a constant such as GIS INTERFACE. A constant will allow you to easily identify those records created by the GIS interface.
creation_date	SYSDATE.
last_run_date	SYSDATE -
last_update_date	SYSDATE
last_update_user	Will either be set to the keyword USER or a constant such as GIS INTERFACE. A constant will allow you to easily identify those records created by the GIS interface.
location_basis	FACILITY, ADDRESS, or ADDRESS WITH NODES. Must be uppercase.
plant	Will be used to default the plant.
safety_critical_ind safety_notes_ind notes_ind future_retirement_ind radio_ind air_condition_ind cruise_control_ind car_phone_ind stereo_ind environmental_ind health_ind sent_to_interface_ind	Any single character indicator in the table will be defaulted to Y or N. These columns are typically presented in the User Interface as check boxes and usually require a value to display correctly.

Also, include any other columns that are deemed necessary for your business practices. For example, you may want to include addresses or nodes.

Views can also use LAST\_RUN\_DATE from the business rule to only pull records that have changed since the last run. In this case a timestamp would have to be added to the GIS source table.

### Populating SV\_GIS\_ASSET\_LAYOUT

Insert fields using sql using a Create View statement. The external table is updated with "asset\_record\_type-asset\_id" into SYNERGEN\_ID.

#### Simple Example

```
CREATE SV_GIS_ASSET_LAYOUT AS
SELECT subset_of_fields
FROM SA_ASSET
```

#### Advanced Example

```
Create or replace view sa_gis_asset_layout
as
select
plant,asset_record_type,asset_id,asset_status, location_basis,
asset_key_segments,last_update_date, last_update_user,
creation_date, created_by,safety_critical_ind, safety_notes_
ind, notes_ind,future_retirement_ind, radio_ind, air_
condition_ind,cruise_control_ind, car_phone_ind, stereo_
ind,environmental_ind, health_ind, sent_to_interface_ind,
asset_type, asset_desc, street_number,street_name,
manufacturer_code, manufacturer_model_no
from sa_asset
```

Note: This view is only used for column mapping.

## Create the GIS Feature Views

After creating SV\_GIS\_ASSET\_Layout, you must create one new view for each GIS feature that should be mapped to sa\_asset and that will appear on your maps. For example, if your GIS maps will need to represent pipes, parcels, and manholes, you will need to create a view to represent each of these features.

Each of these views must exactly match SV\_GIS\_ASSET\_Layout. The interface simply matches column for column between the two views to synchronize the information.

### Sample Information

If you are setting up the interface to synchronize GIS Street and GIS Pipe information, you might want to copy the following fields into the sa\_asset table:

Streets	Pipes Information
Asset Record Type	Record Type
Asset Description	Asset Description
Street Number	Manufacturer
Street Name	Manufacturer Model Number
City	

If you have “*n*” GIS feature tables to map into the sa\_asset table, you must perform the mapping for each table and then define the superset of information related to all of the features.

### Example

The example below presents sample street information.

GIS_STREETS	
Name	Type
-----	-----
FNODE_	NUMBER (38)
TNODE_	NUMBER (38)
LENGTH	NUMBER
OBJECTID	NUMBER
GID	NUMBER
STR_CODE	VARCHAR2 (10)
STR_NAME	VARCHAR2 (40)
SEG_OWNER	VARCHAR2 (20)
SEG_CLASS	VARCHAR2 (20)
SEG_TYPE	VARCHAR2 (20)
ADDR_LEFT	NUMBER
EVAC_ROUTE	VARCHAR2 (1)
SYNERGENID	VARCHAR2 (20)
GEOMETRY	MDSYS.SDO_GEOMETRY

The columns defined above may not all need to be mapped to the sa\_asset table. The view below represents a possible mapping to the SV\_GIS\_ASSET\_LAYOUT view.

```
Create view sv_gis_feature_streets
(
  plant, asset_record_type, asset_id, asset_status, location_
basis, asset_key_segments, last_update_date, last_update_user,
creation_date, created_by, safety_critical_ind, safety_notes_
ind, notes_ind, future_retirement_ind, radio_ind, air_
condition_ind, cruise_control_ind, car_phone_ind, stereo_ind,
environmental_ind, health_ind, sent_to_interface_ind, asset_
type, asset_desc, street_number, street_name, manufacturer_
code, manufacturer_model_no, parent_asset_record_type, parent_
asset_id, department, area, account_no
```

```

)
as
SELECT
'01', 'S', null,
'ACTIVE', 'ADDRESS', rowid,
sysdate, user,
sysdate, 'GIS INTERFACE',
'N','N','N',
'N','N','N',
'N','N','N',
'N','N','N'
'STREET', 'Street Segment from GIS: '||str_code||' '||str_
name, str_code,
str_name, null, null,
'S', '4507', 'PUBLICWORK', 'STREETS', '123-000-456'
from gis_schema.gis_streets
where SynergenID is null

```

Literals	Note that many of the parameters in the views are hard coded to literals. This allows you to apply your local mapping requirements to the fields in question.
Asset_desc	Note that the asset_desc field is passed as a combination of literals and database columns. You may create any combination of information needed to represent the GIS data.
Rowid	Rowid is always passed into the asset_key_segments column. ROWID must be passed in the asset_key_segments column.
Null Columns	Some fields are passed as null values. These are often the columns in the view that relate to data for a different GIS feature table. In this example, manufacturer_code and manufacturer_model_no do not apply to streets so are passed as nulls in this view.
gis_schema	This contains the name of the schema that owns the GIS feature table. Note that this may have to be shown as a database link if the feature table is in a database instance different than the Oracle Utilities Work and Asset Management schema.
parent_asset, account info	The parent asset information and the accounting information are typically the same for every feature in a GIS layer. This information may be passed in as literal strings based on data from Oracle Utilities Work and Asset Management.
SynergenID	This is the name of the column that is added to the GIS Feature table as a cross-reference to the sa_asset Asset ID.

Note that you only want this view to contain the records in the feature table where the cross-reference is null. If this clause is left out, you will create duplicate assets in Oracle Utilities Work and Asset Management. SynergenID is used as an example here but may be named any name you want. If you change the column from SynergenID, you will also have to configure the GIS integration to look for the new column name.

## Configure the GIS Business Rules

### GIS Setup Business Rule

The GIS Setup business rule controls the type of GIS viewer used for your organization and defines the additional settings required to enable the GIS viewer and functionality.

Select one type of GIS viewer as the ACTIVATED GIS OPTION then configure settings in the columns next to the indicated rule keys for that viewer. Only the viewer that is selected as the activated option needs to be configured.

Rule Key	Activated GIS	Description
ACTIVATED GIS OPTION	N/A	Specifies the GIS System that requests from Oracle Utilities Work and Asset Management will be sent to.
DISPLAY CHILD ASSETS	all	A “YES” or “NO” value indicating if the selected Asset and its Children Assets will be displayed on the map or only the selected Asset will be displayed on the map.
ESRI1 ALT SEARCH FIELD value 1	ESRI1	An optional, client-specific search field
ESRI1 DSN value 1	ESRI1	The Data Source Name that will be used when configuring the ODBC connection on the client’s workstation.
ESRI1 GIS SEARCH FIELD value 1	ESRI1	The map search field that will be used to store the Asset ID.
ESRI1 INITGIS value 4	ESRI1	The file path and folder where the Oracle Utilities Work and Asset Management GIS program is installed on the client’s workstation. example is c:\program files\SynergenGIS\INITGIS.EXE
ESRI1 MAP value 4	ESRI1	The location and file name of the map (mxd). example C:\GISData\syntaxopolis\syntaxopolis.MXD
ESRI1 MIN SCALE FACTOR value 1	ESRI1	Minimum scale factor (number) that the map will be allowed use.
ESRI1 PRINT VIEW value 1	ESRI1	View used when the map is printing (LAYOUT/DATA).
ESRI1 TRACE value 1	ESRI1	Used only for problem tracking (ON/OFF)
ESRI1 VIEWER value 4	ESRI1	The file path and location of the ESRI viewer that is installed on the client’s workstation
ORACLE1 VIEWER value 4	ORACLE1	The configuration file (cfg) containing GIS preferences. Example cfg=honolulu.cfg

### GIS Asset Interface Rule

WIFP\_GIS\_ASSET uses this rule to execute the mapping between GIS data and Oracle Utilities Work and Asset Management assets. This rule shows the list of GIS Views to be processed by the GIS Asset Interface and determines how to process all the defined GIS views to create assets in Oracle Utilities Work and Asset Management..

The GIS table name associated with the views is used to update the SYNERGEN\_ID in external (to WAM) tables.

GIS View records are copied directly to SA\_ASSET after processing and the GIS table is updated with the newly created Asset ID (ASSET\_RECORD\_TYPE - ASSET\_ID).

### Set up the Job Manager

The final configuration step is to add the interface to the job manager for execution.

Open the Job Manager module and create a new batch job with the following parameters:

```
wifp_gis_asset.gis_asset(job_number, plant, gis_xref_column);
```

job_number	This is the Oracle Utilities Work and Asset Management Job Number assigned by the Job Manager when a new job is entered into the scheduler.
plant	This is the plant code that is related to the Asset data being created.
gis_xref_column	This is the name of the column in the GIS Feature tables that is used to store the asset cross-reference. It is typically known as SYNERGENID but may be changed here to be any name.

Note that changing the name from SYNERGENID here and in the GIS feature tables also requires configuration changes to the GIS integration and related map viewer configuration files.

Example: `wifp_gis_asset.gis_asset(85, '01', 'SYNERGENID');`

## Optional Configuration Steps

The following steps can be completed to help users access GIS.

1. [Add a GIS Viewer Link to the Home Page](#)
2. [Control GIS Settings through the User Profile](#)

### Add a GIS Viewer Link to the Home Page

It may be beneficial to users to have a GIS Viewer link added to their home page so that they have easier access to the functionality. If you use Oracle Viewer as your GIS program, the link is automatically available in the Actions list if the GIS VIEWER function is added to user's responsibilities.

1. **In the Links component on the home page, click Options.**

If you do not have the Links component, add it using the Personalize Page link.

2. Click Advanced Edit > Add.
3. Enter the title "Open GIS Viewer" or similar.
4. Enter the link  
"http://[servername]:[port]/synergen/OpenGISViewer.jsp"

where "servername" and "port" are the appropriate values for your server and port.

Example: <http://paris:1710/synergen/OpenGISViewer.jsp>

5. Click Finish > Save > Close.
6. Add the server as a trusted site if necessary.  
You can do this by clicking the Charts icon on the home page and then clicking the "Add Chart Server as a Trusted Site" link.

### Control GIS Settings through the User Profile

Users can also set the ACTIVATED GIS OPTION key name in the User Profile to provide access to different GIS viewers. Since there are several configuration and data requirements needed to enable accurate and useful GIS functionality, user specific alteration of this setting is not recommended. However, it can be used if testing or other non-production use needs to be completed.

## Incorporate SA\_SPECIFICATION\_DATA (optional)

Some implementations might also want to include specification functionality with the GIS integration. Complete similar steps with SA\_SPECIFICATION\_DATA as were completed for SA\_ASSET:

1. [Set up System Generated Sequence Numbering](#) for SA\_SPECIFICATION\_DATA.
2. [Synchronize the GIS Schema with SA\\_SPECIFICATION\\_DATA](#).
3. [Configure the GIS Specification Interface Business Rule](#).
4. [Set up the Job Manager](#).

## Synchronize the GIS Schema with SA\_SPECIFICATION\_DATA

### Create the SA\_SPECIFICATION\_DATA Layout View

The view name must be SV\_GIS\_SPECIFICATION\_LAYOUT.

The GIS View must contain SYNERGENID. All other fields should have the following format: "spec\_seq\_no-" || GIS\_FIELD Example: "1-" || pipe\_length

#### Code

```
Select
  substr( column_one, 1, instr(column_one, '-')-1 ) seq_no,
  substr( column_one, instr(column_one, '-')+1, length(column_one)
) data_value
from
  view_name
where
  synergenid = specific_synergenid;
```

#### Example (column\_one = 1-PIPE\_LENGTH):

```
Select
  1,
  PIPE_LENGTH
From
  View_one
Where
  Synergenid = E223456;
```

### Create the GIS Feature Views for SV\_GIS\_SPECIFICATION\_LAYOUT

Create one new view for each GIS feature that is being mapped sa\_specification\_data.

### About WIFP\_GIS\_ASSET\_SPECIFICATION

This interface looks at an external source table via a user created view. Records are created in sa\_asset\_attachment, sa\_specification\_data, and sa\_specification\_details tables, as applicable using the SAIF\_GIS\_SPECIFICATION\_XREF table.

#### GIS Specification Interface Batch Job Procedure

The stored procedure is scheduled and run in the Job Manager according to your business requirements.

Updates will always set the last update date and the job sequence number.

```
WIFP_GIS_ASSET_SPECIFICATION(JOB_IN,
PLANT_IN,
```

```
DIRECTION_IN,
PURGE_IN,
OPTION_IN
PRE_IN,
POST_IN
)
```

### **GIS Specification Interface Processing**

Interface processing is as follows:

1. The system reads the GIS Specification Interface business rule for the view name.
2. The system opens a cursor to the view outer-joined with saif\_gis\_specification\_xref.
3. If no specification number is associated with the SYNERGEN\_ID for a record, then the system tries to create specification for it. Otherwise, it will use the specification number associated to update the spec details.
4. If a specification is created, the system inserts a new row into saif\_gis\_specification\_xref table to create the association. If the specification is created, the system assumes/uses the SYNERGEN\_ID as the asset to create an attachment on the asset (insert into sa\_asset\_attachment) and updates the asset header with the specification number.

The batch job, WIFP\_GIS\_ASSET\_SPECIFICATION, moves GIS Specification records from the views of GIS tables listed in the GIS Specification Interface.

## **Configure the GIS Specification Interface Business Rule**

This rule shows the list of GIS Views to be processed by the GIS specification interface. GIS View records will be copied directly to SA\_SPECIFICATION. Then the GIS Table will be updated with the newly created Specification ID (SPECIFICATION\_RECORD\_TYPE - SPECIFICATION\_ID).

SAIF\_GIS\_SPECIFICATION\_XREF uses this rule to execute the mapping between GIS data and Oracle Utilities Work and Asset Management Specifications.

Configure the business rule keys as follows:

```
KEY_NAME      = GIS_SPEC_VIEW_NAME
KEY_VALUE     = SPEC_TYPE
KEY_VALUE2    = SPEC_CAT
KEY_VALUE3    = LAST_RUN_DATE (FORMAT IS 'DD-MON-YYYY HH:MI:SS')
```

## **Set up the Job Manager**

The final configuration step is to add the interface to the job manager for execution.

Open the Job Manager module and create a new batch job with the following parameters:

```
wifp_gis_asset_specification.gis_asset_specification(job_
number, plant, gis_xref_column);
```

job_number	This is the Oracle Utilities Work and Asset Management Job Number assigned by the Job Manager when a new job is entered into the scheduler.
plant	This is the plant code that is related to the specification data being created.
gis_xref_column	This is the name of the column in the GIS Feature tables that is used to store the asset cross-reference. It is typically known as SYNERGENID but may be changed here to be any name.

Note that changing the name from SYNERGENID here and in the GIS feature tables also requires configuration changes to the GIS integration and related map viewer configuration files.



Example: `wifp_gis_asset_specification.gis_asset_specification(85, '01', 'SYNERGENID');`

## Uninstalling a GIS Product

1. **Start the GIS tool.**

This may be ArcMap, ArcIMS, ArcGIS, etc.

2. Open the map used for the integration.

3. Remove the custom menu.

Select Customize from the Tools menu.

Click on and delete the menu and all of its submenus.

4. Delete the GIS Search Field from its data table(s).

5. Remove and delete the ODBC DSN for the Oracle Utilities Work and Asset Management database.

---

# GIS Integration Application Programming Interface (API)

Integrations between Oracle Utilities Work and Asset Management and GIS systems are two-way communications where Oracle Utilities Work and Asset Management sends information to the GIS system and the GIS system sends information back to Oracle Utilities Work and Asset Management. This communication is completed via HTTP URL requests made to the Oracle Utilities Work and Asset Management browser.

This document describes the application programming interface used in these integrations.

## Supported Systems

Oracle Utilities Work and Asset Management can currently be integrated with the following GIS products:

- **ESRI - ArcMap**

ESRI's ArcView desktop software suite. In this interface, the Oracle Utilities Work and Asset Management application uses a Oracle Forms webutils programs to execute the GIS software running on the client machine.

Note: ARCVIEW consists of several desktop applications, including ARCMAP. Only ARCMAP is required for the Oracle Utilities Work and Asset Management integration.

- **ESRI - ArcIMS**

ESRI's ArcIMS System. This is a web-based system requiring an ArcIMS map server.

- **ESRI ArcGIS Viewer**

ESRI's ArcGIS system. This is a web-based system requiring an ArcGIS map server.

- **Oracle GIS Viewer**

Oracle's Spatial viewer, a web-based viewer. The viewer page is currently embedded into the Oracle Utilities Work and Asset Management application, although an Oracle Spatial MapViewer server is still required.

These integrations use common Oracle Utilities Work and Asset Management components and share the same tables, actions, views, and stored procedures. A single business rule, GIS Setup, is used to specify which GIS product is deployed and to specify additional parameters as needed.

## Integration Points

As discussed, GIS integrations involve a two way communication between Oracle Utilities Work and Asset Management and the GIS system. This section provides on communication going each way:

- [Oracle Utilities Work and Asset Management to GIS](#)
- [GIS to Oracle Utilities Work and Asset Management](#)

### Oracle Utilities Work and Asset Management to GIS

Users can select View GIS or PPrint GIS Map from the Actions list in one of the following modules to launch the GIS viewer:

- **Asset (ASSET):** The asset currently displayed in the Asset module.
- **PM Master (PMMASTER):** All assets associated with the work orders created from the current pm\_master\_no record's benchmark\_no.
- **Service Request (SERVREQ):** All assets associated with the current service\_request\_no.
- **Work Order (WORKORD) or Benchmark Work Order (BENCHWO):** All assets associated with the current work\_order\_no.
- **Work Order Task (WOTASK):** All assets associated with the current work\_order\_no and work\_order\_task\_no.
- **Work Request (WORKREQ):** All assets associated with the current work\_request\_no.

### Requests

Requests from Oracle Utilities Work and Asset Management to the GIS system depend on the underlying architecture of the GIS System. Browser-based solutions require HTTP URL requests whereas desktop computer software requires specialized arguments passed to the GIS software executable.

### GIS to Oracle Utilities Work and Asset Management

The following are supported actions from the GIS system:

- View Asset
- View PM Master
- View Service Request
- Record Assets
- View Work Order
- Create Work Order
- View Work Request
- Create Work Request

### Opening Application Windows

In the integration process, the Oracle Utilities Work and Asset Management application may or may not already be open. To complete the integration cycle, the integration code must find any existing Oracle Utilities Work and Asset Management application SIA window so that the Oracle Utilities Work and Asset Management modules can open the GIS System window, and the GIS System can open the same Oracle Utilities Work and Asset Management module.

This “find” is done using the JavaScript command “window.open()” using the following algorithm for the window name.

```
"synMain" + username + "_" + forms_tnsname + "_" + user_entry_
number
```

**username** = the user logged into the Oracle Utilities Work and Asset Management application

**forms\_tnsname** = the config.properties configuration setting associated with the Forms database TNS name. The TNS name corresponds to the database TNS name used by the Oracle Forms portion of Oracle Utilities Work and Asset Management.

**user\_entry\_number** = a sequential number that starts at 1 and increments every time the same username logs into the Oracle Utilities Work and Asset Management application. This number is reset to 1 when a maximum threshold is reached. The threshold is set within the config.properties file as "max\_user\_windows"

**Example:** synMainLELLISON\_PROD1\_1

If an existing Oracle Utilities Work and Asset Management application window is not found, the JavaScript window.open() command starts a new window before opening the requested form. The user must logon to the Oracle Utilities Work and Asset Management application unless the "Save My Logon" option is enabled.

## Transactions

A number of the supported actions require calls to stored procedures to create objects within the database. This can happen on either the GIS system (as in the case of the ArcIMS integration) or through the Oracle Utilities Work and Asset Management URL (as in Oracle GIS integration). This section includes the following:

- [Add-Ons to GIS Systems](#)
- [Transactions on GIS System](#)
- [Transactions through Oracle Utilities Work and Asset Management](#)

## Add-Ons to GIS Systems

Oracle Utilities Work and Asset Management GIS System Integrations include add-on packages to the web-based GIS Systems. These add-ons provide embedded Oracle Utilities Work and Asset Management menu options for querying the Oracle Utilities Work and Asset Management data and sending requests to Oracle Utilities Work and Asset Management. When the user selects one of these menu options, the system displays a dialog box to where the user chooses a single item. Then the request is made to the Oracle Utilities Work and Asset Management application. This request is in the form of an HTTP URL request that targets the main Oracle Utilities Work and Asset Management browser window. In these applications, the transactions for Oracle Utilities Work and Asset Management objects are executed from within the GIS System.

### HTTP URL Requests

The following sections detail the URL requests used for the Menu actions accessed from the GIS map. They are separated into two groups – one where the transactions occur on the GIS system and the other where the transactions will occur through the Oracle Utilities Work and Asset Management system. Each of the examples presented include the “sia\_url” variable described below.

**sia\_url** = the HTTP path to the Oracle Utilities Work and Asset Management application. This is the same as the "sia\_integration\_url" property in the Oracle Utilities Work and Asset Management configuration files. In all of the examples, the asset list can include multiple assets.

If more than one asset is requested, each asset ID should be enclosed in single quotes (') and these string should be separated by commas (,). For example, 'ML-500','E-ML-230','M-1520' are three assets.

## Transactions on GIS System

### View Asset

The format of the URL request is as follows:

```
sia_url + "DrillDown?tgt=Drilldown&drilldownItem=asset_
id&primekey_name_1=asset_record_type&asset_record_type=" +
asset_record_type_value + "&primekey_name_2=asset_id&asset_
id=" + asset_id_value + "&sRp=1"
```

**asset\_record\_type\_value** = the asset\_record\_type of the asset selected from the integration dialog

**asset\_id\_value** = the asset\_id of the asset selected from the integration dialog.

### View PM Master

The format of the URL request is as follows:

```
sia_url + "DrillDown?tgt=Drilldown&drilldownItem=pm_master_
no&primekey_name_1=pm_master_no&pm_master_no=" + pm_master_no_
value + "&sRp=1";
```

**pm\_master\_no\_value** = the pm\_master\_no selected from the integration dialogs.

### View Service Request

The format of the URL request is as follows:

```
sia_url + "DrillDown?tgt=Drilldown&drilldownItem=service_
request_no&primekey_name_1=service_request_no&service_request_
no=" + service_request_no_value + "&sRp=1";
```

**service\_request\_no\_value** = the service\_request\_no selected from the integration dialogs.

### Record Assets

This process starts with a Service Request record in the Oracle Utilities Work and Asset Management application. From the module menu, the user selects “View GIS Map” to display the GIS System map page. After selecting all assets to assign to the service request, the user clicks the "Record" button to and the integration architecture executes the “sdbp\_gis\_record\_assets” stored procedure passing the plant, service\_request\_no, list of assets, and the username.

After the procedure is called, the service request page is redisplayed using the following URL request to the Oracle Utilities Work and Asset Management application.

```
sia_url +
"DrillDown?tgt=Drilldown&drilldownItem=service_request_
no&primekey_name_1=service_request_no&service_request_no=" +
service_request_no_value + "&sRp=1";
```

**service\_request\_no\_value** = the service\_request\_no originally selected in the Oracle Utilities Work and Asset Management application.

### View Work Order

The format of the URL request is as follows:

```
sia_url +
"DrillDown?tgt=Drilldown&drilldownItem=work_order_no&primekey_
name_1=work_order_no&work_order_no=" + work_order_no_value +
```

```
"&primekey_name_2=work_order_task_no&work_order_task_no=" +  
work_order_task_no_value + "&sRp=1";
```

If the Work Order is in HISTORY status, the following URL is used instead

```
sia_url +  
"DrillDown?tgt=Drilldown&drilldownItem=work_order_no&primekey_  
name_1=work_order_no&work_order_no=" + work_order_no_value +  
"&primekey_name_2=work_order_task_no&work_order_task_no=" +  
work_order_task_no_value + "&work_status=HISTORY&sRp=1";
```

**work\_order\_no\_value** = the work\_order\_no selected from the integration dialogs

**work\_order\_task\_no\_value** = the work\_order\_task\_no from the integration dialogs

### **Create Work Order**

Selecting this option will display all the assets selected, and allow the user to enter the Work Description value for the new work order. Clicking the "Create" button will execute the "sdbp\_gis\_create\_wo" stored procedure passing the plant, list of assets (asset\_record\_type and asset\_id), work description, and the current username of the Oracle Utilities Work and Asset Management user.

Once created, the user is navigated to the Work Order module of the Oracle Utilities Work and Asset Management application (WORKORD) using the following request URL.

```
sia_url +  
"DrillDown?tgt=Drilldown&drilldownItem=work_order_  
no&page=WORK_DEMAND&work_demand_type=Z&primekey_name_1=work_  
order_no&work_order_no=" + work_order_no_value + "&sRp=1";
```

**work\_order\_no\_value** = the work\_order\_no selected from the integration dialogs.

### **View Work Request**

The format of the URL request is as follows:

```
sia_url +  
"DrillDown?tgt=Drilldown&drilldownItem=work_request_  
no&primekey_name_1=work_request_no&work_request_no=" + work_  
request_no_value + "&sRp=1";
```

**work\_request\_no\_value** = the work\_request\_no selected from the integration dialogs.

### **Create Work Request**

Selecting this option will display all the assets selected, and allow the user to enter the Work Request Description value for the new work request. Clicking the "Create" button will connect to the database using the configured ODBC DSN, and execute the "sdbp\_gis\_create\_wr" stored procedure passing the plant, list of assets (asset\_record\_type and asset\_id), work request description, and the current username of the Oracle Utilities Work and Asset Management user.

Once created, the user is navigated to the Work Request module of the Oracle Utilities Work and Asset Management application (WORKREQ) using the following request URL.

```
sia_url +  
"DrillDown?tgt=Drilldown&drilldownItem=work_request_  
no&primekey_name_1=work_request_no&work_request_no=" + work_  
request_no_value + "&sRp=1";
```

**work\_request\_no\_value** = the work\_request\_no selected from the integration dialog.

## Transactions through Oracle Utilities Work and Asset Management

Depending on your architecture, you may also need to escape or encode the special characters included in the examples -- for space (+), single quote (%27), comma (%2C), pipe (%7C), left parentheses (%5B), and right parentheses (%5D).

### View Asset

This example navigates to the Asset module with 2 assets in the search criteria -- E-ML-5003 and E-ML-5007.

```
sia_url + "DrillDown?_type=where_clause&sRp=1&target_
form=asset&where_clause=asset_record_type+||+'-'+||asset_
id+IN+('E-ML-5003','E-ML-5007') "
```

### View PM Master

This example navigates to the PM Master module with 2 assets in the search criteria -- E-ML-5003 and E-ML-5007.

```
sia_url + "DrillDown?_type=where_clause&sRp=1&target_
form=pmmaster&where_clause=asset_record_type+||+'-'+||asset_
id+IN+('E-ML-5003','E-ML-5007') "
```

### View Service Request

This example navigates to the Service Request module with 2 assets in the search criteria -- E-ML-5003 and E-ML-5007.

```
sia_url + "DrillDown?_type=where_clause&sRp=1&target_
form=servreq&where_clause=service_request_
no+IN+(SELECT+service_request_no+FROM+sa_service_request_
asset_list+WHERE+asset_record_type+||+'-'+||+asset_
id+IN+('E-ML-5003','E-ML-5007') "
```

### Create Service Request

This example will create a Service Create record for plant "01", "Type 1" as the type, "Code 1" for the problem code, "New SR created from GIS Viewer." for the description, "E-ML-500" in the asset list, and "SCHENG" as the requestor. After the record is created the user is navigated to the Service Request module.

```
sia_url + "DrillDown?_type=sdbp_gis_create_sr&target_
form=servreq&sRp=1&plant_in=01&type_in=Type+1&problem_code_
in=Code+1&description_
in=New+SR+created+from+GIS+Viewer.&asset_list_
in=E-ML-5004&requestor_in=SCHENG"
```

### Record Assets

The process for this action starts with a Service Request record in the Oracle Utilities Work and Asset Management application. From the module's Actions, the user then selects "View GIS Map" to display the GIS map page. After selecting all assets to assign to the service request, the user clicks the "Record Assets" action. The following example illustrates the parameters passed to Oracle Utilities Work and Asset Management to perform the "Record Assets" action.

This example assigns the asset "E-ML-5004" to the asset list of Service Request "0100007". Plant "01" and username "SCHENG" will be used for the assignment.

```
sia_url + "DrillDown?_type=sdbp_gis_record_assets&target_
form=servreq&sRp=1&plant_in=01&asset_list_
in=E-ML-5004&username_in=SCHENG&service_request_in=0100007"
```

### **View Work Order**

This example navigates to the Work Order module with the "E-ML-5004" asset in the search criteria. An additional search criteria for the asset is also included against the SA\_WORK\_ORDER\_TASK\_ASSET\_LIST table.

```
sia_url + "DrillDown?_type=where_clause&sRp=1&target_
form=workord&where_clause=asset_record_type+||+'-'||+asset_
id+IN+('E-ML-5004')+OR+work_order_no+IN+(SELECT+work_order_
no+FROM+sa_work_order_task_asset_list+WHERE+asset_record_
type+||+'-'||+asset_id+IN+('E-ML-5004'))"
```

### **Create Work Order**

This action will either create a Work Order Task that applies to all assets or a Work Order Task for each asset.

#### **Work Order Task That Applies to All Selected Assets (single task)**

This example creates one Work Order Task for plant "01", description "New WO created from GIS Viewer.", assets "E-ML-5004" and "E-ML-5003" in the asset list, and requestor "SCHENG". The user is navigated to the Work Order Header after the task is created.

```
sia_url + "DrillDown?_type=sdbp_gis_create_wo_task_
option&target_form=workord&sRp=1&plant_in=01&description_
in=New+WO+created+from+GIS+Viewer.&asset_list_
in=E-ML-5004,E-ML-5003&multi_task_flag_in=N&requestor_
in=SCHENG"
```

#### **Work Order Task for Each Asset (multi tasks)**

This example creates 2 Work Order Tasks against the assets "E-ML-5004" and "E-ML-5003", one task for each asset. For each task, the plant will be "01", description "New WO created from GIS Viewer.", and requestor will be "SCHENG". The user is navigated to the Work Order Header after the tasks are created.

```
sia_url + "DrillDown?_type=sdbp_gis_create_wo_task_
option&target_form=workord&sRp=1&plant_in=01&description_
in=New+WO+created+from+GIS+Viewer.&asset_list_
in=E-ML-5004,E-ML-5003&multi_task_flag_in=Y&requestor_
in=SCHENG"
```

### **View Work Request**

This example navigates to the Work Request module with 2 assets in the search criteria -- E-ML-5003 and E-ML-5007.

```
sia_url + "DrillDown?_type=where_clause&sRp=1&target_
form=workreq&where_clause=asset_record_type+||+'-'||+asset_
id+IN+('E-ML-5003','E-ML-5007')"
```

### **Create Work Request**

This example creates a Work Request for plant "01", description "New WR created from GIS Viewer.", "E-ML-5004" in the asset list, and requestor is "SCHENG". The user is navigated to the Work Request module after the record is created.



```
sia_url + "DrillDown?_type=sdbp_gis_create_wr&target_
form=workreq&srp=1&plant_in=01&description_
in=New+WR+created+from+GIS+Viewer.&asset_list_
in=E-ML-5004&requestor_in=SCHENG"
```

## Browser Based Systems

All of the integrated GIS systems are browser based except for ESRI ArcMap.

### HTTP URL Parameters

Configuration settings in the GIS Settings business rule determine which interface is active, and define the url to open the integrated GIS viewer.

The parameters indicated below are used for the integration when ESRI3 and ORACLE1 are activated.

Parameter	Description
aid	Asset key list where the asset key is the asset_record_type and asset_id separated by the "-" character. This list may include child assets if the DISPLAY CHILD ASSETS setting of the GIS SETUP business rule is activated. Separate multiple assets by commas and enclose the list with quotes ("). All characters must be in uppercase. Example "ASSET1","ASSET2","ASSET3"
cnt	Count of assets in the asset list (aid)
plt	Plant of the current logged in Oracle Utilities Work and Asset Management user
prt	Y if the "PRINT GIS MAP" action was selected

## Desktop Based System

The only GIS integration that uses a desktop interface is ArcMap.

When the “View GIS Map” or “Print GIS Map” actions are selected from Oracle Utilities Work and Asset Management, the integration architecture launches the desktop GIS software passing the current asset values.

### Desktop Software Parameters

As noted in the business rule description, the ESRI INITGIS value indicates the executable program that will be called by the Oracle Utilities Work and Asset Management application.

The following parameters are passed and listed in name/value pairs with the name and value separated by the “=” sign. Individual name/value pair are separated by the space character.

Note: the length of the entire parameter string is limited to 2000 characters

Parameter	Description
usr	from the current Oracle Utilities Work and Asset Management application user's username. This is needed so that the desktop software can make database queries with the appropriate permissions.
pwd	from the current Oracle Utilities Work and Asset Management application user's password. This is needed so that the desktop software can make database queries with the appropriate permissions.
dsn	ESRI1 DSN business rule value
dap	ESRI1 MAP business rule value
gsf	GIS Search Field from ESRI1 GIS SEARCH FIELD business rule value

Parameter	Description
vwr	ESRI1 VIEWER business rule value
pvw	ESRI1 PRINT VIEW business rule value
msf	ESRI1 MIN SCALE FACTOR business rule value
aid	asset key list where the asset key is the asset_record_type and asset_id separated by the "-" character. This list may include child assets if the DISPLAY CHILD ASSETS setting of the GIS SETUP business rule is activated. Individual asset keys are enclosed by starting and ending quote (") characters and separated by the "," character. All characters are in uppercase.
plt	plant of the current logged in Oracle Utilities Work and Asset Management user
prt	Y if the "PRINT GIS MAP" action was selected
ldt	for a request with a single asset, this is the truncated version of the asset description with all spaces replaced by the "~" characters so that individual words are not mistaken for separate parameters.

**Example**

```
c:\program files\SynergengIS\INITGIS.EXE aid=M-1520 plt=01  
ldt=Main~Water~Pipe
```