Routine Services Data, Reflect With Insight for RAMS interface Installation and User Guide

January 2015

Version 1.0

Contents

1.0 Introduction

The purpose of this document is to provide the New South Wales, Roads and Maritime Services (RMS) with support documentation for the Routine Services Data, Reflect with Insight for RAMS Interface project. This document is intended to explain how to install and use the various objects required in this project. This document does not attempt to describe what the objects should do. For that information see the current version of: "Reflect With Insight for RAMS interface Functional Specification" or "Reflect With Insight for RAMS interface Scope and Requirements." This document should be read in its entirety prior to installing and running the objects related to the Routine Services Data, Reflect with Insight for RAMS Interface project.

2.0 Description of the project

Bentley Systems has developed a set of tools that utilizes both existing functionally and custom oracle objects to provide a solution to meet the requirements discussed in the Functional Specification documentation mentioned above. Various Oracle objects were created to support the CSV Loader and reporting aspects of the project.

3.0 Using the solution

This solution encompasses several items that are detailed below.

3.1 Routine Services Data Asset Model

The asset modeled needs to accommodate several types of Routine Services Data and allow the possibility of a one to many relationship. The Model functions like a typical Exor hierarchal Asset. The Use should rarely have to modify the data contained in this asset by hand as the data it typically handled by the CSV Loader aspect of the solution.

3.1.1 RSD

This is the top level Routine Services Data Asset and is used as the parent in a hierarchical asset set. This Level will hold things that are common to all the children and be associated with any location information for the Routine Services Data.

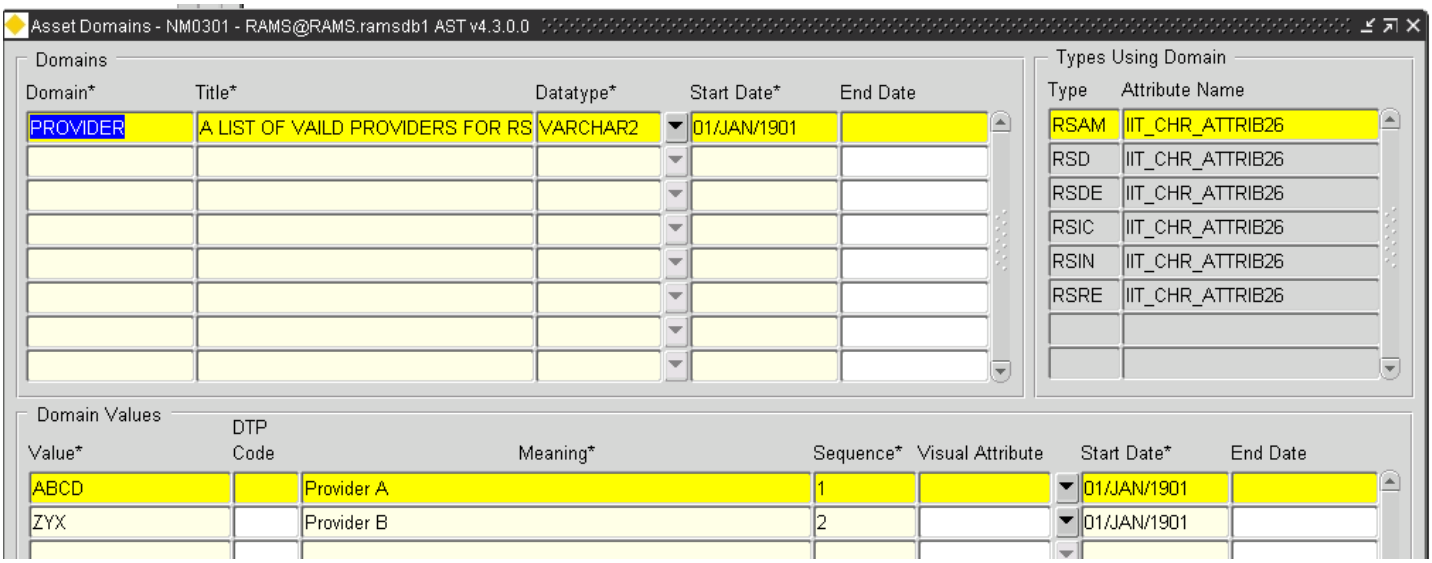
This asset contains the following attributes:

Attribute	Mandatory	Notes
Vendor Code	Y	Unique identifier representing the Service Provider. This list comes from the Domain "Provider"
Reference ID	Y	Unique number sent by the service providers to identify an activity information.
Road Number (Primary Location)	Y	Gazetted Road number. This is a 8 digit number and covers all the Motorways, State Roads and regional roads
Asset type code	Y	This is a unique identifier in RAMS to identify an asset type
Key-ID		Unique identifier in RAMS
Linear Reference Number		A number extracted from RAMS and provided to 3rd party service providers initially and periodically updated.
Asset description		This is the description of asset type in RAMS
Road Maintenance Segment		Each road that the RMS maintains (State roads) is divided up into manageable lengths. These manageable lengths are called road maintenance segments
Date of creation		Date the record is created initially
Time of creation		Time the record is created initially
Latitude	Y	Generated based on WGS84 datum and calculated to 5 decimal points
Longitude	Y	Generated based on WGS84 datum and calculated to 5 decimal points
Local Gov Area		LGA where the incident has occurred.

The data can be added or updated in RAMS using the user's preferred Asset editing tool. Form NM0510 – Asset Items for Example.

3.1.2 The Provider Domain

To maintain a list of valid providers an Asset Domain named Provider has been created. To edit this domain form the Launchpad select asset manager > Asset Reference Data >Asset Domains (form NM301)
The value is the short code for the provider, this code is known to the provider and will be supplied by them in all data transferred to RMS. The meaning is the friend name for the provider that can be used in reporting.



3.1.3 Child Assets

There are several Assets that are children for the RSS asset. They are for: Accomplishments, Defects, Incidents, Inspections and Requests. It is possible to have more than one child of the same type assigned to a parent asset. For example an RSD asset may have two or more accomplishments reported against it.

3.1.3.1 Accomplishments (RSAM)

The RSAM asset holds the information for the accomplishments recorded against the RSD asset. The attributes are as follows:

Attribute	Mandatory	Notes
Accomplishment Number	Y	This is the identifying number of the accomplishment visible to the user.
Accomplishment ID	Y	Unique number for accomplishment. Each service provider will be allocated a series of 10 million number to be used as Accomplishment ID.
Accomplishment Date		Date of completion of the task on a incident
Vendor Code	Y	Unique identifier representing the Service Provider.
Reference ID	Y	Unique number sent by the service providers to identify an activity information.
Activity	Y	Activity number as per M3 specification
Activity Name	Y	A description of the activity.

Activity Type	Y	Grouping of the related activities. For example Activity type 200 is Routine Pavement. It encompasses Pothole repair, Edge repair and similar activities.
Quantity Accomplished		Extent of work done to complete an activity. This is defined in terms of the unit of measurements defined for the activity in question.
Unit Of Measure		Unit of measurement defined for an activity, for example, meters, square meter.
Second Quantity		Different documents have defined the quantity in a different way. For example, the quantity could be in terms of length, area or volume. Second quantity is kept to accommodate the historical records.
Second Unit of Measure		Unit of measurement defined for an activity, for example, meters, square meter. This is separate from Unit of Measure to accommodate historical data.
Accomplishment Comments		Any additional information that is not covered in other fields
Time Work		Vendor provided total person hours for each activity completed
Completed (Yes/No)	Y	Status of an activity, This Attribute uses a domain which limits the responses to Y or N

3.1.3.2 Defects

The RSDE asset holds the information for the defects recorded against the RSD asset. The attributes are as follows:

Attribute	Mandatory	Notes
Vendor Code	Y	Unique identifier representing the Service Provider.
Reference ID	Y	Unique number sent by the service providers to identify an activity information.
Defect Number	Y	This is the identifying number of the defect visible to the user.
Defect ID	Y	Unique number for all Service provider for recording the defects reported.
Date Raised	Y	Date a defect was raised. Date Format - **dd/mm/yyyy**
Time Raised	Y	Time a defect was raised. Time Format - **13:00 hrs**
Cause Of Defect	Y	The reason for the damage.
Reoccurring Defect (Yes/No)	Y	This is to identify find out the root cause of the problem. , This Attribute uses a domain which limits the responses to Y or N
Defect Type	Y	Define categories of defects with allocated number to each defect type
Position within Location		Shows the lane affected by Incident, Defect or Accomplishment.
Defect Completion Date		Date when a defect was fixed. Format Mask: DD-MON-YYYY
Defect Completion Time		Time when a defect was fixed. Format Mask: HH24:MI
Estimated Quantity for repair		Estimated extent of work to be performed to complete the repair. This is defined in terms of the unit of measurements defined for the activity in question.
Unit of Measure		Unit of measurement defined for an activity, for example, meters, square meter. This will be populated for accomplishment and defects.
Estimated Second Quantity		Different documents have defined the quantity in a different way. For example, the quantity could be in terms of length, area or volume. Second quantity is kept to accommodate the different specifications. This field is to cater for historical data on estimation.
Second Unit of Measure		Unit of measurement defined for an activity, for example, meters, square meter. This is separate from Unit of Measure to accommodate historical data.
Defect Comments		Additional information that is not covered in other fields.

3.1.3.3 Incidents

The RSIC asset holds the information for the Incidents recorded against the RSD asset. The attributes are as follows:

Attribute	Mandatory	Notes
Vendor Code	Y	Unique identifier representing the Service Provider.
Reference ID	Y	Unique number sent by the service providers to identify an activity information.
Incident ID	Y	Unique number for all Service provider for recording the incidents.
Incident Type	Y	Define categories of incident with allocated number to each incident type
Date Call Received	Y	Record the date of call received for the incident. Format Mask: DD-MON-YYYY
Time Call Received	Y	Record the time of call received for the incident. Format Mask: HH24:MI
Incident Description	Y	Textual description of the incident
Advice Received From		The person who reported the incident.
Condition At Time Of Incident		A list of conditions to be established and supplied to the service providers for dropdown list. Please see the maintenance specifications.
Action Required		What is the action required to handle the request.
Damage To Property	Y	Nature and extent of damage to RMS assets
Incident Completion Date	Y	The date of fixing the incident. Date Format Mask: DD-MON-YYYY
Incident Completion Time	Y	Time of fixing the incident. Format Mask: HH24:MI

3.1.3.4 Inspections

The RSIN asset holds the information for the Inspections recorded against the RSD asset. The attributes are as follows:

Attribute	Mandatory	Notes
Vendor Code	Y	Unique identifier representing the Service Provider.
Reference ID	Y	Unique number sent by the service providers to identify an activity information..
Inspection Number	Y	This is the identifying number of the inspection visible to the user.
Inspection ID	Y	Unique number for all Service provider for recording the inspections.
Inspection Type	Y	Define categories of inspection with allocated number to each inspection type
Target Date		Planned date for completion. Date Format Mask: DD-MON-YYYY
Target Time		Planned time for completion. Format Mask: HH24:MI
Inspection Completion Date	Y	Date of completion of the inspection. Format Mask: DD-MON-YYYY
Inspection Completion Time	Y	Time of completion of the inspection. Format Mask: HH24:MI
Inspection Comments		Additional information that is not covered in other fields.

3.1.3.5 Requests

The RSRE asset holds the information for the accomplishments recorded against the RSD asset. The attributes are as follows:

Attribute	Mandatory	Notes
Vendor Code	Y	Unique identifier representing the Service Provider.
Reference ID	Y	Unique number sent by the service providers to identify an activity information.
Request ID	Y	Unique number for all Service provider for recording the requests.
Request Type		Define categories of request with allocated number to each request type
Request Date Received	Y	Record the time of call received for the request. Format Mask: DD-MON-YYYY
Request Time Received	Y	Record the time of call received for the request. Format Mask: HH24:MI
Request Number	Y	This is the identifying number of the request visible to the user.
Request Completion Date	Y	Actual completion date of the request. Format Mask: DD-MON-YYYY
Request Completion Time	Y	Actual completion time of the request. Format Mask: HH24:MI
Request_Comments		Additional information that is not covered in other fields for the request received.

3.2 GIS Themes

Two types of GIS themes will be available for this asset. Standard RAMS asset themes and custom themes based on the reports listed in the report section. Those themes will be mentioned in the report section of this document. The standard asset themes can be accessed in the Exor Spatial Manager Tool and can be found in the location with the other asset themes.

3.3 RSD Reporting

Several reporting objects are available for use with a report building tool. Some of the reports have a corresponding GIS version of them so that they can be used in Spatial Manager or another spatial tool of choice. The reports cover the following areas:

3.3.4 Management Reports

The management Reports are as follows:

3.3.4.1 Defect During a period

This reporting object is a standard oracle view with the name: x_rms_rsd_ddap. This view reports shows various defect information for a vendor. Several date fields are exposed that can be used to restrict that data over a selected period. This report has a GIS counterpart with the name: x_rms_rsd_ddap_sdo. This counterpart view was designed to be viewed as a layer spatial manager.

3.3.4.2 Inspections During a period

This reporting object is a standard oracle view with the name: x_rms_rsd_idap. This view reports shows various inspection information for a vendor. Several date fields are exposed that can be used to restrict that data over a selected period.
This report has a GIS counterpart with the name x_rms_rsd_idap_sdo. This counterpart view was designed to be viewed as a layer spatial manager.

3.3.4.3 Requests during a period

This reporting object is a standard oracle view with the name: x_rms_rsd_rdap. This view reports shows various Requests information for a vendor. Several date fields are exposed that can be used to restrict that data over a selected period.
This report has a GIS counterpart with the name: x_rms_rsd_rdap_sdo. This counterpart view was designed to be viewed as a layer spatial manager.

3.3.4.4 Accomplishments during a period

This reporting object is a standard oracle view with the name: x_rms_rsd_adap. This view reports shows various Accomplishments information for a vendor. Several date fields are exposed that can be used to restrict that data over a selected period.
This report has a GIS counterpart with the name: x_rms_rsd_adap_sdo. This counterpart view was designed to be viewed as a layer spatial manager.

3.3.5 3rd Party Service Provider Reports

The Provider report is as follows:

3.3.5.1 Performance During A Selected Period

This reporting object is a non-standard oracle view with the name: x_rms_rsd_pdasp. This dashboard style report uses data from the Routine Services Data Defects section, the Requests section, the accomplishments section and the inspections section to determine several metrics.

To be able to achieve the dashboard like results a sys_context needed to be used. Before using this report the following commands should be issued form the report viewing software:
Note: MY_DATE is a text string in the format of 'DD-MON-YYYY' for example '01-JAN-1991'

XRMS_CONTEXT_RPT_DATES('START', MY_DATE);
XRMS_CONTEXT_RPT_DATES('END', MY_DATE);

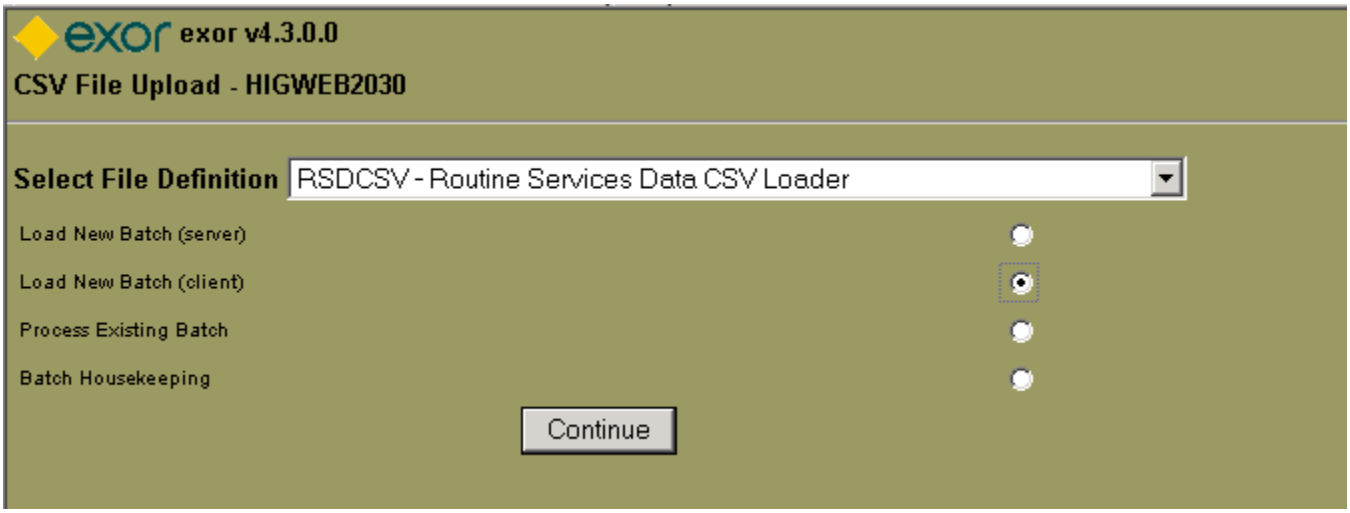
If these context items are not set, then all the values are processed form '01-JAN-1901' to today.

Below is Sample data for a single provider:

PROVIDER	DATE_RANGE_BEGINS	DATE_RANGE_END	AVERAGE_DAYS	DEFECTS_FIXED	REQUESTS_COMPLETED	INSPECTIONS_CONDUCTED	ACCOMPLISHMENTS_COMPLETED
ABCD	1/1/1901	2/10/2015 6:57:51 AM	4	1	2	2	1

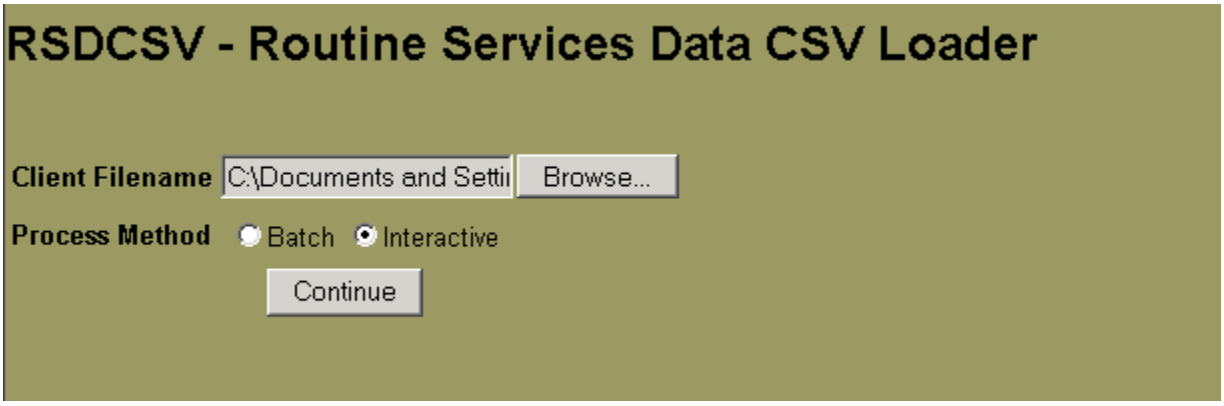
3.4 RSD CSV Loader

Standard RAMS functionality is used with a customized procedure to load RSD asset and the child assets. This CSV loader can be accessed from form HIG1807 and is found in the launchpad under exor > CSV Loader CSV File Upload. Selecting this item will cause a browser window to open to the CSV File Upload - HIGWEB2030 web page. To load a single file select the file definition RSDCSV – Routine Services Data CSV Loader. Then Select "Load New Batch (Client)". Then Select Continue.



More Information about the option for the Loader webpage can be found in the Exor User Guide.

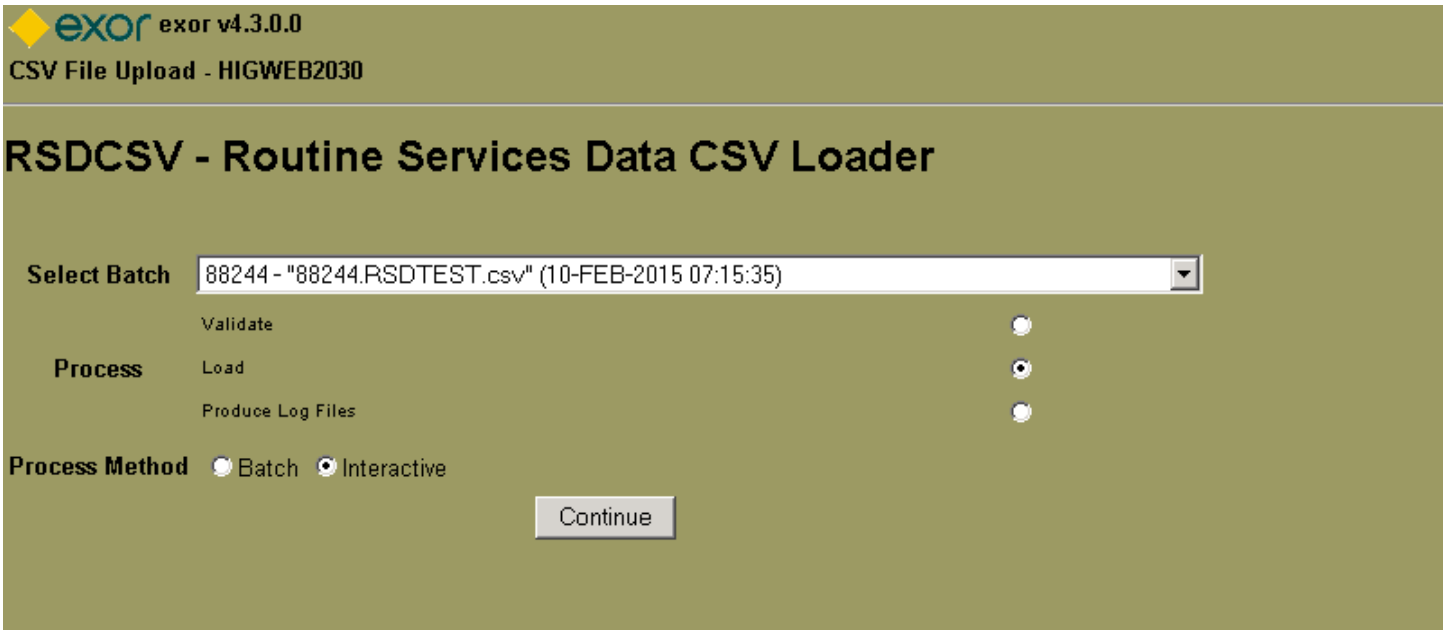
Use the browse button to select the file you wish to import, keep the process Method as Interactive and select Continue.



The next screen is informational press continue.

Now you will have a choice to Validate and the Load. The Custom procedure does validate during the Load process, so a separate validation may be skipped.

Select Load and leave the process method as interactive. Then Press Continue.



After some time to load the use is presented with an informational summary screen. This screen displays errors that may have occurred during the load:

```
--------------------------------------------------------------------------------
Batch No               : 88244
Load File Unique Ref   : RSDCSV
Load File Description  : Routine Services Data CSV Loader
Delimiting Character   : | (ASCII Char 124)
Load File Date Mask    : DD/MM/YYYY
Holding Table          : NM_LD_RSDCSV_TMP
Input Filename         : 88244.RSDTEST.csv
Log Filename           : 88244.RSDTEST.csv.log
Bad Filename           : 88244.RSDTEST.csv.bad
Timestamp Loaded       : 10-FEB-2015 07:15:35
Timestamp Log Produced : 10-FEB-2015 07:19:08
--------------------------------------------------------------------------------
X - Error in transfer to holding table                                  : 1
H - In Holding Table                                                    : 0
E - Error in Validation or Insert                                       : 1
V - Validation Completed                                                : 0
I - Record Inserted                                                     : 0
```

In this case there were 2 records that did not get inserted: 1 failed the initial load and one had an error during the load.
The error for the initial load reads: NET-0275: String length is invalid: 11 > 4:RSD_VENDOR_CODE and since it occurred in the first record and I had a head row in my CSV File I can ignore it.

The second error in this example read: RWI-0003: Incident Mandatory Column is null: RSIC_DATE_CALL_RECEIVED

This occurred because a mandatory child field was not supplied when a child ID was. In this case RSIC's ID field was not null but the DATE_CALL_RECEIVED field did not have a value.

3.4.6 CSV File Format

The CSV loader is expecting the following field in a | (bar) separated file. Commas were not used as they may appear in comment fields.

The format for the Date fields are: DD/MM/YYYY

- For example: 08/11/2013

- The time fields that immediately follow a Date field are identified as Varchar2 with a Size of 5. The expected format is: hh:mm
  - For example: 13:00

Column ID	Name	Related RSD Asset	Mandatory	Comments
1	Vendor Code	RSD	Yes – For ALL	
2	Reference_id	RSD	Yes – For ALL	
3	Road_Number	RSD	Yes – For ALL	
3	Asset_type_code	RSD	Yes – For ALL	
4	Key_ID	RSD		Retrieved from RAMS Using other data if not supplied
5	Asset_description	RSD		Retrieved from RAMS Using other data if not supplied
6	Road_Maintenance_Segment	RSD	Yes - For All	Retrieved from RAMS Using other data if not supplied
7	Date of creation	RSD	Yes - For All	
8	Time of creation	RSD		Omission will assume a default of 00:00h
9	Longitude	RSD	Yes - For All	
10	Latitude	RSD	Yes - For All	
11	LGA	RSD		Retrieved from RAMS Using other data if not supplied
12	Accomplishment_Number	RSAM	If Recording an Accomplishment	
13	Accomplishment_ID	RSAM	If Recording an Accomplishment	
14	Accomplishment_Date	RSAM	If Recording an Accomplishment	
15	Activity	RSAM	If Recording an Accomplishment	
16	Activity_Name	RSAM	If Recording an Accomplishment	

17	Activity_Type	RSAM	If Recording an Accomplishment	
18	Quantity_Accomplished	RSAM	If Recording an Accomplishment	
19	Unit_Of_Measure_RSAM	RSAM	If Recording an Accomplishment	
20	Second_Quantity	RSAM		
21	Second_Unit_of_Measure_RSAM	RSAM		
22	Accomplishment_Comments	RSAM	If Recording an Accomplishment	
23	Time_Work	RSAM	If Recording an Accomplishment	
24	Completed_(Yes/No)	RSAM	If Recording an Accomplishment	Y or N
25	Defect_Number	RSDE	If Recording a Defect	
26	Defect_ID	RSDE	If Recording a Defect	Number or Varchar2
27	Date_Raised	RSDE	If Recording a Defect	
28	Time_Raised	RSDE		Omission will assume a default of 00:00h
29	Cause_Of_Defect	RSDE	If Recording a Defect	
30	Reoccurring_Defect_(Yes/No)	RSDE	If Recording a Defect	Y or N
31	Defect_Type	RSDE	If Recording a Defect	
32	Position_within_Location	RSDE	If Recording a Defect	
33	Defect_Completion_Date	RSDE	If Recording a Defect	
34	Defect_Completion_Time	RSDE		Omission will assume a default of 00:00h
35	Estimated_Quantity_for_repair	RSDE	If Recording a Defect	
36	Unit_of_Measure_RSDE	RSDE	If Recording a Defect	
37	Estimated_Second_Quantity	RSDE	If Recording a Defect	
38	Second_Unit_of_Measure_RSDE	RSDE	If Recording a Defect	
39	Defect_Comments	RSDE	If Recording a	

			Defect	
40	Incident_ID	RSIC	If Recording an Incident	
41	Incident_Type	RSIC		
42	Date_Call_Received	RSIC	If Recording an Incident	
43	Time_Call_Received	RSIC		Omission will assume a default of 00:00h
44	Incident_Description	RSIC	If Recording an Incident	
45	Advice_Received_From	RSIC		
46	Condition_At_Time_Of_Incident_	RSIC		
47	Action_Required	RSIC		
48	Damage_To_Property	RSIC	If Recording an Incident	
49	Incident_Completion_Date	RSIC	If Recording an Incident	
50	Incident_Completion_Time	RSIC	If Recording an Incident	Omission will assume a default of 00:00h
51	Inspection_Number	RSIN	If Recording an Inspection	
52	Inspection_ID	RSIN	If Recording an Inspection	
53	Inspection_Type	RSIN	If Recording an Inspection	
54	Target_Date	RSIN	If Recording an Inspection	
55	Target_Time	RSIN		Omission will assume a default of 00:00h
56	Inspection_Completion_Date	RSIN	If Recording an Inspection	
57	Inspection_Completion_Time	RSIN		Omission will assume a default of 00:00h
58	Inspection_Comments	RSIN	If Recording an Inspection	
59	Request_ID	RSRE	If Recording a Request	
60	Request_Type	RSRE		
61	Request_Date_Received	RSRE	If Recording a Request	
62	Request_Time_Received	RSRE	If Recording a Request	Omission will assume a default of 00:00h
63	Request_Number	RSRE	If Recording a Request	

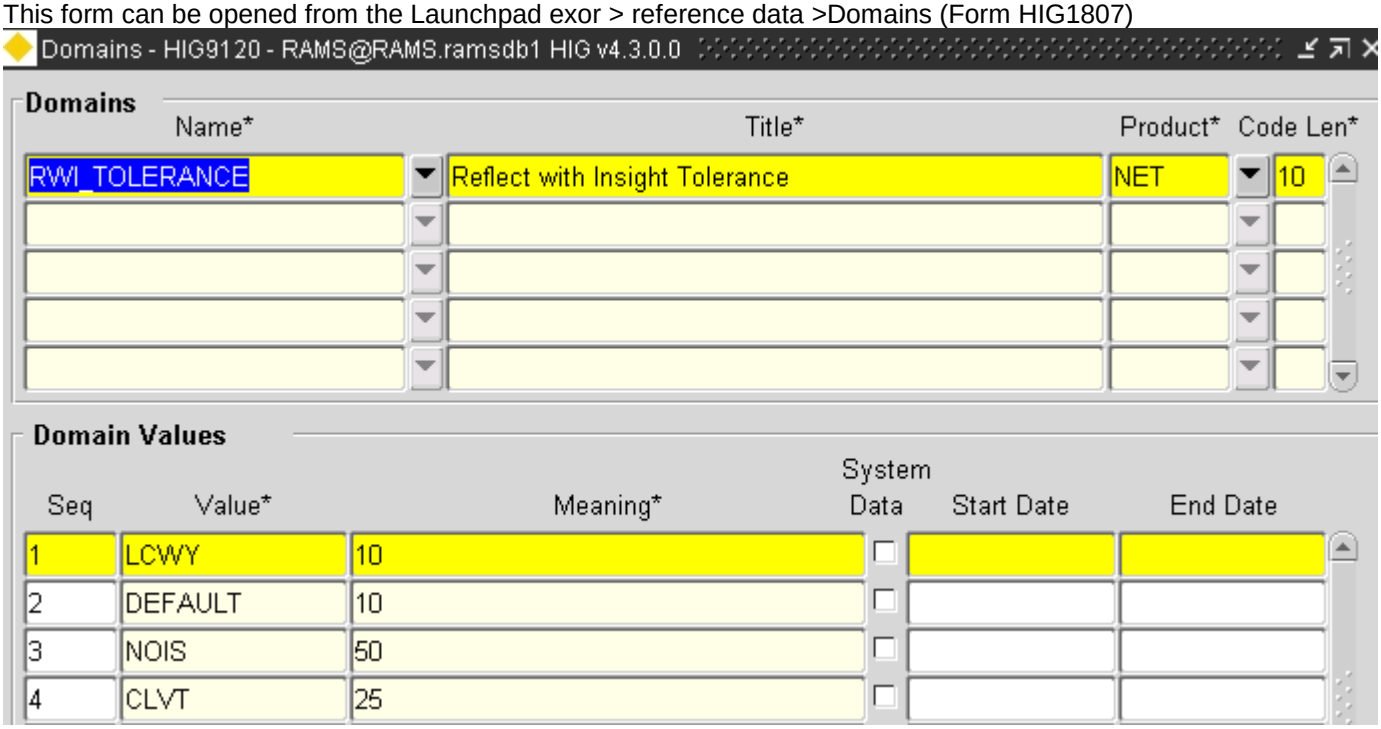
64	Request_Completion_Date	RSRE	If Recording a Request	
65	Request_Completion_Time	RSRE	If Recording a Request	Omission will assume a default of 00:00h
66	Request_Comments	RSRE	If Recording a Request	

3.4.7 The tolerance domain

In order to adjust the tolerance when the CSV Loader snaps to an existing RAMS Asset a Global Domain with the name: RWI_TOLERANCE has been created.

This Domain has a Value Named Default. The Default value is used to snap to an existing asset. Other values can also be created these values should match the names of an existing asset. The loader will look through this list and see if the asset in question is listed before using the default value.

This form can be opened from the Launchpad exor > reference data >Domains (Form HIG1807)



This shows a value for 3 assets: LCWY, NOIS and CLVT and the DEFAULT. The Meaning is in Metres.

4.0 Installation and Removal

After unpacking the installation package into it's own directory. We recommend doing this in your exor\stage directory with a new directory created with the name RWI_RSD_CSV_Loader. The user will see the following directory structure:

- Meta
  - admin
  - docs
  - installs
- Views
  - sql
- CSV_Loader
  - admin
  - docs
  - installs

The Meta Directory contains Install and Uninstall Data for the RSD Meta model and its children.
The Views Directory contains the Install and Uninstall Data for the Reports and GIS Themes.
The CSV_Loader Directory contains the Install and Uninstall Data for the CSV Loader.

4.1 Installation

To Install the Meta model
From a command window go into the Meta installs directory. Start SQLPLUS as EXOR and use the command:
start install_RSD_assets.sql

To Install the Reports
From a command window go into the Views directory. Start SQLPLUS as EXOR and use the command:
start install.sql

To Install the CSV Loader
From a command window go into the CSV_Loader installs directory. Start SQLPLUS as EXOR and use the command:
start install_csv_loader.sql

4.2 Removal

To uninstall the CSV Loader
From a command window go into the CSV_Loader installs directory. Start SQLPLUS as EXOR and use the command:
start uninstall_csv_loader.sql

To uninstall the Reports
From a command window go into the Views directory. Start SQLPLUS as EXOR and use the command:
start uninstall.sql

To Install the Meta model

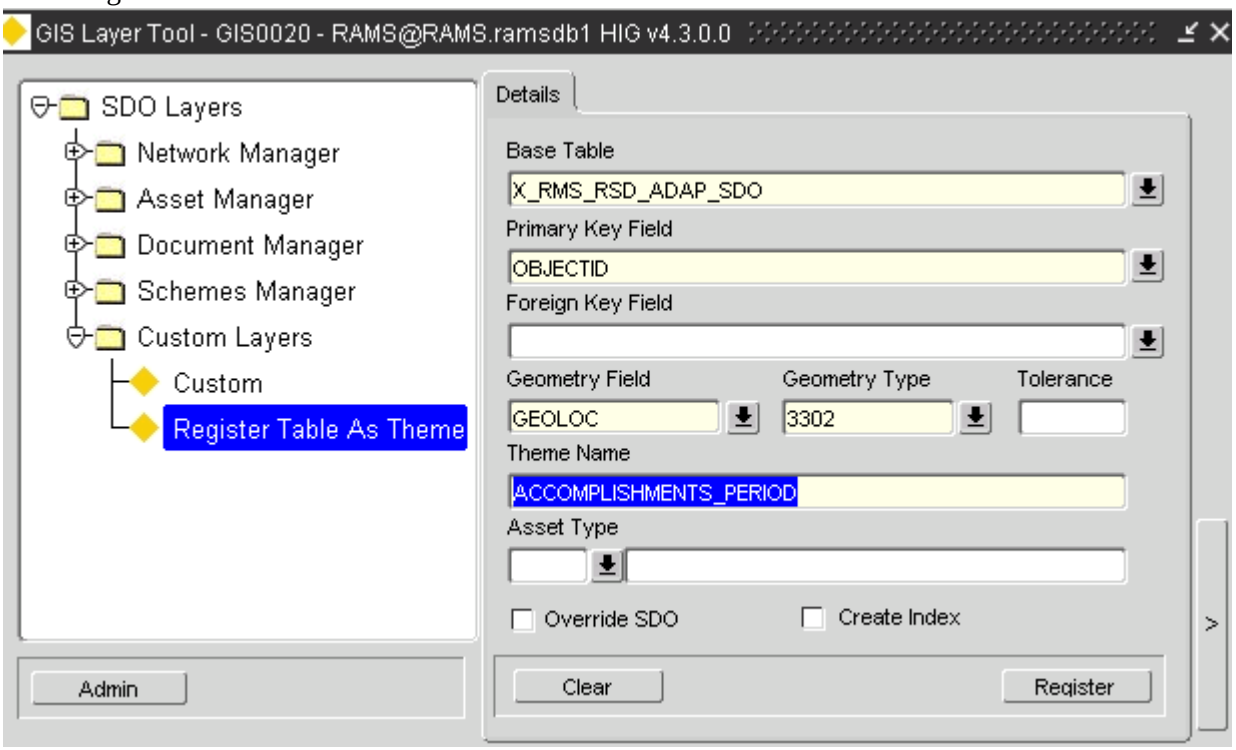
From a command window go into the Meta installs directory. Start SQLPLUS as EXOR and use the command:
start delete_asset_inv_items.sql
start Uninstall_RSD_assets.sql

4.3 Post Installation Tasks

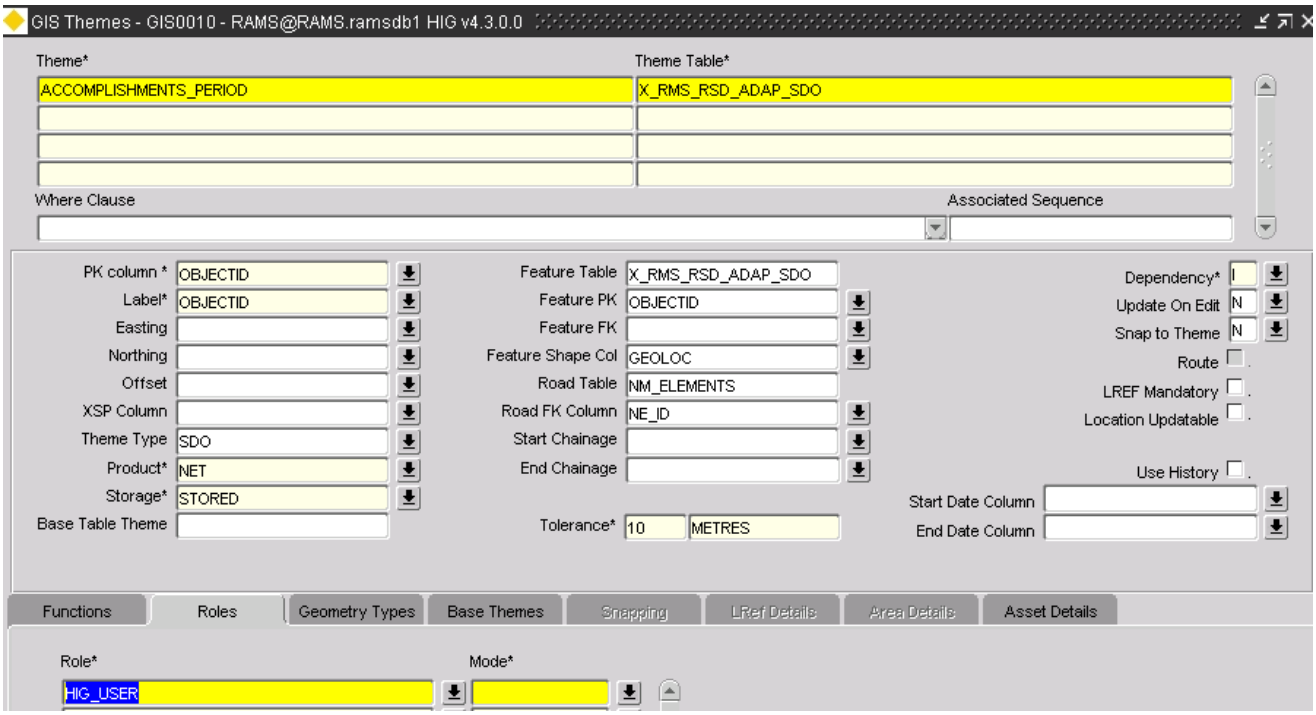
4.3.1 Custom GIS Themes for use in Spatial Manger

After installing the views open the GIS Layer Tool in RAMS open form GIS0020, GIS Layer tool

- Select Custom Layers
- Select Register a Table As Theme
- Fill in the following:
  - Base Table: x_rms_rsd_adap_sdo
  - Primary Key Field: OBJECTID
  - Geometry Field: GEOLOC
  - Geometry Type: 3302
  - Theme Name: ACCOMPLISHMENTS_PERIOD
- Click Register



- Now Click on View Themes, this opens form GIS0010, GIS Themes
- Click on Roles
  - Add HIG_USER and Mode Normal
  - Others may be added if Roles are fine tuned



This Theme should now be available in Spatial Manager
Repeat the Process for:

- Defects during a period
- Inspections during a Period
- Requests during a period

5.0 Summary and Conclusion

The solution created by running the accompanying scripts will meet the needs outlined in the Reflect With Insight for RAMS interface Scope and Requirements and the Reflect With Insight for RAMS interface Functional Specification documentation.